GENERAL GOVERNMENT AND HEALTH AND HUMAN SERVICES COMMITTEE AGENDA

June 1, 2020

4:30 PM

Zoom Virtual Meeting Room

Meeting ID: 399-700-0062 / Password: LCBOC

https://zoom.us/j/3997000062?pwd=SUdLYVFFcmozWnFxbm0vcHRjWkVIZz09

Pages

1. CALL TO ORDER

2. APPROVAL OF MINUTES 3

   Minutes of Meeting Dated: May 4, 2020

3. APPROVAL OF AGENDA

4. REPORTS

5. CALL TO THE PUBLIC

6. RESOLUTIONS FOR CONSIDERATION

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Resolution Authorizing the Entrance into a Participating Addendum Through the NASPO Valuepoint Cooperative Purchasing Program and the Authorization of a Stock Hardware Order

7. CALL TO THE PUBLIC

8. ADJOURNMENT

GENERAL GOVERNMENT & HEALTH AND HUMAN SERVICES COMMITTEE

MEETING MINUTES

May 4, 2020, 4:30 p.m.
Zoom Virtual Meeting Room
Meeting ID: 399-700-0062 / Password: LCBOC
https://zoom.us/j/3997000062?pwd=SUdLYVFFcmozWnFxbm0vcHRjWkVIZz09

Members Present: Wes Nakagiri, William Green , Kate Lawrence , Jay Gross

1. CALL TO ORDER

The meeting was called to order by Commissioner Nakagiri at 4:30 p.m.

2. APPROVAL OF MINUTES

Minutes of Meeting Dated: April 6, 2020

Motion to approve the minutes as presented.

Moved by: K. Lawrence
Seconded by: W. Green

Yes (4): W. Nakagiri, W. Green , K. Lawrence , and J. Gross

Motion Carried (4 to 0)

3. APPROVAL OF AGENDA

Motion to approve the Agenda as presented.

Moved by: W. Green
Seconded by: J. Gross

Yes (4): W. Nakagiri, W. Green , K. Lawrence , and J. Gross

Motion Carried (4 to 0)

4. REPORTS

None.

5. CALL TO THE PUBLIC

Dave Feldpausch, Director of EMS, updated the Committee on the forensic audit.

6. RESOLUTIONS FOR CONSIDERATION

6.1 LETS

Resolution Authorizing Blanket Signature Resolution for Michigan Department of Transportation (MDOT) Master Agreement No. 2017-0082

Greg Kellogg, LETS Director, presented the resolution.

UNAPPROVED

Recommend Motion to the Finance Committee.

Moved by: K. Lawrence
Seconded by: J. Gross

Yes (4): W. Nakagiri, W. Green , K. Lawrence , and J. Gross

Motion Carried (4 to 0)

6.2 Facility Services

Resolution Authorizing Contractual Agreement for Generator Maintenance & Repair Services

Chris Folts, Facility Services Director, presented the resolution.

Recommend Motion to the Finance Committee.

Moved by: K. Lawrence
Seconded by: W. Green

Yes (4): W. Nakagiri, W. Green , K. Lawrence , and J. Gross

Motion Carried (4 to 0)

7. CALL TO THE PUBLIC

Dave Fauldpausch, Director of EMS, announced that certifications were not in question at the conclusion of the audit.

8. ADJOURNMENT

Motion to adjourn the meeting at 4:44 p.m.

Moved by: K. Lawrence
Seconded by: W. Green

Yes (4): W. Nakagiri, W. Green , K. Lawrence , and J. Gross

Motion Carried (4 to 0)

_____

Natalie Hunt, Recording Secretary

UNAPPROVED

RESOLUTION **NO:** [Title]

LIVINGSTON COUNTY **DATE:** Click or tap to enter a date.

Resolution Authorizing the Exception to the Hiring Freeze Policy – Facility Services

WHEREAS, The Facility Services Department has determined the need for an exception to the Hiring Freeze Policy; and

WHEREAS, Facility Services has realized 2 retirements of full time employees and 1 resignation from a part time employee; and

WHEREAS, the three employees that have separated are custodians and very crucial to the health and safety of all employees as well as public; and

WHEREAS, Facility Services has analyzed the current staffing needs and needs related to COVID 19 and has determined to be under staffed.

THERFORE BE IT RESOLVED Facility Service is authorized by the Board of Commissioners to fill the current vacant positions

THERFORE BE IT FURTHER RESOLVED Facility Services is authorized by the Board of Commissioners to hire temporary custodians to fully staff the needs of sanitization efforts as related to the COVID 19 pandemic

# # #

MOVED:
SECONDED:
CARRIED:

DATE: May 21, 2020

TO: Livingston County Board of Commissioners

FROM: Chris Folts

RE: Resolution authorizing exception to the hiring freeze

The Facility Services Department provides custodial services to the County buildings.

Recently this department has had two retirements of full time staff and a resignation from 1-part time staff.

The Facility Services Department runs very lean in terms of staffing and has analyzed the vacancy's.

Due to the recent Covid 19 pandemic custodial staff is required to clean and sanitize much more frequently and at a higher than normal attention to detail.

Therefore, Facility Services is requesting that the attached resolution be approved If you have any questions or concerns, please feel free to contact me.

Livingston County, Michigan — POSITION REQUEST/CHANGE FORM

CONTACT INFORMATION

Requester: Chris Folts

Title of Requester: Facility Services Director

Dept. Phone Number/Extension: 7526

Date Requested: 05/19/2020

POSITION INFORMATION

Position Title: Custodian (2 positions)

Supervisor: Chris Folts

1. Is the purpose of this request to fill a position as a result of a **vacancy**? Yes ☑ No ☐

If so, name of person last holding this position: Joseph Barron, Margaret Gore

2. Is the purpose of this request to **reclassify** a current position? Yes ☐ No ☑

3. Is the purpose of this request to change the scheduled hours of an existing position? Yes ☐ No ☑ From:_____ To: _____

If so, name of current incumbent:_____

4. Is the purpose of this request to transfer a current position? Yes ☑ No ☑

If so, Current Department:_____ Proposed Department:_____

Position Type: Regular ☑ Term/Grant ☐ Temp. ☐ Unpaid ☐ Special ☐

Position Status: Full Time (30+) ☑ Part-Time (21-29) ☐ Part-Time (20 or Less) ☐ Number of hours per week:_____

Justification of request / change of position **(REQUIRED)**: To fill 2 full-time vacancies created by the retirements of Margaret Gore (06/01/2020) and Joseph Barron (06/12/2020).

FUNDING INFORMATION

Base Annual Salary: 14.4667 hr./30,091 yr. This position is funded in whole or in part by a grant: Yes ☐ No ☑ % Funded:_____

Allocation (**Required**): Current: Org. 63126500 % 100 Proposed (If changing): Org. _____ %_____

Position will be funded by: General Fund ☐ Enterprise Fund ☐ Special Revenue Fund ☐ Internal Service Fund ☑

REQUIRED APPROVALS

Supervisor (if applicable) Date

Department Head 5/19/2020 Date

HR OFFICE ONLY

Job Class: 2006 Job Title: Custodian Grade/Step: NU1 / 1

FTE: 1.0 Employee Group: NU HR Reviewed: Amy Hill Date: 05/19/2020

BUDGET OFFICE ONLY

Position Control #_____ Org. _____

Funds Available: Yes ☐ No ☐ Object Code: 704000 ☐ 706000 ☐ 706001 ☐

Comments:_____

Budget Reviewed:_____ Date:_____

Resolution #:_____ Board Authorized on Date:_____

Livingston County, Michigan — POSITION REQUEST/CHANGE FORM

CONTACT INFORMATION

Requester: Chris Folts

Title of Requester: Facility Services Director

Dept. Phone Number/Extension: 7526

Date Requested: 05/19/2020

POSITION INFORMATION

Position Title: Custodian

Supervisor: Chris Folts

1. Is the purpose of this request to fill a position as a result of a **vacancy**? Yes ☑ No ☐

   If so, name of person last holding this position: Charlotte Marks

2. Is the purpose of this request to **reclassify** a current position? Yes ☐ No ☑

3. Is the purpose of this request to change the scheduled hours of an existing position? Yes ☐ No ☑ From: _____ To: _____

   If so, name of current incumbent: _____

4. Is the purpose of this request to transfer a current position? Yes ☑ No ☑

   If so, Current Department: _____ Proposed Department: _____

Position Type: Regular ☑ Term/Grant ☐ Temp. ☐ Unpaid ☐ Special ☐

Position Status: Full Time (30+) ☐ Part-Time (21-29) ☐ Part-Time (20 or Less) ☑ Number of hours per week: 20

Justification of request / change of position **(REQUIRED)**: To fill part-time vacancy created by the resignation of Charlotte Marks (03/27/2020).

FUNDING INFORMATION

Base Annual Salary: 14.4667 hr./14,443.55 yr. This position is funded in whole or in part by a grant: Yes ☐ No ☑ % Funded: _____

Allocation (**Required**): Current: Org. 63126500 % 100 Proposed (If changing): Org. _____ % _____

Position will be funded by: General Fund ☐ Enterprise Fund ☐ Special Revenue Fund ☐ Internal Service Fund ☑

REQUIRED APPROVALS

Supervisor (if applicable) Date

Department Head 5/19/2020 Date

HR OFFICE ONLY

Job Class: 2006 Job Title: Custodian Grade/Step: NU1 / 1

FTE: .48 Employee Group: NU HR Reviewed: Amy Hill Date: 05/19/2020

BUDGET OFFICE ONLY

Position Control # _____ Org. _____

Funds Available: Yes ☐ No ☐ Object Code: 704000 ☐ 706000 ☐ 706001 ☐

Comments: _____

Budget Reviewed: _____ Date: _____

Resolution #: _____ Board Authorized on Date: _____

RESOLUTION **NO:** [Title]

LIVINGSTON COUNTY **DATE:** Click or tap to enter a date.

Resolution Authorizing the Purchase of a DELL Hyperconverged System from Access-Interactive to Expand and Unify the County's Server Architecture - Information Technology

WHEREAS, at this time, IT recommends moving forward with the purchase of a Dell hyperconverged system that will effectively bolt on and expand the County's Dell hyperconverged stretch cluster. IT recommends making this purchase as swiftly as possible to help mitigate the County's exposure to data loss disasters. This expansion will unify and solidify our server architecture, moving it on to one survivable platform, with two data center locations that will operate as one; and

WHEREAS, Livingston County's main data center is scheduled for an upgrade in summer of 2020. The current production infrastructure architecture varies between eight and twelve years old. The new Dell hyperconverged infrastructure and architecture foundation was purchased and deployed in late 2018 or early 2019. This was deployed as a balanced system with high survivability. Three servers were deployed at the Livingston County Administration building and three servers at the 911 facility; and

WHEREAS, this is a mission critical project that would reduce our server disaster recovery time from 7 to 10 days, to 24 hours or less; and

WHEREAS, Oakland County's G2G Marketplace contract 004561 will be used to purchase this data center expansion through the proven and trusted partner: Access-Interactive. Access-Interactive installed the first half of the hyperconverged server system in 2018-2019. This is a highly specialized installation and requires expert level familiarity with the Dell Hyper Converged systems and Livingston County infrastructure; and

WHEREAS, hardware, software, and services costs will not exceed $441,388; and

WHEREAS, this project was identified in the 2020-2025 Capital Improvement Plan and funds are requested from the Capial Improvement Fund.

THEREFORE BE IT RESOLVED that the Livingston County Board of Commissioners hereby approves and authorizes a purchase order to be issued to Access Interactive for the purchase and installation services of a Dell Hyperconverged System at an amount not to exceed $441,388.

BE IT FURTHER RESOLVED that the Livingston County Board of Commissioners hereby authorizes the Treasurer to transfer funds from F403 Capital Improvement to F636 Information Technolgy in an amount not to exceed $441,388.

BE IT FURTHER RESOLVED that the Chairman of the Livingston County Board of Commissioners is authorized to sign all forms, assurances, contracts/agreements, renewals and future amendments for monetary and contract language adjustments related to the above upon review and/or preparation of Civil Counsel.

# # #

MOVED:
SECONDED:
CARRIED:

Livingston County Information Technology Department

Memo

To: Livingston County Board of Commissioners

From: Kristoffer Tobbe
Livingston County Chief Information Officer

cc: Cindy Catanach, Hilery DeHate

Date: May 21, 2020

Re: Livingston County Data Center Replacement Project

Primary Data Center Upgrade

At this time, IT recommends moving forward with the purchase of a Dell hyperconverged system that will effectively bolt on and expand the County's Dell hyperconverged stretch cluster. This expansion will unify and solidify our server architecture, moving it on to one survivable platform, with two data center locations that will operate as one. The survivability of the system has already been tested internally and externally for reliability. The fail-over and disaster up time decreases from days or weeks, to hours and possibly, even minutes. IT recommends making this purchase as swiftly as possible to help mitigate the County's exposure to data loss disasters.

Livingston County's main data center is scheduled for an upgrade in summer of 2020. The current production infrastructure architecture varies between eight and twelve years old. The new Dell hyperconverged infrastructure and architecture foundation was purchased and deployed in late 2018 or early 2019. This was deployed as a balanced system with high survivability. Three servers were deployed at the Livingston County Administration building and three servers at the 911 facility. This is a state of the art system with remote survivability and disaster recovery of both data and servers, with one witness server to manage the server cluster. This purchase would be a bolt on expansion to the existing system that was purchased on the Oakland County G2G contract in late 2018 and would help to smooth the need for future expansion.

The fact is that, if Livingston County were to suffer a disaster event at the County Administration building that destroyed the current production servers, we would be in a very difficult situation. There is a backup storage appliance at the Sheriff's Office where our packaged data backups are stored, but we do not have enough servers at the Sheriff's Office or at the 911 center to restore our 100+ virtual servers that we operate on. To secure enough new or used servers to restore our system would take an unknown amount of time depending on world conditions. Presently, it could take 10 or more days working 24 hours a day just to get the servers in place and staged for restoration. These facts have been validated by both internal and external sources. The current 10-year-old system suffered a major event in the summer of 2019. This is a mission critical project that would reduce our server disaster recovery time from 7 to 10 days, to 24 hours or less.

Purchasing this system will allow us to:

- Move our current Livingston County Production server environment to a stable secure and survivable system
- Smooth our need for large scale data center purchases in the future by utilizing a scalable system that can be added on as needed
- Allow for a whole scale virtual (VMware) server environment upgrade and save future costs
- Improve server and application responsiveness and speeds
- Ease management and administration of servers by unifying on a single supported
- Save tax payer dollars by taking advantage of both contract and special pricing

Finance:

It is recommended that we utilize Oakland County's G2G contract to purchase this data center expansion through the proven and trusted partner: Access-Interactive. Access-Interactive installed the first half of the hyperconverged server system in 2018-2019. This is a highly specialized installation and requires expert level familiarity with the Dell Hyper Converged systems and Livingston County infrastructure.

Additionally, we believe that there are current pricing advantages to purchasing as soon as possible using the G2G contract for the physical hardware, software, and labor. The project's cost estimate in the Capital Improvement Plan project was $650,000. We believe that by purchasing now on the G2G contract will result in additional discounts that would lower the price to $550,000, or possibly less.

Finance options are available through Dell Financial. There are very favorable terms that would help to smooth the purchase costs, though IT would not recommend financing technology beyond 36 months. A $1 buyout government lease is available, as well as 0% financing.

This purchase would be made in accordance with the County's procurement policy from Resolution #2018-11-189, which was approved by the Livingston County Board on November 19, 2018.

From Section 1: Source Selection & Contract Formation, Sub-Section H: Cooperative Purchasing/Procurement Programs. “Notwithstanding any other provision of this policy, the County may make or authorize the purchase of supplies, equipment or services available through cooperative purchasing/procurement programs and other associations. The decision to purchase from these programs shall be made by the Board of Commissioner’s after consultation with the department and considering among other issues: delivery, packaging, minimum order requirements, follow-up service if applicable, product/equipment quality. Bidding requirements shall be waived if it is determined to be in the best interest of the County based on written communication to support the County’s findings. The County Administrator is authorized to enter into necessary agreements or contracts on behalf of the County. State of Michigan Extended Purchasing Program (such as MiDeal or other like programs) can be used instead of the normal bidding process.”

Year needed 2020 Q 3-4

Expected Life Cycle: 8 -12 years

Total Estimated Cost: $441,388.00

2020 Estimated Cost:	$441,388
2023 Estimated Cost:	$60,000 (2 server expansion, if needed)
2025 Estimated Cost:	$60,000 (2 server refresh, if needed)

Dell HCI (Virtual SAN) Solution Detail

Expanded Cluster:

Adding 8 nodes total to existing 6 node Virtual SAN cluster (4 on each side), Dual 16-core processors, 1.9TB RAM, approximately 133TB Usable without erasure coding on each side of the stretch cluster. Erasure coding usually adds 30% back which would make a usable balance of above 172TB. These calculations do not take into account dedupe and compression.

New Cluster Total:

14 nodes total (7 on each side), each Virtual SAN server will have 10x3.8TB drives, the additional drives from the 8 new servers will be moved to the original 6 servers so all 14 nodes will be uniform. 4 x 32GB DIMMs will also be moved from the 6 new servers and put into the original 6 servers.

Additional information:

Hyper Convergence Explained:

https://www.youtube.com/watch?v=qbKCukjgJVs

https://www.youtube.com/watch?v=SHLfkBiTYgY

https://www.youtube.com/watch?v=cs48Yr_lUxc&t=121s

Partner Information:

Access Interactive Company Overview

Access Interactive provides technology solutions, services and support to business, educational and government organizations since 1985. Our business focus is helping our Clients make the most of technology investments. Over the last 30+ years Access has experienced significant growth to establish itself as a $35 million organization proudly retaining over 65 full-time employees. We pride ourselves on being large enough to be extremely competitive and small enough to pay personal attention to our customers. We have an unwavering commitment to providing the best solutions, service and support to our customers.

Our highly-skilled technical services group includes over 40 full-time technicians including VMware, Microsoft, Cisco and Dell certified system engineers. Our technicians are available to you for projects ranging from on-site break/fix services to full-scale WAN/LAN integration, remote access, IP telephony and more.

Access Interactive sales consultants are technically astute and have an average over 20 years of industry experience. They are ready to apply their knowledge and technical expertise to recommending the best products and solutions and to providing efficient project management.

It is our focused mission to implement the best products, service and support in the industry to our clients.

Access Interactive has been doing business with Livingston County since the beginning of 2017.

Access Interactive has had the pleasure of working with state and local government customers, school districts, universities and colleges, and corporations for over 25 years. Recent experience includes the successful design and implementation of technology projects at:

- Oakland County, MI
- Eaton County, MI
- Ottawa County, MI
- Genesee County, MI
- Grand Traverse County, MI
- Monroe County, MI
- City of Battle Creek, MI
- City of Farmington Hills, MI
- City of Sterling Heights, MI
- City of Novi, MI

- Charter Township of Canton, MI
- Macomb County Community Mental Health, MI
- Schoolcraft College, Livonia, MI
- Michigan State University, MI
- Oakland Community College, MI
- Clinton Township, MI
- Genesee County Health Systems, MI
- Wayne County Airport Authority, MI

Access Interactive has become a thriving member of Michigan's education and government communities because we are focused on delivering a quality and customized customer experience. We are very grateful for the trust that our customers have place on us and in return we foster and maintain work that is worthy of a trusted advisory.

Solution Advantages:

- VMware upgrade and compliance. Homogenizing and upgrading to current version of 6.x Enterprise Plus.
- Comprehensive storage and virtualization management dashboard. Storage and servers are managed through a single pane of glass.
- Achieves true Business Continuity, fortifying the business uptime unlike other solutions. This solution allows for catastrophic loss of multiple nodes without affecting application and storage access. All of this accomplished without human intervention.
- All Flash solution. Up to 210,000 IOPS.
- Completely modular, no forklift upgrades required. Virtual SAN expands leveraging different size, scale, and manufacturer servers.
- Growth flexibility. Virtual SAN is capable of adding any quantity of memory, servers, or disks to accommodate new or evolving business requirements.
- Longevity. VMware is the leading provider of virtualization. In these rapidly changing times, VMware offers the most stable storage solution.
- Integrated stretch cluster functionality. Livingston County will split their Virtual SAN between 2 locations for geographic business continuity.
- Simplify and reduce administration overhead. VMware offers a single curriculum that allows the management of the complete environment from virtual switch to server to SAN.
- Vendor consolidation. Leveraging the VMware portfolio reduces the risk of 3rd party integration.
- Simplicity – 100% of this curriculum is based on technologies that Livingston County's technical staff already has a master level of understanding. From VMware to Compellent, Livingston County staff works with these technologies every day (very low learning curve).
- Increase in Back-up Performance - New Infrastructure architecture will dramatically reduce back-up window.

- Throughput is approximately 4.5X efficiency of traditional SAN (with two controllers.)
- Policy based storage management – ability to choose granular VM storage polices for each individual VM.

What is hyper convergence?

Hyperconvergence combines compute, storage and networking in a single system. Enterprises can choose an integrated HCI appliance from a single vendor, or hardware-agnostic hyperconvergence software.

Hyperconvergence is an IT framework that combines storage, computing and networking into a single system in an effort to reduce data center complexity and increase scalability. Hyperconverged platforms include a hypervisor for virtualized computing, software-defined storage, and virtualized networking, and they typically run on standard, off-the-shelf servers. Multiple nodes can be clustered together to create pools of shared compute and storage resources, designed for convenient consumption.

The use of commodity hardware, supported by a single vendor, yields an infrastructure that's designed to be more flexible and simpler to manage than traditional enterprise storage infrastructure. For IT leaders who are embarking on data center modernization projects, hyperconvergence can provide the agility of public cloud infrastructure without relinquishing control of hardware on their own premises.

Converged infrastructure involves a preconfigured package of software and hardware in a single system for simplified management. But with a converged infrastructure, the compute, storage, and networking components are discrete and can be separated. In a hyperconverged environment, the components can’t be separated; the software-defined elements are implemented virtually, with seamless integration into the hypervisor environment. This allows organizations to easily expand capacity by deploying additional modules.

What are the benefits of hyperconverged infrastructure solutions?

Hyperconverged infrastructure promises to deliver simplicity and flexibility when compared with legacy solutions. The integrated storage systems, servers and networking switches are designed to be managed as a single system, across all instances of a hyperconverged infrastructure. The inherent management capabilities enable ease of use, and software-defined storage is expected to yield greater scalability and resource efficiency. Companies can start small and grow resources as needed. HCI vendors also tout potential cost savings in areas including data center power and space; IT labor; and avoidance of licensed software such as backup or disaster recovery tools.

Which workloads are candidates for hyperconvergence?

HCI systems were initially targeted at virtual desktop infrastructure (VDI) and other general-purpose workloads with fairly predictable resource requirements. Over time they’ve grown from

being specialty solutions for VDI into generally scalable platforms for enterprise applications, database, and private cloud, according to research firm Forrester.

In a survey of infrastructure pros whose firms are planning, implementing or expanding their use of hyperconverged systems, Forrester found the most common workloads being run on hyperconverged systems are: database, such as Oracle or SQL server (cited by 50%); file and print services (40%); collaboration, such as Exchange or SharePoint (38%); virtual desktop (34%); commercial packaged software such as SAP, Oracle (33%); analytics (25%); and Web-facing workloads such as LAMP stack or web servers (17%).

Livingston County Dell V-San Stretch Cluster (Data Center Upgrade)	Livingston County CIP Budgeted Ammount	Original Quotation	Difference between CIP and Specified Quote	Standard Contract Pricing	Standard %	Discount price Negotiated	Savings	Reocurring Annual Costs	Finance Option A	Finance Option B
			Over Budget	**Under Budget**		**Under Budget**				
	$650,000.00							3yr included		
Dell Power Edge Hardware				$313,720.00		$261,994.00	$51,726.00	$0.00		
Vmware Upgrades and Licensing				$205,692.00		$139,084.00	$66,608.00	$0.00		
Professional Services				$40,310.00		$40,310.00	$0.00	$0.00		
Monitoring Software				$495.00			$495.00	$0.00		
Totals	$650,000.00			$560,217.00		$441,388.00	$118,829.00	$0.00		
					Savings over Original Budgeted Ammount	$208,612.00	**32%**	**Lower than Budgeted ammount**		
					Savings beyond Governmental Contract Pricing	$118,829.00	**21%**	**Lower than Contract Pricing**		

Oakland County G2G Pricing CONTRACT NUMBER: 004561

for

Livingston County

Data Center Solution VSAN Stretch Cluster

Phase 2

Prepared by Jerry Rioux & Daniel Heidt

May 21, 2020

Version 6.7

access interactive

IT solutions for business, education, and government

Access Interactive Company Overview

Access Interactive provides technology solutions, services and support to business, educational and government organizations since 1985. Our business focus is helping our Clients make the most of technology investments. Over the last 30+ years Access has experienced significant growth to establish itself as a $35 million organization proudly retaining over 65 full-time employees. We pride ourselves on being large enough to be extremely competitive and small enough to pay personal attention to our customers. We have an unwavering commitment to providing the best solutions, service and support to our customers.

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It is our focused mission to implement the best products, service and support in the industry to our clients.

Strategic Directive

Access Interactive's initial, primary focus in Livingston County's upcoming project is an in depth review of the organizational environment. Gathering momentum from the initial investigation; we're confident Access can offer credible short term recommendations / solutions in order to create a strong long lasting relationship. Our relationships with our clients grow based on strong commitment and Access Interactive's willingness to go the extra mile. Access Interactive prides itself on communication, documentation and thirst for industry knowledge. These traits, coupled with cross trained technical aptitude, contribute greatly to our overall success. We look forward to working with an organization that has a firm grasp on their field, and knowledge of how their ever changing IT infrastructure can elevate them to new levels of achievement.

Livingston County Organizational Needs

- Risk Planning and Mitigation
- Upgrade existing Infrastructure for Applications
- Prepare New Infrastructure for Growth and New Applications
- Dramatically increase Application Resilience
- Enhance Performance
- Support for Legacy product integration
- Central and Expansive I.T. Administration Management Dashboard
- Latency resistant Design
- Simplified Infrastructure
- Optimize support and integration

Solution Advantages

- VMware upgrade and compliance. Homogenizing and upgrading to current version of 6.x Enterprise Plus.
- Comprehensive storage and virtualization management dashboard. Storage and servers are managed through a single pane of glass.
- Achieves true Business Continuity, fortifying the business uptime unlike other solutions. This solution allows for catastrophic loss of multiple nodes without affecting application and storage access. All of this accomplished without human intervention.
- All Flash solution. Up to 210,000 IOPS
- Completely modular, no forklift upgrades required. Virtual SAN expands leveraging different size, scale, and manufacturer servers.
- Growth flexibility. Virtual SAN is capable of adding any quantity of memory, servers, or disks to accommodate new or evolving business requirements
- Longevity. VMware is the leading provider of virtualization. In these rapidly changing times, VMware offers the most stable storage solution.
- Integrated stretch cluster functionality. Livingston County will split their Virtual SAN between 2 locations for geographic business continuity.
- Simplify and reduce administration overhead. VMware offers a single curriculum that allows the management of the complete environment from virtual switch to server to SAN.
- Vendor consolidation. Leveraging the VMware portfolio reduces the risk of 3rd party integration
- Simplicity – 100% of this curriculum is based on technologies that Livingston County's technical staff already has a master level of understanding. From VMware to Compellent, Livingston County staff works with these technologies every day (very low learning curve).
- Increase in Back-up Performance - New Infrastructure architecture will dramatically reduce back-up window
- Throughput is approximately 4.5X efficiency of traditional SAN (with two controllers)
- Policy based storage management – ability to choose granular VM storage polices for each individual VM
- **NO RAID GROUPS!**

Solution Synopsis

The proposed application performance solution provides a scalable, secure, cost effective foundation for Livingston County. There are several components that work together to provide a network that has excellent performance, is easy to manage, provides fault tolerance and secure data backups.

These components are:

- Dell VSAN Ready Nodes
- VMware VSAN and vSphere upgrade licensing
- Professional Services and Knowledge Transfer

Phase 2

Livingston Cluster

Expanded Cluster:
Adding 8 nodes total (4 on each side), Dual 16-core processors, 1.9TB RAM, approximately 133TB Usable without erasure coding on each side of the stretch cluster. Erasure coding usually adds 30% back which would make a usable balance of above 172TB. These calculations do not take into account dedupe and compression.

New Cluster Total:
14 nodes total (7 on each side), each Virtual SAN server will have 10x3.8TB drives, the additional drives from the 8 new servers will be moved to the original 6 servers so all 14 nodes will be uniform. 4 x 32GB DIMMs will also be moved from the 6 new servers and put into the original 6 servers.

Dell PowerEdge R740xd – all SSD, 384GB RAM and 38TB Raw Capacity in each Virtual SAN server

Description	Qty
PowerEdge R740XD Server	1
PowerEdge R740/R740XD Motherboard	1
No Trusted Platform Module	1
Chassis with Up to 24 x 2.5" Hard Drives for 2CPU	1
PowerEdge R740XD Shipping	1
PowerEdge R740 Shipping Material	1
Intel Xeon Gold 5218 2.3G, 16C/32T, 10.4GT/s, 22M Cache, Turbo, HT (125W) DDR4-2666	1
Intel Xeon Gold 5218 2.3G, 16C/32T, 10.4GT/s, 22M Cache, Turbo, HT (125W) DDR4-2666	1
Additional Processor Selected	1
Standard 1U Heatsink	1

Standard 1U Heatsink	1
2933MT/s RDIMMs	1
Performance Optimized	1
No RAID	1
HBA330 Controller Adapter, Low Profile	1
BOSS controller card + with 2 M.2 Sticks 240G (RAID 1),FH	1
No Operating System	1
No Media Required	1
iDRAC9,Enterprise	1
OpenManage Enterprise Advanced	1
iDRAC Group Manager, Enabled	1
iDRAC,Factory Generated Password	1
Riser Config 4, 3x8, 4 x16 slots	1
Intel X710 Dual Port 10GbE SFP+ & i350 Dual Port 1GbE, rNDC	1
6 Performance Fans forR740/740XD	1
Dual, Hot-plug, Redundant Power Supply (1+1), 1100W	1
PowerEdge 2U Standard Bezel	1
PE R740XD Luggage Tag	1
Quick Sync 2 (At-the-box mgmt)	1
Power Saving Dell Active Power Controller	1
UEFI BIOS Boot Mode with GPT Partition	1
ReadyRails Sliding Rails With Cable Management Arm	1
No Systems Documentation, No OpenManage DVD Kit	1
US Order	1
Declined Remote Consulting Service	1
PowerEdge R740 CE, CCC, BIS Marking	1
Basic Next Business Day 36 Months	1
ProSupport and 4Hr Mission Critical Initial, 36 Month(s)	1
ProSupport and 4Hr Mission Critical Extension, 24 Month(s)	1
On-Site Installation Declined	1
32GB RDIMM, 2933MT/s, Dual Rank	12
960GB SSD SATA Mix Use 6Gbps 512 2.5in Hot-plug AG Drive, 3 DWPD, 5256 TBW	3
3.84TB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD, 7008 TBW	18
Intel X710 Dual Port 10GbE Direct Attach SFP+ Adapter, PCIe Full Height	2

US/Thailand/Philippines/Guam Power Cord 250V	2

Dell PowerEdge R740xd with 5-Year Support (18x3.8TB drives) Qty. 6 @ $ 33,011.00 each **$ 198,066.00**

Dell PowerEdge R740xd with 5-Year Support (16x3.8TB drives) Qty. 2 @ $ 29,594.00 each **$ 59,188.00**

Miscellaneous

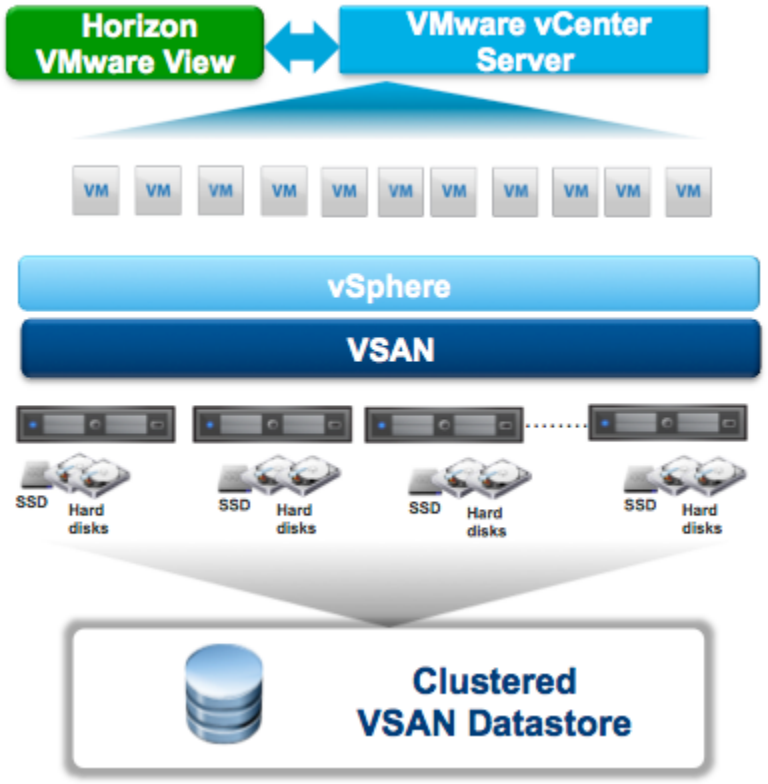
SFP Transceivers Qty. 60 @ $ 54.00 each **$ 3,240.00**

Cables and Wiring **$ 1,500.00**

VMware Virtual SAN Licensing

VMware Virtual SAN is a radically simple, enterprise-class shared storage solution for hyper-converged infrastructure optimized for today's all-flash performance.

What Virtual SAN Delivers



Radically Simple Storage
Make your job easier by simplifying storage provisioning and management for vSphere. Deploy storage with just a few mouse clicks from the vSphere Web Client and enjoy native integration with the VMware stack. Virtual machine-centric storage policies automate storage services levels on a per-VM basis.

Advanced Availability and Management
Customers of all industries and sizes trust Virtual SAN to run their business-critical workloads, from key business applications to thousands of virtual desktops. Virtual SAN ensures that data is never lost if a disk, host, network or rack fails and can even tolerate entire site failures with synchronous replication and stretched clusters.

50% Lower TCO
Deploy on inexpensive industry-standard server components to remove large, upfront investments. Eliminate siloed, purpose-built hardware and automate management of storage service levels through VM-centric policies. Further improve TCO with storage efficiency features like deduplication and enhanced automation capabilities.

Exceptional Performance
Built on an optimized I/O data path in the hypervisor and designed for flash speeds, Virtual SAN delivers much better performance than a virtual appliance or external device. Experience up to 100,000 IOPs per host with all-flash and scale up to 64 hosts per cluster—a perfect match for virtual desktops, remote IT and business critical applications.

VMware Virtual SAN Enterprise - (v. 6) - license - 1 processor Qty. 16 @ $ 2,959.00 **$ 47,344.00**

VMware Support and Subscription Production - Technical support - 3 years - for VMware Virtual SAN Enterprise Edition (v. 6) - 1 processor

Qty. 16 @ $ 3,737.00 **$ 59,792.00**

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Additional VMware Licensing

Upgrade: VMware vSphere 6 Enterprise to vSphere 6 Enterprise Plus for 1 Processor Promo
Qty. 8 @ $ 519.00 **$ 4,152.00**

Production Support/Subscription VMware vSphere 6 Enterprise Plus for 1 processor for 3 year
Qty. 8 @ $ 2,354.00 **$ 18,832.00**

Upgrade: VMware vSphere 6 Standard to vSphere 6 Enterprise Plus for 1 Processor
Qty. 2 @ $ 2,128.00 **$ 4,256.00**

Production Support/Subscription VMware vSphere 6 Enterprise Plus for 1 processor for 3 year
Qty. 2 @ $ 2,354.00 **$ 4,708.00**

VMware Total: **$ 139,084.00**

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Design points for discussion

- Livingston County provides Battery Backup and PDU that can accommodate this solution.
- We assume Rack Space is available. Racks quoted upon request.
- Livingston County already owns 2 vCenter licenses so no additional vCenter license is required.
- Existing Hytrust server will be leveraged
- Witness servers customer provided on re-purposed HP servers
- Cable and wiring assumes patch panel to switch
- Cisco switching SFP's customer provided

PROFESSIONAL SERVICES:

Scope assumes someone from Livingston County assists with the project. Hours subject to change depending on exact project scope. The following is an estimate based on similar projects.

- Project plan and scheduling
- Equipment prep/software firmware updates
- Physical deployment of equipment
- Equipment integration/Virtual SAN integration
- Fabric switch integration
- Virtual SAN and volume provisioning
- Data migration
- System documentation and Visio's
- Performance tuning
- Knowledge transfer and optimization
- Project management

TOTAL: 278 hours

Senior LAN Technician @ $145.00 per hour **$ 40,310.00**

PHASE 2 PROJECT COSTS:

EQUIPMENT:	**$ 401,078.00**
MI SALES TAX:	**$ EXEMPT**
SUBTOTAL:	**$ 401,078.00**
SERVICES:	**$ 40,310.00**
SHIPPING:	**$ NA**
TOTAL:	**$ 441,388.00**

Quote Valid for 30-Days. Prices Subject to Change with Notice Depending on Current Market Conditions. Shipping charges not included. Terms: 50% Upon Acceptance, 25% Upon Delivery, Remainder Net 30. 25% Restocking Fee Applied to Project Costs for Returned Merchandise. UPS not included.

Authorized Signature: _____ **Date:** _____

Printed Name: _____ **Purchase Order No:** _____

Gartner

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Magic Quadrant for Hyperconverged Infrastructure

Published: 25 November 2019 **ID:** G00380299

Analyst(s): Jeffrey Hewitt, Philip Dawson, Julia Palmer, John McArthur

Hyperconverged infrastructure solutions are making substantial inroads into a broader set of use cases and deployment options, but limitations exist. I&O leaders should view HCI solutions as tools in the toolbox, rather than as panaceas for all IT infrastructure problems.

Strategic Planning Assumption

Driven by increased HCI scalability and management functionality, by 2023, 70% of enterprises will be running some form of HCI (i.e., appliance, software, cloud-tethered), up from less than 30% in 2019.

Market Definition/Description

Hyperconverged infrastructure (HCI) is a category of scale-out software-integrated infrastructure that applies a modular approach to compute, network and storage on standard hardware, leveraging distributed, horizontal building blocks under unified management. HCI vendors either build their own appliances using common, off-the-shelf infrastructure (hardware, virtualization, operating system), or they engage with system vendors that package the HCI vendor's software stack as an appliance. Alternatively, HCI vendors sell their software directly to end users, through resellers and integrators, for use as part of a reference architecture, or on an HCI-as-a-service basis, either on-premises or in a public cloud.

IT leaders should remain cognizant of the origins of HCI suppliers and the strategic importance of HCI within these vendors' larger portfolios. Some vendors approach HCI from a storage virtualization and data management perspective, partnering for all other components of the HCI stack (hypervisor, network virtualization, management). Others approach HCI from a server virtualization perspective and add storage virtualization and data management services later. Many server vendors approach HCI from a hardware appliance perspective as the natural evolution of their installed base of x86 servers. These server vendors either acquired an existing HCI or hyperconverged integrated system (HCIS) company or partnered with multiple HCI companies to deliver appliances or reference architectures. A few smaller providers approach HCI from a full-stack perspective, willing to compete head-to-head with leading hypervisor suppliers by initially focusing on a single niche. Some approach edge requirements strategically, while others address

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these requirements reactively. For most HCI vendors, the public cloud is an extension of the strategy, but also could be a strategic threat if IT leaders buy public cloud services in lieu of spending on their own infrastructure.

During the past year, Gartner has witnessed increased consideration of HCI in mission-critical enterprise applications. With this change, users have increased their scrutiny of support and application certification. At the same time, HCI vendors have expanded their strategy to embrace hybrid/multicloud deployments, as either backup targets or disaster recovery options, or as an alternative for on-premises infrastructure for unpredictable or cyclical resource requirements. Some HCI providers have begun to offer artificial intelligence (AI) functions to automatically improve performance and prevent failures.

The HCI vendors that historically were data-center-focused have begun to target the needs of edge environments, previously only served by niche vendors. Small remote office and edge deployments require less storage capacity, fewer compute resources and fewer features, but benefit greatly from centralized management and high-availability designs. Much of the focus for this segment is on software that can be run on minimally configured servers that will support high availability (HA) with two-node clusters or even a single-node with limited availability. Finally, HCI vendors need to meet the asymmetrical scaling requirements of IT (compute, storage and network resource requirements do not always scale at the same rate) and are offering more compute-only, storage-only and software-defined networking options. These HCI providers offer that asymmetrical scaling while maintaining the server as the primary deployment method.

It is worth noting that some vendors are operating outside the sphere of Gartner's strict definition of HCI and are designing solutions from the outset that offer unified management, but are intended to scale compute and storage resources independently (e.g., disaggregated HCI [dHCI]). These solutions look much like integrated infrastructure solutions, but with scale-out architectures for back-end storage. They do not meet the inclusion criteria for this Magic Quadrant because they typically do not combine virtual machine (VM) and software-defined storage (SDS) resources, both running on the same physical servers, as the primary deployment method (see the Inclusion Criteria section).

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Magic Quadrant

Figure 1. Magic Quadrant for Hyperconverged Infrastructure

Vendor Strengths and Cautions

Cisco

Cisco is a global provider of networking, security and other IT infrastructure. The Cisco HyperFlex appliance is Cisco's HCI offering. Cisco HyperFlex was introduced in April 2016. Since the last

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Magic Quadrant was published, Cisco has introduced a cloud-managed two-node cluster with Cisco SD-WAN integration for edge and remote office/branch office (ROBO) use cases. To enhance HyperFlex's capabilities to support workloads, Cisco has introduced support for the latest-generation Intel Xeon Scalable Processors, formerly Cascade Lake, and a nonvolatile memory express (NVMe) hyperconverged appliance that utilizes 3D XPoint technology in both cache and capacity storage tiers. It is powered by the Intel Optane Peripheral Component Interconnect Express (PCIe), (and other) solid-state drives (SSDs) and the Intel 3D NAND NVMe SSDs. Other product enhancements include the HyperFlex Acceleration Engine, an optional acceleration card that offloads in-line compression from the CPU, large-capacity drives to enable petabyte scalability, and enhanced Kubernetes support including Container Storage Interface (CSI) plug-in. The top three use cases for Cisco HyperFlex are mission-critical, cloud and edge.

Strengths

- For IT leaders who use Cisco as their network provider or those seeking an HCI provider with a strong business base, Cisco's installed base of networking customers, along with its global service and support capabilities, makes HyperFlex an appealing path to a single source for their server, storage and network needs.
- With a comprehensively engineered HCI solution that comprises compute, software-defined storage and integrated networking, as well as hybrid/multicloud support, Cisco's HyperFlex has product depth that can be attractive to IT leaders.
- For IT leaders seeking to deploy HCI for edge, HyperFlex Edge offers features such as integration with Cisco SD-WAN and services through Cisco Intersight.

Cautions

- Some IT leaders whose systems are standardized on competing suppliers' servers may be hesitant to shortlist Cisco HyperFlex because it is only available as an HCI appliance on Cisco UCS servers.
- Cisco chooses to provide HyperFlex as a fully integrated HCI appliance and does not offer the HyperFlex HX Data Platform as a software-only solution or through third-party server integration partnerships.
- Cisco relies on Microsoft and VMware for the hypervisor, which may cause some IT leaders to prefer the solutions from those vendors.

DataCore

DataCore, founded in 1998, with headquarters in the U.S., is a privately held developer of infrastructure SDS and storage virtualization solutions. DataCore's product is DataCore SDS, which can be deployed on existing servers or new, custom configurations. The solution, originally marketed as Hyperconverged Virtual SAN, was launched in 2014 and is based on the DataCore's SANsymphony SDS product. DataCore recently introduced DataCore HCI-Flex fixed-configuration hardware appliances; data-at-rest encryption using an industry-standard Advanced Encryption Standard (AES) algorithm with 256-bit strength encryption for improved security; and DataCore

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Insight Services, a SaaS analytics platform for improved monitoring and management. DataCore SDS also offers Continuous Data Protection (CDP) for physical servers and virtual machines, as well as container hosts via Docker and Kubernetes plug-ins. DataCore SDS is used primarily for mission-critical, core IT, and edge use cases in small and midsize enterprises.

Strengths

- DataCore integrates with existing Internet Small Computer System Interface (iSCSI) and FC storage area networks (SANs) and x86 servers, as well as enables independent scaling of compute and storage resources.
- DataCore provides a robust set of data services and price-competitive, scaled-down solutions, including a two-node high-availability configuration for ROBO computer rooms, edge deployments, and the data centers of small and medium enterprises.
- The company's pace of innovation has increased with greater focus on ease of implementation with a hardware appliance, security with data-at-rest encryption and improved management with DataCore Insight Services.

Cautions

- Customers should watch for changes in strategic direction, as the company has undergone significant changes over the past year in leadership across sales, marketing, engineering and support.
- The company has deployed limited resources outside EMEA and the Americas and has few partnerships that can support customers in the Asia/Pacific (APAC) region.
- Some IT leaders cite poor support and channel partner knowledge as areas of concern.

Dell EMC

Under its parent company, Dell Technologies, Dell EMC is a global provider of products and services spanning compute, storage and networking. This Magic Quadrant evaluates Dell EMC VxRail that began shipping in 2016. Dell EMC has introduced VxRail Analytical Consulting Engine (ACE), a cloud-based, centralized data collection and analytics platform to simplify the management of VxRail clusters. VMware Cloud Foundation (VCF) is available on the VxRail solution with full stack integration or customers can use VxRail's REST APIs for customizable cloud solutions. The leading use cases for Dell EMC VxRail are core IT, mission-critical, cloud, edge and virtual desktop infrastructure (VDI). Dell EMC develops software specifically for VxRail (for example, RecoverPoint and Smart Fabric Services) that is designed to enhance VMware functionality and ease of use for a number of use cases, including core IT.

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Strengths

- For IT leaders seeking mission-critical solutions, Dell EMC's VxRail has been deployed in a variety of mission-critical environments, including those running SAP HANA, Oracle RAC, Microsoft SQL, SAS Analytics and Splunk applications.
- Dell EMC has developed features and functions specifically for VxRail HCI System Software, like REST APIs and the VxRail ACE, and it provides tight integration with Dell EMC Networking platforms, which can offer advantages for IT leaders.
- For IT leaders needing HCI in multiple locations around the world, Dell EMC has a broad global sales and support reach that enables the sale and installation of VxRail in many geographies.

Cautions

- Dell EMC supports a portfolio of HCI choices beyond VxRail, including Nutanix, vSAN ReadyNodes and Microsoft Storage Spaces, all of which can be confusing when IT leaders are trying to determine what is best for their situation.
- Dell EMC VxRail is tightly coupled with VMware, so it limits IT leaders to a single hypervisor option on the VxRail offerings.
- Some client feedback indicates that there can be inconsistencies in VxRail presales and installation customer experiences.

HPE

Hewlett Packard Enterprise (HPE) is a global provider of professional services, software, servers, storage, networking and other IT infrastructure. The HPE SimpliVity hyperconverged solution was introduced in May 2017 as a result of HPE's acquisition of SimpliVity earlier that year.

The HCI solution, delivered as an appliance, integrates HPE servers, hypervisors (VMware or Hyper-V), SDS, backup and data services. HPE offers a guarantee on its data services, with notable data efficiency and reliability. Customers can acquire HPE SimpliVity through resellers, with a limited number of direct sales available. Recently, HPE added SimpliVity Validated Design for Google Cloud's Anthos for container-based private or hybrid cloud, and released AMD-based single-socket HPE SimpliVity 325 solution for ROBO and edge. In October 2019, HPE announced InfoSight integration with SimpliVity adding artificial intelligence for IT operations (AIOps) function benefits. HPE SimpliVity's most popular use cases are core IT, VDI, edge and mission-critical workloads.

Strengths

- HPE is a trusted global technology provider with a well-established channel and mature worldwide sales, service and support capabilities.
- End users are expressing a high degree of satisfaction with HPE SimpliVity data efficiency (global in-line deduplication and compression), data protection and disaster recovery features.

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- HPE offers flexible consumption models and has introduced the HPE GreenLake as-a-service offering based on metered usage, built-in support and managed services.

Cautions

- For some large enterprises and service providers who are seeking a software-only solution supported on an array of server choices, SimpliVity will not be the right match, as it currently is not available as a software-only product.
- HPE SimpliVity is considered for only on-premises deployments, as it does not currently support native hybrid cloud workflows and has no integration with public cloud infrastructure as a service (IaaS) for virtualized workloads.
- Because HPE offers SimpliVity, broadened its HCI portfolio to include Nutanix, introduced dHCI and also sells the Synergy composable platform, IT leaders can find it challenging to determine which HPE solution is optimal for a given situation.

Huawei

Huawei, a global infrastructure vendor based in China, leverages its FusionCube brand, which was an early integrated infrastructure system in 2013 and is now positioned as an HCI. The product includes storage, Huawei's own Kernel-based Virtual Machine (KVM) and Xen-based FusionSphere hypervisors, as well as support for VMware. The Huawei HCI solution is managed by FusionCube Center. For 2019, Huawei has targeted three initiatives: "Any workload, Any Site, One System"; "High Performance, High Reliability, Simple"; and "Hybrid Cloud-Native." FusionCube is used primarily by midsize businesses for high-density, server-virtualized workloads; VDI, database and mission-critical applications, including Oracle and SAP HANA; edge environments; and hybrid cloud installations. FusionCube's growth is a result of Huawei leveraging its networking business in Asia, Europe, Africa and South America. Huawei continues to be strong in China, and it is helped by its partnerships with SAP, Oracle and Microsoft, thus making Huawei a "provider of choice" for many customers seeking those solutions in China.

Strengths

- FusionCube, positioned as HCI, is now established and proven in Asia and EMEA across many verticals.
- Huawei's customers benefit from the vendor's strong foundation of ecosystem partners, including Oracle, SAP, VMware, Microsoft, Red Hat and SUSE.
- Huawei's deal pipeline and installed base of network infrastructure make FusionCube appealing for IT leaders implementing use cases for cloud, edge, mission-critical and VDI.

Cautions

- Huawei has limited market presence, third-party support and certification for its FusionCube and related products in North America and some other western geographies.

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- IT leaders should qualify Huawei's strategic adjustments to address the inconsistency between product roadmap and delivery.
- IT leaders will want to compare FusionCube's storage functions, such as deduplication, backup and recovery tool integration, and management capabilities to more mainstream products to ensure adequate performance for their needs.

Huayun Data Group

Huayun Data Group, founded in 2010, is a China-based private company that provides cloud and big data services. Huayun Data Group's flagship HCI offering is ArcherOS, which it offers within China, with Maxta continuing to be the brand offered outside China. Huayun Data Group launched ArcherOS in August 2019. ArcherOS is based on Maxta's core HCI and SDS technology that Huayun Data Group acquired in March 2019. Huayun Data Group has integrated its own technology with what it has acquired from Maxta to provide private and hybrid cloud capabilities. Huayun Data Group has also enabled the integration of ArcherOS with other technologies from security to independent software vendor (ISV) applications via its existing ecosystem of partners. Huayun Data Group intends to follow a dual-brand strategy by utilizing the ArcherOS name in China and retaining the Maxta name outside of China for an unspecified shorter term. Huayun Data Group's primary use cases, in order of importance, are cloud, core IT, VDI, edge and mission-critical. For the cloud use case, ArcherOS/Maxta seeks to bring more public-cloud-like operational efficiency to managed service providers (MSPs) and enterprises by enabling independent compute and storage scaling.

Strengths

- Huayun Data Group supports a wide array of server hardware platforms with both ArcherOS and Maxta brands to give IT leaders many x86 server choices.
- IT leaders may find Huayun Data Group's cloud use-case experience appealing when combined with Maxta HCI functionality.
- Huayun Data Group offers single-node pricing for its software options that can make its HCI solutions appealing for IT leaders of small and medium enterprises and organizations with large-scale/small-node edge requirements.

Cautions

- Huayun Data Group's dual-brand strategy of using both ArcherOS and Maxta may be confusing to IT leaders seeking an HCI deployment.
- IT leaders considering ArcherOS and Maxta may find that support capabilities vary by location due to Huayun Data Group's limited geographic footprint.
- IT leaders who prefer brands with more global levels of market recognition may decide not to consider ArcherOS and Maxta.

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Microsoft

Microsoft is a global, publicly held infrastructure software, application and public cloud service company founded in 1975. The company's HCI offering is Azure Stack HCI. Azure Stack HCI was introduced in the Windows Server 2019 Datacenter edition, which follows Microsoft's initial HCI offering based on Microsoft's Windows Server 2016 Datacenter edition, introduced in 2016. Azure Stack HCI includes Microsoft's Hyper-V hypervisor and Storage Spaces Direct for storage virtualization. Over the past year, Azure Stack HCI enhancements have included improved manageability through Windows Admin Center; integration with improved security; and Day 1 support for Samsung's Z-SSD, Intel Optane, AMD's EPYC and Intel's Xeon Scalable processors. Azure Stack HCI is used primarily for cloud, edge and core IT use cases.

Strengths

- Microsoft provides organizations a comprehensive edge, core data center and cloud portfolio, with many common components and familiar management tools.
- Existing Microsoft Windows Server 2016/2019 Datacenter edition customers can implement HCI without paying additional license fees for hypervisors, management, software-defined networking, security or storage virtualization.
- Organizations have a wide range of platform and acquisition options, as Microsoft's Azure Stack HCI is supported on more than 2,000 devices and 134 prevalidated Azure Stack HCI SKUs. Microsoft has a rich, global network of reseller and system integrator partners.

Cautions

- Many organizations are unaware of Azure Stack HCI or confuse Azure Stack HCI with Azure Stack, as it is insufficiently marketed within Microsoft's broad portfolio.
- Organizations that have standardized on market-share-leading VMware ESXi cannot use Microsoft's Azure Stack HCI without migrating to Hyper-V.
- Since Microsoft does not report revenue for the Azure Stack HCI product and measures adoption based on telemetry data, it is not included in some analysis reports, which measure revenue share. IT organizations may face resistance from senior management due to the lack of inclusion.

Nutanix

Founded in 2009, Nutanix was the early market and mind share leader in the HCI space since 2011. Nutanix's HCI solution is composed of its software-defined stack: Software-defined storage; AOS; an infrastructure control plane, Prism; and optionally its hypervisor, AHV. Over the last two years, Nutanix has evolved from a vendor of HCI system appliances and data services, to a provider of a broad portfolio of software solutions and cloud services. Over the past year, Nutanix introduced a database-as-a-service offering (Nutanix Era), application self-service and app life cycle management (Nutanix Calm), S3 object storage (Nutanix Objects), file storage services (Nutanix

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Files) and Xi Leap disaster recovery service. Nutanix offers subscription, term-based software licenses that are portable across hardware platforms and clouds. IT leaders deploy the Nutanix HCI solution for core IT, VDI, cloud and mission-critical use cases.

Strengths

- Nutanix has established itself as a leading HCI solution provider, which has contributed to significant traction in large enterprises and resulted in multimillion-dollar purchases by repeat and new customers across multiple industries and geographies.
- The Nutanix HCI software platform attracts IT leaders who prioritize flexibility because it supports multiple third-party servers, storage protocols and hypervisors, as well as a broad range of procurement and deployment options.
- Customers and end-user references continue to report positive support and service experiences, which contribute to strong customer loyalty.

Cautions

- Nutanix's transformation to a software company model triggered some IT leaders to question the company's long-term operational consistency in the areas of hardware integration, seamless global support and robustness of third-party server OEM solutions.
- Nutanix Xi Clusters' integration with Amazon Web Services (AWS) public cloud is still a nascent offering that is currently in tech preview.
- Cultural resistance within some infrastructure teams to adopting Nutanix's native virtualization (AHV) prevents IT leaders from taking full advantage of additional Nutanix stack offerings.

Pivot3

Pivot3 was founded in 2002, and it is a provider of automated and intelligent HCI solutions for on-premises, edge or cloud environments. Acuity is Pivot3's HCI offering. Pivot3 started shipping HCI solutions in 2008. Pivot3 has incorporated new security policy management features, including policy-based data-at-rest encryption and algorithm offloading. Pivot3 offers its Virtual Security Operations Center (SOC), which allows customers to replace expensive-to-manage graphics-enabled workstations with an HCI solution that delivers secure client desktops to security operators or first responders at any location. The primary use cases for Pivot3's HCI are mission-critical, VDI, core IT, edge and cloud. Pivot3's largest defense and intelligence deployments are advanced VDI use cases. Pivot3 leverages its own automation to facilitate functionality for both core IT and cloud use cases.

Strengths

- IT leaders have two main Pivot3 Acuity series options — the Acuity Datacenter Series and the Acuity IoT-Surveillance Series — from which they can choose, depending on specific use-case needs.

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- Pivot3 offers its analytics and VDI features for large-scale, demanding applications in the higher education, healthcare and federal markets. IT leaders will appreciate Pivot3's prescriptive solutions and templates for use cases.
- For IT and security leaders in healthcare, defense, transportation and hospitality, Pivot3's platform is designed to ensure that video solutions meet both the high-performance and reliability needs of those environments. Due to increasing demand for video analytics, Pivot3 has enhanced its solutions to meet those needs.

Cautions

- IT leaders seeking core IT and cloud HCI solutions may opt not to consider Pivot3 because of Acuity's lower market penetration outside of video surveillance and VDI use cases.
- For IT leaders seeking hypervisors beyond VMware, Pivot3's integrated hypervisor support is limited to ESXi, although other hypervisors such as Hyper-V or KVM can be supported as external hosts to a Pivot3 HCI system.
- When engaging with Pivot3 working in conjunction with an OEM partner, IT leaders should ensure that project management expectations and timelines are well documented and agreed to ahead of deployments.

Red Hat

Red Hat is a global provider of Linux-based open-source software for enterprise on-premises and hybrid cloud subscriptions and maintenance contracts — and since July 2019, Red Hat is now a wholly owned subsidiary of IBM. Red Hat Hyperconverged Infrastructure for Virtualization was released in June 2017 on top of its Red Hat Virtualization product, which uses the KVM hypervisor and Gluster Storage virtualization. Red Hat released Red Hat Hyperconverged Infrastructure for Cloud in 2018, which is built on its Red Hat Ceph Storage and Red Hat OpenStack Platform as core components in the solutions. Red Hat has expanded its HCI for Cloud offering to its virtualization offering, which includes integrated deduplication and compression capability via the acquisition of Permabit and a unified life cycle for OpenStack and Ceph Storage technologies. Red Hat restructured its business organization and built a dedicated marketing function to drive internal and outbound awareness, promotion, product readiness, and sales enablement for its HCI solution. Red Hat's HCI offering should be considered predominantly for cloud, core IT and mission-critical use cases for customers and providers adopting Red Hat Linux, Virtualization and hybrid cloud-based OpenStack deployments.

Strengths

- Customers with Red Hat Linux and OpenShift initiatives have an open-source HCI offering to consider as part of a single vendor's broader virtualization and storage catalog.
- Red Hat's HCI offering is an alternative for existing Red Hat customers and new customers seeking a single-vendor, integrated experience specifically for edge, data center, hybrid and cloud infrastructure use cases.

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- Red Hat has a combined OS, virtualization, storage and cloud management toolset to manage HCI that leverages Red Hat's depth of Linux and open-source software expertise.

Cautions

- Red Hat's strong support for Linux, virtualization and cloud offerings still needs to be extended to Red Hat's HCI.
- Red Hat's currently low market penetration with HCI may cause some IT leaders to be reluctant to consider it.
- IBM's acquisition of Red Hat may cause some IT leaders to wait to see the longer-term effects on Red Hat's HCI initiatives.

Sangfor Technologies

Sangfor Technologies, founded in 2000, with headquarters in the People's Republic of China, is a publicly held developer of IT infrastructure, security and cloud solutions. Sangfor's HCI offering is Sangfor HCI. Sangfor shipped its first HCI solution in 2015 and initially focused on Oracle RAC, but now supports a broader range of enterprise applications. Over the past 12 months, Sangfor has focused on expansion beyond its home country and Asia, with notable expansion in select countries in Europe and the Middle East. Sangfor has also launched Sangfor Community, which provides a knowledge base, online technical support, installation and configuration guides, and a community forum. Sangfor aCloud is used primarily for mission-critical, core IT and VDI use cases in midsize enterprises.

Strengths

- Organizations in the People's Republic of China, where more than 90% of Sangfor HCI sales occur, will benefit from a mature support organization that can meet needs within the local market.
- Sangfor provides a cost-competitive alternative for small and medium enterprises.
- Sangfor has developed an industry-vertical approach to the market, creating partnerships with ISVs, deploying vertically focused sales teams, and developing knowledge of regulations to meet the needs of manufacturing, government, healthcare and education organizations.

Cautions

- Local support resources may be limited outside of the People's Republic of China, Italy, Thailand, Malaysia, Indonesia, the Philippines, South Korea and Singapore.
- Sangfor has limited integration with ecosystem partners when compared with its larger international competitors.
- Sangfor is not cost-competitive in edge locations.

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Scale Computing

Scale Computing, founded in 2007, with headquarters in the U.S., is a global provider of HCI. Scale Computing's HCI offering is HC3. Scale Computing began shipping HC3 in 2012. Scale Computing recently introduced the HE500 model for edge computing environments, with cost-competitive pricing per node. Scale Computing also established an OEM agreement with Acronis to provide long-term on-premises or cloud backup and bare-metal restore to non-HC3 systems, and ransomware protection of backups. Scale Computing introduced Intel Cascade Lake processors in the HC1000 and HC5000 product series for improved VDI performance. HC3 is used primarily in edge and ROBO deployments and the primary data centers of small and medium enterprises for business-critical and consolidation workloads.

Strengths

- For organizations seeking independent peer validation of HC3's fit for their specific use case, Scale Computing provides access to more than 900 case studies and customer reviews.
- Scale Computing offers extremely low-cost solutions that require limited hardware investment for edge locations by providing resource-efficient, full-stack software that includes Scale Computing's own KVM-based hypervisor.
- Scale Computing is making major investments to expand API-based orchestration and third-party tool integrations to enable customers to manage widely distributed infrastructure and applications.

Cautions

- IT leaders who wish to leverage existing skills and enterprise license agreements for Microsoft Hyper-V or VMware ESXi will find Scale Computing less appealing.
- Support for organizations with deployment sites outside the U.S. may find limited support, as more than 80% of Scale Computing's bookings are currently in the U.S., and OEM partnerships that expand Scale Computing's reach outside the U.S. are new.
- Scale Computing is not a fit for large organizations seeking a standardized core-to-edge-to-cloud strategy, as the company lacks a cloud and large-data-center offering.

StarWind

Founded in 2008, StarWind develops HCI and SDS solutions. StarWind's HCI offering is the StarWind HyperConverged Appliance (HCA). StarWind first started shipping an HCI solution in 2009. The vendor also enables hardware-agnostic offerings with its StarWind Virtual SAN (VSAN) HCI software and sells a backup appliance, the StarWind Virtual Tape Library Appliance (VTLA). StarWind has honed its marketing focus to bring enterprise-level HCI features to the small and medium enterprise market at appealing costs. Over the past year, StarWind has introduced its Command Center, Virtual Appliance and ProActive Premium Support Extended as enhancements to its HCI offerings. StarWind has been expanding its channel partner relationships outside of its base

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country of the U.S. to grow business in EMEA, Asia/Pacific and Japan. The StarWind HCA primary use cases are edge, mission-critical, core IT, VDI and cloud. StarWind focuses on specific features for each use case like high availability and high performance for edge, storage replication to prevent downtime and data loss for mission-critical workloads, and simplicity and flexibility for core IT.

Strengths

- For IT leaders seeking low-cost solutions with high availability, StarWind offers either a single cluster of two physical on-site nodes, or one physical on-site node and one virtual node in the cloud.
- For IT leaders seeking specific features and functions, StarWind offers a high level of customization through its engineering teams.
- StarWind's NVMe over Fabrics (NVMe-oF) support for Windows Server uses significantly less compute resources than nonfabric NVMe solutions for Windows.

Cautions

- For IT leaders desiring larger providers with greater resources, StarWind's small company size may bar it from consideration.
- For IT leaders requiring an HCI provider with broad market penetration and brand recognition, StarWind may not make their shortlists.
- As StarWind grows its small and medium enterprise business, its support approach of utilizing its relatively small engineering team may create concerns for some IT leaders who question StarWind's ability to scale support quality across all of StarWind's customers.

StorMagic

StorMagic, founded in 2006, with headquarters in England, is a privately held developer of storage virtualization and HCI solutions. StorMagic's HCI product is SvSAN. SvSAN began shipping in 2008. StorMagic recently introduced StorSecure encryption with integrated key management; three-node high availability clustering that enables continuous availability in the event of a double-node failure; and open KVM support. StorMagic's SvSAN is used primarily for mission-critical applications running in edge and ROBO locations ranging from medium to very large businesses across all major regions: the Americas, EMEA and Asia/Pacific. StorMagic is also deployed in the core data centers of small and medium enterprises.

Strengths

- StorMagic has a consistent focus on cost-effective, simple-to-manage solutions for ROBO and edge environments, and it enables two-node, HA solutions for less than $10,000 per site (inclusive of hardware, software and maintenance).
- StorMagic SvSAN supports asynchronous scaling of compute and storage, supports dissimilar HCI nodes to avoid server vendor lock-in and enables HA upgrades in "brownfield"

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deployments. It also has a resource-efficient software design that minimizes compute, memory, storage and network requirements.

- StorMagic's SvSAN provides hypervisor flexibility with support for VMware ESXi, Microsoft Hyper-V and open KVM.

Cautions

- Despite being in operation for more than 13 years and having large deployments in global enterprise customers, StorMagic has limited brand awareness.
- StorMagic has no offerings for organizations seeking a single-vendor, core-to-edge-to-cloud solution, and it does not integrate directly with any cloud providers.
- StorMagic does not offer data deduplication, compression or erasure coding, limiting its fit for larger-storage-capacity requirements.

VMware

VMware is a provider of virtualization and cloud infrastructure solutions that is publicly listed and majority-owned by Dell Technologies. VMware vSAN is a software-defined storage product that serves as the foundation of VMware's HCI and is natively integrated with the vSphere hypervisor. VMware expanded HCI on-premises to offer VMware Cloud Foundation (VCF), which consists of vSphere, vSAN, NSX (network virtualization) and vRealize (advanced management), along with life cycle automation for Day 0 to Day 2 operations, to accelerate private cloud deployments. VCF is also deployed on VMware Cloud on AWS, Microsoft Azure, Alibaba Cloud, Oracle Cloud, IBM Cloud and Google Cloud Platform as well as a private-cloud-managed service, VMware Cloud on Dell EMC, enabling consistent infrastructure and operations for hybrid cloud deployments. VMware's HCI can be deployed on vSAN ReadyNodes or as an appliance from Dell Technologies, VxRail. vSAN ReadyNodes are jointly certified by both VMware and more than 15 OEM vendors, including Atos, Acer, Cisco, Dell EMC, Ericsson, Fujitsu, HPE, Hitachi Vantara, IBM Inspur, Intel, Lenovo, NEC, Quanta Cloud Technology (QCT), Supermicro and Toshiba.

New capabilities in the latest update of vSAN 6.7 are focused on more consistent performance, simplification of some aspects of operations and management, and native support for persistent storage for containers. vSAN is deployed for a broad range of use cases across both midsize businesses and global enterprises.

Strengths

- VMware can be deployed as software only, through validated designs or turnkey appliances, as well as an HCI-as-a-service offering on-premises or as public cloud IaaS, to meet diverse needs of enterprise IT organizations.
- VMware has a large and loyal installed base and is considered by infrastructure and operations (I&O) leaders as one of the most trusted global IT software solution providers.

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- The VMware Cloud on AWS managed service attracts IT leaders looking to deploy the VMware HCI stack across on-premises and public cloud IaaS.

Cautions

- VMware's HCI offering is not suitable for IT leaders who are looking to build a hypervisor-independent infrastructure platform.
- VMware's HCI offering does not include production support for applications requiring unstructured data services, causing IT leaders to deploy third-party solutions for file and object services.
- Gartner clients note that VMware HCI deployments for complex large-scale configurations require careful planning and that these deployments may take a long time for hardware selection, integration and maintenance.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

Added

Huayun Data Group was added because of its acquisition of Maxta.

Sangfor Technologies was added because it met the inclusion criteria.

Dropped

Maxta was dropped because it was acquired by Huayun Data Group.

Inclusion and Exclusion Criteria

To qualify for inclusion in the HCI Magic Quadrant, vendors need to meet the following criteria.

Functional Criteria

Included HCI vendors must:

- Provide an integrated software stack, which includes unified management, software-defined compute (SDC), storage and, optionally, networking.
- Combine VM and SDS resources, both running on the same physical servers, as the primary deployment method.

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- Virtualize local, internal and direct-attached storage (DAS), rather than shared, networked storage, such as a SAN and/or network-attached storage (NAS).
- Provide a mechanism to pool internal and direct-attached primary storage across servers into logical, abstracted virtual storage.
- Develop the storage and data management services integrated in the offering.

Business Criteria

Eligible HCI vendors must:

- For each product to be evaluated, provide evidence of a minimum of 100 production customers brought to revenue in at least two of the major geographies. These are the Americas; EMEA; the APAC region; and Japan — in the 12 months ending 31 August 2019.
- Deliver complete Level 1 (call center/service desk) and Level 2 (escalation) support either directly or through a contracted services provider to facilitate quick and easy problem resolution. However, Level 3 (engineering) support can be delivered separately, based on vendors' engineering partnerships.
- Deliver solutions that meet user requirements in at least four of the use cases identified in the Critical Capabilities for Hyperconverged Infrastructure research.
- Deliver the product or products to be evaluated in the Critical Capabilities in general availability by 31 August 2019.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate technology providers on the quality and efficacy of the processes, systems, methods and procedures that enable IT provider performance to be competitive, efficient and effective, and to positively impact revenue, retention and reputation. Ultimately, technology providers are judged on their ability and success in capitalizing on their vision.

Product or Service: This criterion evaluates core goods and services offered by the technology provider that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the Market Definition/Description section and detailed in the subcriteria.

Overall Viability: This includes an assessment of the overall organization's financial health, and the financial and practical success of the business unit. This also includes the likelihood of the individual business unit to continue to invest in the product, continue offering the product and

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advancing the state of the art within the organization's portfolio of products. The growing proportion of startups in the industry require validation of business models and investment risk.

Sales Execution/Pricing: This criterion refers to the vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: The ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness. The dynamics in the market require increasing flexibility.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the vendor's message in order to influence the market, promote the brand and business, increase awareness of products, and establish positive identification with the product/brand and organization in buyers' minds are evaluated. This mind share can be driven by a combination of publicity, promotional, thought leadership, word-of-mouth and sales activities.

Customer Experience: This includes relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on. Conservative buyers will consider references critical in this emerging market.

Operations: The ability of the organization to meet its goals and commitments is evaluated. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product or Service	High
Overall Viability	High
Sales Execution/Pricing	Medium
Market Responsiveness/Record	High
Marketing Execution	Medium
Customer Experience	High
Operations	Low

Source: Gartner (November 2019)

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Completeness of Vision

Gartner analysts evaluate technology providers on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs and competitive forces, and how well they map to the Gartner position. Ultimately, technology providers are rated on their understanding of how market forces can be exploited to create opportunity for the provider.

Market Understanding: The ability of the vendor to understand buyers' needs and to translate these needs into products and services are evaluated. Vendors that show the highest degree of vision will listen and understand buyers' wants and needs, and can shape or enhance those wants with their added vision. This is a relatively new market and continues to evolve.

Marketing Strategy: This criterion refers to a clear, differentiated set of messages consistently communicated throughout the organization, externalized through the website, advertising, customer programs and positioning statements. The constant stream of new entrants puts pressure on positioning and the ability to differentiate.

Sales Strategy: This refers to the strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: This criterion evaluates a vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature set as they map to current and future requirements. Strong strategy is required for product differentiation.

Business Model: The soundness and logic of a technology provider's underlying business proposition are evaluated.

Vertical/Industry Strategy: This refers to the technology provider's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or preemptive purposes are evaluated. Emerging technologies must be addressed and integrated.

Geographic Strategy: This refers to the vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that geography and market.

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Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	Medium
Sales Strategy	Medium
Offering (Product) Strategy	High
Business Model	Medium
Vertical/Industry Strategy	Medium
Innovation	High
Geographic Strategy	Medium

Source: Gartner (November 2019)

Quadrant Descriptions

Leaders

Leaders will typically be able to execute strongly across multiple geographies, verticals, use cases and deployment models. They will have a support and channel organization that ensures a high-quality customer experience regardless of whether the solution is purchased directly or through resellers, integration partners or OEMs.

Challengers

Challengers are typically vendors whose achievements, while significant, are based on a narrower subset of the market, having gaps in geographic coverage, product portfolios and use cases. These vendors have the potential to establish themselves across the broader, global market, but have not yet done so.

Visionaries

Visionaries are typically vendors that are focusing on strong innovation and product differentiation, with the potential to significantly disrupt the market if execution improves. These may be smaller vendors with limited reach or achievement to date, or larger vendors with innovation programs that are still unproven.

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Niche Players

Niche Players are typically vendors with market programs focused on a limited set of geographies, deployment models, customer segments or use cases. These vendors have met the inclusion criteria and may address their specific market category effectively.

Context

All hyperconverged integrated systems include HCI software, but HCI software is not limited to a system (hardware appliance) deployment model. Software-only/bring-your-own-server, reference architectures, cloud and as-a-service deployments are growing, placing pressure on HCIS appliance vendors to consider software-only deployment options and to reduce hardware dependencies, which offsets the simplicity and agility of HCIS appliance models. The advantages of software-only deployments, which include the avoidance of hardware vendor lock-in, are at least somewhat offset by the added complexity of the support model and inability of software-only vendors to test and certify the myriad configuration options customers may choose. Vendors with software-only options are expanding their OEM partnerships and server certifications to provide greater choice and an improved support experience.

One limitation of the traditional HCIS appliance model is that compute, storage and networking do not scale in tandem for all workloads. To compete across the broadest range of workloads, more vendors are offering compute-only and storage-only nodes. Because resource and performance requirements vary substantially by workload, Gartner continues to recommend that I&O leaders conduct a proof of concept (POC) to evaluate the compute, storage and networking requirements of their workloads running on HCI. I&O leaders also should estimate the component growth requirements to determine the need for asymmetrical scaling. The POC should include a careful analysis of performance during node failures, the increase in risk during node failures and the time to recover from node failures.

Although there are multiple 100-node-plus deployments today, most HCI implementations can be measured in tens of nodes or fewer. Even large deployments tend to be segmented into smaller clusters, but with centralized management across clusters. As HCI becomes more broadly adopted across a broader range of nonhomogeneous workloads, requirements will increase for HCI to operate more autonomously, including the capability to automatically provision, rebalance, adapt to meet quality of service (QoS) requirements, detect anomalies, and prevent failures and data loss. When HCI is deployed at large scale, these capabilities will be both increasingly necessary and key points of vendor differentiation.

One of the attractions of integrated systems and HCI is the potential to create a cloudlike provisioning model while maintaining physical control of IT assets and data on-premises in the data center, remote site or branch office. Over the next few years, cloud deployment models will become increasingly important to meet both short-term scale-up/scale-down requirements and backup and disaster-recovery requirements. An important question for users is whether HCI is a stepping stone to the cloud or a “foreseeable future” resting place for applications; and ultimately, whether it is a

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good alternative to the public cloud from performance, manageability at scale and cost perspectives.

The adoption of HCI-based solutions continues to grow, but, outside of smaller organizations, HCI is unlikely to become a full-service platform for IT services across all workloads. I&O leaders should evaluate HCI solutions and select vendors and products not because HCI or that vendor is rapidly growing, but because it fits their particular use case, growth expectations and application architecture direction. HCI is likely to become yet another silo to manage, so integration with higher-level management frameworks (including cloud, container and security management) becomes key to supporting an already overtaxed operations staff.

Adopting technology innovation must be business-led, not technology-driven. There is no ideal integrated system or "endgame" infrastructure. New hardware and software innovations will continue to appear, moving the goalposts and pushing the boundaries of infrastructure design and delivery. Consolidation, rationalization and virtualization set the foundation for ultimately delivering integrated systems like hyperconverged, SDI and composable infrastructure.

Market Overview

HCI is a market that has significant overlap with the hyperconverged integrated system submarket of integrated systems. The two, however, cannot be equated, as HCI includes flexible deployment and sourcing models that extend to cloud, on-premises as a service, bring your own hardware, reference architectures, and OEM or branded appliances. At one extreme, vendors that offer multiple HCIS solutions may not develop any of their own HCI software. Conversely, HCI software vendors may partner with multiple hardware, software and cloud providers to deliver their solutions to market.

As HCI vendors expand their deployment options to include more cloud providers, such as Amazon, Google and Microsoft, acquisition activity increasingly is focused on tools and capabilities to monitor, secure, manage, optimize, and govern diverse on-premises and cloud deployments.

Many partners in the HCI market are also competitors, and I&O leaders must remain cognizant of the sometimes conflicting priorities and incentives of HCI vendors and their partners as well as rapidly expanding HCI partner networks. Full-stack infrastructure software suppliers, such as Microsoft, VMware and Red Hat, pose interesting partnership challenges, as each has significant HCI opportunities within their substantial installed base of customers. Vendors that have more hypervisor-neutral — or at least hypervisor-flexible — offerings may have advantages for customers that want to avoid hypervisor lock-in. I&O leaders pursuing multihypervisor strategies should carefully evaluate the ability of solution providers to deliver simplicity at the management layer. Cloud providers Amazon and Google, together with Microsoft, which already has a substantial position in the market, could ultimately disrupt the entire HCI market as they further extend their cloud offerings to on-premises infrastructure. Meanwhile, I&O leaders will have an alternative to public cloud and private data centers by leveraging IaaS providers that use simpler-to-manage HCI for their own infrastructure.

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Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

“Assessing Hyperconverged Infrastructure for Mixed Workloads”

“Toolkit: Sample RFP for Hyperconverged Infrastructure”

“Evolution of Virtualization: VMs, Containers, Serverless — Which to Use When?”

“How Markets and Vendors Are Evaluated in Gartner Magic Quadrants”

Evidence

This Magic Quadrant is based on vendors’ written responses to an extensive Gartner survey, vendor presentations, reference customer surveys, Gartner interviews with vendor partners and competitors, Gartner client inquiries, and independent validation of vendor claims through assessment of third-party resources.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can

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be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

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RESOLUTION **NO:** [Title]

LIVINGSTON COUNTY **DATE:** Click or tap to enter a date.

Resolution Authorizing the Purchase of a CISCO Network Core Switch to Mitigate the County's Exposure to Data Loss - Information Technology

WHEREAS, IT recommends the purchase of a Cisco network core switch to replace the current switch that has been in place since 2010 and was end of life in 2012. Cisco no longer supports the switch's firmware upgrades. This purchase needs to be completed as swiftly as possible to help mitigate the County's exposure to data loss or other disasters; and

WHEREAS, this switch is the nucleus of our county data network; it is similar to the body's spinal column, as all of our county's network traffic flows through this device. Traffic from our Courts, 911, Sheriff's Office, Health Department, other essential county departments, and some local municipalities is constantly running through this switch; and

WHEREAS, core switches have a recommended 10-year life cycle. The need to keep up with security patches and system requirements in our technology infrastructure is essential. The benefits of replacing the current switch with a next generation switch include, increased scale and performance, improved server and application responsiveness and speeds, streamlined server management and administration, and fiscal diligence by utilizing both contract and special pricing; and

WHEREAS, there are current pricing advantages to using a contract for the physical hardware, software, and labor costs. This project was included in the Livingston County Capital Improvement Plan and was funded for the 2020 fiscal year. The project's estimate in the Capital Improvement Plan project was $140,000; and

WHEREAS, in compliance with the Procurement Policy, it is recommended to purchase from Logicalis, Inc. utilizing the NASPO ValuePoint Cooperative Purchasing Program, through the State of Michigan contract for an amount of $82,703; and

WHEREAS, Logicalis has been Livingston County's trusted Cisco partner since 2012. This is highly specialized installation, which requires expert level familiarity with Cisco core switch replacement. Prior knowledge of the County's infrastructure is also highly encouraged.

THEREFORE BE IT RESOLVED that the Livingston County Board of Commissioners hereby approves and authorizes a purchase order to be issued to Logicalis, Inc. for the purchase of a network core switch amount not to exceed $82,703.

BE IT FURTHER RESOLVED that the Livingston County Board of Commissioners hereby authorizes the Treasurer to transfer an amount not to exceed $82,703 from F403 Capital Improvement to F636 Information Technology for the network core switch project.

BE IT FURTHER RESOLVED that the Chairman of the Livingston County Board of Commissioners is authorized to sign all forms, assurances, contracts/agreements, renewals and future amendments for monetary and contract language adjustments related to the above upon review and/or preparation of Civil Counsel.

# # #

MOVED:
SECONDED:
CARRIED:

Livingston County Information Technology Department

Memo

To: Livingston County Commissioners, Livingston County Administrator Cindy Catanach

From: Kristoffer Tobbe

Livingston County Chief Information Officer

Date: May 15, 2020

Re: Livingston County Data Center Switch Core Replacement Project

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Core Network Switch Replacement

At this time, IT recommends the purchase of a Cisco network core switch to replace the current switch that has been in place since 2010 and was end of life in 2012. Cisco no longer supports the switch's firmware upgrades. This purchase needs to be completed as swiftly as possible to help mitigate the County's exposure to data loss or other disasters.

This switch is the nucleus of our County data network; it is similar to the body's spinal column, as all of our County's network traffic flows through this device. Traffic from our Courts, 911, Sheriff's Office, Health Department, other essential county departments, and some local municipalities is constantly running through this switch.

Core switches have a recommended 10-year life cycle. The need to keep up with security patches and system requirements in our technology infrastructure is essential. The benefits of replacing the current switch with a next generation switch include, increased scale and performance, improved server and application responsiveness and speeds, streamlined server management and administration, and fiscal diligence by utilizing both contract and special pricing.

There are current pricing advantages to using a contract for the physical hardware, software, and labor costs. This project was included in the Livingston County Capital Improvement Plan

and was funded for the 2020 fiscal year. The project's estimate in the Capital Improvement Plan project was $140,000. The negotiated price for the switch replacement is $82,702.95. This pricing is 56% below retail price and average.

It is recommended that we utilize the State of Michigan's NASPO contract to purchase this data center expansion through our proven and trusted partner, Logicalis. Logicalis has been Livingston County's trusted Cisco partner since 2012. This is highly specialized installation, which requires expert level familiarity with Cisco core switch replacement. Prior knowledge of the County's infrastructure is also highly encouraged.

Finance options are available through Cisco Financial. There are very favorable terms that would help to smooth the purchase costs, though IT would not recommend financing technology beyond 36 months.

This purchase would be made in accordance with the County's procurement policy from Resolution #2018-11-189, which was approved by the Livingston County Board on November 19, 2018.

From Section 1: Source Selection & Contract Formation, Sub-Section H: Cooperative Purchasing/Procurement Programs. "Notwithstanding any other provision of this policy, the County may make or authorize the purchase of supplies, equipment or services available through cooperative purchasing/procurement programs and other associations. The decision to purchase from these programs shall be made by the Board of Commissioner's after consultation with the department and considering among other issues: delivery, packaging, minimum order requirements, follow-up service if applicable, product/equipment quality. Bidding requirements shall be waived if it is determined to be in the best interest of the County based on written communication to support the County's findings. The County Administrator is authorized to enter into necessary agreements or contracts on behalf of the County. State of Michigan Extended Purchasing Program (such as MiDeal or other like programs) can be used instead of the normal bidding process."

Additional information:

Definition - What does Core Switch mean?

A core switch is a high-capacity switch generally positioned within the backbone or physical core of a network. Core switches serve as the gateway to a wide area network (WAN) or the Internet - they provide the final aggregation point for the network and allow multiple aggregation modules to work together.

A core switch is also known as a tandem switch or a backbone switch. A backbone or core is a part of computer network that interconnects various pieces of network, providing a path for the exchange of information between different LANs or subnetworks. A backbone can tie together diverse networks in the same building, in different buildings in a campus environment, or over wide areas. Normally, the backbone's capacity is greater than the networks connected to it.

A large corporation that has many locations may have a backbone network that ties all of the locations together, for example, if a server cluster needs to be accessed by different

departments of a company that are located at different geographical locations. The pieces of the network connections (for example: Ethernet, wireless) that bring these departments together is often mentioned as network backbone. Network congestion is often taken into consideration while designing backbones.

Cisco Core Switch	Livingston County CIP Budgeted Ammount	Original List Pricing	Difference between CIP and Specified Quote	Standard NASPO Contract Pricing	Standard %	Discount price Negotiated	Savings off of Standard Contract Pricing	Additional Discounts over List Price	Reocurring Annual Costs 3 yr Contract	Finance Option A	Finance Option B
	$140,000.00	**Over Budget**	**Over Budget**	**Under Budget**		**Under Budget**					
Catalyst 9400 Series 10 slot Hardware		$151,229.63		$90,454.00	**40%**	$55,664.00	$34,790.00	**63%**	$0.00		
Cisco Software		$14,114.77		$8,352.50	**40%**	$5,140.00	$3,212.50	**64%**	$0.00		
Hardware Maintenance and Support		$8,065.58		$5,092.05	**40%**	$4,723.95	$368.10	**41%**	$0.00		
Professional Installation and Configuration Services		$28,229.53		$17,175.00	**40%**	$17,175.00	$0.00	**39%**	$0.00		
Totals	**$140,000.00**	**$201,639.50**	**-$61,639.50**	**$121,073.55**		**$82,702.95**	**$38,370.60**				
					Savings over Original Budgeted Ammount	$57,297.05	**41%**	**Lower than Budgeted ammount**			
					Savings over List Pricing	$118,936.55	**59%**	**Lower than List Pricing**			
					Savings beyond Governmental Contract Pricing	$38,370.60	**32%**	**Lower than Contract Pricing**			

Switch Configuration Services
Quotation # 2020-89112v3

Prepared By Logicalis for:
Livingston County

To the attention of :
Ken Langley
Livingston County
Howell, MI 48843
Tel: 517-540-8802
Email: klangley@livgov.com

May 12, 2020

Pricing Summary

The following is a price summary of Logicalis' proposed solution.

Price Summary	Amount
Hardware	$55,664.00
Software	$5,140.00
Hardware Maintenance	$4,723.95
Professional Services	$17,175.00
Grand Total	**$82,702.95**

If you're interested in leasing the equipment contained in this Quotation, Logicalis estimates the monthly lease payment to be $1,666.

This is a budgetary number only based on a 36 month term and subject to credit approval, so please contact your Logicalis Account Executive for full details and a complete leasing quote.

- Payments do not include any applicable sales, rental or use taxes.
- Payments do not include any Logicalis professional services.
- Payments are valid for monthly payment structures only with deferrals 30 days or less.
- Please call for non-monthly payment structures and payment deferrals greater than 30 days.
- All transactions are subject to credit and documentation requirements, review and approval.
- Additional terms may apply.

LOGICALIS
Architects of Change

Logicalis offers a range of services, from helping you define and design a cloud strategy to assisting with server and storage selection for your current environment. We provide a variety of assessments and health checks, perfect for those who need help determining what the next steps are. Find out more at www.us.logicalis.com

To address your most pressing challenges during COVID-19, Logicalis has instituted Rapid Deployment Services designed to support your needs to deploy remote workers, maintain security and infrastructure readiness, and provide supplemental IT staff support. All services are designed to be delivered remotely by a Logicalis Engineer. Find out more at http://bit.ly/3b6Gnzp

Ask us about Logicalis Leasing Solutions—a value-added service tailored to our customers. Leasing offers strategic, operational and financial benefits that can help meet your company's goals and get your project funded. Logicalis financing experts work with more than a dozen trusted leasing partners to assist you as our valued customer. We can deliver competitive rates and flexible terms and make the leasing process easy. Learn more today at www.us.logicalis.com/logicalis-financial-services/

Switch Configuration Services
Quotation # 2020-89112v3

Customer Name & Address	Logicalis Account Executive
Ken Langley Livingston County Howell, MI 48843 517-540-8802 klangley@livgov.com	Lisa Nowak Logicalis Inc. 120 N Washington Square Suite 600 Lansing, MI 48933 +1 5173361052 lisa.nowak@us.logicalis.com
Bill To Address	**Ship to Address**
Livingston County 304 E Grand River Ave Howell, MI 48843-2488	Livingston County 304 E Grand River Ave Howell, MI 48843-2488

This Quotation adheres to the pricing requirements of the NASPO ValuePoint Master Agreement #AR233 (14-19), Cisco Participating Addendum MI #071B4300124 contract.

Item	Qty	Part Number	Description	List Price	Discount %	Unit Price	Extended Price
Products							
1	1	C9410R-96U-BNDL-A	Catalyst 9400 Series 10 slot;Sup; 2xC9400-LC-48U; DNA-A LIC	$30,400.00	60.00%	$12,160.00	$12,160.00
2	1	CON-SNT-C9410R9A	SNTC-8X5XNBD Catalyst 9400 Series 10 slot;Sup; 2xC940	$6,135.00	23.00%	$4,723.95	$4,723.95
3	4	C9400-PWR-BLANK	Cisco Catalyst 9400 Series Power Supply Blank Cover	$0.00	0.00%	$0.00	$0.00
4	2	C9400-NW-A	Cisco Catalyst 9400 Network Advantage License	$0.00	0.00%	$0.00	$0.00
5	1	S9400UK9-1612	Cisco Catalyst 9400 XE 16.12 UNIVERSAL	$0.00	0.00%	$0.00	$0.00
6	4	C9400-PWR-3200AC	Cisco Catalyst 9400 Series 3200W AC Power Supply	$2,040.00	60.00%	$816.00	$3,264.00
7	4	CAB-US520-C19-US	NEMA 5-20 to IEC-C19 14ft US	$0.00	0.00%	$0.00	$0.00
8	1	C9400-DNA-A	Cisco Catalyst 9400 DNA Advantage Term License	$0.00	0.00%	$0.00	$0.00

Item	Qty	Part Number	Description	List Price	Discount %	Unit Price	Extended Price
9	1	C9400-DNA-A-3Y	Cisco Catalyst 9400 DNA Advantage 3 Year License	$12,850.00	60.00%	$5,140.00	$5,140.00
10	2	PI-LFAS-T	Prime Infrastructure Lifecycle & Assurance Term - Smart Lic	$0.00	0.00%	$0.00	$0.00
11	2	PI-LFAS-AP-T-3Y	PI Dev Lic for Lifecycle & Assurance Term 3Y	$0.00	0.00%	$0.00	$0.00
12	1	C9400-SUP-1XL-B	Cisco Catalyst 9400 Series Sup-1XL Bundle Select Option	$5,100.00	60.00%	$2,040.00	$2,040.00
13	1	C9400-SUP-1XL	Cisco Catalyst 9400 Series Supervisor 1XL Module	$0.00	0.00%	$0.00	$0.00
14	1	C9400-SUP-1XL/2	Cisco Catalyst 9400 Series Redundant Supervisor 1XL Module	$19,380.00	60.00%	$7,752.00	$7,752.00
15	1	C9400-LC-24XS	Cisco Catalyst 9400 Series 24-Port 10 Gigabit Ethernet(SFP+)	$24,480.00	60.00%	$9,792.00	$9,792.00
16	1	C9400-LC-48U-B	Cisco Catalyst 9400 Series 2xC9400-LC-48U for Bundle Select	$0.00	0.00%	$0.00	$0.00
17	1	C9400-LC-48U	Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45)	$0.00	0.00%	$0.00	$0.00
18	1	C9400-LC-48U	Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45)	$0.00	0.00%	$0.00	$0.00
19	1	NETWORK-PNP-LIC	Network Plug-n-Play Connect for zero-touch device deployment	$0.00	0.00%	$0.00	$0.00
20	1	C9400-LC-48P	Cisco Catalyst 9400 Series 48-Port POE+ 10/100/1000 (RJ-45)	$7,500.00	60.00%	$3,000.00	$3,000.00
21	1	C9400-LC-48P	Cisco Catalyst 9400 Series 48-Port POE+ 10/100/1000 (RJ-45)	$7,500.00	60.00%	$3,000.00	$3,000.00
22	1	C9400-LC-48P	Cisco Catalyst 9400 Series 48-Port POE+ 10/100/1000 (RJ-45)	$7,500.00	60.00%	$3,000.00	$3,000.00

Item	Qty	Part Number	Description	List Price	Discount %	Unit Price	Extended Price
23	1	C9400-LC-48P	Cisco Catalyst 9400 Series 48-Port POE+ 10/100/1000 (RJ-45)	$7,500.00	60.00%	$3,000.00	$3,000.00
24	1	C9400-SSD-NONE	No SSD Memory Selected	$0.00	0.00%	$0.00	$0.00
25	1	C9400-SSD-NONE	No SSD Memory Selected	$0.00	0.00%	$0.00	$0.00
26	1	C9400-LC-48P	Cisco Catalyst 9400 Series 48-Port POE+ 10/100/1000 (RJ-45)	$7,500.00	60.00%	$3,000.00	$3,000.00
27	4	SFP-10G-LR-S=	10GBASE-LR SFP Module; Enterprise-Class	$2,079.00	60.00%	$831.60	$3,326.40
28	8	SFP-10G-SR-S=	10GBASE-SR SFP Module; Enterprise-Class	$728.00	60.00%	$291.20	$2,329.60
						Products Subtotal	$65,527.95
Services - Fixed Fee							
29	1	PS	Project Initiation	$18,375.00	53.27%	$8,587.50	$8,587.50
30	1	PS	Project Completion	$18,375.00	53.27%	$8,587.50	$8,587.50
						Services Fixed Fee Subtotal	$17,175.00

Grand Total	
Products and Services Subtotal:	$82,702.95
Grand Total:	**$82,702.95**

Services Statement of Work

Communication & Network Services - Route / Switch

Tasks and Activities

1 Plan
- 1.1 Core Switch Replacement
  - 1.1.1 Discovery and informal planning

2 Implement
- 2.1 Core Switch Replacement
  - 2.1.1 Configuration of Cisco 9410 Core Chassis Switch

3 Validate
- 3.1 Core Switch Replacement
  - 3.1.1 Cutover and testing of Cisco 9410 Core Switch

4 Support
- 4.1 Core Switch Replacement
  - 4.1.1 Two hours of documentation and knowledge transfer
  - 4.1.2 Four hours of Day One Support

Communication & Network Services Additional Information

Livingston County has requested the support of Logicalis to assist with the replacement of an existing Cisco 6509 core switch with a new Cisco 9410 core switch. Logicalis engineers will remotely provide planning and configuration services on the new 9410 switch. Logicalis engineers will be on-site for the cut-over and testing of the new 9410 core switch.

Please note that Livingston County resources will be responsible for physically racking, stacking, and cabling the new 9410 switch and removing the existing 6509 switch.

Project Management

The assigned Logicalis Project Manager will be responsible for providing the following services:

Project Manager 2 (Low Rigor)

Planning
- Project initiation phone call
- Resource scheduling
- High-level milestone timeline

Execution
- Product tracking, if applicable
- Weekly project status call and email
- Resource management and allocation
- Project escalations

Monitoring & Controlling
- Project Deliverable review and delivery, as applicable
- Scope management
- Document Project Change Requests (PCRs), if applicable
- Timeline monitoring

Closing
- Project Closure and Acceptance processing

Terms and Conditions

Terms Applicable to All Sales

1. In the event Customer chooses to lease the Products and/or Services from a third party leasing company, Customer remains liable for payment to Logicalis for all Products and/or Services purchased until Logicalis receives payment from such leasing company.

2. All items not specifically included in this document are out of scope.

3. Prices are valid for 30 days from date of the document unless otherwise stated.

4. The information in this document is considered proprietary and confidential to Logicalis. By acceptance of this Quotation, Customer agrees to maintain this confidentiality and use such information for internal purposes only.

Terms Applicable for Product Sales

1. To the extent applicable, the terms of the NASPO ValuePoint Master Agreement #AR233 (14-19), Cisco Participating Addendum MI #071B4300124 are incorporated herein by reference. For all other terms not addressed in the previously stated contract, Logicalis Terms of Sale, found on our website at www.us.logicalis.com/tcsales apply and are incorporated herein by reference.
2. Any variation in quantity or requested delivery may result in price changes.
3. Prices are subject to change without notice in the event the Product's manufacturer/distributor changes the price to Logicalis.
4. Shipping and taxes are added at time of invoice. Shipping charges are subject to handling fees for specifying carriers and same day shipments.
5. Logicalis collaborates with the OEM/distributor to schedule delivery to Customer's loading dock; inside delivery is available upon request and may increase the cost of delivery.
6. To the extent this Quotation includes Cisco Cloud Services, the following link shall apply: www.cisco.com/c/en/us/about/legal/cloud-and-software/cloud-terms.html.

Terms Applicable for Services Sales

1. To the extent applicable, the terms of the NASPO ValuePoint Master Agreement #AR233 (14-19), Cisco Participating Addendum MI #071B4300124 are incorporated herein by reference. For all other terms not addressed in the previously stated contract, Logicalis Terms of Sale, found on our website at www.us.logicalis.com/tcsales apply and are incorporated herein by reference.
2. General customer responsibilities, project assumptions, change management processes, and other terms applicable to the delivery and receipt of services (as applicable to this Quotation), found at us.logicalis.com/gcr, are incorporated herein by reference.
3. Unless otherwise mutually agreed upon, reasonable travel expenses will be tracked separately and billed directly to Customer. Travel expenses will include cost incurred from travel (airfare, rental car, mileage, tolls and lodging). Meals, if any, will be billed at the per diem rate of $65.

Quotation Acceptance

By signing below, the undersigned accepts this offer and confirms that he/she is authorized to purchase these items on behalf of Customer. This offer may be accepted by purchase order or other acknowledgement of acceptance, including, without limitation, by signing this document. Any reference to a Customer's Purchase Order or P.O. number does not indicate Logicalis' acceptance of terms and conditions referenced on/attached to any such P.O.

Accepted By: Livingston County	Accepted By: Logicalis, Inc.
Signature	Signature
Printed Name	Printed Name
Title	Title
Date	Date

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Gartner

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Gartner Peer Insights 'Voice of the Customer': Data Center Networking

Published: 9 May 2019 **ID:** G00390119

Analyst(s): Peer Contributors

Gartner Peer Insights is a free peer review and ratings platform designed for enterprise software and services decision makers. Reviews go through a strict validation and moderation process in an effort to ensure they are authentic. This document synthesizes Gartner Peer Insights' content in data center networking market for the previous year. This peer perspective, along with the individual detailed reviews, is complementary to expert research and should play a key role in your buying process.

Overview

What Are Data Center Networking Solutions?

The data center networking vendors covered in this market provide hardware and/or software solutions to deliver connectivity primarily within enterprise data centers. This includes data center core/spine switches, access switches (top of rack [ToR], leaf), virtual switching, Ethernet fabrics, network operating systems (NOSs) and network overlays, and the requisite management, automation and orchestration of those components.

What Is the Gartner Peer Insights Customers' Choice?

Since October 2015, more than 205,000 reviews across more than 330 markets have been posted to Gartner Peer Insights. In markets where there is enough data, Gartner Peer Insights recognizes the vendors that are the most highly rated by their customers through the Customers' Choice distinction. This peer-rated distinction can be a useful complement to expert opinion, as it focuses on direct peer experiences of implementing and operating a solution.

To qualify for the Customers' Choice distinction, vendors must have a product that is aligned to the market, have their overall rating (out of 5 stars) equal or higher than the mean rating for that market, and have equal or higher than the median Product Adoption Review Coverage (PARC) in the same market, during the one-year submission period. PARC is derived by assigning point values to a vendor's review coverage across firm sizes, industry verticals and deployment regions. Reviews from end-user companies with revenue less than $50M will be excluded from this methodology. See the full methodology here.

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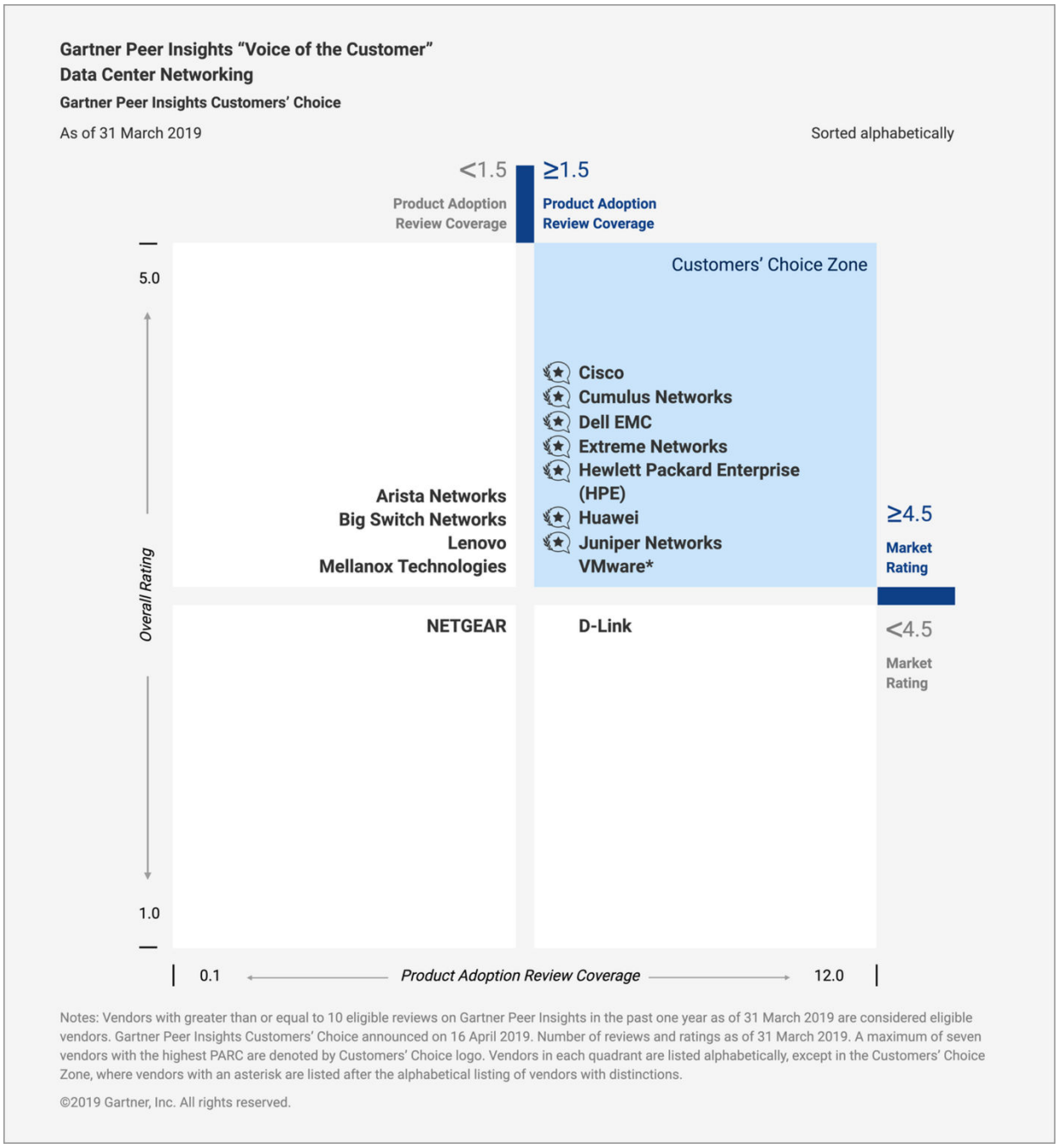
In the data center networking market, Gartner Peer Insights has published 612 reviews and ratings in a 12-month period ending 31 March 2019. Based on the Gartner Peer Insights Customers' Choice criteria, Figure 1 shows a list (in alphabetical order) of vendors in different segments based on their overall score (out of 5 stars) and their PARC. Only vendors with more than 10 eligible reviews during the one-year submission period are included. Customers' Choice vendors appear in the blue box on the upper right, denoted with a Customers' Choice logo.

Figure 1. Gartner Peer Insights "Voice of the Customer" Data Center Networking Customers' Choice



Source: Gartner (May 2019)

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Use Customer Reviews and Expert Research to Supplement Your Analysis

Along with the historical peer-based perspective represented in this document, Gartner covers the data center networking market with expert-led research, primarily through the related Magic Quadrant and associated Critical Capabilities research documents.

Magic Quadrants are forward-looking, to help clients identify vendors likely to keep up with or even stay ahead of the overall market. Our analysts look broadly at customer feedback across markets, as well as a company's forward-looking strategy, roadmap and capabilities. Peer reviews are driven solely by reviewers' organizations' specific experiences relative to their unique needs. Hence, there may be a difference in analyst opinions about vendors, products and services versus user sentiment as expressed in peer reviews. For more information on how markets and vendors are evaluated in Magic Quadrants, please see "How Markets and Vendors Are Evaluated in Gartner Magic Quadrants."

A vendor's placement in the top-right corner (the Leaders quadrant) in a Magic Quadrant report does not mean that the vendor is the best choice for an organization. Rather, it simply means that a vendor executes well in its overall market presence and has a good strategy for continuing to do so. Often, vendors from other quadrants may be a better fit. They may offer better products (to investigate products further, refer to the associated Critical Capabilities reports that accompany the respective Magic Quadrant), better address requirements from particular verticals and/or be more affordable. Ultimately, making the right choice depends on how the vendor aligns with your business goals. For related research in this market, see "Magic Quadrant for Data Center Networking."

Not all vendors within a market are included in Gartner expert-generated research. A Magic Quadrant is not intended to be an exhaustive analysis of every vendor in a market, but rather a focused analysis. The criteria for inclusion may consist of market share, number of clients, installed base, types of products/services, target market or other defining characteristics. These criteria help narrow the scope of the research to those vendors that Gartner considers to be the most important — or best-suited — to the evolving needs of Gartner's clients as buyers in the market. While Peer Insights markets are based on Magic Quadrant market definitions, the standards for entry are broader, thus offering a more expansive view of a given market.

Figure 2 shows the vendors' position in the Magic Quadrant as of 11 July 2018, and Customers' Choice distinctions as of 16 April 2019. The list includes all vendors mentioned in the Magic Quadrant along with additional Customers' Choice vendors listed on Peer Insights, sorted alphabetically.

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Figure 2. Gartner Peer Insights "Voice of the Customer" Data Center Networking Magic Quadrant and Peer Insights Customers' Choice View

Gartner Peer Insights "Voice of the Customer"
Data Center Networking
Gartner Magic Quadrant and Gartner Peer Insights Customers' Choice View

As of 31 March 2019 — Sorted alphabetically

Eligible Vendors	Gartner Magic Quadrant Position	Gartner Peer Insights
Arista Networks	Leaders	
Big Switch Networks	Visionaries	
Cisco	Leaders	customers' choice 2019
Cumulus Networks	Visionaries	customers' choice 2019
Dell EMC	Visionaries	customers' choice 2019
Extreme Networks	Challengers	customers' choice 2019
Hewlett Packard Enterprise (HPE)	Niche Players	customers' choice 2019
Huawei	Challengers	customers' choice 2019
Juniper Networks	Leaders	customers' choice 2019
Lenovo	Niche Players	
Mellanox Technologies	Niche Players	
New H3C Group	Niche Players	
Pluribus Networks	Niche Players	
VMware	Visionaries	

Notes: The table above lists all vendors mentioned in the Gartner Magic Quadrant plus any vendors in Gartner Peer Insights that have the Gartner Customers' Choice distinction. The Gartner Magic Quadrant for Data Center Networking was published on 11 July 2018. Customers' Choice announced on 16 April 2019. Vendors are listed alphabetically.

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Source: Gartner (May 2019)

Gartner Peer Insights "Voice of the Customer"

Data Center Networking Peer Reviews and Ratings

In addition to the synthesis provided by the Customers' Choice, the individual reviews and ratings within Gartner Peer Insights can be a valuable source of lessons learned for those currently in the buying cycle for data center networking market, particularly if you can find and read reviews from

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end users like you (for example, those that share your technology adoption bias, company size, industry or geography).

These reviews give insight into not only how satisfied existing customers are with a vendor's product, but also their experience in negotiating with the vendor, getting support for the product or service and their overall implementation effort. This information can provide you with a firsthand view on what to expect from a particular vendor.

The rest of this document will highlight some of the broad findings in the data center networking market based on 12 months of reviews and will also point you to particular ways to use the site in your buying process.

Figure 3 summarizes the overall ratings (out of 5 stars) for vendors in the data center networking that have received more than 10 eligible reviews in the one-year period ending on 31 March 2019, sorted by number of reviews.

The table is sorted by number of reviews because ultimately, the more reviews a vendor receives, the more likely it is that you can trust a summary rating. This can be visualized by the 95% confidence interval that has been added as a bar range to the overall ratings in Figure 3. This is best interpreted as: "Given the distribution of reviews received, the vendor's overall rating is 95% likely to be between the lower and upper dots."

While the confidence interval can offer a useful perspective, finding individual reviews from end users like you can be even more valuable. To begin using Gartner Peer Insights this way, please click here to navigate to the overall market page. Find a vendor you are interested in and use the filters on the left to begin narrowing reviews to read. Because access to Gartner Peer Insights is free and open to everyone, this is something that you can delegate to your team as well.

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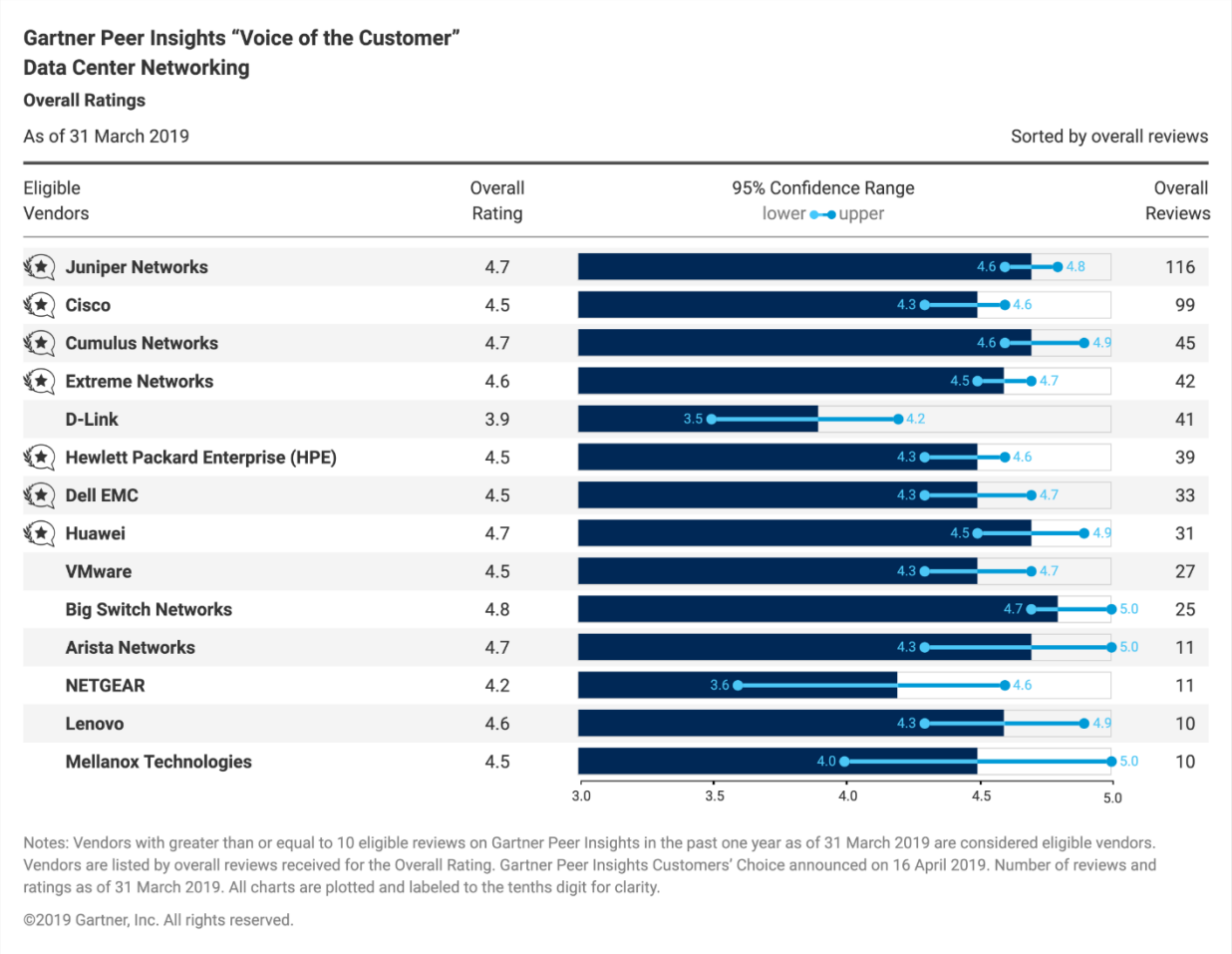
Figure 3. Gartner Peer Insights "Voice of the Customer" Data Center Networking Overall Ratings



Source: Gartner (May 2019)

Vendor Comparison

In addition to reading individual reviews, you can select multiple vendors to compare within the site. Figure 4 and Figure 5 provide an aggregate view, but it's easy to create a comparison between several vendors on your shortlist and then send it to others in your organization. To begin using the site this way, please click here to go to the overall market page. Find the first vendor you are interested in comparing and press the "compare" button.

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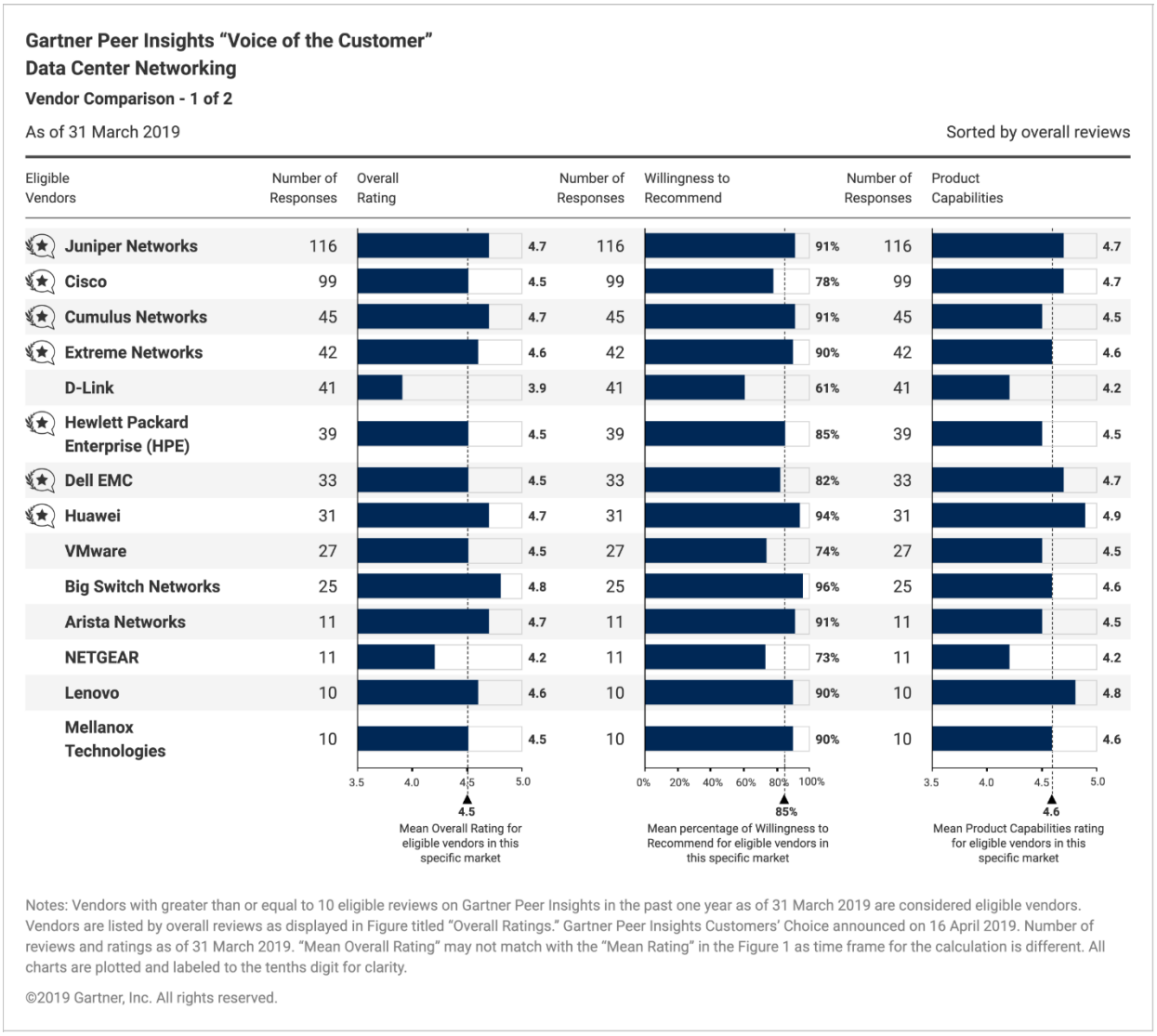
Figure 4. Gartner Peer Insights "Voice of the Customer" Data Center Networking Vendor Comparison 1 of 2



Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 March 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings." Gartner Peer Insights Customers' Choice announced on 16 April 2019. Number of reviews and ratings as of 31 March 2019. "Mean Overall Rating" may not match with the "Mean Rating" in the Figure 1 as time frame for the calculation is different. All charts are plotted and labeled to the tenths digit for clarity.

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Source: Gartner (May 2019)

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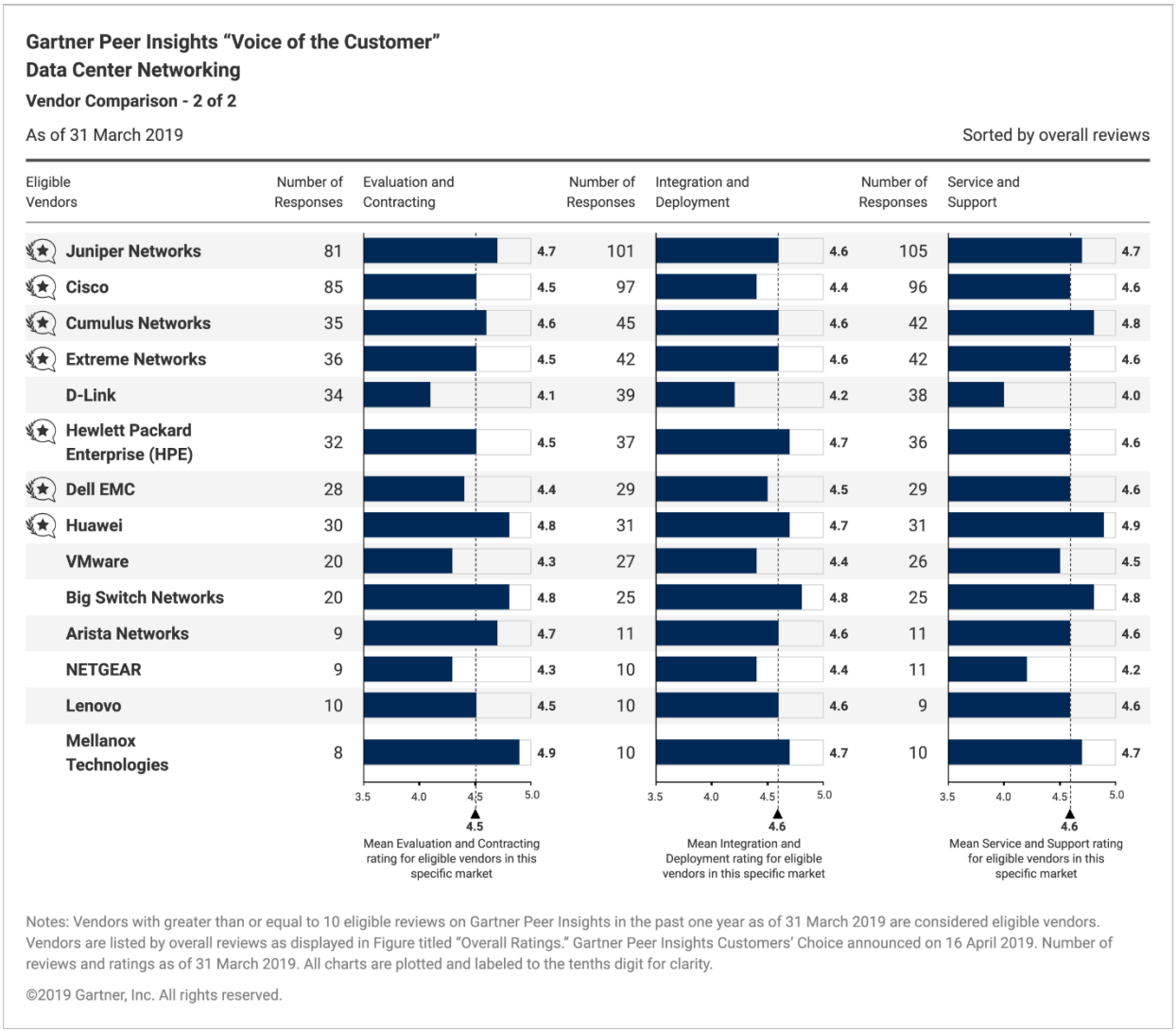
Figure 5. Gartner Peer Insights "Voice of the Customer" Data Center Networking Vendor Comparison 2 of 2



Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 March 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings." Gartner Peer Insights Customers' Choice announced on 16 April 2019. Number of reviews and ratings as of 31 March 2019. All charts are plotted and labeled to the tenths digit for clarity.

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Source: Gartner (May 2019)

Other Vendors Considered

The Peer Insights survey asks reviewers that were involved in evaluation which other vendors were considered before deciding on the choice they made. Figure 6 summarizes their feedback, enabling you to identify which other vendors were typically on the shortlist alongside a given vendor.

Figure 6 is an aggregate view, but you can customize the view for your particular shortlist and then send to others in your organization. To begin using the site this way, please click here to go to the overall market page. Find the first vendor you are interested in comparing and press the "compare" button. "Alternative vendors considered" is an item in the comparison.

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Figure 6. Gartner Peer Insights "Voice of the Customer" Data Center Networking Other Vendors Considered

Gartner Peer Insights "Voice of the Customer"
Data Center Networking

Other Vendors Considered

As of 31 March 2019 — Sorted by overall reviews

Eligible Vendors (Number of Responses)	Vendors That Reviewers Also Considered (top five alternatives)				
Juniper Networks (82)	Cisco (85%)	Huawei (23%)	Dell EMC (20%)	Alcatel-Lucent Enterprise (18%)	Arista Networks (18%)
Cisco (85)	Juniper Networks (34%)	Hewlett Packard Enterprise (HPE) (33%)	Arista Networks (26%)	Huawei (19%)	Dell EMC (16%)
Cumulus Networks (35)	Cisco (63%)	Juniper Networks (37%)	Dell EMC (31%)	Mellanox Technologies (31%)	Arista Networks (29%)
Extreme Networks (37)	Cisco (76%)	Juniper Networks (27%)	Dell EMC (24%)	Hewlett Packard Enterprise (HPE) (24%)	Alcatel-Lucent Enterprise (11%)
D-Link (35)	Cisco (63%)	Dell EMC (34%)	NETGEAR (29%)	Extreme Networks (20%)	Huawei (20%)
Hewlett Packard Enterprise (HPE) (32)	Cisco (75%)	Juniper Networks (38%)	D-Link (31%)	Dell EMC (19%)	Huawei (19%)
Dell EMC (28)	Cisco (61%)	Hewlett Packard Enterprise (HPE) (32%)	Brocade (21%)	Juniper Networks (21%)	NETGEAR (18%)
Huawei (30)	Cisco (93%)	New H3C Group (23%)	Alcatel-Lucent Enterprise (20%)	Juniper Networks (20%)	VMware (13%)
VMware (20)	Cisco (80%)	Juniper Networks (25%)	Arista Networks (15%)	Hewlett Packard Enterprise (HPE) (15%)	Huawei (15%)
Big Switch Networks (20)	Cisco (65%)	Arista Networks (45%)	Cumulus Networks (30%)	Dell EMC (30%)	Hewlett Packard Enterprise (HPE) (25%)
Arista Networks (9)	Cisco (89%)	Juniper Networks (44%)	Brocade (33%)	Hewlett Packard Enterprise (HPE) (33%)	Dell EMC (22%)
NETGEAR (9)	D-Link (89%)	Cisco (78%)	Dell EMC (22%)	Alcatel-Lucent Enterprise (11%)	Lenovo (11%)
Lenovo (10)	Dell EMC (50%)	Cisco (40%)	Alcatel-Lucent Enterprise (20%)	Hewlett Packard Enterprise (HPE) (20%)	Big Switch Networks (10%)
Mellanox Technologies (8)	Cisco (63%)	Brocade (38%)	Dell EMC (38%)	Arista Networks (25%)	Extreme Networks (25%)

Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 March 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings." Number of reviews and ratings as of 31 March 2019.

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Peer Insights User Ratings

Figures 7 through 20 summarize each vendor's reviewer demographics for those reviews received in the last year, ending 31 March 2019, along with the demographics of the reviewers and a direct link to the vendor's ratings on the site. All vendors with more than 10 eligible reviews in the last year are shown, sorted alphabetically.

Figure 7. Gartner Peer Insights "Voice of the Customer" Data Center Networking Arista Networks Reviewer Demographics

Arista Networks Reviewer Demographics — As of 31 March 2019

4.7 ★★★★★ (11)

5 Star	82%
4 Star	9%
3 Star	9%
2 Star	0%
1 Star	0%

Company Size	n = 11
10B+ USD	18%
1B - 10B USD	45%
50M - 1B USD	27%
Public Sector, Gov't, Edu	9%

Industry	n = 11
Finance	27%
Manufacturing	27%
Healthcare	18%
Services	18%
Other	9%

Deployment Region	n = 11
North America	91%
Europe, Middle East and Africa	27%
Asia/Pacific	64%
Latin America	9%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Arista Networks.

Figure 8. Gartner Peer Insights "Voice of the Customer" Data Center Networking Big Switch Reviewer Demographics

Big Switch Networks Reviewer Demographics — As of 31 March 2019

4.8 ★★★★★ (25)

5 Star	84%
4 Star	16%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size	n = 25
10B+ USD	20%
1B - 10B USD	28%
50M - 1B USD	36%
Public Sector, Gov't, Edu	16%

Industry	n = 25
Services	32%
Manufacturing	16%
Retail	12%
Government	8%
Other	32%

Deployment Region	n = 25
North America	76%
Europe, Middle East and Africa	20%
Asia/Pacific	20%
Latin America	0%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Read all Peer Insights user reviews for Big Switch Networks.

Figure 9. Gartner Peer Insights "Voice of the Customer" Data Center Networking Cisco Reviewer Demographics

Cisco Reviewer Demographics — As of 31 March 2019

4.5 ★★★★½ (99)

5 Star	59%
4 Star	31%
3 Star	9%
2 Star	1%
1 Star	0%

Company Size	n = 99
10B+ USD	15%
1B - 10B USD	28%
50M - 1B USD	49%
Public Sector, Gov't, Edu	7%

Industry	n = 99
Finance	20%
Services	18%
Communications	17%
Healthcare	14%
Other	30%

Deployment Region	n = 94
North America	53%
Europe, Middle East and Africa	27%
Asia/Pacific	21%
Latin America	18%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Cisco.

Figure 10. Gartner Peer Insights "Voice of the Customer" Data Center Networking Cumulus Networks Reviewer Demographics

Cumulus Networks Reviewer Demographics — As of 31 March 2019

4.7 ★★★★★ (45)

5 Star	76%
4 Star	22%
3 Star	2%
2 Star	0%
1 Star	0%

Company Size	n = 45
10B+ USD	22%
1B - 10B USD	11%
50M - 1B USD	60%
Public Sector, Gov't, Edu	7%

Industry	n = 45
Services	36%
Manufacturing	16%
Miscellaneous	16%
Education	9%
Other	24%

Deployment Region	n = 42
North America	69%
Europe, Middle East and Africa	14%
Asia/Pacific	21%
Latin America	2%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Read all Peer Insights user reviews for Cumulus Networks.

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Figure 11. Gartner Peer Insights "Voice of the Customer" Data Center Networking Dell EMC Reviewer Demographics

Dell EMC Reviewer Demographics — As of 31 March 2019

4.5 ★★★★½ (33)

5 Star	61%
4 Star	33%
3 Star	6%
2 Star	0%
1 Star	0%

Company Size	n = 33
10B+ USD	9%
1B - 10B USD	21%
50M - 1B USD	58%
Public Sector, Gov't, Edu	12%

Industry	n = 33
Services	18%
Finance	15%
Manufacturing	15%
Retail	12%
Other	39%

Deployment Region	n = 32
North America	50%
Europe, Middle East and Africa	16%
Asia/Pacific	16%
Latin America	25%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Dell EMC.

Figure 12. Gartner Peer Insights "Voice of the Customer" Data Center Networking D-Link Reviewer Demographics

D-Link Reviewer Demographics — As of 31 March 2019

3.9 ★★★★☆ (41)

5 Star	29%
4 Star	44%
3 Star	12%
2 Star	12%
1 Star	2%

Company Size	n = 41
10B+ USD	7%
1B - 10B USD	5%
50M - 1B USD	80%
Public Sector, Gov't, Edu	7%

Industry	n = 41
Services	27%
Communications	17%
Manufacturing	15%
Finance	10%
Other	32%

Deployment Region	n = 38
North America	18%
Europe, Middle East and Africa	32%
Asia/Pacific	29%
Latin America	24%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Read all Peer Insights user reviews for D-Link.

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Figure 13. Gartner Peer Insights "Voice of the Customer" Data Center Networking Extreme Networks Reviewer Demographics

Extreme Networks Reviewer Demographics — As of 31 March 2019

4.6 ★★★★½ (42)

5 Star	60%
4 Star	40%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size	n = 42
10B+ USD	2%
1B - 10B USD	14%
50M - 1B USD	45%
Public Sector, Gov't, Edu	38%

Industry	n = 42
Education	38%
Services	17%
Healthcare	12%
Communications	10%
Other	24%

Deployment Region	n = 42
North America	74%
Europe, Middle East and Africa	17%
Asia/Pacific	12%
Latin America	10%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Extreme Networks.

Figure 14. Gartner Peer Insights "Voice of the Customer" Data Center Networking Hewlett Packard Enterprise (HPE) Reviewer Demographics

Hewlett Packard Enterprise (HPE) Reviewer Demographics — As of 31 March 2019

4.5 ★★★★½ (39)

5 Star	49%
4 Star	49%
3 Star	3%
2 Star	0%
1 Star	0%

Company Size	n = 39
10B+ USD	3%
1B - 10B USD	15%
50M - 1B USD	69%
Public Sector, Gov't, Edu	13%

Industry	n = 39
Finance	26%
Services	23%
Manufacturing	18%
Communications	8%
Other	26%

Deployment Region	n = 37
North America	24%
Europe, Middle East and Africa	46%
Asia/Pacific	16%
Latin America	19%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Read all Peer Insights user reviews for Hewlett Packard Enterprise (HPE).

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Figure 15. Gartner Peer Insights "Voice of the Customer" Data Center Networking Huawei Reviewer Demographics

Huawei Reviewer Demographics

As of 31 March 2019

4.7 ★★★★★ (31)

5 Star	77%
4 Star	19%
3 Star	3%
2 Star	0%
1 Star	0%

Company Size	n = 31
10B+ USD	32%
1B - 10B USD	6%
50M - 1B USD	32%
Public Sector, Gov't, Edu	29%

Industry	n = 31
Finance	23%
Services	23%
Communications	19%
Government	16%
Other	19%

Deployment Region	n = 31
North America	3%
Europe, Middle East and Africa	23%
Asia/Pacific	61%
Latin America	13%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Huawei.

Figure 16. Gartner Peer Insights "Voice of the Customer" Data Center Networking Juniper Networks Reviewer Demographics

Juniper Networks Reviewer Demographics

As of 31 March 2019

4.7 ★★★★★ (116)

5 Star	73%
4 Star	24%
3 Star	3%
2 Star	0%
1 Star	0%

Company Size	n = 116
10B+ USD	25%
1B - 10B USD	11%
50M - 1B USD	53%
Public Sector, Gov't, Edu	10%

Industry	n = 116
Communications	41%
Services	20%
Manufacturing	10%
Finance	9%
Other	19%

Deployment Region	n = 100
North America	44%
Europe, Middle East and Africa	25%
Asia/Pacific	11%
Latin America	34%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Juniper Networks.

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Figure 17. Gartner Peer Insights "Voice of the Customer" Data Center Networking Lenovo Reviewer Demographics

Lenovo Reviewer Demographics — As of 31 March 2019

4.6 ★★★★½ (10)

5 Star	60%
4 Star	40%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size	n = 10
10B+ USD	10%
1B - 10B USD	10%
50M - 1B USD	80%
Public Sector, Gov't, Edu	0%

Industry	n = 10
Manufacturing	40%
Construction	20%
Energy and Utilities	20%
Miscellaneous	10%
Other	10%

Deployment Region	n = 10
North America	30%
Europe, Middle East and Africa	0%
Asia/Pacific	40%
Latin America	30%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Lenovo.

Figure 18. Gartner Peer Insights "Voice of the Customer" Data Center Networking Mellanox Technologies Reviewer Demographics

Mellanox Technologies Reviewer Demographics — As of 31 March 2019

4.5 ★★★★½ (10)

5 Star	70%
4 Star	10%
3 Star	20%
2 Star	0%
1 Star	0%

Company Size	n = 10
10B+ USD	0%
1B - 10B USD	20%
50M - 1B USD	40%
Public Sector, Gov't, Edu	40%

Industry	n = 10
Education	40%
Services	20%
Communications	10%
Healthcare	10%
Other	20%

Deployment Region	n = 10
North America	10%
Europe, Middle East and Africa	70%
Asia/Pacific	20%
Latin America	0%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for Mellanox Technologies.

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Figure 19. Gartner Peer Insights "Voice of the Customer" Data Center Networking NETGEAR Reviewer Demographics

NETGEAR Reviewer Demographics — As of 31 March 2019

4.2 ★★★★☆ (11)

5 Star	36%
4 Star	55%
3 Star	0%
2 Star	9%
1 Star	0%

Company Size	n = 11
10B+ USD	0%
1B - 10B USD	9%
50M - 1B USD	82%
Public Sector, Gov't, Edu	9%

Industry	n = 11
Services	36%
Manufacturing	27%
Finance	18%
Miscellaneous	9%
Other	9%

Deployment Region	n = 11
North America	36%
Europe, Middle East and Africa	18%
Asia/Pacific	27%
Latin America	27%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for NETGEAR.

Figure 20. Gartner Peer Insights "Voice of the Customer" Data Center Networking VMware Reviewer Demographics

VMware Reviewer Demographics — As of 31 March 2019

4.5 ★★★★½ (27)

5 Star	59%
4 Star	33%
3 Star	7%
2 Star	0%
1 Star	0%

Company Size	n = 27
10B+ USD	30%
1B - 10B USD	15%
50M - 1B USD	41%
Public Sector, Gov't, Edu	15%

Industry	n = 27
Finance	30%
Services	22%
Government	11%
Manufacturing	7%
Other	30%

Deployment Region	n = 27
North America	74%
Europe, Middle East and Africa	26%
Asia/Pacific	22%
Latin America	0%

Note: Percent distributions may not add up to 100% due to rounding. Percent distribution for "Deployment Region" may exceed 100% as reviewers can select multiple regions.

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Source: Gartner (May 2019)

Read all Peer Insights user reviews for VMware.

Gartner Recommended Reading

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"Magic Quadrant for Data Center Networking"

Methodology

The vendors included in the Gartner Peer Insights Customers' Choice distinctions for data center networking were announced on 16 April 2019. Reviews submitted between 1 April 2018 and 31 March 2019 were considered for determining Gartner Peer Insights Customers' Choice distinctions. Gartner is committed to transparency regarding the criteria considered in bestowing this distinction; a full description can be found on the Methodology page. The Gartner "Magic Quadrant for Data Center Networking" referenced in this report was published on 11 July 2018.

Overall customer rating is the response to the survey question: "Please rate your overall experience with this vendor." Other ratings displayed are responses to:

- "Overall rating of product capabilities"
- "Overall rating of evaluation and contract negotiation with the vendor"
- "Overall rating of integration and deployment"
- "Overall rating of service and support"

Ratings were taken on a scale of 1 to 5, where 1 is "completely dissatisfied" and 5 is "completely satisfied." The average ratings within the review may represent multiple versions of a product offering. Reviews for beta products are included in the analysis of this document. Reviews for legacy products (no longer being sold by the vendor) were not included in the analysis in this document.

The 95% confidence range in Figure 3 is calculated using a statistical technique known as bootstrapping. A bootstrap sample is taken from the vendor's ratings by resampling the same number of ratings with replacement. The process is repeated 50,000 times, and a mean is calculated from each bootstrap sample. The low and high ratings shown in the confidence range are the 2.5 to 97.5 percentile values of the histogram of these bootstrapped means. Assuming the data points collected are representative of the true underlying distribution, this represents the 95% confidence interval.

"Willingness to recommend" is calculated based on the responses to the question "Would you recommend this product to others?" The options include "yes," "yes, with reservations," "I don't know" and "no." The percentage is calculated as number of "yes" responses divided by total responses for the question. The "other vendors considered" section is based on reviewer responses for the question: "What other vendors did you consider?" The reviewer may select multiple vendors for consideration. The percentage is calculated according to the total number of reviewers who select an alternative vendor divided by the total responses to the question.

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RESOLUTION **NO:** [Title]

LIVINGSTON COUNTY **DATE:** Click or tap to enter a date.

Resolution Authorizing the Purchase of an Enterprise Network-Server-Application Monitoring System to Monitor and Analyze the County's Environment in Real Time - Information Technology

WHEREAS, the Livingston County Information Technology Systems are a mission critical support and infrastructure for our County departments and ultimately, our public. It is recommended that Livingston County purchase and utilize the Solarwinds Information Technology management suite; and

WHEREAS, this technology platform will allow the County Information Technology department to monitor and analyze our technology with real time "War Room" visibility of forecasting and prediction of events both proactively and negatively. This platform allows for fast enterprise level analysis of problems and troubleshooting under a single platform or "single pane of glass; and

WHEREAS, until now, Livingston County Information Technology has not had the tool set necessary to proactively monitor the County technologies on an enterprise level. This has created blind spots in the it environment, caused significant extra hours of labor, developed a poor rapport with other departments, as well as longer diagnostic times, and a reactive stance to IT; and

WHEREAS, Information Technology needs to be operating on a professional enterprise level to support our network and applications 24x7. We need to move from a reactive approach to a proactive approach to IT. This can be achieved by implementing an enterprise network, server, application, log aggregation, inventory, and ticketing solution; and

WHEREAS, in compliance with the Procurement policy, it is recommended that the County utilize the Oakland County G2G Marketplace to purchase the Solarwinds IT toolset from our proven technology and reselling partner: Access-Interactive in an amount not to exceed $68,254. By utilizing the contract vehicle and taking advantage of special pricing, we have successfully achieved a special discount on the tool suite of 40% below the standard corporate pricing.

WHEREAS, 911 Central Dispatch has agreed to a 24.8 % cost share in this solution as it supports the Public Safety infrastructure. Funding is available through the fiscal year 2020 budgets, however, a restricted object net-zero budget transfer is required in the Information Technology fund.

THEREFORE BE IT RESOLVED that the Livingston County Board of Commissioners hereby approves and authorizes a purchase order to be issued to Access-Interactive for the purchase and of the Solarwinds Technology Suite at an amount not to exceed $68,254.

BE IT FURTHER RESOLVED that Livingston County Board of Commissioners authorizes a net-zero budget transfer from contracted services to capital hardware/software to effectuate the above.

BE IT FURTHER RESOLVED that the Chairman of the Livingston County Board of Commissioners is authorized to sign all forms, assurances, contracts/agreements, renewals and future amendments for monetary and contract language adjustments related to the above upon review and/or preparation of Civil Counsel.

# # #

MOVED:
SECONDED:
CARRIED:

Livingston County Information Technology Department

Memo

To: Livingston County Board of Commissioners, Livingston County Administrator Cindy Catanach

From: Kristoffer Tobbe
Livingston County Chief Information Officer

Date: May 22, 2020

Re: Livingston County Enterprise Information Technology Monitoring Project

---

Enterprise IT Network-Server-Application Monitoring System

The Livingston County Information Technology Systems are a mission critical support and infrastructure for our County departments and ultimately, our public. Our systems and technology systems facilitate and enhance communications for emergency services, support public health, and improve safety for Livingston County and its citizens.

Until now, Livingston County Information Technology has not had the tool set necessary to proactively monitor the County technologies on an enterprise level. This has created blind spots in the it environment, caused significant extra hours of labor, developed a poor rapport with other departments, as well as longer diagnostic times, and a reactive stance to IT.

Information Technology needs to be operating on a professional enterprise level to support our network and applications 24x7. We need to move from a reactive approach to a proactive approach to IT. This can be achieved by implementing an enterprise network, server, application, log aggregation, inventory, and ticketing solution.

Recommendation:

It is recommended that Livingston County purchase and utilize the Solarwinds Information Technology management suite. This technology platform will allow the County Information Technology department to monitor and analyze our technology with real time "War Room" visibility of forecasting and prediction of events both proactively and negatively. This platform allows for fast enterprise level analysis of problems and troubleshooting under a single platform or "single pane of glass."

To meet the needs of Livingston County, we recommend deployment of the following modules within the Orion Platform:

- **Network Performance Monitor (NPM)** - Network monitoring software with end-to-end visibility to help pinpoint performance issues.
- **NetFlow Traffic Analyzer (NTA)** - Network traffic analyzer and bandwidth monitoring software.
- **Network Configuration Manager (NCM)** - Automated network configuration and change management software.
- **Server and Application Monitor (SAM)** – Software that resolves troubleshooting and solving performance issues in applications and the infrastructure that supports them.
- **Log Analyzer (LA)** - Easily investigate machine data to help identify the root cause of IT issues faster.
- **Virtualization Manager (VMAN) -** SolarWinds® Virtualization Manager (VMAN) is a powerful virtual machine (VM) monitoring tool built to consolidate a variety of useful observations into one interface. VMAN can provide you with a comprehensive understanding of your virtualization environment with vendor-agnostic hypervisor visibility, whether on-premises, hyperconverged, hybrid, or in the cloud.
- **Web Help Desk -** Web Help Desk® centralizes and automates ticketing management tasks so you can better support your customers. Keep track of tasks, including ticket assignment, routing, and escalation. Link incident tickets to a single problem for better organization, associate problem tickets with IT assets, and track the history of asset service requests.

The Information Technology Department has downloaded a demonstration version of the Solarwinds Technology Suite that has already shown great value and identified areas of concern that needed to be addressed. This demo version alerted us of a problem another department had that they did not even know they were having. This type of IT intelligence and analytics is needed to support the county departments at an enterprise IT level 24x7.

Financial:

There is no change to the Livingston County Budget Bottom Line for this project. Funds from within the IT budget are being reallocated in addition a departmental cost share of 24.8% has been agreed upon with the Livingston County 911 Department to monitor equipment used for public safety.

It is recommended that the County utilize the G2G contract from Oakland County to purchase the Solarwinds IT toolset from our proven technology and reselling partner: Access-Interactive. By utilizing the contract vehicle and taking advantage of special pricing, we have successfully

achieved a special discount on the tool suite of 40% below the standard corporate pricing. (See table below.) Special terms have also been achieved by cooperation with Solarwinds and our reselling partner, Access-Interactive.

This purchase would be made in accordance with the County's procurement policy from Resolution #2018-11-189, which was approved by the Livingston County Board on November 19, 2018.

From Section 1: Source Selection & Contract Formation, Sub-Section H: Cooperative Purchasing/Procurement Programs. "Notwithstanding any other provision of this policy, the County may make or authorize the purchase of supplies, equipment or services available through cooperative purchasing/procurement programs and other associations. The decision to purchase from these programs shall be made by the Board of Commissioner's after consultation with the department and considering among other issues: delivery, packaging, minimum order requirements, follow-up service if applicable, product/equipment quality. Bidding requirements shall be waived if it is determined to be in the best interest of the County based on written communication to support the County's findings. The County Administrator is authorized to enter into necessary agreements or contracts on behalf of the County. State of Michigan Extended Purchasing Program (such as MiDeal or other like programs) can be used instead of the normal bidding process."

Additional information:

Partner Information:

Access Interactive Company Overview

Access Interactive provides technology solutions, services and support to business, educational and government organizations since 1985. Our business focus is helping our Clients make the most of technology investments. Over the last 30+ years Access has experienced significant growth to establish itself as a $35 million organization proudly retaining over 65 full-time employees. We pride ourselves on being large enough to be extremely competitive and small enough to pay personal attention to our customers. We have an unwavering commitment to providing the best solutions, service and support to our customers.

Our highly-skilled technical services group includes over 40 full-time technicians including VMware, Microsoft, Cisco and Dell certified system engineers. Our technicians are available to you for projects ranging from on-site break/fix services to full-scale WAN/LAN integration, remote access, IP telephony and more.

Access Interactive sales consultants are technically astute and have an average over 20 years of industry experience. They are ready to apply their knowledge and technical expertise to recommending the best products and solutions and to providing efficient project management.

It is our focused mission to implement the best products, service and support in the industry to our clients.

Access Interactive has been doing business with Livingston County since the beginning of 2017.

Access Interactive has had the pleasure of working with state and local government customers, school districts, universities and colleges, and corporations for over 25 years. Recent experience includes the successful design and implementation of technology projects at:

- Oakland County, MI
- Eaton County, MI
- Ottawa County, MI
- Genesee County, MI
- Grand Traverse County, MI
- Monroe County, MI
- City of Battle Creek, MI
- City of Farmington Hills, MI
- City of Sterling Heights, MI
- City of Novi, MI
- Charter Township of Canton, MI
- Macomb County Community Mental Health, MI
- Schoolcraft College, Livonia, MI
- Michigan State University, MI
- Oakland Community College, MI
- Clinton Township, MI
- Genesee County Health Systems

Access Interactive has become a thriving member of Michigan's education and government communities because we are focused on delivering a quality and customized customer experience. We are very grateful for the trust that our customers have place on us and in return we foster and maintain work that is worthy of a trusted advisory.

About Solarwinds:

SolarWinds Technical Strategy and Innovative Approach

Since our founding in 1999, SolarWinds' mission has been to provide purpose-built products that are designed to make jobs easier for IT professionals, MSPs, and DevOps pros. The SolarWinds' solution can address the needs of Livingston County as it has proven to do countless times before by meeting and exceeding technical and testing requirements in every branch of state and local government.

The foundation of SolarWinds' software is the Orion Platform (Figure 1), which has evolved into a powerful architecture that allows customers to easily integrate multiple SolarWinds products together (by simply installing them together – "Plug & Play"). The platform offers a primary web server, polling engine and common services such as alerts, and reports. Our monitoring solutions correlate metrics over time and additional products provide increased visibility when needed.

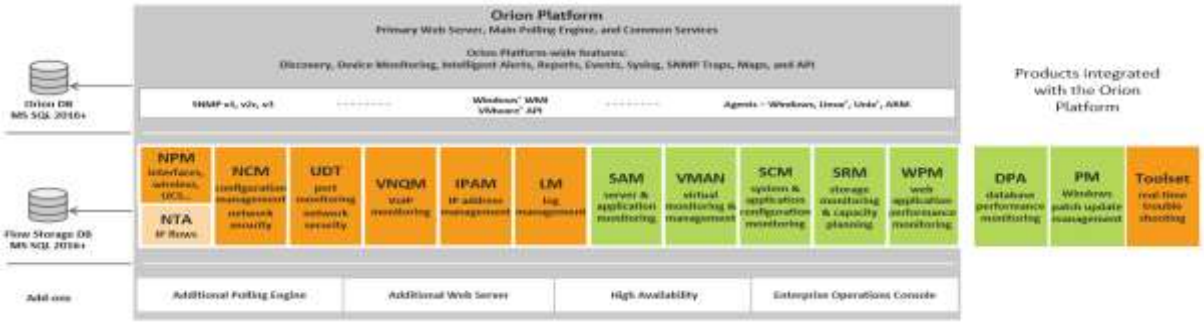

Figure 1 - SWI Orion Platform & Product Suite

SolarWinds Orion Platform includes Role Based Access Control (RBAC). Additionally, SolarWinds Orion platform provides account limitation per account or group. SolarWinds Orion integrates with Active Directory and supports 2 factor authentications using a username/password and CAC or PIV card. The Orion platform also supports multi-factor authentication using SAML 2.0 with built-in support for ADFS and Octa. You can enable, define, and control group and user account privileges for both administrators and guest users.

SolarWinds Orion Platform and product portfolio provides the ability to automatically scan networks for resources and present what is found. Resources are discovered either via ICMP requests, SNMP gets, or Windows Management Instrumentation (WMI).

Device monitoring using SNMP provides a device centric view of networking conditions. Using SNMP, counters on a device such as a router, a switch, or a security device can be measured

and forwarded to the SolarWinds Management Console. This data is useful for understanding performance conditions that are specific to the device. Performance statistics such as CPU utilization, interface/bandwidth utilization, and memory utilization represent most of performance issues encountered in the day-to-day operation of a network.

With the ability to modify built-in default alerts, or set precise custom alerts according to your needs, including email, SMS or by integrating with your ITSM solution. For large networks, you can leverage intelligent alerting to help avoid an influx of unnecessary notifications. You can also create notifications that are dependency- and topology-aware so you only receive alerts that are truly critical. Our products use metrics or thresholds to create alerts, an information display, and reports to help administrators quickly identify whether a device is a source of the problem or if the problem is in the communication transport, device, system, or with the application.

The SolarWinds solution provides unified IT monitoring and end-to-end visibility across your infrastructure. The platform visualizes and correlates cross-stack network and system data to pinpoint exact latency based on standard or pre-defined baselines and metrics that allow you to assess and analyze, accelerate troubleshooting with automatic discovery, and mapped dependencies with cross-stack IT correlation to identify and resolve problems.
SolarWinds products can be used to create a baseline of your network and system performance so you know the normal working conditions of your network infrastructure. This baseline can then be used for comparisons and to monitor changes that could indicate a problem or provide early indicators that application and network demands are pushing near available capacity.

SolarWinds products are vendor agnostic, allowing users to manage a network infrastructure consisting of practically any IT product on the market (e.g., Cisco, Juniper, Palo Alto, etc.). Our solutions allow customers to effectively respond to dynamic IT changes in the market, as well as adapt to new innovations. As government networks evolve, SolarWinds can discover and map elements, keep track of all the relationships along the network and application stack and improve troubleshooting.

Our products are designed to deliver full-spectrum hybrid IT management. We manage all things IT, wherever IT is located, and from wherever IT needs to be managed. Whether your infrastructure and applications are deployed on-premises, in a public or private cloud, or some combination, we collect metrics, monitor performance, and support troubleshooting. SolarWinds Orion Platform and Core IT network and systems products can be deployed on-premise or on AWS or Azure. It’s modular and it can scale across your entire hybrid IT enterprise.

You can monitor the health, capacity and performance across your hybrid IT environment including IaaS, PaaS, and SaaS cloud services. Whether your infrastructure and applications are deployed on-premises, in a public or private cloud, or some combination, our platform modules can collect metrics, monitor performance, support troubleshooting and faster resolution.

The SolarWinds Information Service (SWIS) was created to provide a standard, long lasting way to access almost any data collected by Orion Platform products. The API is used by the various platform products to access data rather than going directly to the database. SWIS provides both northbound and southbound services so it can be used for a broad range of scenarios.

SolarWinds Technical Maturity within State, Local, and Education

SolarWinds' comprehensive products and services are used by more than 275,000 customers in more than 190 countries worldwide, including SLED, DoD and civilian agencies, and Fortune 500 companies. According to the IDC Worldwide Semi-Annual Software Tracker 1H 2018 release, SolarWinds® maintained its number-one position in the global market for network management software during the first half of 2018.

Solarwinds Enterprise IT Monitoring System	Livingston County CIP Budgeted Amount	Standard Pricing		Standard Contract Pricing	Contract Savings off of Standard pricing %	Discount price Negotiated	Negotiated Savings off of Standard Contract Pricing	Reoccurring Annual Costs	Finance Option A
Server & Application Monitor	$0.00	$36,995.00		$ 27,746.25	25%	$23,020.00	38%	$7,769.00	
Network Performance Monitor	$0.00	$20,389.00		$ 15,291.75	25%	$12,687.00	38%	$4,021.00	
NetFlow Traffic Analyzer Module	$0.00	$12,149.00		$ 9,111.75	25%	$7,560.00	38%	$2,562.00	
Network Configuration Manager	$0.00	$6,072.00		$ 4,554.00	25%	$3,779.00	38%	$1,321.00	
Log Analyzer	$0.00	$13,125.00		$ 9,843.75	25%	$8,167.00	38%	$3,281.00	
Web Help Desk	$0.00	$10,350.00		$ 7,762.50	25%	$5,160.00	50%	$1,452.00	
Virtualization Manager	$0.00	$12,664.00		$ 9,498.00	25%	$7,881.00	38%	$2,589.00	
Totals	**$0.00**	**$111,744.00**		**$83,808.00**	**$27,936.00**	**$68,254.00**	**$43,490.00**	**$22,995.00**	
					Savings over Standard Pricing	$43,490.00	39%	Funds are being found within the IT Department & Cost share with 911 Budget	
This is an unbudgeted project.					Savings beyond Governmental Contract Pricing	$15,554.00	19%	Lower than Contract Pricing	
					Livingston County Department Cost Share Partners				
					Liv Co 911 (24.8%)	$16,926.99			
					Liv Co IT (75.2%)	$51,327.01			
					Total Cost	$68,254.00			

SolarWinds Project
Version 5
Special Discount

Prepared by:

access interactive
IT solutions for business, education, and government

Jeremy Friedman
Jerry Rioux
Daniel Heidt

May 26, 2020

access interactive
IT solutions for business, education, and government

SolarWinds Software

Server & Application Monitor SAM200 (up to 200 nodes) - License with 1st-Year Maintenance
$ 23,020.00

SolarWinds Network Performance Monitor SL2000 (up to 2000 elements) - License with 1st-year Maintenance
$ 12,687.00

SolarWinds NetFlow Traffic Analyzer Module for SolarWinds Network Performance Monitor SL2000 - License with 1st-year Maintenance
$ 7,560.00

SolarWinds Network Configuration Manager DL200 (up to 200 nodes) - License with 1st year Maintenance
$ 3,779.00

Log Analyzer LA250 up to 250 nodes-License with 1st-Year Maintenance
$ 8,167.00

SolarWinds Web Help Desk Per Technician License (11 to 20 named users) - License with 1st-Year Maintenance
Qty. 12 @ $ 430.00 each **$ 5,160.00**

SolarWinds Virtualization Manager VM32 (up to 32 sockets) - License with 1st-Year Maintenance
$ 7,881.00

access interactive
IT solutions for business, education, and government

PROFESSIONAL SERVICES:

Scope assumes someone from Livingston assists with the project. The following is an estimate based on similar projects.

- Project plan and scheduling
- Equipment prep/software firmware updates
- Physical deployment of equipment
- Equipment integration
- Knowledge transfer and optimization
- Project management

TOTAL: XX hours

Senior LAN Technician @ $145.00 per hour **$ 0.00**

PROJECT COSTS:

EQUIPMENT:	**$ 68,254.00**
MI SALES TAX:	**$ EXEMPT**
SUBTOTAL:	**$ 68,254.00**
SERVICES:	**$ TBD**
SHIPPING:	**$ NA**
TOTAL:	**$ 68,254.00**

Quote Valid for 30-Days. Prices Subject to Change with Notice Depending on Current Market Conditions. Shipping charges not included. Terms: 50% Upon Acceptance, 25% Upon Delivery, Remainder Net 30. 25% Restocking Fee Applied to Project Costs for Returned Merchandise.

Authorized Signature: _____ **Date:** _____

Printed Name: _____ **Purchase Order No:** _____

Gartner

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Gartner Peer Insights 'Voice of the Customer': IT Service Management Tools

Published: 9 December 2019 **ID:** G00450564

Analyst(s): Peer Contributors

Gartner Peer Insights is a free peer review and ratings platform designed for enterprise software and services decision makers. Reviews go through a strict validation and moderation process in an effort to ensure they are authentic.

Overview

What Are IT Service Management Tools?

IT service management (ITSM) tools enable IT operations organizations, specifically infrastructure and operations (I&O) managers, to support the production environment better. ITSM tools facilitate the tasks and workflows associated with the management and delivery of quality IT services. These are most heavily used by IT service desks and IT service delivery functions. Some non-I&O departments (such as HR or facilities) adapt generic ticket handling and workflow capabilities for their own use. Previously, Gartner called ITSM tools by the name IT service and support management (ITSSM) tools.

What Is Gartner Peer Insights "Voice of the Customer"?

Since October 2015, more than 300,000 reviews across more than 330 markets have been posted to Gartner Peer Insights. The "Voice of the Customer" is a document that synthesizes Gartner Peer Insights' reviews for the previous year into insights for IT decision makers. This peer perspective, along with the individual detailed reviews, is complementary to expert research and can play a key role in your buying process, as it focuses on direct peer experiences of implementing and operating a solution. Only vendors with 10 or more eligible published reviews during the specified one-year submission period are included in this document.

In the ITSM tool market, Gartner Peer Insights has published 4,079 reviews and ratings in the 12-month period ending 31 October 2019. Figure 1 shows all eligible vendors based on their overall rating, review volume and diversity in industry, company size and deployment region.

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What Is the Gartner Peer Insights Customers' Choice?

In markets where there is enough data, Gartner Peer Insights recognizes the vendors that are the most highly rated by their customers through the Customers' Choice distinction. To qualify for the Customers' Choice distinction, vendors must have a product that is aligned to the market, have their overall rating (out of 5 stars) equal or higher than the mean rating for that market, and receive 50 or more eligible published customer reviews during the one-year submission period. In addition, customer reviews must be representative of a broad mix of enterprise clients from different industries, company sizes and deployment regions. Reviews from end-user companies with less than $50M in revenue will be excluded from this methodology. See the full methodology here.

Based on the Gartner Peer Insights Customers' Choice criteria, Figure 1 shows a list (in alphabetical order) of vendors in different segments based on their overall score relative to the market rating and their Review Coverage (see the Methodology section for details). Customers' Choice vendors appear in the blue box on the upper right, denoted with a Customers' Choice badge. A maximum of 7 vendors can qualify.

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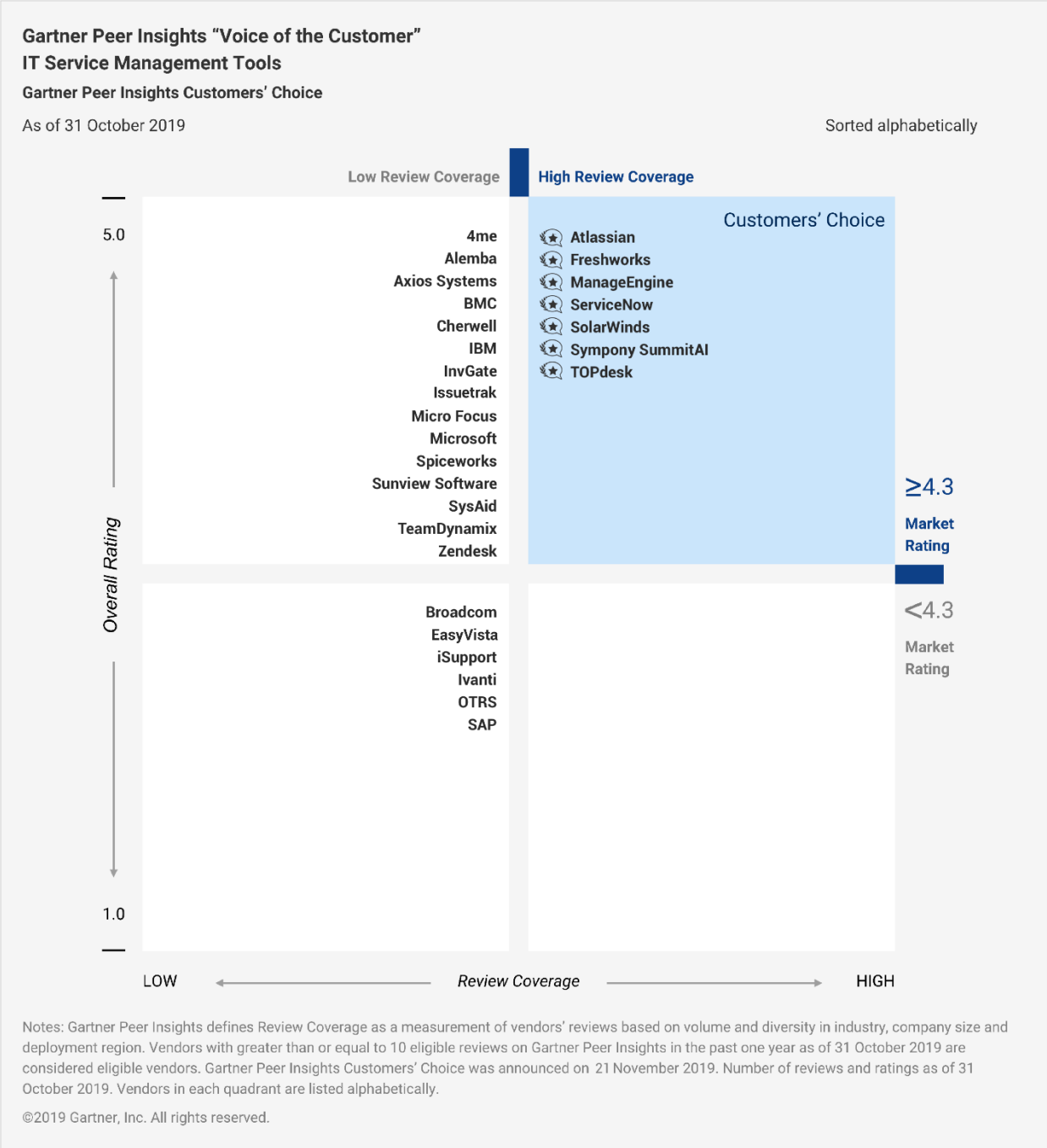
Figure 1. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Customers' Choice



Notes: Gartner Peer Insights defines Review Coverage as a measurement of vendors' reviews based on volume and diversity in industry, company size and deployment region. Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 October 2019 are considered eligible vendors. Gartner Peer Insights Customers' Choice was announced on 21 November 2019. Number of reviews and ratings as of 31 October 2019. Vendors in each quadrant are listed alphabetically.

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Source: Gartner (December 2019)

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Use Customer Reviews and Expert Research to Supplement Your Analysis

Along with the historical peer-based perspective represented in this document, Gartner covers the ITSM tool market with expert-led research, primarily through the related Magic Quadrant and associated Critical Capabilities research documents.

Magic Quadrants are forward-looking, to help clients identify vendors likely to keep up with or even stay ahead of the overall market. Our analysts look broadly at customer feedback across markets, as well as a company's forward-looking strategy, roadmap and capabilities. Peer reviews are driven solely by the specific experiences relative to the unique needs of reviewers' organizations. Hence, there may be a difference in analyst opinions about vendors, products and services versus user sentiment as expressed in peer reviews. For more information on how markets and vendors are evaluated in Magic Quadrants, please see "How Markets and Vendors Are Evaluated in Gartner Magic Quadrants."

A vendor's placement in the top-right corner (the Leaders quadrant) in a Magic Quadrant report does not mean that the vendor is the best choice for an organization. Rather, it simply means that a vendor executes well in its overall market presence and has a good strategy for continuing to do so. Often, vendors from other quadrants may be a better fit. They may offer better products (to investigate products further, refer to the associated Critical Capabilities reports that accompany the respective Magic Quadrant), better address requirements from particular verticals and/or be more affordable. Ultimately, making the right choice depends on how the vendor aligns with your business goals. For related research in this market, see "Magic Quadrant for IT Service Management Tools."

Not all vendors within a market are included in Gartner expert-generated research. A Magic Quadrant is not intended to be an exhaustive analysis of every vendor in a market, but rather a focused analysis. The criteria for inclusion may consist of market share, number of clients, installed base, types of products/services, target market or other defining characteristics. These criteria help narrow the scope of the research to those vendors that Gartner considers to be the most important — or best-suited — to the evolving needs of Gartner's clients as buyers in the market. While Peer Insights markets are based on Magic Quadrant market definitions, the standards for entry are broader, thus offering a more expansive view of a given market. Vendor inclusion and placement within the Peer Insights Voice of the Customer and Magic Quadrant is based on their specific Methodology.

Critical Capabilities documents provide insight into how well a product or service fulfills certain functional capabilities within specific use cases. Critical Capabilities reports are a point-in-time analysis to address the question of which vendor will have the best product given your weighting of which capabilities are most important to your organization. For more information on how products and services are evaluated in Critical Capabilities, please see "How Products and Services Are Evaluated in Gartner Critical Capabilities." For related research in this market, see Gartner's "Critical Capabilities for IT Service Management Tools."

Figure 2 shows the vendors' position in the Magic Quadrant as of 29 August 2019, and Customers' Choice distinctions as of 21 November 2019. The list includes all vendors mentioned in the Magic

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Quadrant along with additional Customers' Choice vendors listed on Peer Insights, sorted alphabetically.

Figure 2. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Magic Quadrant and Peer Insights Customers' Choice View

Gartner Peer Insights "Voice of the Customer"
IT Service Management Tools
Gartner Magic Quadrant and Gartner Peer Insights Customers' Choice View

As of 31 October 2019 — Sorted alphabetically

Eligible Vendors	Gartner Magic Quadrant Position	Gartner Peer Insights
Atlassian		customers' choice 2019
Axios Systems	Niche Players	
BMC	Leaders	
Broadcom	Niche Players	
Cherwell	Challengers	
EasyVista	Niche Players	
Freshworks	Niche Players	customers' choice 2019
IBM	Niche Players	
Ivanti	Challengers	
ManageEngine		customers' choice 2019
Micro Focus	Niche Players	
ServiceNow	Leaders	customers' choice 2019
SolarWinds		customers' choice 2019
Symphony SummitAI		customers' choice 2019
TOPdesk		customers' choice 2019

Notes: The table above lists all vendors mentioned in the Gartner Magic Quadrant plus any vendors in Gartner Peer Insights that have the Gartner Customers' Choice distinction. The Gartner Magic Quadrant for IT Service Management Tools was published on 29 August 2019. Customers' Choice announced on 21 November 2019. Vendors are listed alphabetically.

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Gartner Peer Insights "Voice of the Customer"

ITSM Tools Peer Reviews and Ratings

In addition to the synthesis provided by the Customers' Choice, the individual reviews and ratings within Gartner Peer Insights can be a valuable source of lessons learned for those currently in the buying cycle for the ITSM tool market, particularly if you can find and read reviews from end users like you (for example, those that share your technology adoption bias, company size, industry or geography).

These reviews give insight into not only how satisfied existing customers are with a vendor's product, but also their experience in negotiating with the vendor, getting support for the product or service, and their overall implementation effort. This information can provide you with a firsthand view on what to expect from a particular vendor.

The rest of this document will highlight some of the broad findings in the ITSM tool market based on 12 months of reviews, and will also point you to particular ways to use the site in your buying process.

Figure 3 summarizes the overall ratings (out of 5 stars) for vendors in the ITSM tool market that have received more than 10 eligible reviews in the one-year period ending on 31 October 2019, sorted by number of reviews.

The table is sorted by the number of reviews because ultimately, the more reviews a vendor receives, the more likely it is that you can trust a summary rating. This can be visualized by the 95% confidence interval that has been added as a bar range to the overall ratings in Figure 3. This is best interpreted as: "Given the distribution of reviews received, the vendor's overall rating is 95% likely to be between the lower and upper dots."

While the confidence interval can offer a useful perspective, finding individual reviews from end users like you can be even more valuable. To begin using Gartner Peer Insights this way, please click here to navigate to the overall market page. Find a vendor you are interested in and use the filters on the left to begin narrowing reviews to read. Because access to Gartner Peer Insights is free and open to everyone, this is something that you can delegate to your team as well.

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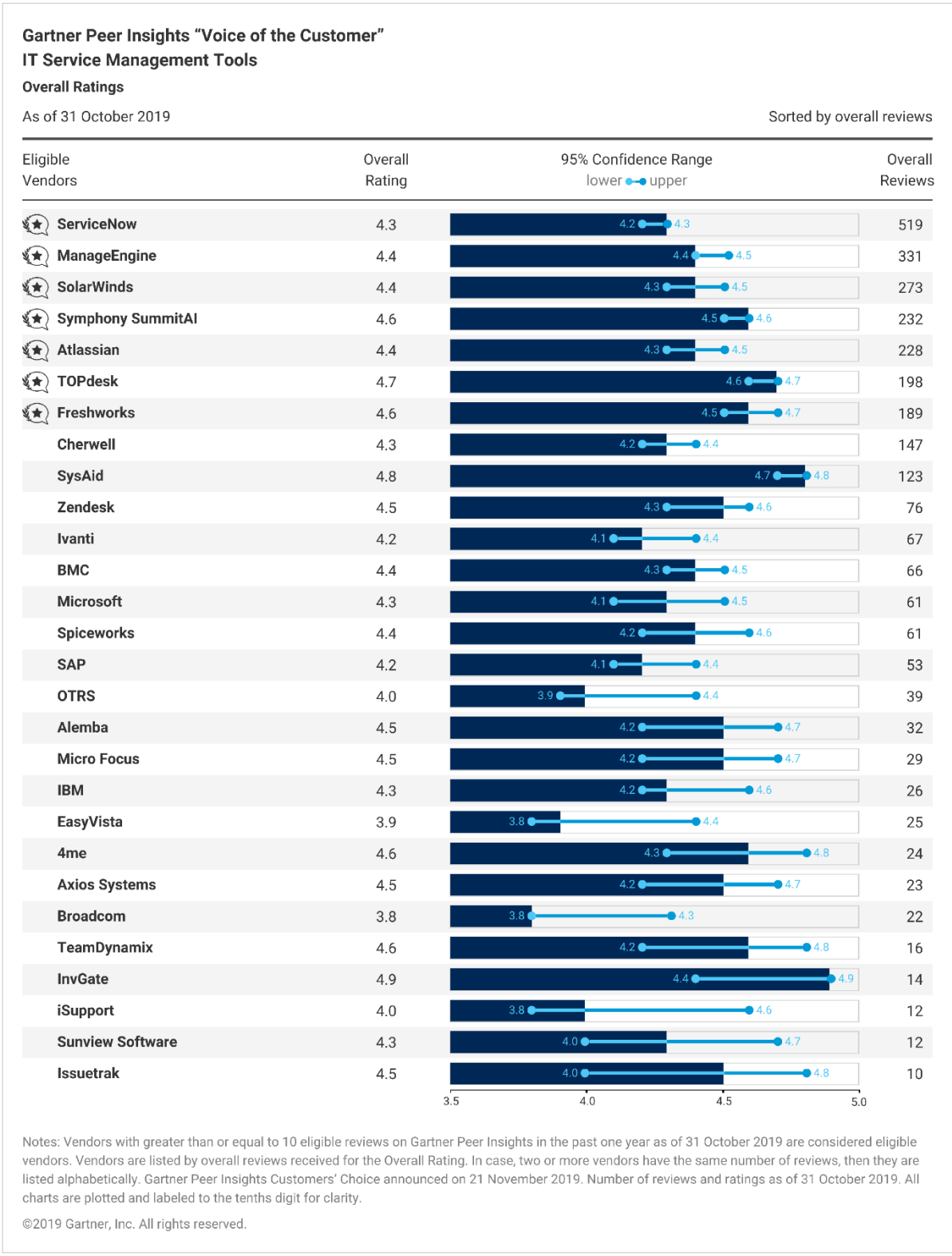
Figure 3. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Overall Ratings



Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 October 2019 are considered eligible vendors. Vendors are listed by overall reviews received for the Overall Rating. In case, two or more vendors have the same number of reviews, then they are listed alphabetically. Gartner Peer Insights Customers' Choice announced on 21 November 2019. Number of reviews and ratings as of 31 October 2019. All charts are plotted and labeled to the tenths digit for clarity.

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Vendor Comparison

In addition to reading individual reviews, you can select multiple vendors to compare within the site. Figure 4 and Figure 5 provide an aggregate view, but it is easy to create a comparison between several vendors on your shortlist and then send it to others in your organization. To begin using the site this way, please click here to go to the overall market page. Find the first vendor you are interested in comparing and press the “compare” button.

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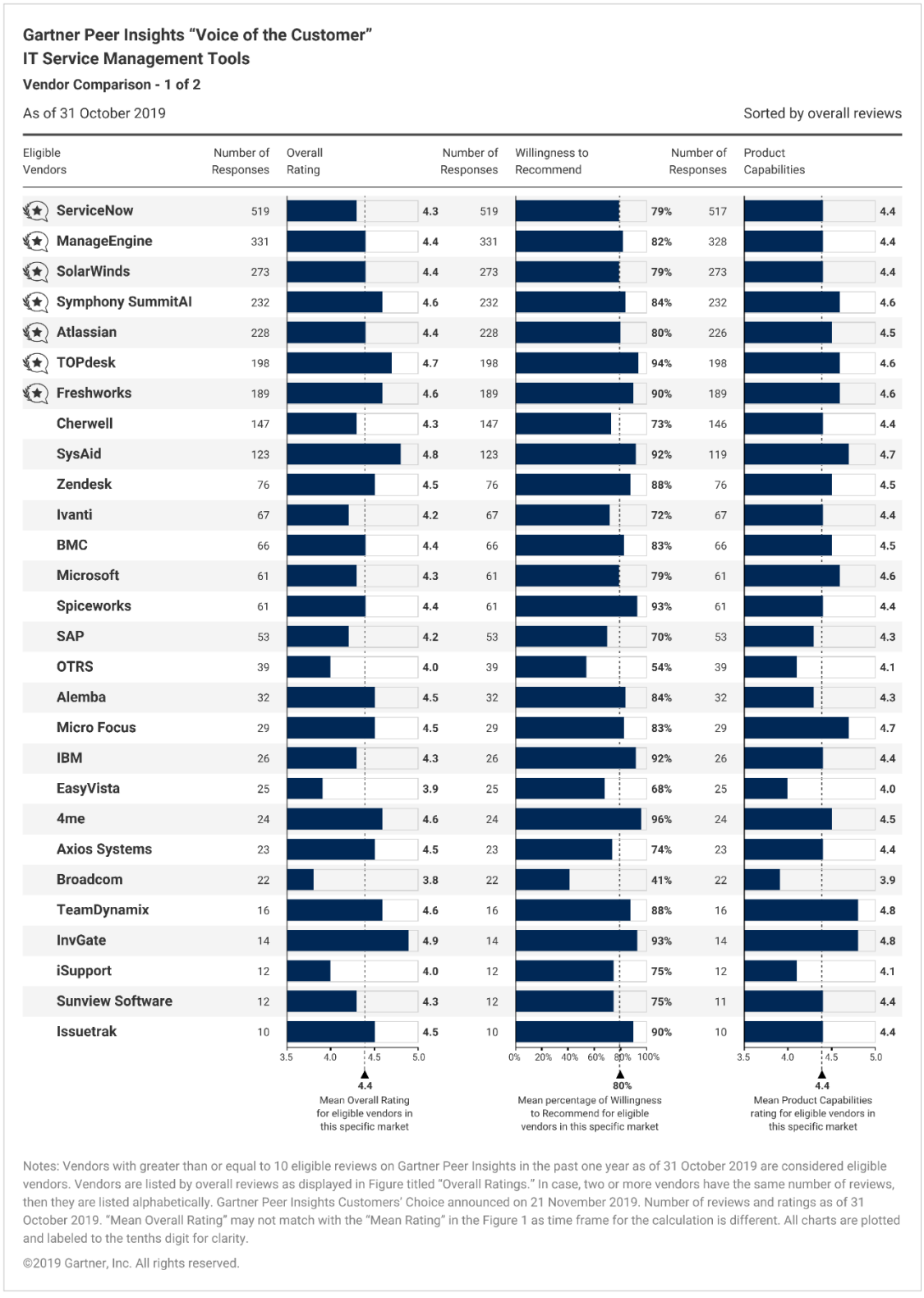
Figure 4. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Vendor Comparison 1 of 2



Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 October 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings." In case, two or more vendors have the same number of reviews, then they are listed alphabetically. Gartner Peer Insights Customers' Choice announced on 21 November 2019. Number of reviews and ratings as of 31 October 2019. "Mean Overall Rating" may not match with the "Mean Rating" in the Figure 1 as time frame for the calculation is different. All charts are plotted and labeled to the tenths digit for clarity.

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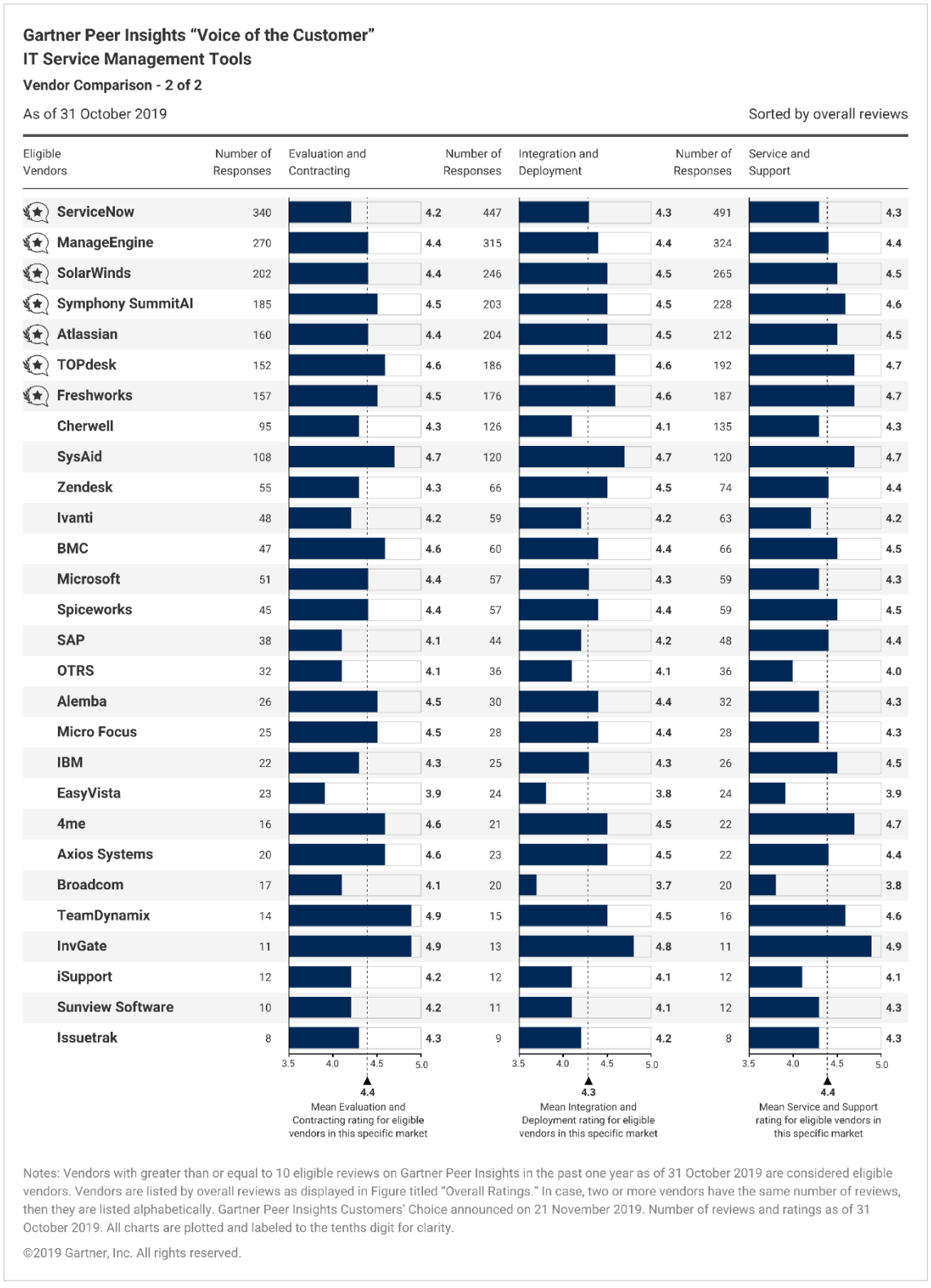
Figure 5. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Vendor Comparison 2 of 2



Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 October 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings." In case, two or more vendors have the same number of reviews, then they are listed alphabetically. Gartner Peer Insights Customers' Choice announced on 21 November 2019. Number of reviews and ratings as of 31 October 2019. All charts are plotted and labeled to the tenths digit for clarity.

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Other Vendors Considered

The Peer Insights survey asks reviewers who were involved in evaluation which other vendors were considered before deciding on the choice they made. Figure 6 summarizes their feedback, enabling you to identify which other vendors were typically on the shortlist alongside a given vendor.

Figure 6 is an aggregate view, but you can customize the view for your particular shortlist and then send to others in your organization. To begin using the site this way, please click here to go to the overall market page. Find the first vendor you are interested in comparing and press the “compare” button. “Alternative vendors considered” is an item in the comparison.

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Figure 6. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Other Vendors Considered

Gartner Peer Insights "Voice of the Customer"
IT Service Management Tools
Other Vendors Considered

As of 31 October 2019 — Sorted by overall reviews

Eligible Vendors (Number of Responses)	Vendors That Reviewers Also Considered (top five alternatives)				
ServiceNow (341)	IBM (27%)	Microsoft (24%)	Zendesk (18%)	Atlassian (18%)	BMC (16%)
ManageEngine (273)	Zendesk (34%)	ServiceNow (34%)	Spiceworks (33%)	Microsoft (24%)	SolarWinds (22%)
SolarWinds (202)	Zendesk (40%)	ServiceNow (29%)	Spiceworks (22%)	Freshworks (17%)	Microsoft (16%)
Symphony SummitAI (186)	ServiceNow (34%)	IBM (26%)	ManageEngine (13%)	BMC (12%)	SAP (12%)
Atlassian (160)	Zendesk (31%)	Microsoft (28%)	ServiceNow (26%)	IBM (24%)	SAP (16%)
TOPdesk (152)	Zendesk (24%)	ServiceNow (20%)	Microsoft (18%)	IBM (9%)	Freshworks (7%)
Freshworks (156)	Zendesk (62%)	ServiceNow (38%)	Spiceworks (31%)	Atlassian (24%)	ManageEngine (24%)
Cherwell (97)	ServiceNow (59%)	BMC (32%)	Microsoft (21%)	IBM (15%)	ManageEngine (15%)
SysAid (108)	Spiceworks (35%)	Zendesk (33%)	ServiceNow (31%)	ManageEngine (30%)	SolarWinds (24%)
Zendesk (55)	Atlassian (18%)	IBM (16%)	Microsoft (16%)	SAP (15%)	NetHelpDesk (13%)
Ivanti (49)	ServiceNow (39%)	Microsoft (24%)	Zendesk (24%)	SAP (20%)	IBM (18%)
BMC (47)	ServiceNow (51%)	Zendesk (32%)	IBM (26%)	Atlassian (17%)	Microsoft (17%)
Microsoft (51)	IBM (45%)	SAP (25%)	SolarWinds (16%)	Zendesk (16%)	Atlassian (12%)
Spiceworks (45)	Zendesk (33%)	ManageEngine (27%)	NetHelpDesk (22%)	SolarWinds (20%)	Atlassian (18%)
SAP (38)	Microsoft (39%)	IBM (32%)	Zendesk (18%)	Ivanti (13%)	Atlassian (11%)
OTRS (32)	Symphony SummitAI (31%)	IBM (28%)	ServiceNow (22%)	Zendesk (22%)	NetHelpDesk (16%)
Alemba (26)	ServiceNow (38%)	Zendesk (31%)	Ivanti (23%)	TOPdesk (19%)	BMC (15%)
Micro Focus (25)	ServiceNow (52%)	BMC (52%)	IBM (24%)	Atlassian (16%)	Microsoft (16%)
IBM (22)	Microsoft (36%)	Zendesk (18%)	Agiloft (14%)	BMC (14%)	Micro Focus (14%)
EasyVista (23)	Axios Systems (35%)	BMC (26%)	IBM (26%)	Issuetrak (17%)	SAP (17%)
4me (16)	BMC (50%)	ServiceNow (44%)	Atlassian (19%)	Ivanti (19%)	TOPdesk (19%)
Axios Systems (20)	Microsoft (30%)	Hornbill (25%)	Zendesk (25%)	IBM (20%)	Ivanti (20%)
Broadcom (18)	IBM (44%)	ServiceNow (39%)	BMC (28%)	ManageEngine (28%)	Microsoft (22%)
TeamDynamix (14)	ServiceNow (57%)	Microsoft (36%)	Atlassian (29%)	Freshworks (29%)	TOPdesk (21%)
InvGate (11)	Zendesk (64%)	ManageEngine (55%)	BMC (27%)	Microsoft (27%)	Spiceworks (27%)
iSupport (12)	Microsoft (58%)	IBM (33%)	SAP (33%)	Entry Software (25%)	HelpSTAR (25%)
Sunview Software (10)	Zendesk (60%)	ServiceNow (50%)	SolarWinds (40%)	SysAid (30%)	Atlassian (20%)
Issuetrak (8)	ServiceNow (38%)	Microsoft (25%)	iSupport (13%)	ITinvolve (13%)	Ivanti (13%)

Notes: Vendors with greater than or equal to 10 eligible reviews on Gartner Peer Insights in the past one year as of 31 October 2019 are considered eligible vendors. Vendors are listed by overall reviews as displayed in Figure titled "Overall Ratings". In case, two or more vendors have the same number of reviews, then they are listed alphabetically. Number of reviews and ratings as of 31 October 2019. Percent distribution for "Other Vendors Considered" may exceed 100% as reviewers can select multiple vendors.

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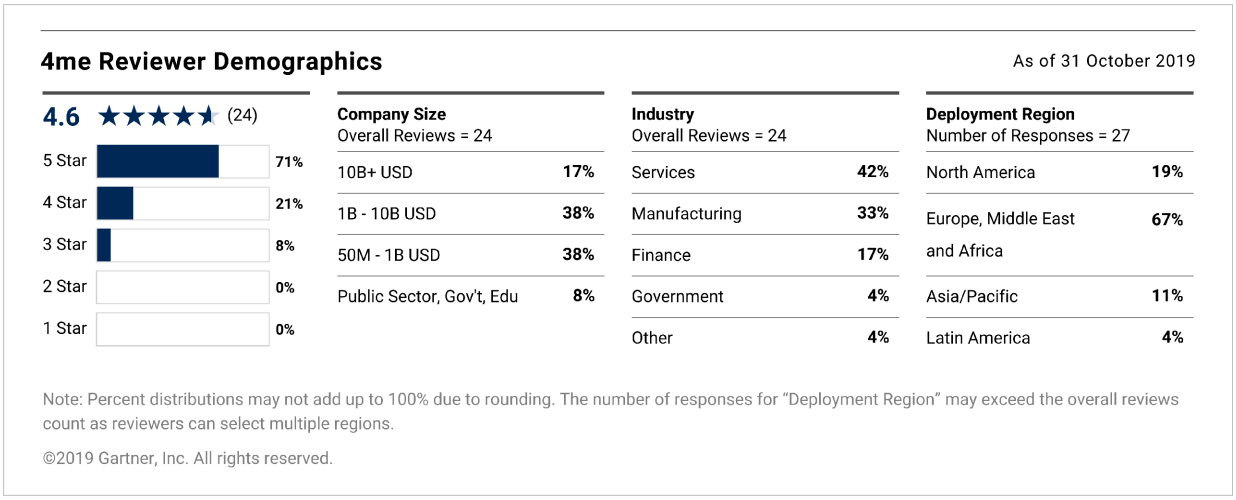
Peer Insights User Ratings

Figures 7 through 34 summarize each vendor's reviewer demographics for those reviews received in the last year, ending on October 2019, along with the demographics of the reviewers and a direct link to the vendor's ratings on the site. All vendors with more than 10 eligible reviews in the last year are shown, sorted alphabetically.

Figure 7. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools 4me Reviewer Demographics



4me Reviewer Demographics

As of 31 October 2019

4.6 ★★★★½ (24)

5 Star	71%
4 Star	21%
3 Star	8%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 24	
10B+ USD	17%
1B - 10B USD	38%
50M - 1B USD	38%
Public Sector, Gov't, Edu	8%

Industry Overall Reviews = 24	
Services	42%
Manufacturing	33%
Finance	17%
Government	4%
Other	4%

Deployment Region Number of Responses = 27	
North America	19%
Europe, Middle East and Africa	67%
Asia/Pacific	11%
Latin America	4%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for 4me.

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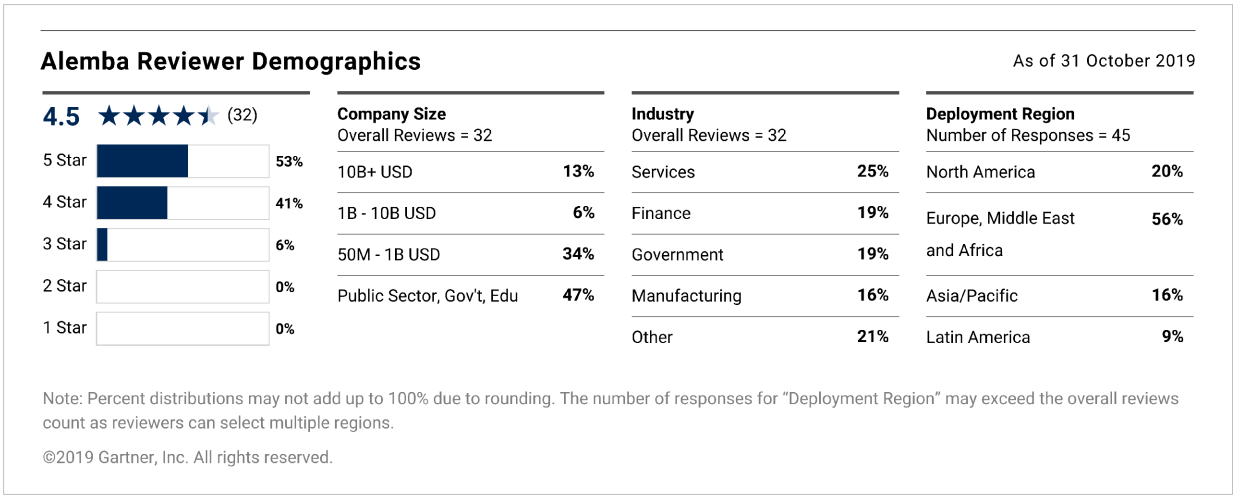
Figure 8. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Alemba Reviewer Demographics



Alemba Reviewer Demographics

As of 31 October 2019

4.5 ★★★★½ (32)

5 Star	53%
4 Star	41%
3 Star	6%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 32	
10B+ USD	13%
1B - 10B USD	6%
50M - 1B USD	34%
Public Sector, Gov't, Edu	47%

Industry Overall Reviews = 32	
Services	25%
Finance	19%
Government	19%
Manufacturing	16%
Other	21%

Deployment Region Number of Responses = 45	
North America	20%
Europe, Middle East and Africa	56%
Asia/Pacific	16%
Latin America	9%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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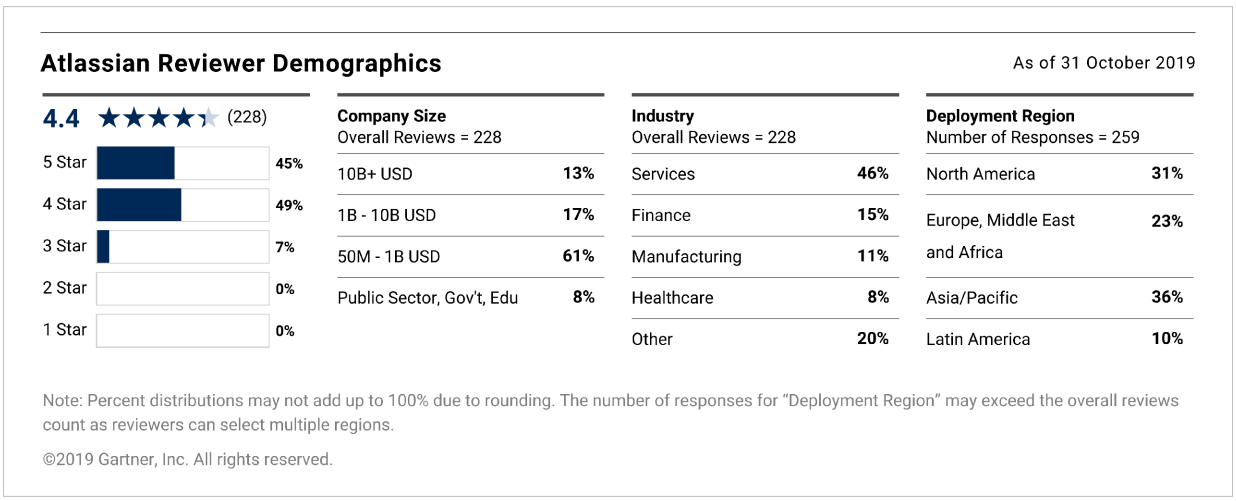
Source: Gartner (December 2019)

Read all Peer Insights user reviews for Alemba.

Figure 9. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Atlassian Reviewer Demographics



Atlassian Reviewer Demographics

As of 31 October 2019

4.4 ★★★★½ (228)

5 Star	45%
4 Star	49%
3 Star	7%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 228	
10B+ USD	13%
1B - 10B USD	17%
50M - 1B USD	61%
Public Sector, Gov't, Edu	8%

Industry Overall Reviews = 228	
Services	46%
Finance	15%
Manufacturing	11%
Healthcare	8%
Other	20%

Deployment Region Number of Responses = 259	
North America	31%
Europe, Middle East and Africa	23%
Asia/Pacific	36%
Latin America	10%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for Atlassian.

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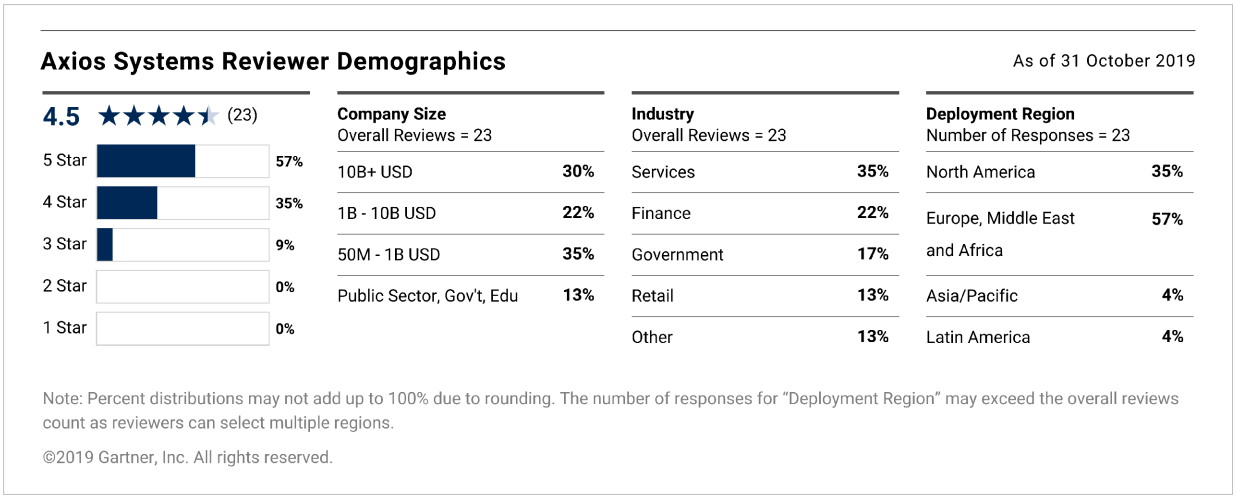
Figure 10. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Axios Systems Reviewer Demographics



Axios Systems Reviewer Demographics

As of 31 October 2019

4.5 ★★★★½ (23)

5 Star	57%
4 Star	35%
3 Star	9%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 23	
10B+ USD	30%
1B - 10B USD	22%
50M - 1B USD	35%
Public Sector, Gov't, Edu	13%

Industry Overall Reviews = 23	
Services	35%
Finance	22%
Government	17%
Retail	13%
Other	13%

Deployment Region Number of Responses = 23	
North America	35%
Europe, Middle East and Africa	57%
Asia/Pacific	4%
Latin America	4%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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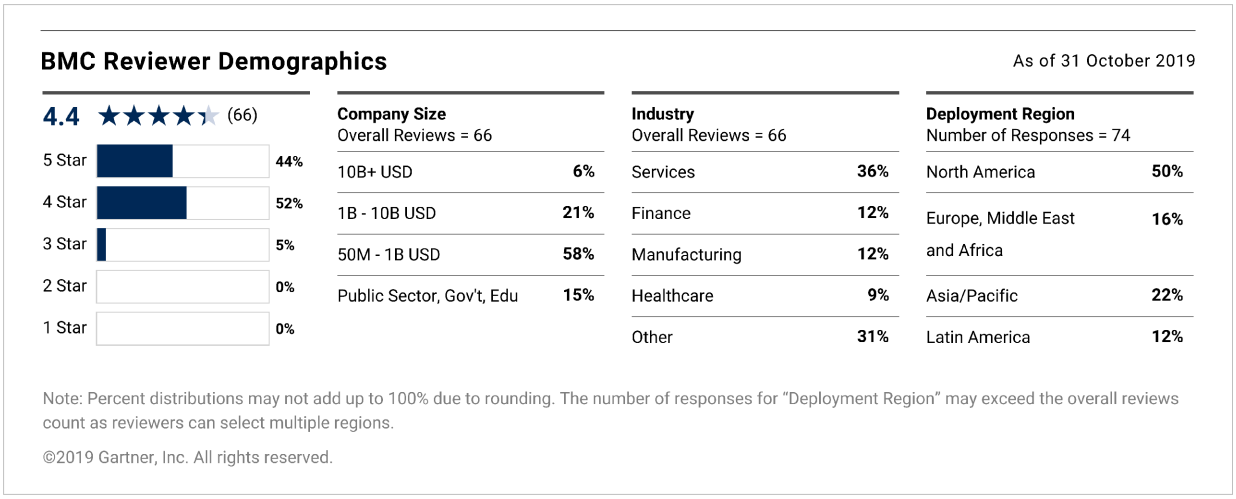
Source: Gartner (December 2019)

Read all Peer Insights user reviews for Axios Systems.

Figure 11. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools BMC Reviewer Demographics



BMC Reviewer Demographics

As of 31 October 2019

4.4 ★★★★½ (66)

5 Star	44%
4 Star	52%
3 Star	5%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 66	
10B+ USD	6%
1B - 10B USD	21%
50M - 1B USD	58%
Public Sector, Gov't, Edu	15%

Industry Overall Reviews = 66	
Services	36%
Finance	12%
Manufacturing	12%
Healthcare	9%
Other	31%

Deployment Region Number of Responses = 74	
North America	50%
Europe, Middle East and Africa	16%
Asia/Pacific	22%
Latin America	12%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Figure 12. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Broadcom Reviewer Demographics

Broadcom Reviewer Demographics

As of 31 October 2019

3.8 ★★★★☆ (22)

5 Star	9%
4 Star	64%
3 Star	27%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 22	
10B+ USD	9%
1B - 10B USD	18%
50M - 1B USD	55%
Public Sector, Gov't, Edu	18%

Industry Overall Reviews = 22	
Finance	23%
Services	23%
Transportation	14%
Retail	9%
Other	31%

Deployment Region Number of Responses = 25	
North America	12%
Europe, Middle East and Africa	40%
Asia/Pacific	24%
Latin America	24%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Source: Gartner (December 2019)

Read all Peer Insights user reviews for Broadcom.

Figure 13. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Cherwell Reviewer Demographics

Cherwell Reviewer Demographics

As of 31 October 2019

4.3 ★★★★½ (147)

5 Star	41%
4 Star	49%
3 Star	10%
2 Star	1%
1 Star	0%

Company Size Overall Reviews = 147	
10B+ USD	5%
1B - 10B USD	29%
50M - 1B USD	40%
Public Sector, Gov't, Edu	27%

Industry Overall Reviews = 147	
Services	21%
Education	17%
Finance	14%
Manufacturing	10%
Other	38%

Deployment Region Number of Responses = 154	
North America	73%
Europe, Middle East and Africa	10%
Asia/Pacific	12%
Latin America	5%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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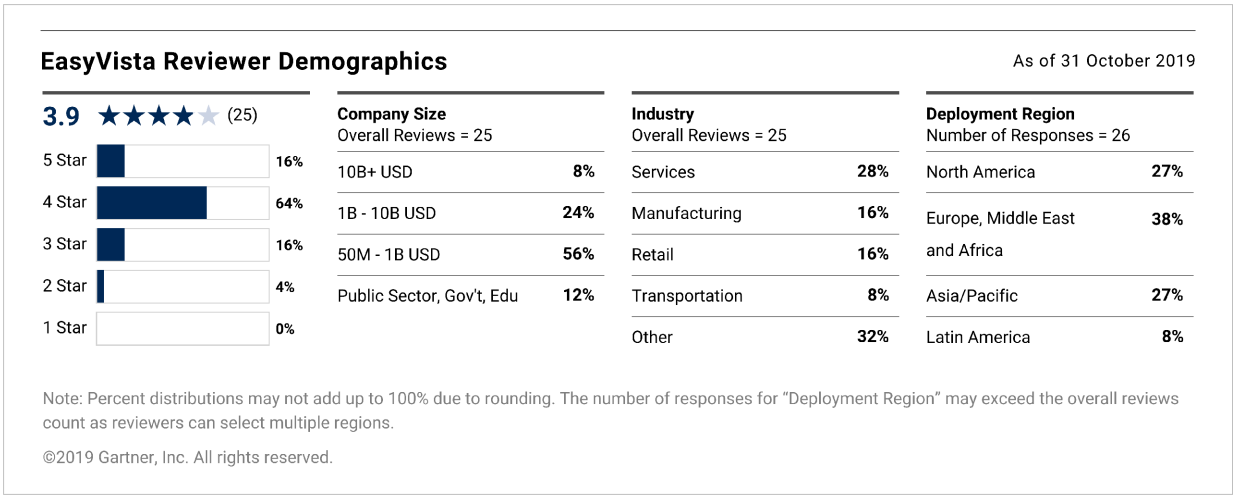
Figure 14. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools EasyVista Reviewer Demographics



EasyVista Reviewer Demographics

As of 31 October 2019

3.9 ★★★★☆ (25)

5 Star	16%
4 Star	64%
3 Star	16%
2 Star	4%
1 Star	0%

Company Size Overall Reviews = 25	
10B+ USD	8%
1B - 10B USD	24%
50M - 1B USD	56%
Public Sector, Gov't, Edu	12%

Industry Overall Reviews = 25	
Services	28%
Manufacturing	16%
Retail	16%
Transportation	8%
Other	32%

Deployment Region Number of Responses = 26	
North America	27%
Europe, Middle East and Africa	38%
Asia/Pacific	27%
Latin America	8%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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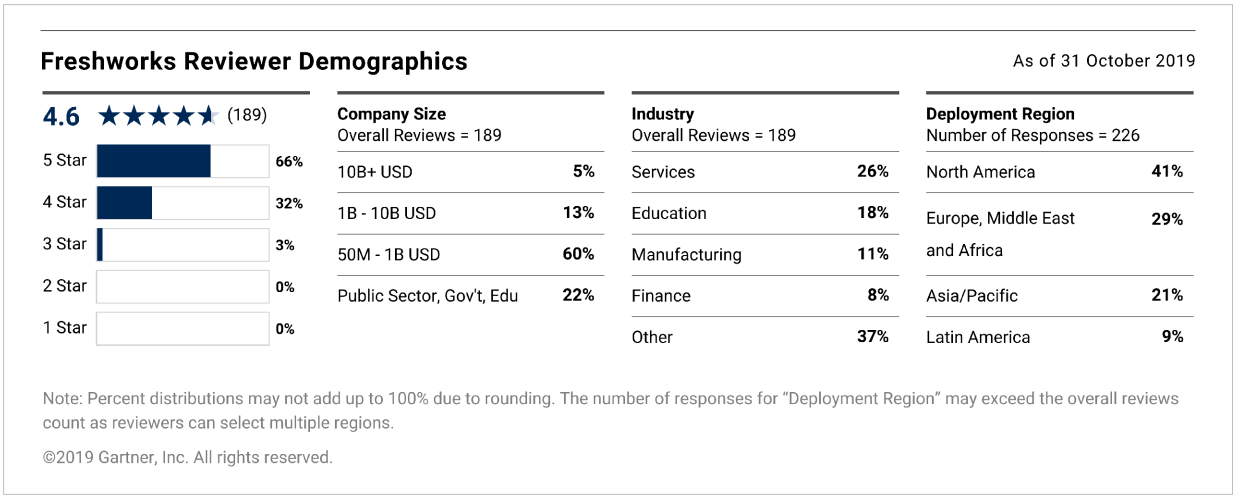
Source: Gartner (December 2019)

Read all Peer Insights user reviews for EasyVista.

Figure 15. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Freshworks Reviewer Demographics



Freshworks Reviewer Demographics

As of 31 October 2019

4.6 ★★★★½ (189)

5 Star	66%
4 Star	32%
3 Star	3%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 189	
10B+ USD	5%
1B - 10B USD	13%
50M - 1B USD	60%
Public Sector, Gov't, Edu	22%

Industry Overall Reviews = 189	
Services	26%
Education	18%
Manufacturing	11%
Finance	8%
Other	37%

Deployment Region Number of Responses = 226	
North America	41%
Europe, Middle East and Africa	29%
Asia/Pacific	21%
Latin America	9%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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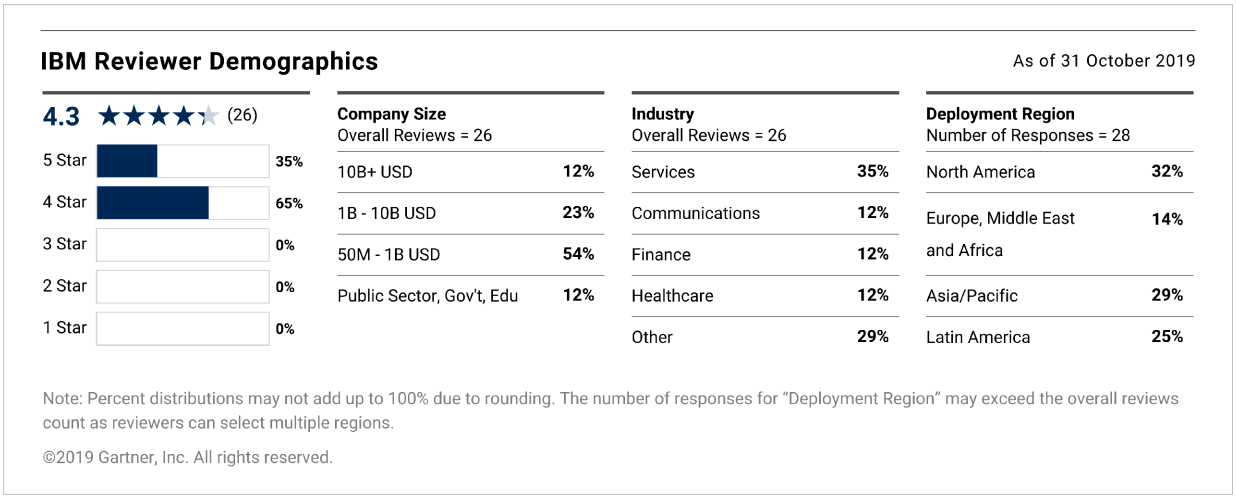
Figure 16. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools IBM Reviewer Demographics



IBM Reviewer Demographics

As of 31 October 2019

4.3 ★★★★½ (26)

5 Star	35%
4 Star	65%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 26	
10B+ USD	12%
1B - 10B USD	23%
50M - 1B USD	54%
Public Sector, Gov't, Edu	12%

Industry Overall Reviews = 26	
Services	35%
Communications	12%
Finance	12%
Healthcare	12%
Other	29%

Deployment Region Number of Responses = 28	
North America	32%
Europe, Middle East and Africa	14%
Asia/Pacific	29%
Latin America	25%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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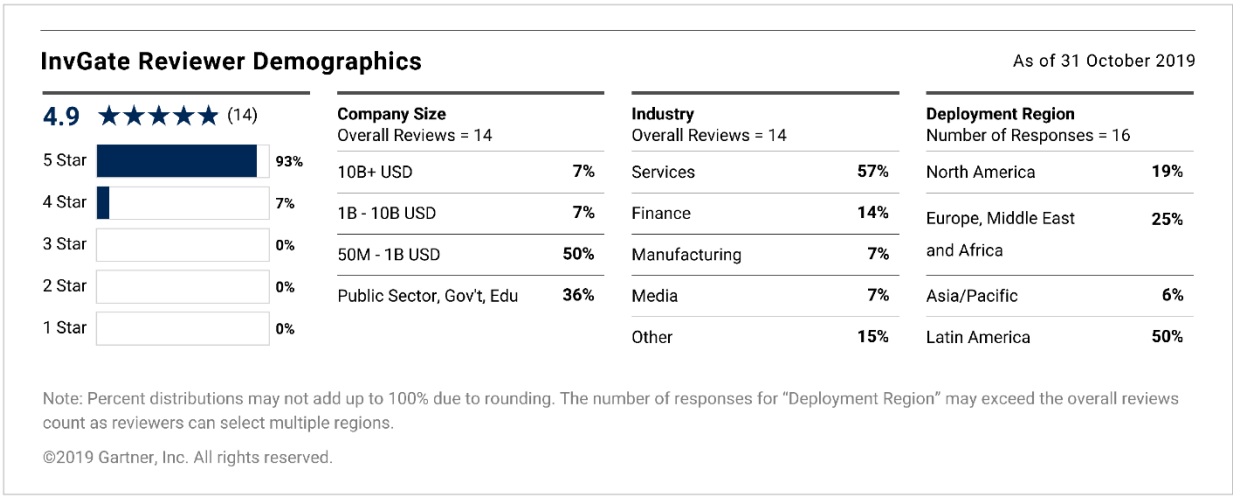
Figure 17. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools InvGate Reviewer Demographics



InvGate Reviewer Demographics

As of 31 October 2019

4.9 ★★★★★ (14)

5 Star	93%
4 Star	7%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 14	
10B+ USD	7%
1B - 10B USD	7%
50M - 1B USD	50%
Public Sector, Gov't, Edu	36%

Industry Overall Reviews = 14	
Services	57%
Finance	14%
Manufacturing	7%
Media	7%
Other	15%

Deployment Region Number of Responses = 16	
North America	19%
Europe, Middle East and Africa	25%
Asia/Pacific	6%
Latin America	50%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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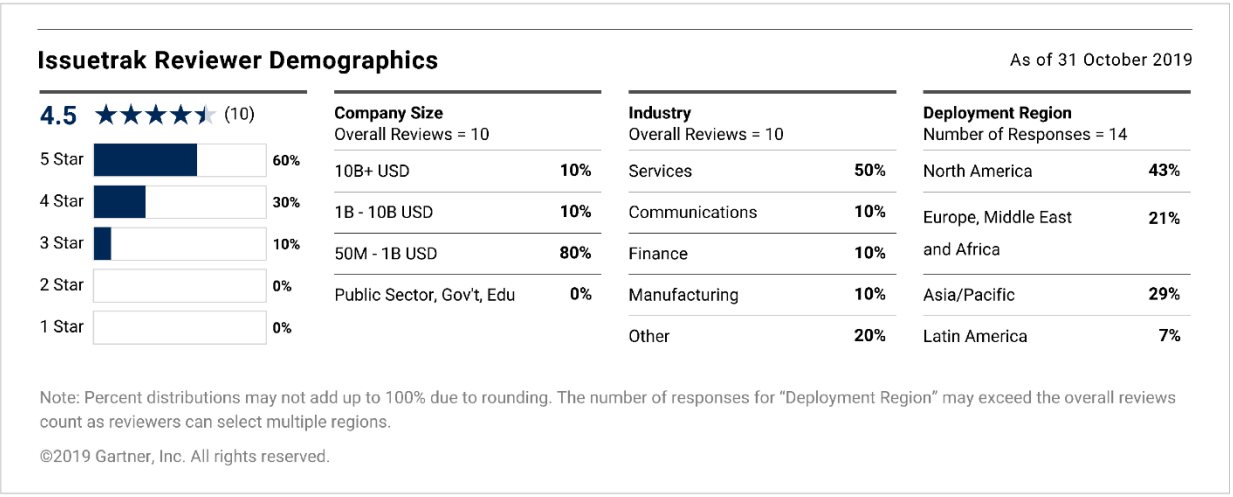
Figure 18. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Issuetrak Reviewer Demographics



Issuetrak Reviewer Demographics — As of 31 October 2019

4.5 ★★★★½ (10)

5 Star	60%
4 Star	30%
3 Star	10%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 10	
10B+ USD	10%
1B - 10B USD	10%
50M - 1B USD	80%
Public Sector, Gov't, Edu	0%

Industry Overall Reviews = 10	
Services	50%
Communications	10%
Finance	10%
Manufacturing	10%
Other	20%

Deployment Region Number of Responses = 14	
North America	43%
Europe, Middle East and Africa	21%
Asia/Pacific	29%
Latin America	7%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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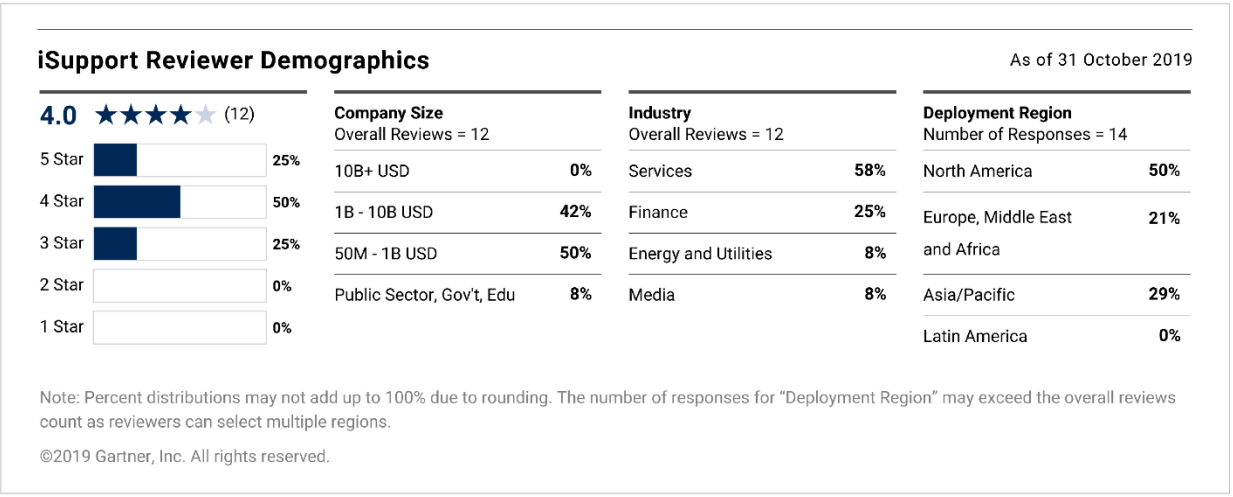
Source: Gartner (December 2019)

Read all Peer Insights user reviews for Issuetrak.

Figure 19. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools iSupport Reviewer Demographics



iSupport Reviewer Demographics — As of 31 October 2019

4.0 ★★★★☆ (12)

5 Star	25%
4 Star	50%
3 Star	25%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 12	
10B+ USD	0%
1B - 10B USD	42%
50M - 1B USD	50%
Public Sector, Gov't, Edu	8%

Industry Overall Reviews = 12	
Services	58%
Finance	25%
Energy and Utilities	8%
Media	8%

Deployment Region Number of Responses = 14	
North America	50%
Europe, Middle East and Africa	21%
Asia/Pacific	29%
Latin America	0%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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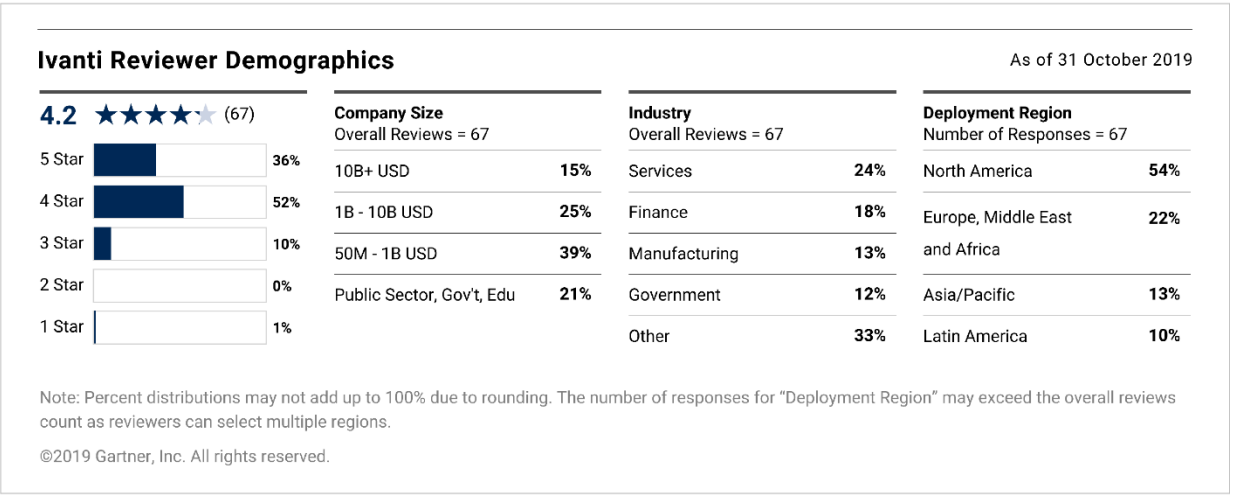
Figure 20. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Ivanti Reviewer Demographics



Ivanti Reviewer Demographics

As of 31 October 2019

4.2 ★★★★☆ (67)

5 Star	36%
4 Star	52%
3 Star	10%
2 Star	0%
1 Star	1%

Company Size Overall Reviews = 67	
10B+ USD	15%
1B - 10B USD	25%
50M - 1B USD	39%
Public Sector, Gov't, Edu	21%

Industry Overall Reviews = 67	
Services	24%
Finance	18%
Manufacturing	13%
Government	12%
Other	33%

Deployment Region Number of Responses = 67	
North America	54%
Europe, Middle East and Africa	22%
Asia/Pacific	13%
Latin America	10%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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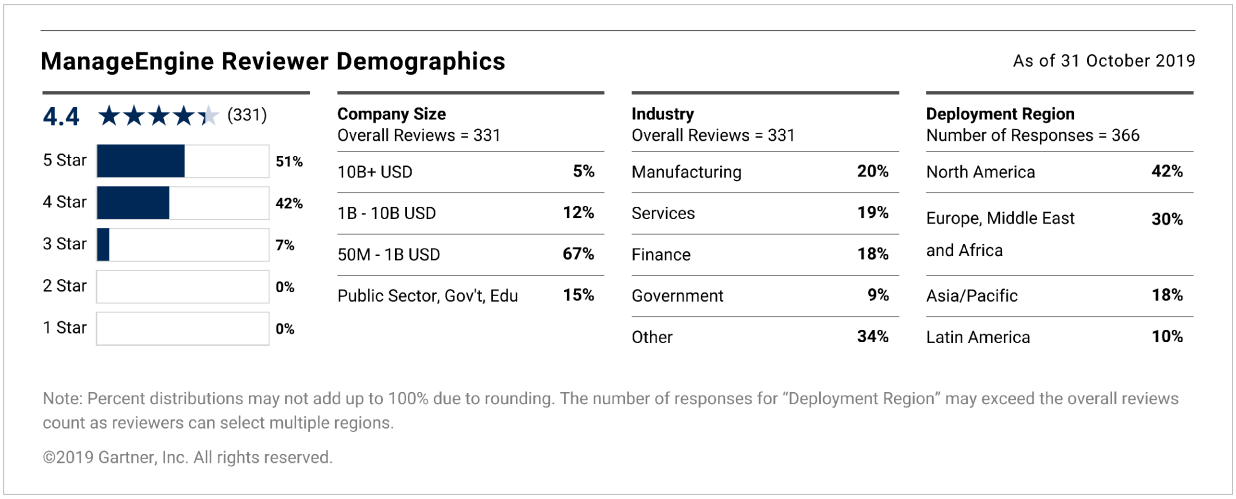
Source: Gartner (December 2019)

Read all Peer Insights user reviews for Ivanti.

Figure 21. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools ManageEngine Reviewer Demographics



ManageEngine Reviewer Demographics

As of 31 October 2019

4.4 ★★★★½ (331)

5 Star	51%
4 Star	42%
3 Star	7%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 331	
10B+ USD	5%
1B - 10B USD	12%
50M - 1B USD	67%
Public Sector, Gov't, Edu	15%

Industry Overall Reviews = 331	
Manufacturing	20%
Services	19%
Finance	18%
Government	9%
Other	34%

Deployment Region Number of Responses = 366	
North America	42%
Europe, Middle East and Africa	30%
Asia/Pacific	18%
Latin America	10%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for ManageEngine.

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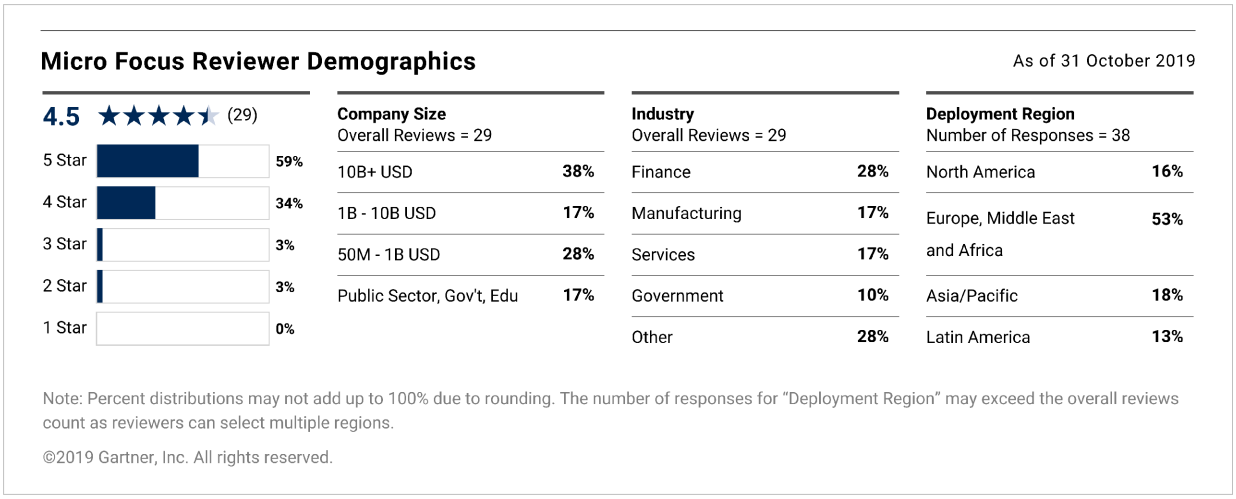
Figure 22. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Micro Focus Reviewer Demographics



Micro Focus Reviewer Demographics

As of 31 October 2019

4.5 ★★★★½ (29)

5 Star	59%
4 Star	34%
3 Star	3%
2 Star	3%
1 Star	0%

Company Size Overall Reviews = 29	
10B+ USD	38%
1B - 10B USD	17%
50M - 1B USD	28%
Public Sector, Gov't, Edu	17%

Industry Overall Reviews = 29	
Finance	28%
Manufacturing	17%
Services	17%
Government	10%
Other	28%

Deployment Region Number of Responses = 38	
North America	16%
Europe, Middle East and Africa	53%
Asia/Pacific	18%
Latin America	13%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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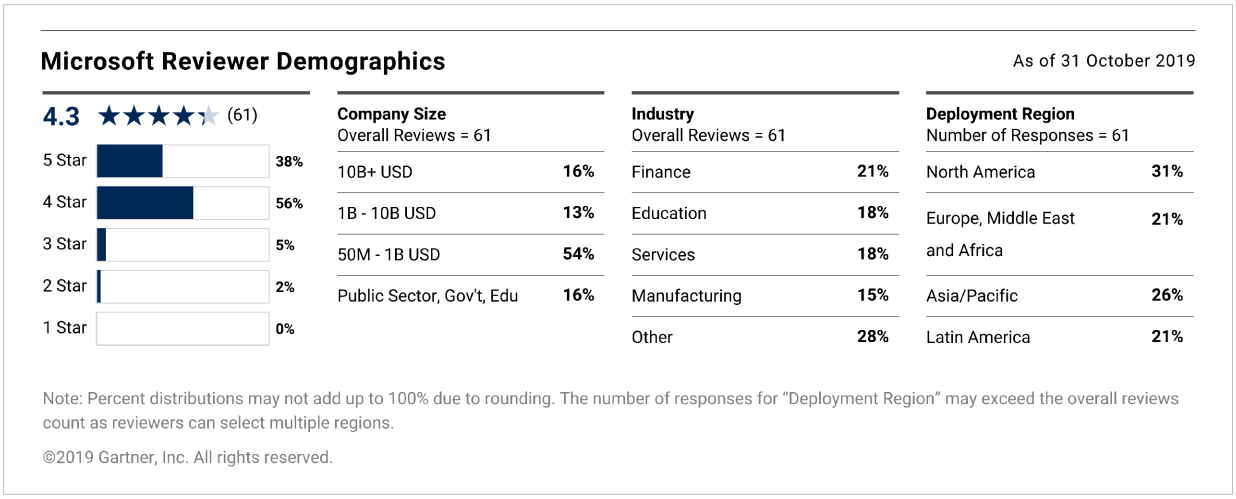
Source: Gartner (December 2019)

Read all Peer Insights user reviews for Micro Focus.

Figure 23. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Microsoft Reviewer Demographics



Microsoft Reviewer Demographics

As of 31 October 2019

4.3 ★★★★½ (61)

5 Star	38%
4 Star	56%
3 Star	5%
2 Star	2%
1 Star	0%

Company Size Overall Reviews = 61	
10B+ USD	16%
1B - 10B USD	13%
50M - 1B USD	54%
Public Sector, Gov't, Edu	16%

Industry Overall Reviews = 61	
Finance	21%
Education	18%
Services	18%
Manufacturing	15%
Other	28%

Deployment Region Number of Responses = 61	
North America	31%
Europe, Middle East and Africa	21%
Asia/Pacific	26%
Latin America	21%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Source: Gartner (December 2019)

Read all Peer Insights user reviews for Microsoft.

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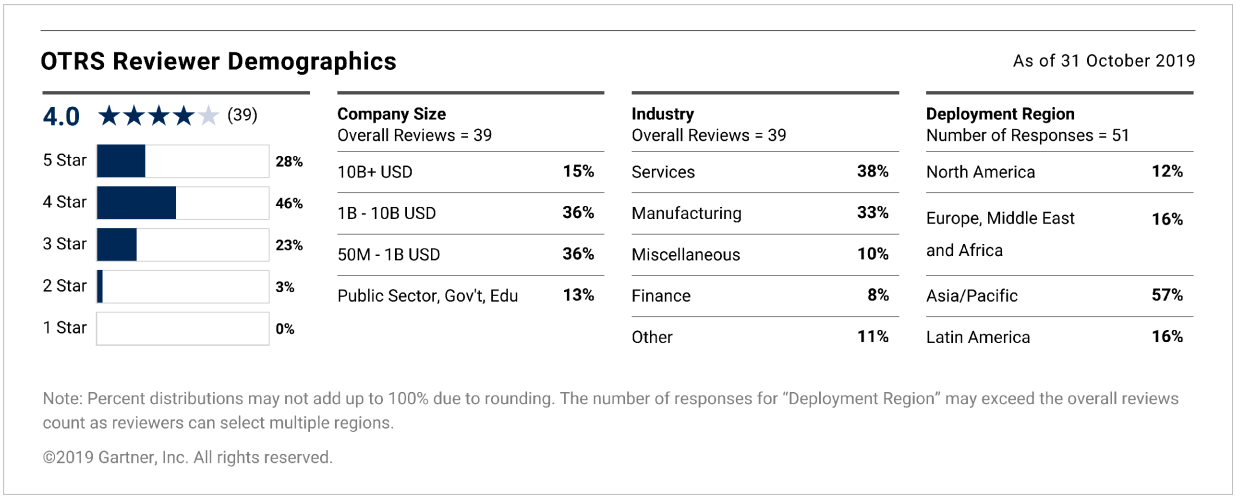
Figure 24. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools OTRS Reviewer Demographics



OTRS Reviewer Demographics

As of 31 October 2019

4.0 ★★★★☆ (39)

5 Star	28%
4 Star	46%
3 Star	23%
2 Star	3%
1 Star	0%

Company Size Overall Reviews = 39	
10B+ USD	15%
1B - 10B USD	36%
50M - 1B USD	36%
Public Sector, Gov't, Edu	13%

Industry Overall Reviews = 39	
Services	38%
Manufacturing	33%
Miscellaneous	10%
Finance	8%
Other	11%

Deployment Region Number of Responses = 51	
North America	12%
Europe, Middle East and Africa	16%
Asia/Pacific	57%
Latin America	16%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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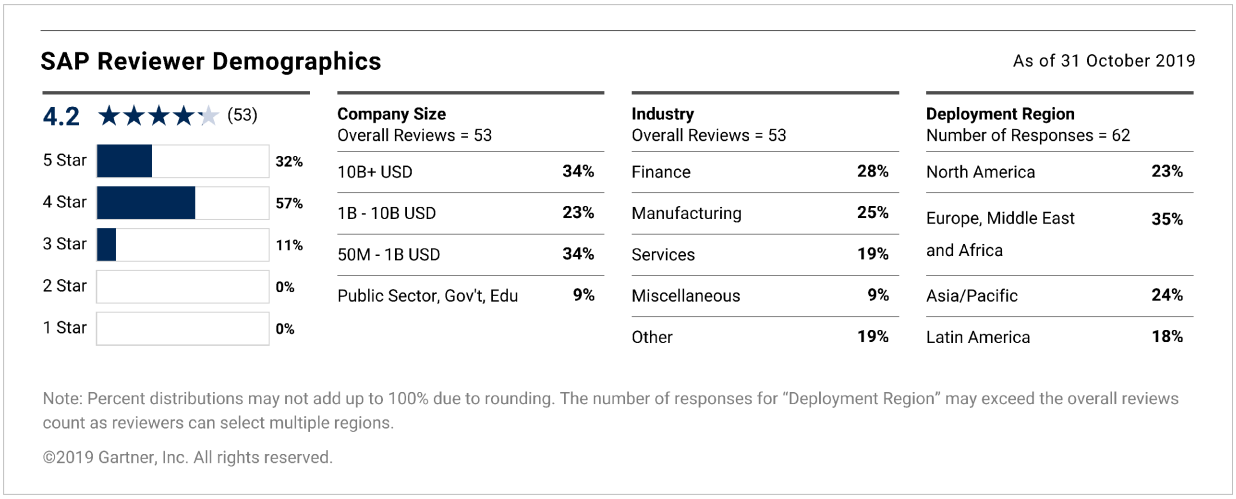
Source: Gartner (December 2019)

Read all Peer Insights user reviews for OTRS.

Figure 25. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools SAP Reviewer Demographics



SAP Reviewer Demographics

As of 31 October 2019

4.2 ★★★★½ (53)

5 Star	32%
4 Star	57%
3 Star	11%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 53	
10B+ USD	34%
1B - 10B USD	23%
50M - 1B USD	34%
Public Sector, Gov't, Edu	9%

Industry Overall Reviews = 53	
Finance	28%
Manufacturing	25%
Services	19%
Miscellaneous	9%
Other	19%

Deployment Region Number of Responses = 62	
North America	23%
Europe, Middle East and Africa	35%
Asia/Pacific	24%
Latin America	18%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for SAP.

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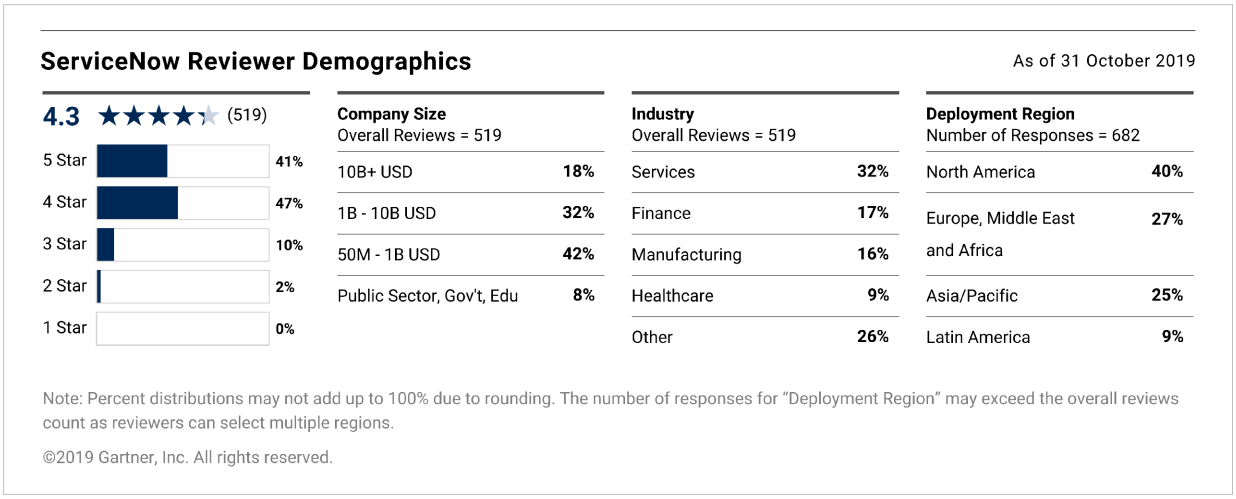
Figure 26. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools ServiceNow Reviewer Demographics



ServiceNow Reviewer Demographics

As of 31 October 2019

4.3 ★★★★½ (519)

5 Star	41%
4 Star	47%
3 Star	10%
2 Star	2%
1 Star	0%

Company Size Overall Reviews = 519	
10B+ USD	18%
1B - 10B USD	32%
50M - 1B USD	42%
Public Sector, Gov't, Edu	8%

Industry Overall Reviews = 519	
Services	32%
Finance	17%
Manufacturing	16%
Healthcare	9%
Other	26%

Deployment Region Number of Responses = 682	
North America	40%
Europe, Middle East and Africa	27%
Asia/Pacific	25%
Latin America	9%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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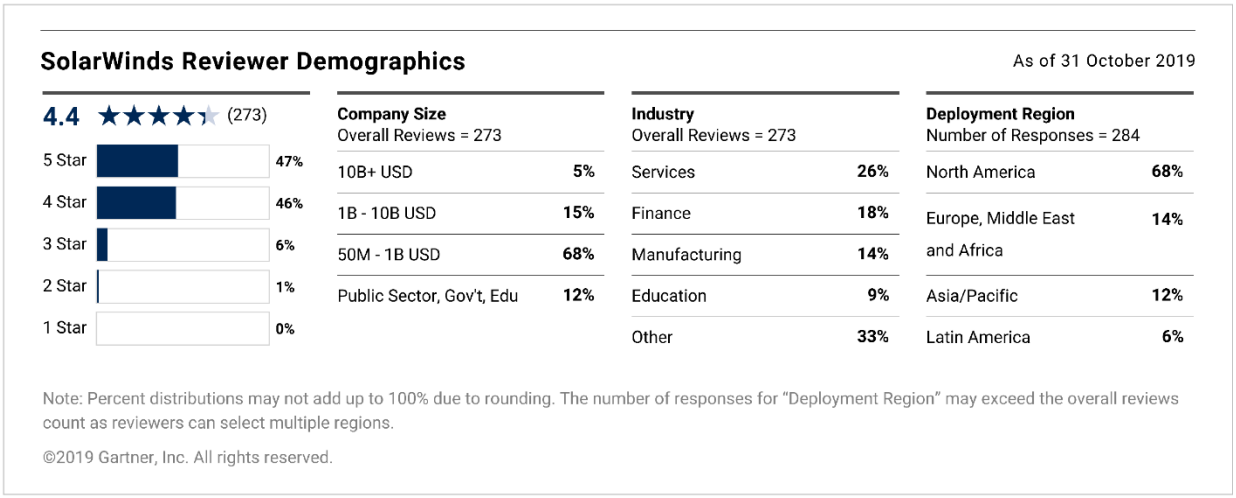
Source: Gartner (December 2019)

Read all Peer Insights user reviews for ServiceNow.

Figure 27. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools SolarWinds Reviewer Demographics



SolarWinds Reviewer Demographics

As of 31 October 2019

4.4 ★★★★½ (273)

5 Star	47%
4 Star	46%
3 Star	6%
2 Star	1%
1 Star	0%

Company Size Overall Reviews = 273	
10B+ USD	5%
1B - 10B USD	15%
50M - 1B USD	68%
Public Sector, Gov't, Edu	12%

Industry Overall Reviews = 273	
Services	26%
Finance	18%
Manufacturing	14%
Education	9%
Other	33%

Deployment Region Number of Responses = 284	
North America	68%
Europe, Middle East and Africa	14%
Asia/Pacific	12%
Latin America	6%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for SolarWinds.

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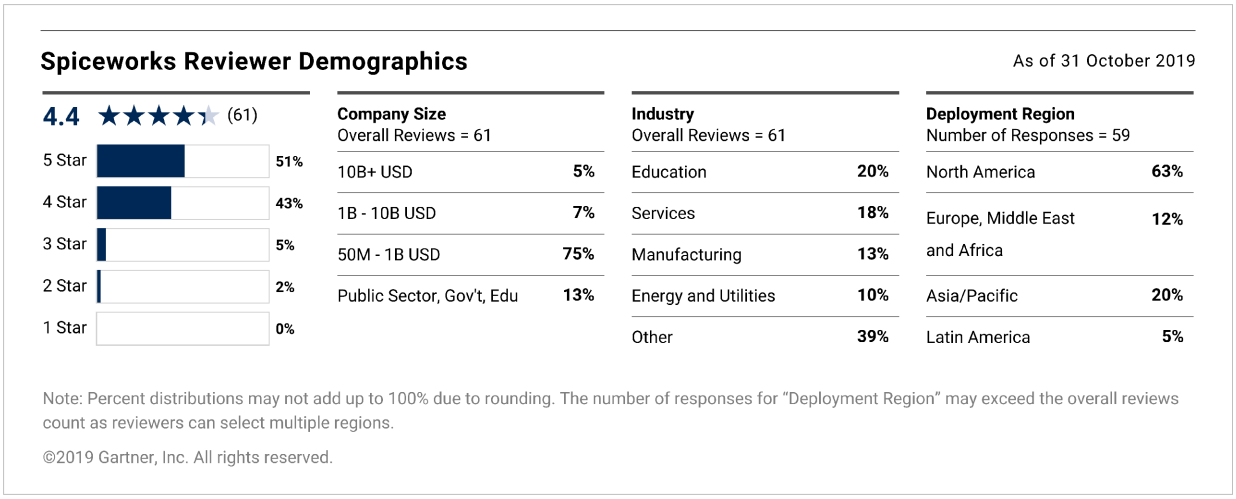
Figure 28. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Spiceworks Reviewer Demographics



Spiceworks Reviewer Demographics

As of 31 October 2019

4.4 ★★★★½ (61)

5 Star	51%
4 Star	43%
3 Star	5%
2 Star	2%
1 Star	0%

Company Size Overall Reviews = 61	
10B+ USD	5%
1B - 10B USD	7%
50M - 1B USD	75%
Public Sector, Gov't, Edu	13%

Industry Overall Reviews = 61	
Education	20%
Services	18%
Manufacturing	13%
Energy and Utilities	10%
Other	39%

Deployment Region Number of Responses = 59	
North America	63%
Europe, Middle East and Africa	12%
Asia/Pacific	20%
Latin America	5%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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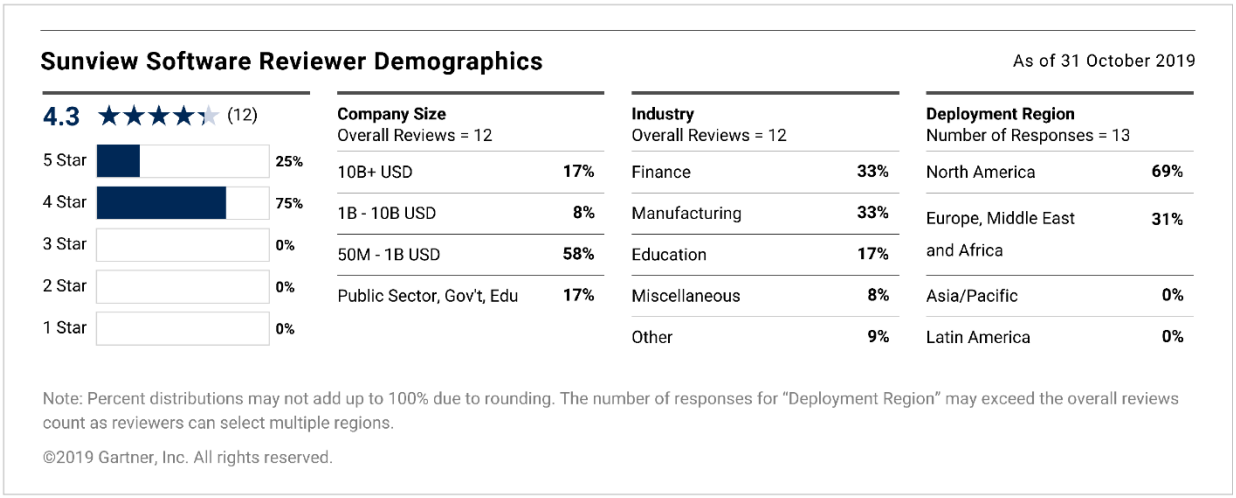
Read all Peer Insights user reviews for Spiceworks.

Figure 29. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Sunview Software Reviewer Demographics



Sunview Software Reviewer Demographics

As of 31 October 2019

4.3 ★★★★½ (12)

5 Star	25%
4 Star	75%
3 Star	0%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 12	
10B+ USD	17%
1B - 10B USD	8%
50M - 1B USD	58%
Public Sector, Gov't, Edu	17%

Industry Overall Reviews = 12	
Finance	33%
Manufacturing	33%
Education	17%
Miscellaneous	8%
Other	9%

Deployment Region Number of Responses = 13	
North America	69%
Europe, Middle East and Africa	31%
Asia/Pacific	0%
Latin America	0%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for Sunview Software.

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Figure 30. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Symphony SummitAI Reviewer Demographics

Symphony SummitAI Reviewer Demographics — As of 31 October 2019

4.6 ★★★★½ (232)

5 Star	64%
4 Star	29%
3 Star	6%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 232	
10B+ USD	14%
1B - 10B USD	38%
50M - 1B USD	42%
Public Sector, Gov't, Edu	7%

Industry Overall Reviews = 232	
Services	45%
Manufacturing	30%
Finance	6%
Miscellaneous	6%
Other	13%

Deployment Region Number of Responses = 313	
North America	13%
Europe, Middle East and Africa	18%
Asia/Pacific	66%
Latin America	4%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Source: Gartner (December 2019)

Read all Peer Insights user reviews for Symphony SummitAI.

Figure 31. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools SysAid Reviewer Demographics

SysAid Reviewer Demographics — As of 31 October 2019

4.8 ★★★★★ (123)

5 Star	83%
4 Star	14%
3 Star	2%
2 Star	1%
1 Star	0%

Company Size Overall Reviews = 123	
10B+ USD	4%
1B - 10B USD	17%
50M - 1B USD	56%
Public Sector, Gov't, Edu	23%

Industry Overall Reviews = 123	
Services	28%
Education	13%
Manufacturing	13%
Finance	9%
Other	37%

Deployment Region Number of Responses = 130	
North America	37%
Europe, Middle East and Africa	43%
Asia/Pacific	4%
Latin America	16%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Read all Peer Insights user reviews for SysAid.

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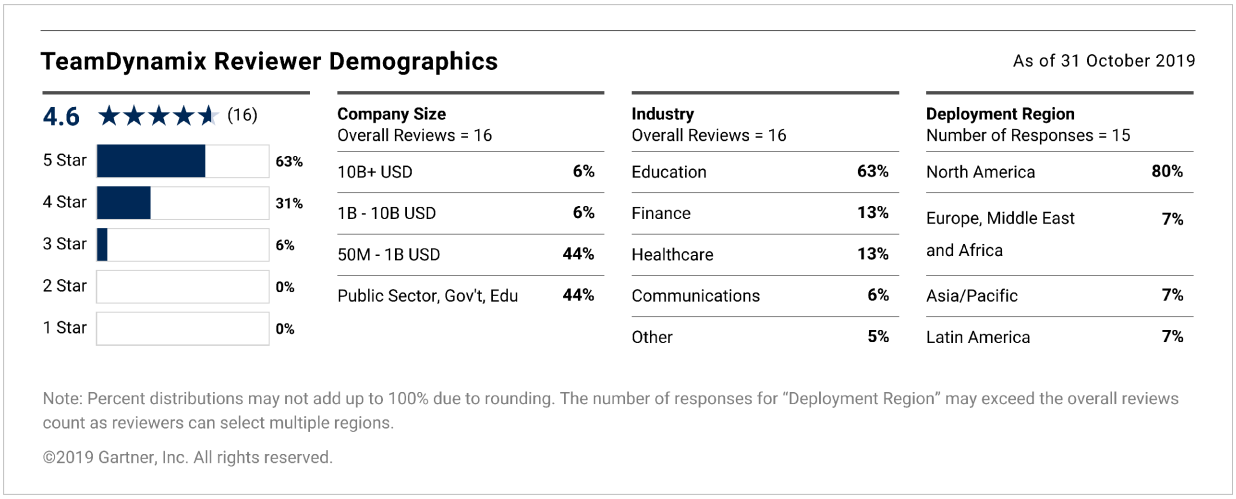
Figure 32. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools TeamDynamix Reviewer Demographics



TeamDynamix Reviewer Demographics

As of 31 October 2019

4.6 ★★★★½ (16)

5 Star	63%
4 Star	31%
3 Star	6%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 16	
10B+ USD	6%
1B - 10B USD	6%
50M - 1B USD	44%
Public Sector, Gov't, Edu	44%

Industry Overall Reviews = 16	
Education	63%
Finance	13%
Healthcare	13%
Communications	6%
Other	5%

Deployment Region Number of Responses = 15	
North America	80%
Europe, Middle East and Africa	7%
Asia/Pacific	7%
Latin America	7%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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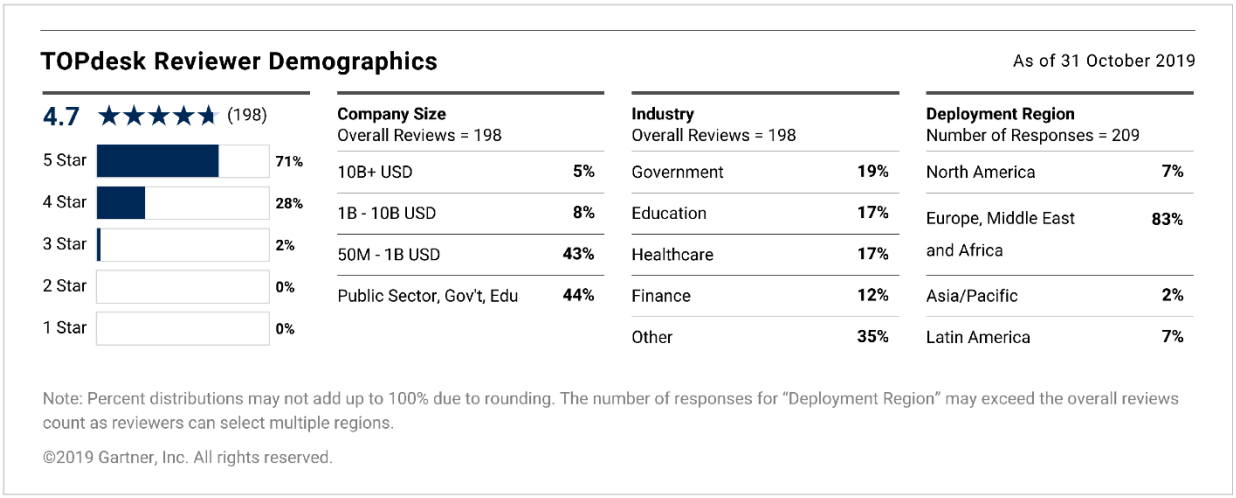
Source: Gartner (December 2019)

Read all Peer Insights user reviews for TeamDynamix.

Figure 33. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools TOPdesk Reviewer Demographics



TOPdesk Reviewer Demographics

As of 31 October 2019

4.7 ★★★★★ (198)

5 Star	71%
4 Star	28%
3 Star	2%
2 Star	0%
1 Star	0%

Company Size Overall Reviews = 198	
10B+ USD	5%
1B - 10B USD	8%
50M - 1B USD	43%
Public Sector, Gov't, Edu	44%

Industry Overall Reviews = 198	
Government	19%
Education	17%
Healthcare	17%
Finance	12%
Other	35%

Deployment Region Number of Responses = 209	
North America	7%
Europe, Middle East and Africa	83%
Asia/Pacific	2%
Latin America	7%

Note: Percent distributions may not add up to 100% due to rounding. The number of responses for "Deployment Region" may exceed the overall reviews count as reviewers can select multiple regions.

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Source: Gartner (December 2019)

Read all Peer Insights user reviews for TOPdesk.

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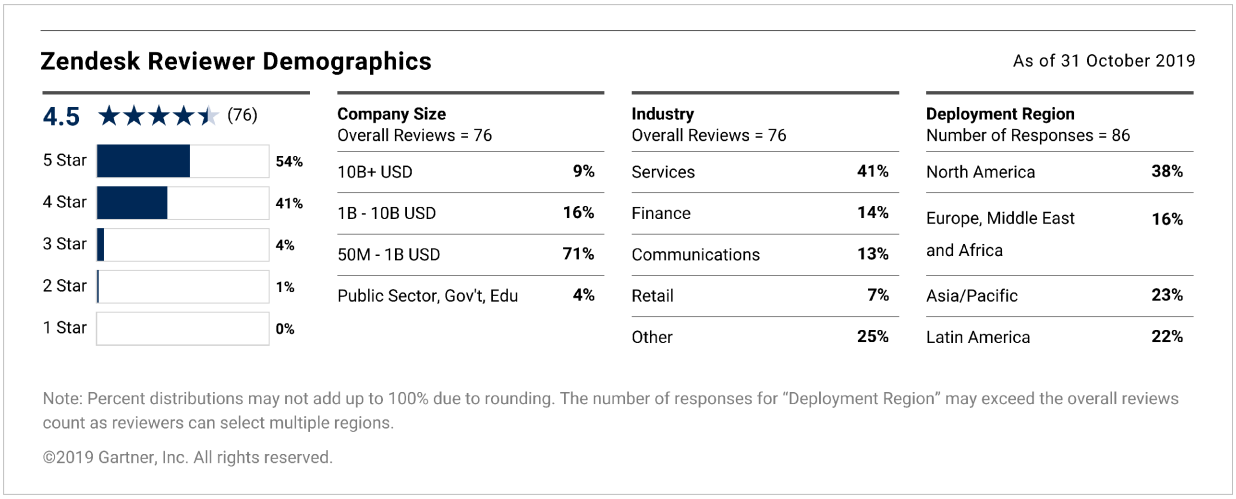
Figure 34. Gartner Peer Insights "Voice of the Customer" IT Service Management Tools Zendesk Reviewer Demographics



Source: Gartner (December 2019)

Read all Peer Insights user reviews for Zendesk.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Magic Quadrant for IT Service Management Tools"

"Critical Capabilities for IT Service Management Tools"

Methodology

The vendors included in the Gartner Peer Insights Customers' Choice distinctions for ITSM tools were announced on 21 November 2019. Reviews submitted between 1 November 2018 and 31 October 2019 were considered for determining Gartner Peer Insights Customers' Choice distinctions. Gartner is committed to transparency regarding the criteria considered in bestowing this distinction; a full description can be found on the Methodology page. The Gartner "Magic Quadrant for IT Service Management Tools" referenced in this report was published on 29 August 2019.

Overall customer rating is the response to the survey question: "Please rate your overall experience with this vendor." Other ratings displayed are responses to:

- "Overall rating of product capabilities"
- "Overall rating of evaluation and contract negotiation with the vendor"

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- "Overall rating of integration and deployment"
- "Overall rating of service and support"

Ratings were taken on a scale of 1 to 5, where 1 is "completely dissatisfied" and 5 is "completely satisfied." The average ratings within the review may represent multiple versions of a product offering. Reviews for beta products are included in the analysis of this document. Reviews for legacy products (no longer being sold by the vendor) were not included in the analysis in this document.

Vendors' Review Coverage is measured by their review volume and diversity in industry, company size and deployment region. Vendors who have 50 or more eligible published reviews and at least 20% of eligible reviews that are outside of the primary industry, company size and deployment region will be categorized as "High Review Coverage" and positioned on the right hand quadrants in Figure 1. In markets where there are more than 7 vendors that have qualified for Customers' Choice Distinction, the 7th highest "Product Adoption Review Coverage (PARC)" score of all qualified vendors will become the new Review Coverage threshold. For detailed definition of Review Coverage and PARC, please refer to the Methodology.

The 95% confidence range in Figure 3 is calculated using a statistical technique known as bootstrapping. For a given vendor, a bootstrap sample is taken from either the set of overall ratings of the market or the set of overall ratings for the vendor. The size of the sample taken is the same as the number of reviews of the vendor. There is a higher chance to take the sample from the vendor's overall ratings when the vendor has more reviews. A mean is calculated for each bootstrap sample and the process is repeated 50,000 times. The low and high ratings shown in the confidence range are the 2.5 to 97.5 percentile values of the histogram of these bootstrapped means (or the vendor's actual rating, whichever is lower/higher). This represents the 95% confidence interval.

"Willingness to recommend" is calculated based on the responses to the question "How likely is it that you would recommend this product or service to a friend or colleague?" The reviewer can select the response on a rating scale of 0 to 10, where 0 is "not at all likely" and 10 is "extremely likely." The response is considered "yes" if the rating is greater than or equal to 8 and "no" if the rating is less than 8. For reviews first submitted in mid-2018 or came from Magic Quadrant Reference Survey, the question "Would you recommend this product to others" was asked instead, with responses including "yes," "yes, with reservations," "I don't know," and "no." The "Willingness to recommend" percentage is calculated using the total number of "yes" responses for both questions as defined above divided by the total number of responses to the question.

The "other vendors considered" section is based on reviewer responses for the question "What other vendors did you consider?" The reviewer may select multiple vendors for consideration. The percentage is calculated according to the total number of reviewers who select an alternative vendor divided by the total responses to the question.

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RESOLUTION	**NO:**	[Title]
LIVINGSTON COUNTY	**DATE:**	Click or tap to enter a date.

Resolution Authorizing the Enterance into a Participating Addendum Through the NASPO Valuepoint Cooperative Purchasing Program and the Authorization of a Stock Hardware Order - Information Technology

WHEREAS, Livingston County has the need to purchase technology equipment to support the functions of the County's operations in a fiscally responsible manner using the NASPO ValuePoint Cooperative Purchasing Program; and

WHEREAS, utilization of the NASPO contract will result in significant cost savings for mission critical projects for the Information Technology Department; and

WHEREAS, participation in a Participating Addendum (PA) will result in effectively "piggy-backing" on the Master Agreement entered into between the State of Minnesota and Hewlett-Packard, Co (now HP, Inc.) and its addendums. This "piggy-backing" was authorized under the Master Agreement subject to the approval of the State Chief Procurement Official ("CPO") and the State of Michigan (SOM) has not issued a PA for the NASPO Master Agreement; and

WHEREAS, Civil Counsel reviewed the Master Agreements and deteremined the County is allowed to enter into their own respective PAs to utilize NASPO Value Point Master Agreements even when the SOM does not have an existing PA in place; and

WHEREAS, based upon recommendation of Civil Counsel, issuance of a PA is requested; and

WHEREAS, Information Technology has a need to place a stock order of hardware to support the County's users. Desktop computers, laptops, docking stations, and monitors are needed to replace outdated equipment in our environment and to support requests for additional necessary hardware; and

WHEREAS, through the issuance of a County PA for use of the NASPO ValuePoint Cooperative Purchasing Program, the vendor Civitas-IT is able to provide hardware at a significant cost savings of as much as $12,350 compared to our standard contract pricing with our current supplier; and

WHEREAS, funding is available through the fiscal year 2020 Information Technology budget.

THEREFORE BE IT RESOLVED that the Livingston County Board of Commissioners hereby approves and authorizes entrance into the Master Agreement via a Participating Addendum with the NASPO ValuePoint Cooperative Purchasing Program.

BE IT FURTHER RESOLVED that the Livingston County Board of Commissioners hereby approves and authorizes a purchase order to be issued to Civitas-IT for the purchase of stock technology hardware including desktops, laptops, docking stations, and monitors at an amount not to exceed $72,450.

BE IT FURTHER RESOLVED that the Chairman of the Livingston County Board of Commissioners is authorized to sign all forms, assurances, contracts/agreements, renewals and future amendments for monetary and contract language adjustments related to the above upon review and/or preparation of Civil Counsel.

# # #

MOVED:
SECONDED:
CARRIED:

Qty	Part #	Description	Unit List $	Livingston Unit $	Livingston Ext'd $
14in laptop, Latitude 5400 alternative, HP EliteBook 840			**$1,770.00**	**$1,239.00**	
25	Config-32561916	HP EliteBook 840 G5 Base NB PC i5-8365U, 8G, 256SSD for Livingston Co	$ 2,182.00	$ 899.00	$ 22,475.00
25	4WG30AV	HP IDS UMA i5-8365U 840 G6 Base NB PC	$ 1,151.00	$ 469.00	$ 11,725.00
25	4SS11AV#ABA	OS Localization US	$ 2.00	$ 1.00	$ 25.00
25	X7B43AV	eStar Enable IOPT	$ 2.00	$ 1.00	$ 25.00
25	4WG65AV	Windows 10 Home 64	$ 142.00	$ 68.00	$ 1,700.00
25	4WH02AV	Integrated HD 720p IR TripleMic Webcam	$ 27.00	$ 11.00	$ 275.00
25	4WG47AV	14 inch FHD (1920x1080) Anti-Glare LED UWVA 400 for HD Webcam + IR slim ALSensor	$ 170.00	$ 69.00	$ 1,725.00
25	4WG87AV	8GB (1x8GB) DDR4 2400	$ 180.00	$ 73.00	$ 1,825.00
25	4WG95AV	256GB PCIe NVMe Value Solid State Drive	$ 225.00	$ 92.00	$ 2,300.00
25	4WG55AV	No Near Field Communication (No NFC)	$ 2.00	$ 1.00	$ 25.00
25	5MA76AV	Intel Wi-Fi 6 AX200 ax 2x2 MU-MIMO 160MHz +Bluetooth 5 WW with 2 Antennas	$ 25.00	$ 10.00	$ 250.00
25	4WG62AV	No WWAN	$ 2.00	$ 1.00	$ 25.00
25	4WG54AV	No Fingerprint Sensor	$ 2.00	$ 1.00	$ 25.00
25	4WG89AV	Active SmartCard	$ 2.00	$ 1.00	$ 25.00
25	4WG15AV	3 Cell 50 WHr Long Life	$ 45.00	$ 18.00	$ 450.00
25	4WG14AV	65 Watt Smart nPFC Right Angle for Fast Charge AC Adapter	$ 10.00	$ 4.00	$ 100.00
25	4WJ40AV#ABA	C5 1.8m Sticker Conventional Power Cord US	$ 2.00	$ 1.00	$ 25.00
25	4WJ68AV#ABA	Dual Point Backlit spill-resistant Collaboration US	$ 64.00	$ 25.00	$ 625.00
25	4WH12AV#ABA	3/3/0 Warranty US	$ 125.00	$ 51.00	$ 1,275.00
25	4WG53AV	AMT Enabled	$ 2.00	$ 1.00	$ 25.00
25	4WJ44AV#ABA	Country Localization US	$ 2.00	$ 1.00	$ 25.00
25	1QE38AV	Core i5 vPro G8 Label	$ 2.00	$ 1.00	$ 25.00
25	U4414E	HP 3 year Next business day onsite Hardware Support for Notebooks	$ 79.00	$ 39.00	$ 975.00
25	2SU51AV#ABA	Drop-In-Box HP ThunderBolt Dock 120W G2 US	$ 299.00	$ 113.00	$ 2,825.00
				Section Subtotal:	$ 26,300.00
Small Form Factor (SFF) Desktop PC, Optiplex alternative, HP EliteDesk 800 G5			**$1,127.00**	**$789.00**	
65	config #32568335	HP EliteDesk 800 G5 SFF PC i5-9600, 8GB, 256SSD for Livingston Co.	$ 1,537.00	$ 549.00	$ 35,685.00
65	6BD64AV	HP EliteDesk 800 G5 Small Form Factor PC	$ 198.00	$ 70.00	$ 4,550.00
65	4YH35AV#ABA	OS Localization US	$ 1.00	$ 1.00	$ 65.00
65	6ME13AV	ENERGY STAR Certified	$ 1.00	$ 1.00	$ 65.00
65	6CU48AV	EliteDesk 800PLA SFF G4/G5 250W Chassis	$ 216.00	$ 79.00	$ 5,135.00
65	6CV74AV	Windows 10 Home 64	$ 129.00	$ 45.00	$ 2,925.00
65	6CW51AV	Intel Core i5 9500 3.0 2666MHz 9M 6C 65W CPU	$ 413.00	$ 139.00	$ 9,035.00
65	6CW14AV	8GB (1x8GB) DDR4 2666 DIMM Memory	$ 180.00	$ 66.00	$ 4,290.00
65	6CV22AV	256GB M.2 2280 PCIe NVMe TLC Solid State Drive	$ 225.00	$ 83.00	$ 5,395.00
65	6CV04AV	HP VGA Port	$ 5.00	$ 2.00	$ 130.00
65	6EJ07AV#ABA	USB Business Slim Wired Keyboard US	$ 13.00	$ 5.00	$ 325.00
65	6CV70AV	HP Optical Wired Mouse USB	$ 5.00	$ 2.00	$ 130.00
65	6CW89AV	9.5mm DVD-Writer 8/6G3SFF 4G4MT/SFF	$ 19.00	$ 6.00	$ 390.00
65	6CW97AV#ABA	3/3/3 (material/labor/onsite) SFF Warranty US	$ 125.00	$ 46.00	$ 2,990.00
65	6CW27AV#ABA	HP 800 G5 SFF Bulk Pack Country Kit US	$ 1.00	$ 1.00	$ 65.00
65	6CW82AV	Multi-Unit (Small Form Factor) G4/G5 Eco-Packaging	$ 5.00	$ 2.00	$ 130.00
65	7AL74AV	Intel CFL-R Core i5 vpro Label	$ 1.00	$ 1.00	$ 65.00
65	U7899E	HP 5 year Next Business Day Onsite Hardware Support for Desktops	$ 100.00	$ 12.00	$ 780.00
65	1FH47A8#ABA	HP Business E243 23.8" Full HD LED LCD Monitor - 16:9 - 1920 x 1080 - 250 Nit - 5 ms - HDMI - VGA - DisplayPort	$ 159.00	$ 149.00	$ 9,685.00
				Section Subtotal:	$ 46,150.00
				Project Grand Total:	**$ 72,450.00**