LiveAction Visualization and Management for Cisco IWAN

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Overview

Cisco® Intelligent WAN (IWAN) delivers an uncompromised user experience over any connection, whether that connection is Multiprotocol Label Switching (MPLS) or Internet. By unifying the logical infrastructure of multiple connections that span diverse carriers and link types, customers get more net bandwidth through the same physical connections. Cisco IWAN protects performance-sensitive applications from brownouts and blackouts, provides secure and reliable active-active load balancing for applications, and improves application performance, while reducing significant WAN costs. The savings from IWAN not only pays for the branch-office infrastructure investments, but can also free resources for new, innovative business services.

LiveAction* software provides intuitive, comprehensive, highly integrated, application-aware visualization and management for the Cisco IWAN solution, including Cisco Application Visibility and Control (AVC). LiveAction offers:

- Performance Routing (PfR) path control visualization, reporting, and configuration
- AVC visualization, reporting, and configuration
- Quality of Service (QoS) Monitoring and policy configuration, including AVC's application-aware QoS
- PfR Dashboard and real-time network health and status

LiveAction is an application-aware network management software with QoS control, designed to simplify network management. LiveAction features an innovative visual display, real-time big data analytics, and deep control of routers and switches for unparalleled ease of network administration. At a high level, LiveAction has the following **See-Point-Click-Fix** features:

- **See**: **Visualization**
  - Visualize real-time end-to-end network traffic
  - Examine historical QoS, flow, routing, and IP Service-Level Agreement (SLA) data
- **Point: Decision Making**
  - Analyze hop-by-hop path, devices, interfaces, and queues
  - Locate and troubleshoot problems
- **Click**: **Control**
  - Enable and deploy QoS, Network-Based Application Recognition (NBAR), Flexible NetFlow (FNF), Cisco AVC, and Cisco Performance Monitoring
  - Create IP SLA probes
- **Fix**: **Improve**
  - Edit QoS policies, Access Control Lists (ACLs), and Cisco Policy-Based Routing (PBR)

PfR Path Control Visualization, Reporting and Configuration

LiveAction visualizes traffic paths and performance before and after any path changes are made by PfR, so customers can better realize the IWAN return on investment (ROI). In particular, when PfR makes a path change to protect the applications because of an Out-Of-Policy (OOP) condition, LiveAction renders the end-to-end path changes graphically from the branch-office through the service provider(s) to the data center(s) where the applications reside, providing more meaningful and actionable information than the standard PfR command-line interface (CLI) outputs. Furthermore, LiveAction shows what OOP condition (for example, delay, loss, or jitter) triggered the path changes and provides specific reporting on those triggers. LiveAction also displays the application traffic associated with those path changes.

To see how LiveAction's unique PfRv3 and IWAN capabilities operate up-close, watch this quick 12-minute demonstration.

Application Optimization

Intelligent path control not only lowers WAN cost and makes full use of all WAN bandwidth, but it also increases application availability and improves application performance by routing around carrier black holes or brown-outs. In addition to, selecting the per-application best path based on real-time measurements of delay, loss, and jitter. Cisco IWAN includes AVC statistics to track and report application flows and performance. With AVC, the flows to an application server can be measured from end-to-end, giving the network a higher level of application awareness. Utilizing LiveAction, you can move directly from the high network visibility provided by AVC to remedy the issues AVC identifies in monitored traffic classes and flows. For example, you can use LiveAction to identify and analyze unwanted applications on the network that are impacting critical business traffic. You can also take advantage of LiveAction's unique QoS configuration functions to mitigate any offending traffic by policing policy and incorporating the Cisco NBAR classification.

The end-to-end AVC flow visualization of LiveAction across the network topology can be very useful to ensure that appropriate traffic markings and priority are carried through the network and across service provider clouds. LiveAction also graphically displays response-time statistics and the breakdown of network, server, and application delays provided by AVC. In addition, LiveAction allows you to configure AVC alerts to increase the visibility of network delays or retransmission events. When these configurable thresholds are exceeded, LiveAction generates alerts, enabling network administrators to be notified and take appropriate actions.

LiveAction features a dashboard that provides Top N application performance, as well as a series of detailed AVC reports for application performance analysis and troubleshooting. For example, when a user experiences degradation of critical business application performance due to a file-sharing application using most of the WAN-edge bandwidth, LiveAction can quickly visualize the abnormal traffic pattern, troubleshoot, and resolve the performance problem that affects this user. The unique graphical LiveAction QoS configuration capabilities then allows the network administrator to adjust the QoS policy through simple points and clicks and apply it to the interface to throttle down the file-sharing traffic in a matter of minutes. What's more useful is that the user can then validate the new QoS settings by looking at traffic flows after the changes have been made to ensure application performance returns to normal. LiveAction also has a "Revert" function to back off QoS changes at a click of a button.

QoS Monitoring and Configuration

Cisco IWAN value propositions are centered on optimizing WAN bandwidth and improving application performance. Yet, these benefits need to be summarized visually to readily prove their value. With its unique end-to-end visualization capabilities, LiveAction increases the IWAN value by helping customers see and optimize IWAN network performance more clearly and immediately.

Part of understanding and improving application performance is the ability to efficiently monitor and configure QoS. Through its QoS congestion indicator visualization and performance tracking, LiveAction provides extensive analyses and makes it easy for IT engineers to fully understand QoS behaviors on their networks. LiveAction provides proactive QoS Monitoring that detects and alerts on critical policy drops before end users report problems. Its real-time QoS graphical reporting at intervals as short as 10 seconds enables a quick validation of policy changes. The LiveAction push-button policy and performance audit report analyzes QoS configurations for errors and performance problems and details this information in an easy-to-navigate report.

LiveAction's graphical QoS configuration capability empowers IT engineers (of all experience levels) to create, edit, and implement highly effective QoS policies on live networks with complete ease and confidence. LiveAction has deep built-in QoS expertise based on extensive research of the features, functions, and idiosyncrasies of Cisco devices. With LiveAction, QoS configurations can be created from the beginning or by using Cisco best-practice templates with hundreds of device-specific rules and guidelines. After QoS policies have been created, they can be immediately deployed on multiple devices or interfaces. For example, LiveAction can create and manage QoS policies on DMVPN tunnel endpoints and then apply them to tunnel interfaces. Each policy can then be assigned to the desired Next Hop Resolution Protocol (NHRP) tunnel interface. Working in conjunction with AVC and NBAR2, LiveAction allows full NBAR2 QoS control on Cisco routers—both on a per-application level and at the higher group level. Thus, network engineers can take advantage of the Cisco NBAR2 grouping feature and the LiveAction QoS graphical configuration to vastly reduce the complexity and verbosity of the router configuration.

PfR Dashboard, Network Health and Status

LiveAction provides overall PfR and network health status for IWAN management including, but not limited to:

- PfR dashboard for a quick glance of how PfR performs in re-routing traffic or protecting applications
- Network discovery and network topology
- End-to-end flow visualization
- Network-wide audits of QoS policies
- Network monitoring using NetFlow, IP Flow Information Export (IPFIX), Simple Network Management Protocol (SNMP) and Routing and LAN statistics
- Threshold-crossing alert processing
- Dashboard and at-a-glance color-coded status for top application performance, site performance, networking device CPU and memory usage, link usage, and interface up or down
- Top QoS conditions on interfaces, links, and Layer 2 devices: Drops and congestions

- Top applications by volumes, top countries where traffic is coming from or going to, etc.
- Support for multiple data center environments

LiveAction IWAN Management Benefits

LiveAction provides the following significant benefits to customers for IWAN implementation:

- Savings in time and money
  - Provides faster IWAN deployment and troubleshooting
  - Enables easier justification of IWAN ROI
- Facilitation of IWAN adoption
  - Visually demonstrates Cisco IWAN improvements in performance and availability
  - Provides an end-to-end IWAN management solution
- Increased productivity
  - Empowers a deeper understanding of application traffic with end-to-end flow visibility
  - Finds and fixes problems faster with graphical QoS control and bulk configuration
  - Implements robust IWAN reporting
- Ease of operations
  - Offers a clear visualization of path changes
  - Provides an intuitive GUI for faster deployment, configuration, monitoring, and troubleshooting

LiveAction Specifications

LiveAction provides PfRv3 support and is built on a 3-tier architecture with clients, servers, and nodes. Nodes discover network devices, ingest flow and SNMP data and extend configuration capabilities in a distributed environment by allowing for horizontal scaling of LiveAction. In addition, the clients and servers have been enhanced for massive scalability.

Client Application

The client application can run via web-start directly from the LiveAction web server, or it can be installed as a 64-bit client application for Windows or Mac.

Server

The LiveAction server runs on a Windows or Linux (CentOS or RedHat) Server or VM. The LiveAction server also has a built-in collection node and is fully usable without any additional installations.

Node

The node provides the ability to add additional collection and other capabilities and helps scale horizontally by providing additional processing. The node runs on Windows or Linux and communicates to the central LiveAction server.

Customers can choose the following LiveAction deployment scenarios:

- **Single Server:** The single server deployment of LiveAction consists of installing the server on a Windows or Linux Server or VM. Since the LiveAction server has a built-in collection node, it is fully useable without any additional installations.

- **Distributed Deployment:** In distributed deployments, a single server is deployed as usual, but additional nodes can be implemented and associated to the server (as shown below).

- **Virtual Machine:** Servers and nodes can be deployed on VM as long as the performance requirements for compute, store and network are met.

The use and location of additional nodes are based on these three criteria:

- **Performance**
  - Off-load performance to another node
- **Location**
  - Place node near devices being polled
  - Place at a branch site, so data is not polled across the WAN to the data center where the server exists

- **Security**
  - Place node for different security zone (DMZ)
  - Node(s) will initiate communication from security zone to server
  - In case of loss of communication, the server or node may re-initiate communication

For LiveAction performance and recommended hardware configurations, please refer to LiveAction User Guide.

Ordering Information

The LiveAction IWAN Management software is available on the Cisco Global Price List (GPL) as listed in Tables 1-16.

- LiveAction has the following pricing models on Cisco GPL (Global Price List) as shown below:

  - Perpetual license. Provides use of the license in perpetuity. Software upgrades are provided with purchase of annual maintenance.

  - Annual maintenance for perpetual license for 1-year. Provides technical support from LiveAction and access to minor and major software releases. For multi-year, 3- and 5-year contacts, increase the quantity of the applicable SKUs.

  - Subscription license for 1-year. Provides technical support from LiveAction and access to minor and major software releases. For multi-year, 3- and 5-year contacts, increase the quantity of the applicable SKUs.

- The SKU are based on number of network devices, such as routers or switches. You can combine multiple licenses to reach the desired number of devices to be managed. For example, to manage 700 devices, you may purchase a 500-device license and two 100-device licenses.

  - Cisco Series Routers Supported
    - Cisco 800, 1700, 1800, 1900, 2600, 2600XM, 2800, 2900, 3600, 3700, 3800, 3900, 7200, 7600, and ASR 1000 Series Routers are supported by LiveAction Flow, QoS Monitor, QoS Configure, Routing, and IP SLA.
    - For Cisco ASR 9000 and CRS-1, only LiveAction Flow is supported
    - Recommended IOS versions 12.3 or higher or 15.0 or higher for use with the software (IOS XE 2.6.0 or higher for ASR 1000 series). Earlier IOS versions may also work, but are not officially supported.
    - General-release IOS versions are recommended, although early- and limited-release versions will also work with LiveAction

  - Cisco Series Switches Supported
    - Cisco Catalyst 2960, 3560, 3750, 3850, 4500, and 6500 Series Switches are supported by LiveAction LAN.
    - Cisco Catalyst 3850, 4500, 6500, and Nexus 100v Series and 7000 Series Switches are supported by LiveAction Flow. Please consult Cisco feature navigator for specific hardware requirements.
    - Limited LiveAction QoS Monitor and QoS Configure support on Layer 3-routable interfaces and VLANs depending upon Cisco hardware capabilities.
    - No Layer 2 QoS configuration

Note: LiveAction is neither sold nor supported in China

LiveAction Enterprise

- LiveAction enterprise includes multi-node, multi-user, unlimited historical data, and full-function features with Flow, QoS Monitoring, QoS Configuration, Routing, IP SLA, and LAN modules are included.

- In this configuration, Routing includes PBR; visualization of Virtual Routing and Forwarding (VRF), Routing, adjacency tables, and next-hop route tracing. IP SLA includes an IP SLA dashboard, GUI-based IP SLA test generation, visualization of IP SLA test status, and all IP SLA reports. LAN functions include Layer 2 QoS Monitoring, LAN path visualization, and Spanning Tree Protocol (STP) visualization.

Table 1: LiveAction Enterprise, Perpetual License, Ordering Information

Cisco PIDs	LiveAction Enterprise, Perpetual License
L-SP-LA-E-25-K9=	LiveAction Enterprise Perpetual License, 25 managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-50-K9=	LiveAction Enterprise Perpetual License, 50 managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-100-K9=	LiveAction Enterprise Perpetual License, 100 managed devices, unlimited historical, multi-node, multi-user

Cisco PIDs	LiveAction Enterprise, Perpetual License
L-SP-LA-E-200-K9=	LiveAction Enterprise Perpetual License, 200 managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-500-K9=	LiveAction Enterprise Perpetual License, 500 managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-1K-K9=	LiveAction Enterprise Perpetual License, 1K managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-2.5K-K9=	LiveAction Enterprise Perpetual License, 2.5K managed devices, unlimited historical, multi-node, multi-user
L-SP-LA-E-5K-K9=	LiveAction Enterprise Perpetual License, 5K managed devices, unlimited historical, multi-node, multi-user

Table 2: LiveAction Enterprise, Annual Maintenance, Ordering Information

Cisco PIDs	LiveAction Enterprise, Annual Maintenance for Perpetual License
M-SP-LA-E-25-K9=	LiveAction Enterprise Annual Maintenance, 25 managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-50-K9=	LiveAction Enterprise Annual Maintenance, 50 managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-100-K9=	LiveAction Enterprise Annual Maintenance, 100 managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-200-K9=	LiveAction Enterprise Annual Maintenance, 200 managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-500-K9=	LiveAction Enterprise Annual Maintenance, 500 managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-1K-K9=	LiveAction Enterprise Annual Maintenance, 1K managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-2.5K-K9=	LiveAction Enterprise Annual Maintenance, 2.5K managed devices, unlimited historical, multi-node, multi-user
M-SP-LA-E-5K-K9=	LiveAction Enterprise Annual Maintenance, 5K managed devices, unlimited historical, multi-node, multi-user

Table 3: LiveAction Enterprise, Subscription License, Ordering Information

Cisco PIDs	LiveAction Enterprise, Subscription License
S-SP-LA-E-25-K9=	LiveAction Enterprise Subscription License, 25 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-50-K9=	LiveAction Enterprise Subscription License, 50 managed devices, unlimited historical, multi-node, multi-user

Cisco PIDs	LiveAction Enterprise, Subscription License
S-SP-LA-E-100-K9=	LiveAction Enterprise Subscription License, 100 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-200-K9=	LiveAction Enterprise Subscription License, 200 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-500-K9=	LiveAction Enterprise Subscription License, 500 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-1K-K9=	LiveAction Enterprise Subscription License, 1K managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-2.5K-K9=	LiveAction Enterprise Subscription License, 2.5K managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-E-5K-K9=	LiveAction Enterprise Subscription License, 5K managed devices, unlimited historical, multi-node, multi-user

LiveAction WAN

This configuration includes LiveAction multi-server, multi-user, rolling 14 days of historical data with Flow, QoS Monitoring, QoS Configuration, and Routing.

Table 4: LiveAction WAN, Perpetual License, Ordering Information

Cisco PIDs	LiveAction WAN, Perpetual License
L-SP-LA-W-25-K9=	LiveAction WAN Perpetual License, 25 managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-W-50-K9=	LiveAction WAN Perpetual License, 50 managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-W-100-K9=	LiveAction WAN Perpetual License, 100 managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-W-200-K9=	LiveAction WAN Perpetual License, 200 managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-W-500-K9=	LiveAction WAN Perpetual License, 500 managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-U-1K-K9=	LiveAction WAN Perpetual License, 1K managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-U-2.5K-K9=	LiveAction WAN Perpetual License, 2.5K managed devices, 14-day historical, multi-node, multi-user
L-SP-LA-U-5K-K9=	LiveAction WAN Perpetual License, 5K managed devices, 14-day historical, multi-node, multi-user

Table 5: LiveAction WAN, Annual Maintenance License, Ordering Information

Cisco PIDs	LiveAction WAN, Annual Maintenance for Perpetual License
M-SP-LA-W-25-K9=	LiveAction WAN Annual Maintenance, 25 managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-50-K9=	LiveAction WAN Annual Maintenance, 50 managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-100-K9=	LiveAction WAN Annual Maintenance, 100 managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-200-K9=	LiveAction WAN Annual Maintenance, 200 managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-500-K9=	LiveAction WAN Annual Maintenance, 500 managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-1K-K9=	LiveAction WAN Annual Maintenance, 1K managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-2.5K-K9=	LiveAction WAN Annual Maintenance, 2.5K managed devices, 14-day historical, multi-node, multi-user
M-SP-LA-W-5K-K9=	LiveAction WAN Annual Maintenance, 5K managed devices, 14-day historical, multi-node, multi-user

Table 6: LiveAction WAN, Subscription License, Ordering Information

Cisco PIDs	LiveAction WAN, Subscription License
S-SP-LA-W-25-K9=	LiveAction WAN Subscription License, 25 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-50-K9=	LiveAction WAN Subscription License, 50 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-100-K9=	LiveAction WAN Subscription License, 100 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-200-K9=	LiveAction WAN Subscription License, 200 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-500-K9=	LiveAction WAN Subscription License, 500 managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-1K-K9=	LiveAction WAN Subscription License, 1K managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-2.5K-K9=	LiveAction WAN Subscription License, 2.5K managed devices, unlimited historical, multi-node, multi-user
S-SP-LA-W-5K-K9=	LiveAction WAN Subscription License, 5K managed devices, unlimited historical, multi-node, multi-user

LiveAction SMB Professional

This configuration includes LiveAction for small and medium-sized businesses (SMBs), single-server, single-user, 5 days of historical data with Flow, QoS Monitoring, QoS Configuration, Routing, IP SLA, and LAN modules. Up to 200 devices can be managed for this single-server LiveAction SMB Professional. For more than 200 devices on a single server, please use the multi-server enterprise licenses listed above.

Table 7: LiveAction SMB Professional, Perpetual License Ordering Information

Cisco PIDS	LiveAction SMB Professional, Perpetual License
L-SP-LA-P-25-K9=	LiveAction SMB Perpetual License, 25 managed devices, 5-day historical, single-user, single-server

Table 8: LiveAction SMB Professional, Annual Maintenance, Ordering Information

Cisco PIDS	LiveAction SMB Professional, Annual Maintenance for Perpetual License
M-SP-LA-P-25-K9=	LiveAction SMB Annual Maintenance, 25 managed devices, 5-day historical, single-server, single-user

Table 9: LiveAction SMB Professional, Subscription License, Ordering Information

Cisco PIDS	LiveAction SMB Professional, Subscription License
S-SP-LA-P-25-K9=	LiveAction SMB Subscription License, 25 managed devices, 5-day historical, single-server, single-user

LiveAction Upgrade to Enterprise

To upgrade from LiveAction WAN or LiveAction SMB Professional to LiveAction Enterprise.

Table 15: Upgrade from LiveAction WAN to LiveAction Enterprise

Cisco PIDs	Upgrade from LiveAction WAN to LiveAction Enterprise
L-SP-LA-U-25-K9=	Upgrade from WAN to Enterprise, 25 managed devices
L-SP-LA-U-50-K9=	Upgrade from WAN to Enterprise, 50 managed devices
L-SP-LA-U-100-K9=	Upgrade from WAN to Enterprise, 100 managed devices
L-SP-LA-U-200-K9=	Upgrade from WAN to Enterprise, 200 managed devices
L-SP-LA-U-500-K9=	Upgrade from WAN to Enterprise, 500 managed devices
L-SP-LA-U-1K-K9=	Upgrade from WAN to Enterprise, 1K managed devices
L-SP-LA-U-2.5K-K9=	Upgrade from WAN to Enterprise, 2.5K managed devices
L-SP-LA-U-5K-K9=	Upgrade from WAN to Enterprise, 5K managed devices

Table 16: Upgrade from LiveAction SMB Professional to LiveAction Enterprise

Cisco PIDs	Upgrade from LiveAction SMB to LiveAction Enterprise
L-SP-LA-US-25-K9=	Upgrade from Perpetual SMB to Enterprise, 25 managed devices

Technical Support and Additional Information

Technical support and software updates are provided with purchase of the annual maintenance for perpetual licenses and with subscription licenses. For 24/7 support, visit the LiveAction Software & Service Support Page.

For more information on Cisco IWAN and LiveAction IWAN Management, please visit: the Cisco Intelligent WAN Page and the LiveAction for Cisco IWAN Management Page or send an email to iwansales@liveaction.com.