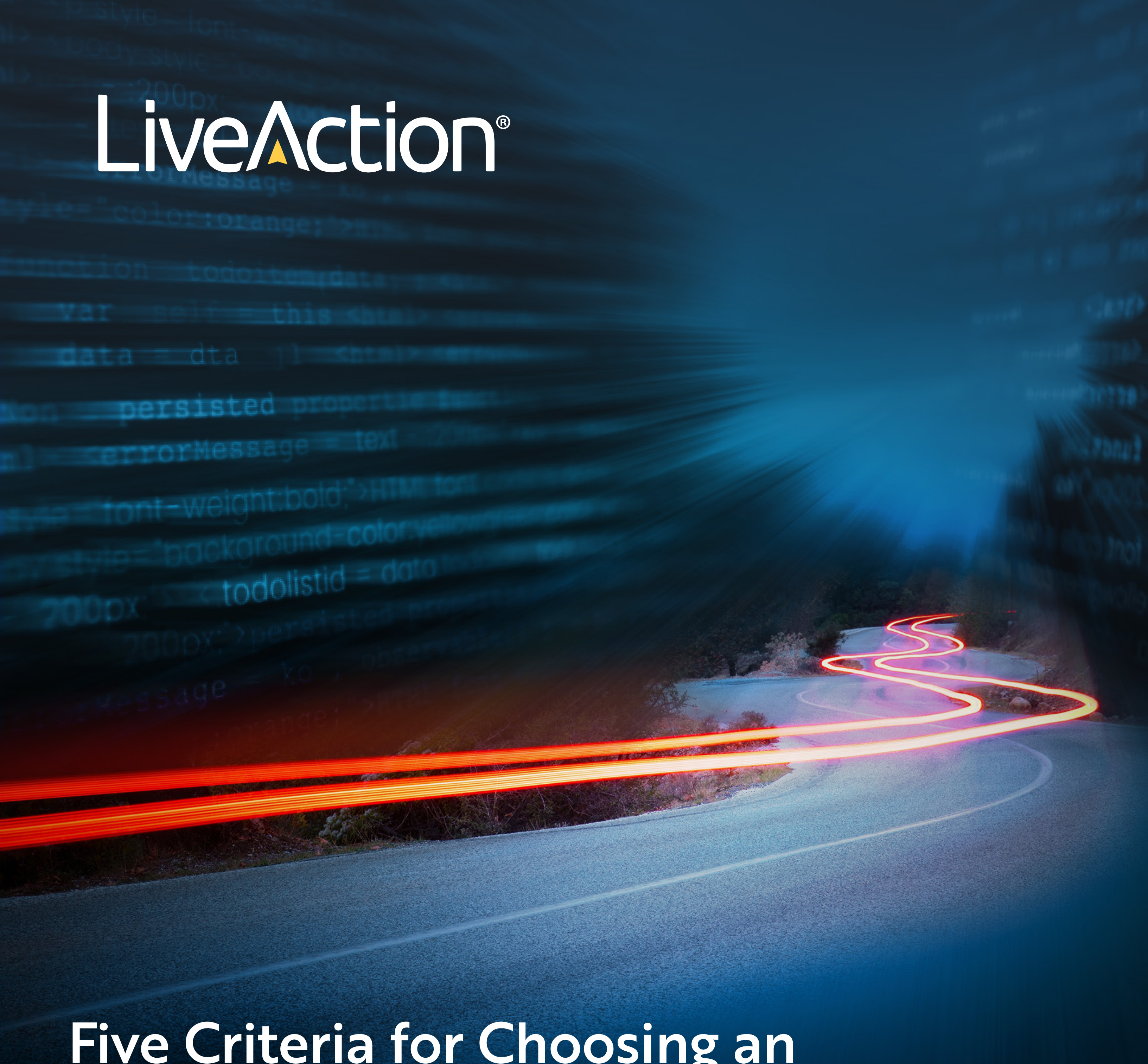
LiveAction®



Five Criteria for Choosing an Enterprise Network Performance Management (NPM)

Solution Overview

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Five Criteria for Choosing an Enterprise Network Performance Management (NPM) Solution

IT professionals have long relied on network performance management (NPM) tools to help identify and reduce instances of outages, traffic bottlenecks, and network performance issues. NPMs have evolved into a critical part of an organization's strategy for managing the digital user experience for internal users, company partners, and customers.

While many enterprises have embraced digital transformation for customer-facing technologies, they have yet to modernize the underlying architecture that powers these digital front-end solutions. This includes using legacy and non-scalable NPM tools. These tools have inadequate support for complex hybrid environments, lack machine learning capability, and have limited ability to correlate performance across all computing layers.

IT teams can provide strategic value to the business by adopting a modern approach to network management. This includes selecting an NPM solution capable of meeting both IT and business requirements. To select an effective network performance management (NPM) solution, enterprises must push beyond traditional vendor selection criteria. Before deciding on your NPM platform, consider these five criteria.

We evaluate LiveAction, ManageEngine, Viavi, and SevOne on a rubric based on these five critical criteria:

- **Comprehensive end-to-end network visibility and performance management**
  Is the solution able to monitor the entire network, including SD-WAN & WAN, LAN, public, hybrid, and multi-cloud environments, wireless, campus, and data center? Or is the solution only able to support specific categories and environments?

- **Network traffic analysis**
  Does the platform have deep packet capture, NetFlow, and analytics to monitor real-time network traffic and application performance?

- **Application performance and visibility monitoring**
  Can the platform analyze and correlate data from network devices, applications, and cloud environments to maximize application performance?

- **AIOps, analytics, and visualizations**
  Does the solution incorporate AIOps for advanced anomaly detection and correlation? Does the solution offer analytic visualizations that enable rapid root cause analysis and a deeper understanding of network utilization?

- **Enable high-performance digital user experiences**
  Does the solution support monitoring the complete digital user experience, including synthetic monitoring techniques that can test the health and performance of user engagement paths?

This report will cover each of these five criteria in more detail, highlighting specific questions and best practices to consider when evaluating a new NPM solution.

QUESTION 1

Is the solution able to monitor and manage the entire network or only specific categories or environments?

Does the platform manage the entire digital experience and monitor and manage the cloud, wireless, SD-WAN & WAN, LAN, application, campus, and data center environments?

Modern IT infrastructure is increasingly becoming more complex and specialized to the bespoke needs of the organization. While local technology stacks have increased density, they have also expanded to incorporate multiple different vendors, technologies, and environments. The "hybrid networking" is now a common term spoken within enterprise IT organizations. Enterprises have a significant challenge not only maintaining comprehensive visibility in dynamic, hybrid environments but also ensuring expected performance.

For example, suppose a single component is suffering from performance issues. The effects can be wide-reaching, and the catalyst of the resulting problems can be challenging to pinpoint across such a broad range of moving parts. This is why modern NPM solutions must be able to monitor these individual components and environments in a single solution and correlate collected performance data to quickly identify root causes and understand their potential effects on individual environments and the overall digital experience.

An effective modern NPM solution needs to collect and correlate performance data from the entire network, often from complex hybrid environments. This includes monitoring all types of network devices used, wireless components, SD-WAN & WAN, LAN, cloud environments, customer and enterprise applications, VoIP devices, and datacenters. In addition, the solution needs to collect and analyze data not only for root cause and performance analytics but also for proactive health metrics. Key health analytics include top network users, availability, common traffic patterns that contribute to performance issues, application jitter, latency, and loss. Finally, NPM solutions should automatically create baseline and trending metrics to ensure that capacity issues do not contribute to downtime or performance issues.

Why this has value to you:

Using a consolidated NPM platform that ingests all data from the cloud, the core, and the WAN edge provides NetOps with improved data accuracy and faster response times.

QUESTION 2

Does the vendor's platform support granular, correlated network traffic insights?

Does the vendor's platform have deep packet capture, IPFIX, NetFlow, and analytics to monitor real-time network traffic and correlate traffic across the network?

Whether users are accessing applications hosted internally or in the cloud, an NPM tool should correlate traffic data in real-time with application performance and end-user experience. This boosts the efficiency of network operations teams. Rather than analyzing every fault that the monitoring tool detects, engineers can use targeted alerting to prioritize focus on problems that affect end users. This segmentation of alerting can also reduce false positives and alarm storms.

The platform you choose should deliver insights into application performance and end-user experience through deep real-time processing and packet-by-packet analysis. A tool should present network transactions with performance indicators, including supporting views into complex, multi-tiered applications. These transactions should be correlated with end-user sessions and applications. Ideally, the solution will show the engineer how critical applications perform on the network and how users experience individual sessions. This visibility should enable network operations teams to quickly isolate problems, mainly if the tool combines insight into the end-user experience with awareness of the network domain.

Why this has value to you:

Instead of spending time tying disparate data results together, a modern NPM can utilize Artificial Intelligence (AI) and Machine Learning (ML) to intelligently correlate and categorize the findings for you. Skip the "gathering and fact-finding" step and jump right into action.

QUESTION 3

Does the solution enable complete application performance monitoring and visibility?

Does the solution analyze and correlate data from network devices, applications, and cloud environments in a single platform? Is application performance automatically analyzed for performance optimization?

For most IT organizations, application performance optimization drives most of their network monitoring and management strategies. Today's applications must operate with high performance, meeting the customer demand for a seamless digital experience. Necessarily, network managers must have NPM solutions with integrated application intelligence.

NPM solutions need to gather network performance metrics from infrastructure devices, including routers, firewalls, load balancers, switches, and application performance enriched flow data, to create a comprehensive application-impact analysis. Any NPM solution being evaluated should support integrated application visualizations, including application path analytics. NPM solutions should send alerts during application performance issues caused by network-device failures.

The NPM solution should be able to:

- → Understand application traffic with complete visibility of protocol and application type.
- → Troubleshoot applications deployed in the data center, public cloud, SaaS, or hybrid environments.
- → Visualize packet-by-packet to perform detailed application-performance analysis.
- → Analyze packet data to identify application errors in packet payloads.
- → Pinpoint the source of latency as a network versus the application root cause.
- → Provide application usage and performance data at the site level.
- → Report top application performance, highlighting average application and network delays.

Why this has value to you:

Graphic visuals are processed 60,000 x faster than text and are easier to remember. Powerful, clean graphic displays of united network and application data allow NetOps to perform at their greatest efficiency.

QUESTION 4

Does the solution incorporate AIOps to enable advanced anomaly detection and correlation?

Does the solution incorporate machine learning for advanced anomaly detection and correlation across all network layers and provide visualizations that allow rapid root cause analysis and a deeper understanding of network utilization?

Since scale-related performance is critical, modern NPM solutions should incorporate ML techniques to enable the platform to continuously learn and apply knowledge based on data trends. This includes creating dynamic baselines and identifying anomalous behavior from multiple raw data sources. In addition, ML algorithms can support critical performance corrections. This includes determining which voice traffic to prioritize, when to throttle bandwidth, and whether to block a user's access.

Why this has value to you:

AIOps can be applied to large-scale data collection for scalable fault identification. It can ingest logs from anywhere in the WAN to make recommendations for better decisions. It can evaluate what is normal or abnormal behavior and find the relationship between the application's performance problem and the storage system associated with it. Some AIOps tools could even go beyond recommendations trigger actions without human intervention, for example: beginning a disk rebuild when there is an impending storage failure.

QUESTION 5

Does the solution enable high-performance digital experiences across the entire network?

Does the solution support the analysis and optimization of the digital experience across applications, network devices, public, hybrid and multi-cloud environments, SD-WAN, and VoIP? Does the solution incorporate synthetic monitoring to test the health and performance of common user engagement paths?

Understanding the user experience is critical to optimization. Organizations evaluating NPM solutions should ensure that the solution supports end-to-end performance monitoring of data and analytics from different domains in a common user interface with KPIs, insights, and predictive analytics for optimization.

Vendors that support IPSLA and agent-based synthetic monitoring solutions can test the health and performance of the application traffic paths. Solutions that support deep packet inspection (DPI) into application traffic can correlate and analyze network data with application performance and provide improved user experience.

Why this has value to you:

When end-users can engage in the environment with positive outcomes, there are no obstacles creating friction between their experience and the business's desired outcome – whether that be sales, communications, or greater employee efficiency.

Conclusion and Findings

To determine the ranking of the four vendors' NPM solutions based on the selection criteria, Apprize 360 interviewed current and former customers of the LiveAction, SevOne, ManageEngine, and Viavi platforms. The interviewees were asked to rate each solution according to the five outlined criteria. The interviews and assessment focus on the abilities of each solution to fulfill the five selection criteria.

Apprize360's assessment concluded that LiveAction's LiveNX, LiveWire, and LiveNA solutions best meet all five criteria and are among the most robust NPM solutions on the market today.

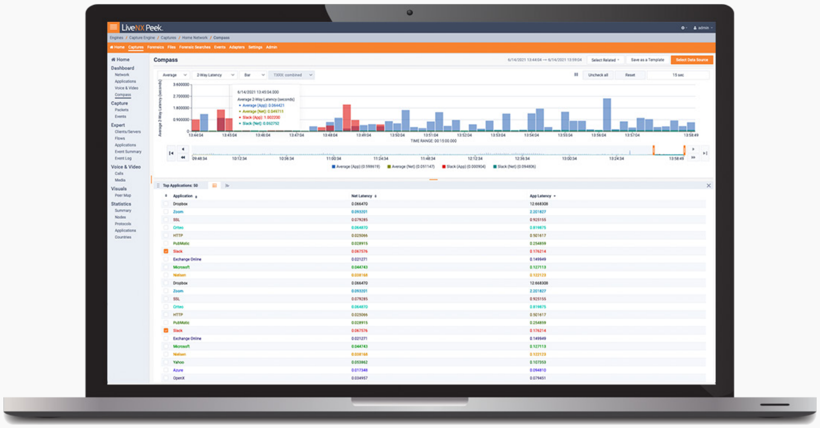
01 Complete NPM solution

LiveAction gathers real-time data from multi-vendor network elements to monitor VoIP and video, SD-WAN, cloud, application, and data center performance. Customers reported that LiveAction allowed them to visualize the impact of network issues in real time. LiveAction's LiveNA platform automatically identifies anomalies and highlights the most critical ones to address. LiveAction's LiveNX correlates multiple data sets across the network for real-time visualization of end-to-end application and network performance flows, quickly identifying performance metrics and highlighting path and routing changes to enable rapid diagnosis and correction. LiveAction's time-based analysis of network performance states that it allows IT teams to report any deviations in performance because of the addition of new computing resources, devices, and IT environments. Overall, customers reported that LiveAction supported their need for quick troubleshooting of multi-domain performance issues and proactively optimizing network performance.

02 Granular traffic and packet analysis

With flow and packet-level analysis, LiveAction allows NetOps to quickly isolate problem areas and offer a rapid response to any high-severity incidents.

→ **LiveWire:** LiveAction's LiveWire includes detailed network traffic analytics that support real-time troubleshooting, detection of anomalous behavior, and analysis of emerging performance issues. LiveWire starts with packet data and provides a unique and extended set of flow-based monitoring data called LiveFlow. LiveFlow is extended IPFIX data exported to LiveNX, where the complete network topology is visualized. LiveNX stores the monitoring data for both long-term reporting and real-time alerting. Regardless of the depth of LiveFlow data, there are instances when packets



	Application	Net Latency	App Latency
□	Dropbox	0.066470	12.668308
□	Zoom	0.093201	2.201827
□	SSL	0.079285	0.925155
□	Criteo	0.064870	0.819875
□	HTTP	0.025066	0.501617
□	PubMatic	0.028915	0.254859
☑	Slack	0.067576	0.176214
□	Exchange Online	0.021271	0.149949
□	Microsoft	0.044743	0.127113
□	Nielsen	0.038168	0.122123
□	Dropbox	0.066470	12.668308
□	Zoom	0.093201	2.201827
□	SSL	0.079285	0.925155
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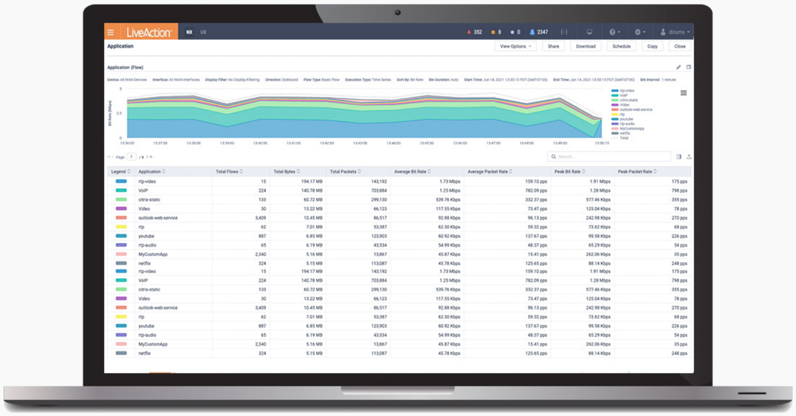
☑	Slack	0.067576	0.176214
□	Exchange Online	0.021271	0.149949
□	Microsoft	0.044743	0.127113
□	Nielsen	0.038168	0.122123
□	Yahoo	0.053862	0.107353
□	Azure	0.017348	0.094810
□	OpenX	0.034957	0.079451

LiveWire

are required for detailed root cause analysis. Since LiveWire also stores all packets while simultaneously generating LiveFlow, issues identified on LiveNX dashboards can easily be analyzed in detail, down to the packet level, by clicking on an alert or a flow that needs further investigation.

→ **LiveNX:** LiveNX's network traffic analytics provide complete visibility across the network through ingesting packet data, flow data, Wi-Fi data, and device data. With LiveNX's deep "packet-by-packet" analysis, users can conduct real-time troubleshooting across the network, especially for VoIP and video root cause analysis. LiveNX ingests flow data, including NetFlow, IPFIX, sFlow, jFlow, and data generated by LiveWire, for visibility into the network performance across multi-vendor, multi-domain, and multi-cloud networked environments. LiveNX leverages Wi-Fi and device data to quickly troubleshoot and resolve network issues across specific devices. LiveNX also features rapid incident response workflow with Alert notification or predictive insight to identify the event for remediation. Within LiveNX's Engineering Console, NetOps can more easily isolate the issue with the visual analytics presented as topology, site, or device views. LiveNX shows the time stamp from the Alert and the problem isolation from the Flow data. Should additional analysis be necessary, the NetOps team can quickly cross launch Omnipeek for deep packet analysis for root cause analysis.



Application (Flow)

Device: All WAN Devices Interface: All WAN Interfaces Display Filter: No Display Filtering Direction: Outbound Flow Type: Basic Flow Execution Type: Time Series Sort By: Bit Rate Bin Duration: Auto Start Time: Jun 14, 2021 13:35:15 PDT (GMT-07:00) End Time: Jun 14, 2021 13:50:15 PDT (GMT-07:00) Bin Interval: 1 minute

Legend	Application	Total Flows	Total Bytes	Total Packets	Average Bit Rate	Average Packet Rate	Peak Bit Rate	Peak Packet Rate
■	rtp-video	15	194.17 MB	143,192	1.73 Mbps	159.10 pps	1.91 Mbps	175 pps
■	VoIP	224	140.78 MB	703,884	1.25 Mbps	782.09 pps	1.28 Mbps	798 pps
■	citrix-static	133	60.72 MB	299,130	539.76 Kbps	332.37 pps	577.46 Kbps	355 pps
■	Video	30	13.22 MB	66,123	117.55 Kbps	73.47 pps	125.04 Kbps	78 pps
■	outlook-web-service	3,409	10.45 MB	86,517	92.88 Kbps	96.13 pps	242.98 Kbps	270 pps
■	rtp	62	7.01 MB	53,387	62.30 Kbps	59.32 pps	73.62 Kbps	68 pps
■	youtube	887	6.85 MB	123,903	60.92 Kbps	137.67 pps	99.58 Kbps	226 pps
■	rtp-audio	65	6.19 MB	43,534	54.99 Kbps	48.37 pps	65.29 Kbps	54 pps
■	MyCustomApp	2,340	5.16 MB	13,867	45.87 Kbps	15.41 pps	262.06 Kbps	35 pps
■	netflix	324	5.15 MB	113,087	45.78 Kbps	125.65 pps	88.14 Kbps	248 pps
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■	netflix	324	5.15 MB	113,087	45.78 Kbps	125.65 pps	88.14 Kbps	248 pps

LiveNX

03 Application visibility and performance monitoring

LiveAction is able to gain a deep understanding of application traffic with its complete visibility into protocol and application types, including video, voice, instant messaging, and file transfer. This enables users to rapidly troubleshoot applications deployed in the data center, public cloud, SaaS, and hybrid network. This also allows users to understand how a network is being utilized, how applications are performing, and which sanctioned or unsanctioned applications are being used. Using LiveAction's Application Path Analytics (APA) feature, users can identify precisely where application performance issues originate and correlate the impact of those issues on other applications and network devices.

04 AIOps, analytics, and visualizations

LiveNA is LiveAction's AIOps platform, which applies machine learning and heuristics to network datasets to enable advanced anomaly detection and predictive analytics that deepen network understanding. LiveNA uses proprietary machine learning algorithms to establish baselines for applications and the network to detect deviations from the baseline, anomalies, and correlate events. LiveAction's patented visualization engine is another differentiator that provides visual insights into the entire network, including visual packet analysis, visual path analytics, transport view, virtual overlay view, and site-specific details.

05 Digital Experience

LiveNX allows the enterprise to gain real-time and continuous insight into user activity across applications, network layers, and other infrastructure environments. User Experience is a software module available with the LiveNX Performance and Analytics platform that provides instant visibility of site health, network devices, application usage, and application performance. LiveNX User Experience proactively monitors the end-user experience by performing periodic active tests to collect data about your network and application performance. As a result, you can gain insight into the availability and performance of any web-based application anywhere to address issues before they impact users. The module also supports correlating end-user experience and network information through LiveNX Application-aware Network Performance Monitoring integration. Customers report the ability to drill down from the module to examine network conditions, including bandwidth utilization, link errors, QoS metrics, and applications that are competing for the bandwidth.

	LIVEACTION	MANAGEENGINE	SEVONE	VIAVI
CATEGORIES OF ASSESSMENT	LiveNX, LiveWire, & LiveNA	OpsManager, OpsManager Plus, & NetFlow Analyzer	SevOne Network Data Platform	Observer Gigastor, Observer Apex, Observer Analyzer
End-to-End Network Performance Management Able to monitor the entire network without use of numerous modules, add-ons, and integrated partner solutions for: ▪ Network traffic & pack analytics ▪ SD-WAN, LAN, & Datacenter monitoring ▪ Cloud and Application performance, wireless & UC monitoring ▪ End-User Experience (EUE) monitoring	●	◑	◕	◕
Digital Experience Monitoring ▪ Real-Time insight into application & user-level activity ▪ Synthetic user experience analysis	◑	◔	◔	◕
SD-WAN Monitoring ▪ Visibility into underlays & overlays, tunnel performance, & lifecycle monitoring ▪ Real-time visualization of end-to-end application performance	●	◔	●	◕
Cloud monitoring ▪ Visibility into multi-cloud environments ▪ Ability to analyze bandwidth utilization of applications & services	◕	◔	◑	◔
Application Performance Monitoring Traceability & analytics on network performance metrics from devices with application performance insights ▪ Application path analytics ▪ Packet-by-packet ladder analysis for detailed APM	◑	◔	◔	◔
Unified Communications Analysis & Troubleshooting Monitoring & root cause analysis of VoIP, video, & UC	●	◑	●	◑
Cisco QoS Ability to monitor Cisco QoS class per service with real-time visualization into QoS anomalies.	●	◔	◕	◔
Advanced anomaly detection & correlation Leverage machine learning algorithms to create dynamic baselines & identify anomalous behavior from multiple sources of raw data	●	◑	◑	◔
Alerting & Notifications Support for multi-threshold alerting rules customized by site, device, & region	◕	◑	◕	◑
Capacity Planning Analyze & plan for additional bandwidth & processing power needs	●	◔	◑	◔
Advanced Analytics and Reporting ▪ Easy-to-build dashboards & reports ▪ Visualizations of network, transport, virtual overlay, packet analytics, & site-specific details	●	◑	◕	◑
AIOps ▪ Machine learning for next-generation baselining & predictive insights on network & application performance	◑	◔	◔	◔

LEGEND ● Full Present (100%) ◕ Partial Functionality (~75%) ◑ Half Functionality (~50%) ◔ Minor Functionality (~25%) ○ Fully Absent (0%)

About LiveAction

LiveAction provides end-to-end visibility of network and application performance from a single pane of glass. This gives enterprises confidence that the network is meeting business objectives offers IT administrators full visibility for better decision making and reduces the overall cost of operations. By unifying and simplifying the collection, correlation and presentation of application and network data, LiveAction empowers network professionals to proactively and quickly identify, troubleshoot and resolve issues across increasingly large and complex networks. To learn more and see how LiveAction delivers unmatched network visibility, visit www.liveaction.com.

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