

## Service Delivery and Assurance for Service Providers

Digital transformation is critical for enterprises. Companies are relying on predictable network performance for cloud connectivity. The line between business-critical and consumer applications has blurred. Consequently, Service Providers have to adapt and meet their customers' needs and differentiate by providing value-added services in a cost-effective manner.

### Deliver Customer Value, Not Just Cost Efficiency

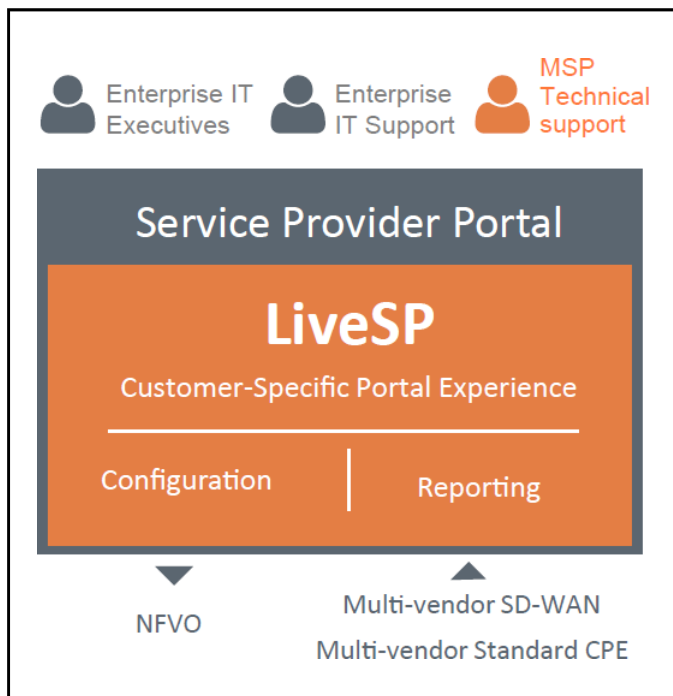
End-user experience is a key differentiator when providing managed network services. Network performance management has to be application-aware to fulfill this commitment. With LiveSP, Service Providers can address a strategic enterprise customer pain point: critical application performance, rather than bandwidth cost.

### Unify Your Managed Services

LiveSP unifies legacy and SD-WAN management in a unique platform which allows an abstraction of the WAN technology complexity. By simply creating templates and automating reports, managed services team can focus on customer needs.

### Enable Your Customers' Unique Requirements

LiveSP provides enterprises with the capability to gain full visibility into their unique network infrastructure. Network service assurance opens the door to confidently bring new value-added services.



## What Is LiveSP?

### Multi-Tenant Platform

LiveSP is a multi-tenant network performance monitoring platform. It provides the required features to customize Service Provider managed service offers and completely automate the provisioning workflow.

### Application-Aware Network Management

LiveSP visualizes application-specific network traffic for business relevance of network performance, and greatly accelerates the workflow to identify issues across LANs, external networks and applications.

### Unmatched Reporting Features

LiveSP report builder helps Service Providers (SPs) structure their communication with enterprise customers and different audiences. From abstracted executive overviews all the way down to detailed visualization for experts.

### Built for SP Infrastructure Needs

LiveSP is designed to be highly scalable. The flexibility, scalability and elasticity allows SPs to always have an optimal platform on which to provide service delivery, resulting in value from day one.

### Easily Integrate into Service Provider IT

LiveSP is easily integrated into the SP provisioning workflow. For WAN and SD-WAN managed services, it is simple to roll out and manage even massive deployments. Once templates have been established, the provisioning and monitoring workflow can be easily automated.

### Universal SD-WAN Management Platform

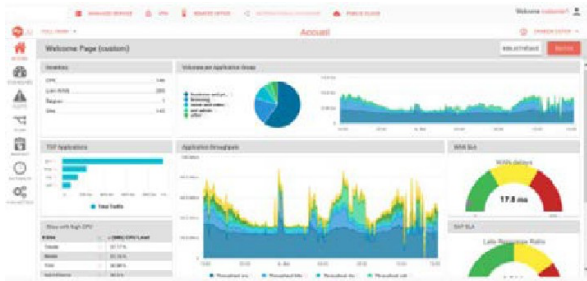
With built-in multi-vendor support for SD-WAN deployment and monitoring, LiveSP is a powerful tool to deliver on enterprise customers' expectations of efficient MPLS utilization as well as leveraging standard Internet links for connectivity and cost-reduction.

### Configure and Report in the Same Platform

LiveSP integrates with any orchestration platform to help automate the configuration and provisioning of new services. Simplifying SP operations and sharing some control features with the customers benefits customer.

## Become a Key Enabler for Digital Transformation

### Real-Time Troubleshooting



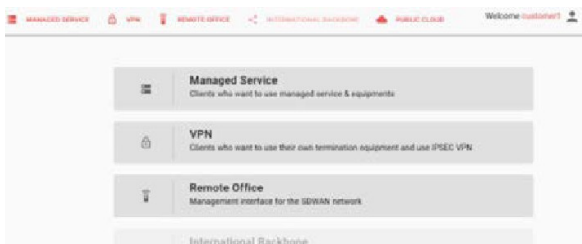
From executive summary to expert view, end-users browse the network with use-case centric dashboards, application based metrics. They easily assess network and critical application performance, split traffic into critical and non-business critical categories, provide SD-WAN and generic QoS service assurance.

### SD-WAN Topology Visualization



LiveSP analyzes performance metrics and events coming from customers' SD-WAN networks. It displays them through a simple and innovative, vendor-neutral visualization topology. End-users can intuitively visualize where their traffic goes and analyze the cause for re-routing.

### Automated Configuration & Personalization



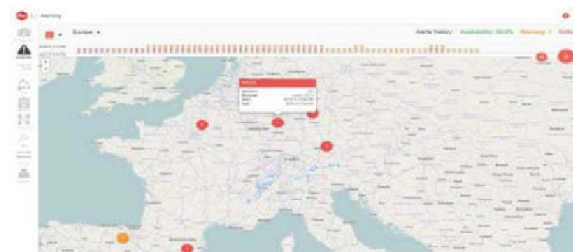
LiveSP teams can provide highly customizable user interfaces that deliver on specific enterprise customer requirements. It leverages different tools available in your infrastructure such as NFVO for service orchestration. Your customers can leverage their self- help portal to further configure their network to their needs, or communicate with your experts for advice.

### SLA Report Builder



The report module turns application or network information (graph, TOP, map, alerts, ...) from the LiveSP platform into simple configurable widgets that can easily be moved around, edited, and combined. The managed services team can hence focus on value creation rather than time-consuming, manual report customization.

### Out-Of-Policy Alert



Managed Services teams can configure customer-specific alert profiles for their enterprise customers. This triggers personalized alerts when network elements and applications are out-of-policy. Enterprise IT end users can easily drill down to network and application health-checks to understand root causes.

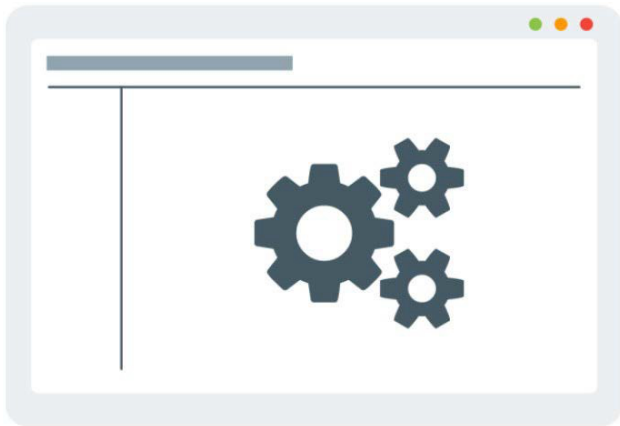
### SLA Report Builder

LiveAction complements its software product offering with professional services tailored to the needs of Service Provider customers. These include:

- IT integration
- Legacy and SD-WAN collection architecture design
- Extranet integration
- KPI definition
- Service customization (Dashboard, monthly reports, alerts,...)
- End-customer configuration capabilities

You can rely on the LiveAction Service Team to help you accelerate service definition and deployment.

## Leverage LiveSP for High Value Added Services



### SLA Report Builder

LiveSP provides highly customizable enterprise network deployments for the digital era, which help differentiate your managed service offerings, tailoring each enterprise implementation to customers' unique business needs. It delivers on:

- Open data sets: SNMP poller, KPIs, application dictionary
- End-user resources: Dashboards, reports, alerts
- Role-Based access control: Features and resources access.
- Authentication: SSO, http BA

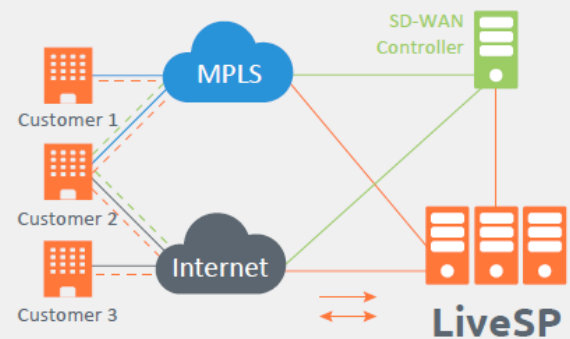
In addition, each customer can customize its dashboards and reports to its particular business needs.

### Unify Network Management for Legacy and SD-WAN

LiveSP is designed for multi-tenant VPNs, supporting from a few to thousands of sites. It easily scales and adapts to every enterprise's needs.

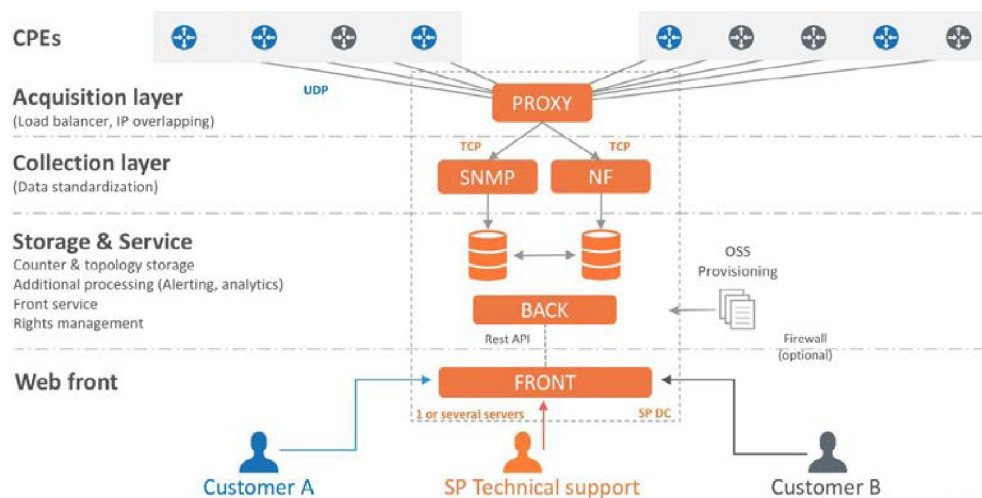
LiveSP collects and standardizes data coming from CPEs, Provider Edges (PEs) and SD-WAN controllers. LiveSP is compliant with SNMP V2, V3, NetFlow, IPFIX, IPSLA and integrates multi-vendor APIs to collect network analytics data.

LiveSP easily manages legacy CPEs, based on SNMP collection (Traffic, IPSLA), new CPEs, based on application aware metrics, and SD-WAN devices.



Metrics	Huawei	EKINOPS	Cisco AVC	Cisco SD-WAN	Nokia Nuage	Fortinet SD-WAN
MIB2 (traffic,load, CPU, memory load, ...)	SNMP	SNMP	SNMP	SNMP	API	SNMP
CoS	SNMP	SNMP	SNMP	SNMP	API	
IPSLA	SNMP	SNMP	SNMP	SNMP		
IP/Port traffic recognition	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX		NetFlow/IPFIX
Application traffic recognition	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX	API	NetFlow/IPFIX
TCP Application Performance metrics (delay, loss)	<b>LiveWire</b>	NetFlow/IPFIX	NetFlow/IPFIX	<b>LiveWire</b>	<b>LiveWire</b>	<b>LiveWire</b>
Media performance metrics (jitter)	<b>LiveWire</b>	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX	<b>LiveWire</b>	API
SD-WAN Performance per path (delay, loss)			NetFlow/IPFIX	API	API	API
SD-WAN Events			NetFlow/IPFIX		API	
Optimization metrics			NetFlow/IPFIX			
URL Recognition	<b>LiveWire</b>	NetFlow/IPFIX	NetFlow/IPFIX	NetFlow/IPFIX	<b>LiveWire</b>	<b>LiveWire</b>

## Architecture



- Multi-tenant portal
- Multi-vendor
- Multi-layer for security
- Built-in scalability
- Resiliency
- Scheduled provisioning
- Flexible RBAC
- Overlapping IP address
- SNMP, NetFlow, IPFix, REST API
- SD-WAN monitoring
- Cisco AVC, NBAR2
- SNMP trap

## Deployment Model

### System requirements:

- LiveSP can be hosted on Service Provider DC infrastructure, end-customer DC, or AWS
- LiveSP can be deployed on a single or multiple servers
- OS Linux distribution Debian, RedHat, Ubuntu with Kernel version greater than 3.10
- Browser: Mozilla Firefox, Chrome, Safari
- For large networks, data storage is highly recommended to be implemented on physical

### Provisioning:

- Scheduled or ad-hoc import
- LiveSP seamlessly connects to SD-WAN controller or existing provisioning tool
- Enables provisioning automation authentication
- Single Sign-On
- HTTP BA

## Single Serving Size

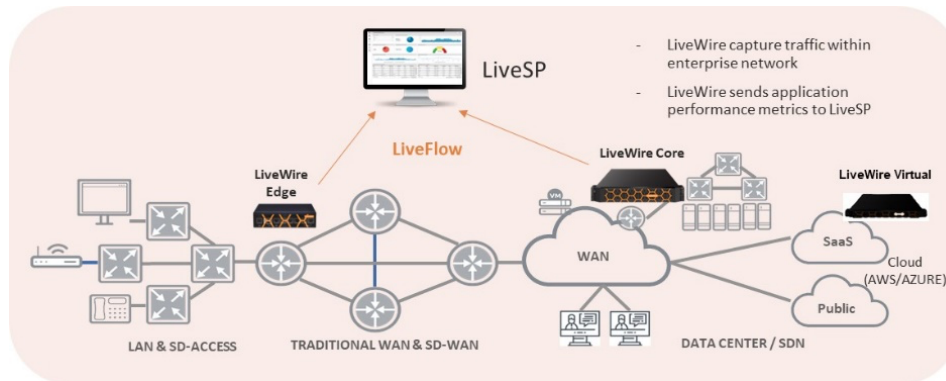
Number of devices	Virtual	CPU (3+GHZ)	RAM (GB)	Disk effective capacity
Less than 200 routers	Yes	8	20	250 GB
Less than 500 routers	Yes	12	32	500 GB / SSD RAID 1 or 10
From 500 to 1000 routers	Physical	16	32	50 GB SSD + 200 GB HDD
From 1000 to 2000 routers	Physical	24	64	1 TB SSD + 500 GB HDD
From 2000 to 3000 routers	Physical	40	128	2 TB SSD + 1 TB HDD
Above 3000 routers	Custom sizing	IPFix		

NOTE: The above figures are for single server setups. LiveSP can also be installed into cloud VM infrastructures across multiple servers (contact LiveAction for a custom sizing)

## Extending to Packet Capture and Application Performance reporting

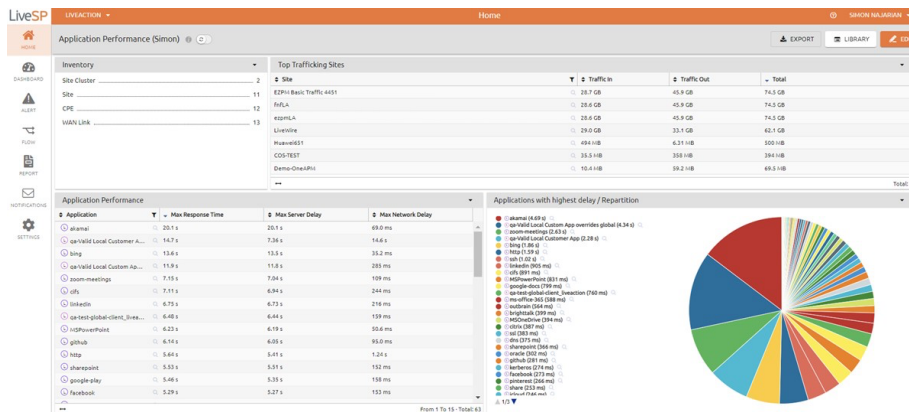
### LiveWire Integration

LiveAction packet capture solution allows to capture all user traffic, perform Deep Packet Inspection (DPI) and compute application performance metrics. These metrics can be forwarded to LiveSP through an IPFIX based protocol called LiveFlow. With 22.x releases, LiveSP is capable to collect LiveFlow traffic and display Application performance metrics in dashboards.



### LiveSP reporting

Rolling out LiveWire in Enterprises network allows Service Providers to provide to their customers valuable dashboards on application performances. With these dashboards, IT engineer can have visibility on the real performance of applications, as perceived by end users. They can understand application delay source (is it the network, the user desktop or the application itself)



Per application:

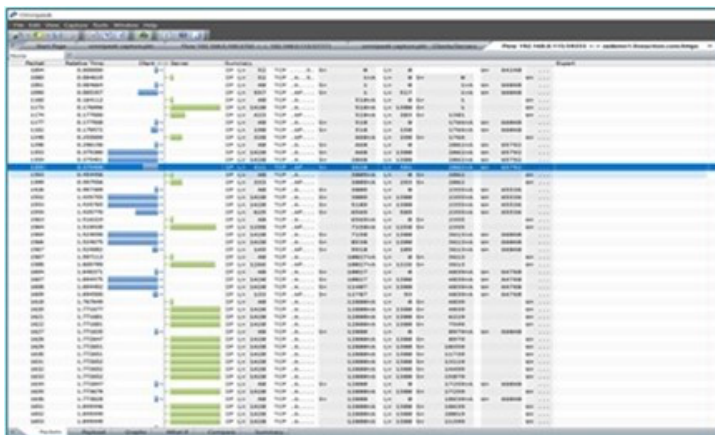
- Server delay
- Network delay
- Client delay
- Total response time

Use cases:

- Are end user complaints real?
- Who is the cause (network or application)?

### Drill-down to LiveWire for advanced troubleshooting

Once the issue is known, advance users can drill-down into LiveWire for advanced troubleshooting of the root cause of the issue.



- Troubleshooting Application/Network issues
- Troubleshoot network issues in LAN/DC (layer 1, 2, 3)
- Packet level troubleshooting
- Voice performance analysis and troubleshooting (MoS)
- Network traffic recording & analysis