HCLTech | Supercharging Progress™

UNIFIED INFRASTRUCTURE MONITORING SOLUTION

Enhancing Observability with SOLARWINDS

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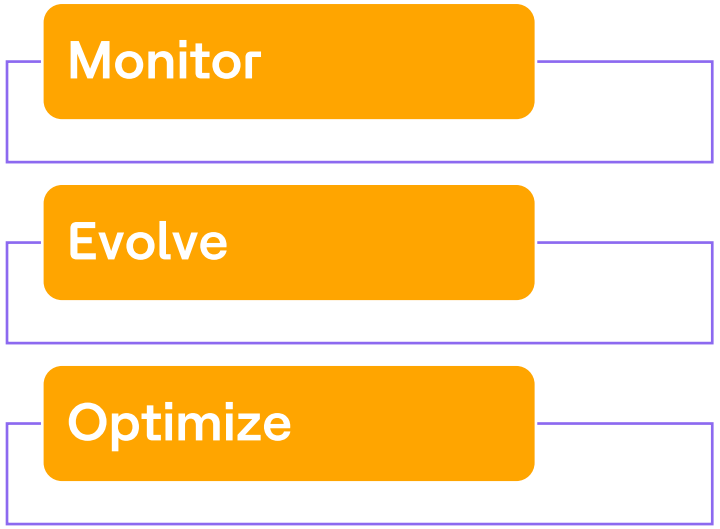
HCL

Unified Infrastructure Monitoring with SOLARWINDS

Optimizing Performance and Reliability



SolarWinds announced the new Hybrid Cloud Observability solution in October 2022 which provides significant changes in the approach of the classical monitoring solution. Let us discuss the requirement for an Observability solution with its features, benefits and licensing models.

Understanding Monitoring vs Observability

MONITORING

Monitoring is a reactive approach, and it refers to the systematic and continuous observation of various components within an organizations IT infrastructure. Key aspects are:

- Shows what is happening
- Checks whether the system is working
- Designed to collect monitoring data
- Focused on detecting known problems

OBSERVABILITY

Observability is a proactive system as it does not rely on collected data only. By the help of Machine Learning (ML) and Artificial Intelligence for IT Operations (AIOps), it enriches monitoring data and provides actionable insights to solve complex business problems. Key aspects are:

- Explains why something is happening
- Checks what the system is doing
- Designed to collect and enrich monitoring data
- Focused on solving known problems

Observability helps to understand and answer specific questions about happenings in highly distributed complex IT systems and infrastructure.

Observability solution can aggregate events

Observability can forecast future requirements and score the analytical health of distributed services with a single presentation overlay.

Observability can provide anomaly detection and recommend improvements.

Observability solution can enable organizations to move from a self-interpretation reactive scenario to a proactive approach with the help of visibility and actionable insights across the full IT stack.

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Digital Transformation Is Accelerating Across Organizations of All Sizes

To Harness New Growth Opportunities, Organizations Are Doing The Following:

Modernizing operations, apps, and databases

Supporting increasingly remote work

Leveraging multi-cloud deployments

However, Severe Challenges Abound:

Hybrid Cloud Observability

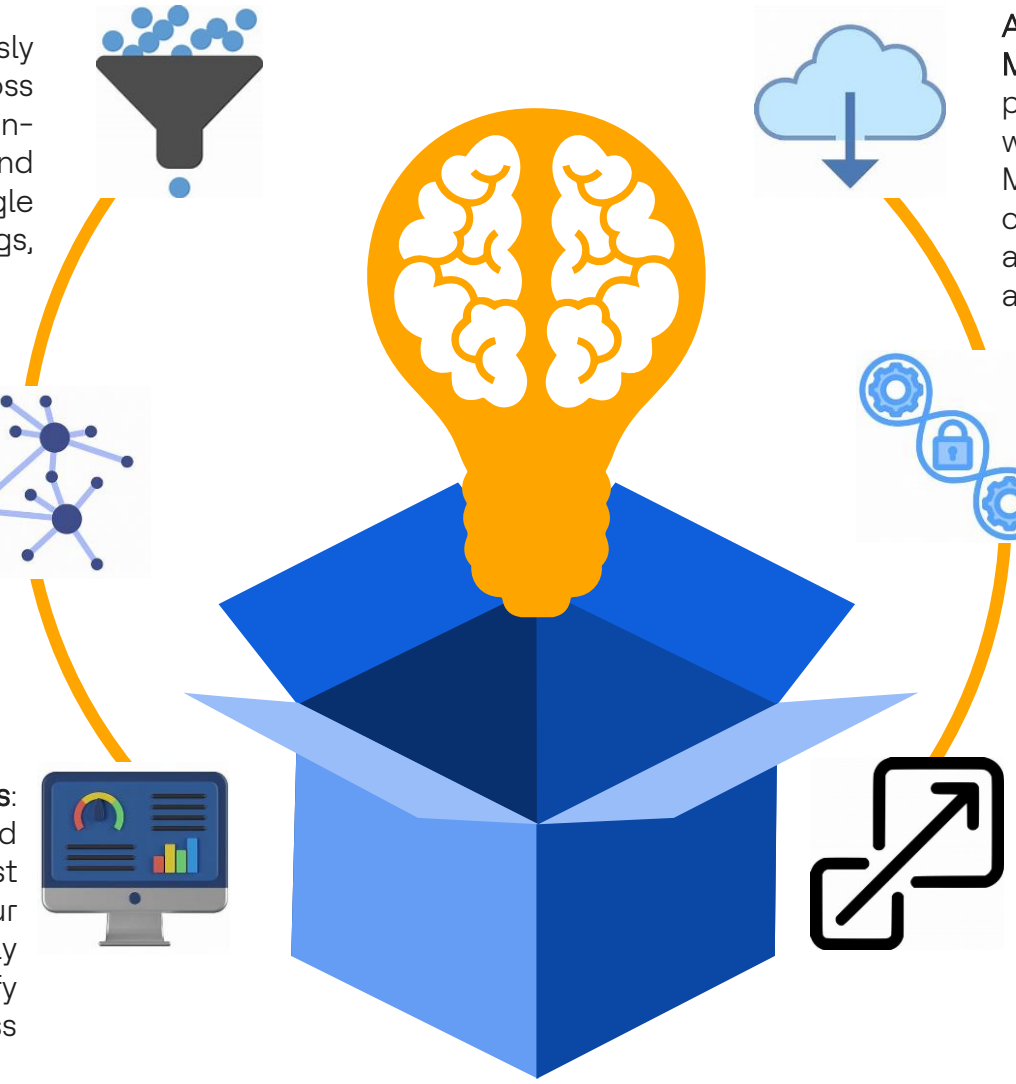
SolarWinds is a full-stack, solution designed to visualize, observe, remediate and automate IT environments running on-premises and cloud resources. It uses built-in intelligence and provides a centralised overlay using node-based licensing. With enhanced AIOps and ML capabilities it accelerates troubleshooting and issue resolution and shifts your team from reactive to proactive.

Features for organizations

Unified Data Ingestion: HCO seamlessly integrates data from diverse sources across your hybrid environment, including on-premises infrastructure, cloud platforms, and virtualized systems. This provides a single source of truth for all your IT metrics, logs, and traces.

Intelligent Correlation and Analysis: HCO goes beyond just displaying data. It intelligently analyzes and correlates information from different sources to identify patterns, anomalies, and root causes of performance issues. This empowers proactive troubleshooting and faster resolution times.

Customizable Dashboards and Insights: HCO allows you to build customized dashboards that showcase the most relevant metrics and insights for your specific needs. This enables you to quickly visualize performance trends, identify potential problems, and track progress towards your IT goals.



Application and Cloud Performance Monitoring: HCO dives deep into application performance, offering code-level insights with APM (Application Performance Monitoring) tools. It allows you to monitor cloud-native resources, trace transactions across environments, and ensure application availability and performance.

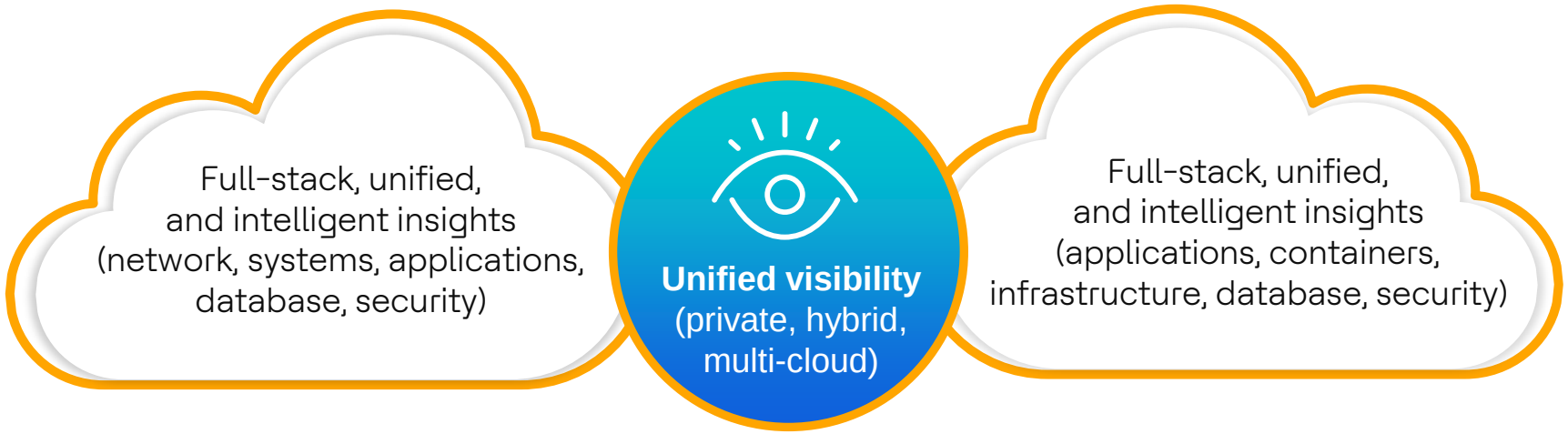
DevOps and Security Integration: HCO bridges the gap between DevOps and SecOps by monitoring CI/CD pipelines, integrating security logs, and providing threat detection capabilities. This empowers collaboration and helps you secure your hybrid IT infrastructure.

Scalability and Flexibility: HCO is a scalable solution that adapts to your growing IT needs. It offers flexible deployment options, including on-premises, cloud-based, or hybrid models, catering to various organizational sizes and preferences.

SOLARWINDS Meets You Wherever You Are on Your Transformation Journey

SolarWinds

Flexibility to deploy in private cloud and modern cloud-native environments



OBSERVABILITY

Network | **Systems** | **Database** | **Security** | **Applications**

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Benefits of SOLARWINDS HCO

Easy to integrate with On-Prem & Cloud

It is an open platform allowing clients to integrate into their broader IT operations ecosystem.

Reduction in MTTR

Translate disparate data types into actionable insights, bringing focus and clarity to complex environments.

Proactive Monitoring and Anomaly Detection

Monitor on-premises or software as a service (SaaS)-based applications and infrastructure.

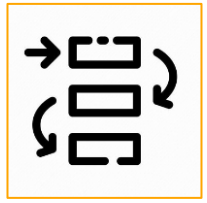
Single Pane of Glass Visibility

Helps customers optimize performance, ensure availability, and reduce remediation time across on-premises and multi-cloud environments.

Predictive Analysis (Forecasting of resources)

Data Driven Analysis

Benefit from AppStack™, PerfStack™ performance analysis dashboards, NetPath™, intelligent maps, and highly customizable dashboards.



Dependency Mapping- Noise Reduction

Cut through the noise by correlating problems happening simultaneously to identify root cause quickly.

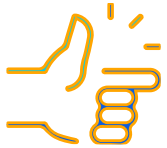
Intelligent Ticketing

Detect anomalies across massive, cross-domain data sets to increase operational efficiency, predictability, and productivity.

Why SolarWinds is better?

Observability for all

Full-stack solutions for all, no matter your size or where you are in your digital transformation journey.



Easy to use

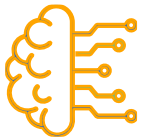
Simple to get started and expand, with powerful capabilities leveraging unified user experience (UX), collection, and analytics functions.

Full stack and integrated

Comprehensive, integrated coverage across the network, cloud, infrastructure, application, and database.

Superior value

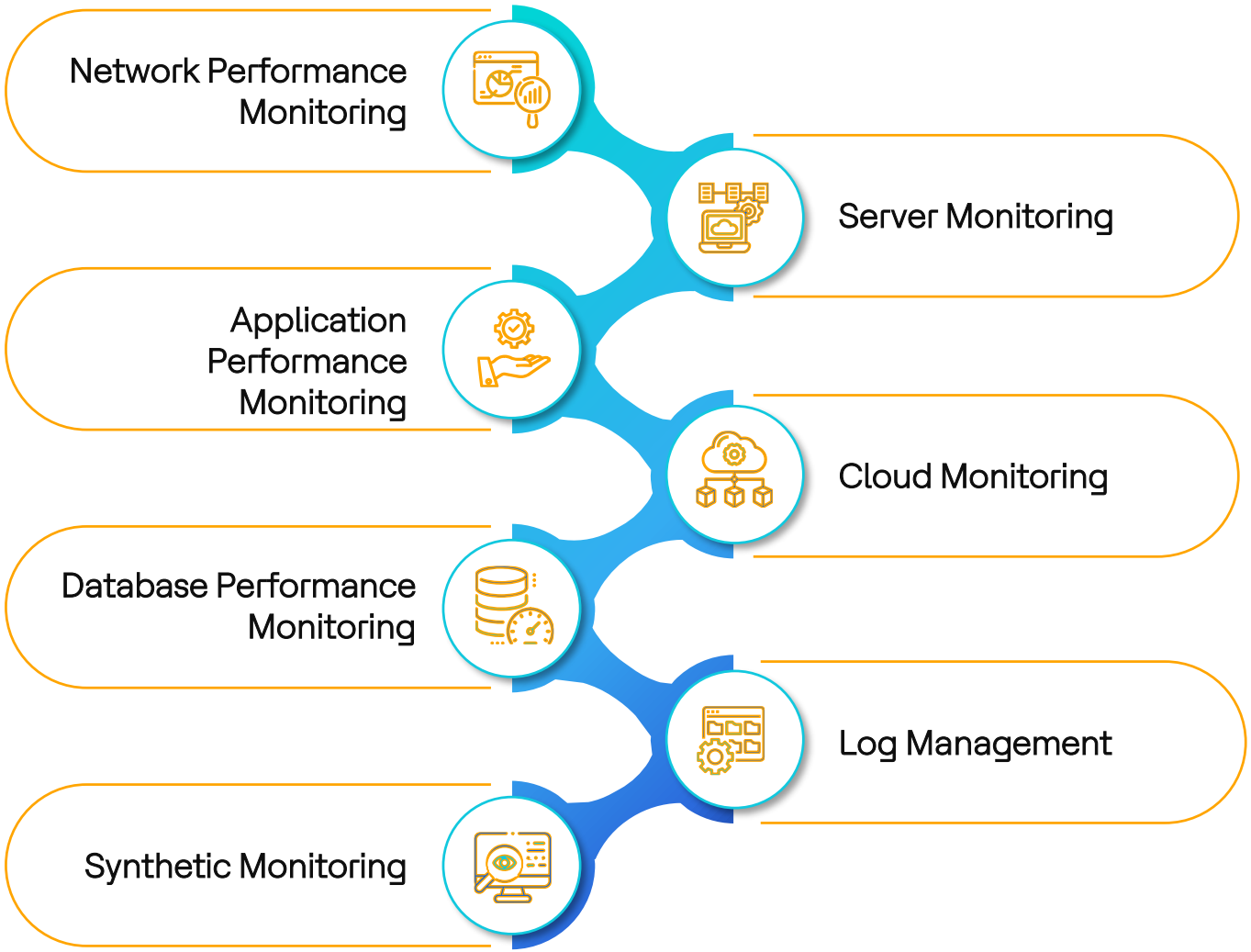
Integrated portfolio with rapid time to value and lower total cost of ownership (TCO) compared to mixed and point monitoring and management tools.



Actionable intelligence

Detect anomalies across massive, cross-domain data sets to increase operational efficiency, predictability, and productivity.

Use Cases



Dashboards

Alerts	Log data analysis
Anomaly detection	Correlation analysis
Custom dashboards	Multi-source integration

Comparison

S. No	Parameters	SOLARWINDS	ZABBIX	LogicMonitor	BROADCOM
1	Operating System	Yes	Yes	Yes	Yes
2	Database	Yes	Yes	Yes	Yes
3	Virtualization	Yes	Yes (limited)	Yes	Yes
4	Cloud	Yes (limited)	Yes (limited)	Yes	Yes
5	Storage/Backup	No	Yes	Yes	Yes
6	Network Monitoring	Yes	Yes (limited)	Yes	Yes
7	Application Monitoring	Yes	Yes	Yes	Yes (limited)
8	Automation	No	Yes	No	Yes
9	Containers	Yes (limited)	Yes (limited)	Yes	Yes
10	High Availability	Yes	No	Yes	Yes
11	Alerting	Yes	Yes	Yes	Yes
12	Operating System	Yes	Yes	Yes	Yes

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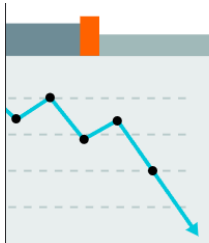
Eliminating outages through

SOLARWINDS

On average, the typical enterprise suffers nine brownouts or outages every month, lasting around twelve hours each. The full cost of outages and brownouts averages $13.7M annually for these enterprises.



The costs of these outages and brownouts are extensive, including:

- Lost productivity
- Mitigation costs
- Lost revenue
- Loss of reputation or damage to the brand
- Compliance costs
- Lost customers
- Legal costs
- Fines due to missed service level agreements (SLAs)
- Loss in stock price

A robust observability strategy can help preemptively detect anomalies and potential issues—before they escalate into full flown outages. Using SolarWinds has resulted in

233%
better at auto-escalation of IT service management (ITSM) or help desk tickets

213%
better at auto-remediation of simple alerts

36%
better at setting alert levels based on historical behavior

36%
better at the auto-generation of ITSM tickets

17%
better at providing IT support with a detailed remediation plan

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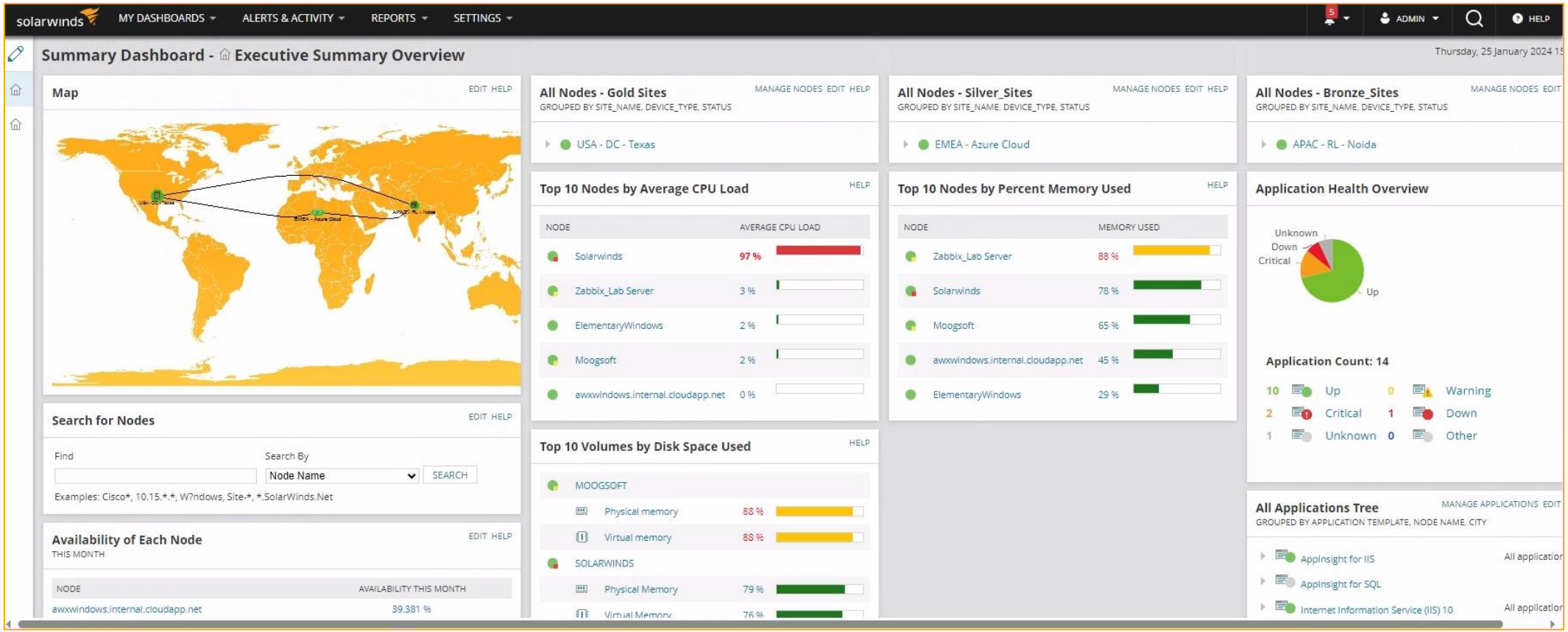
Dashboards or views

SolarWinds Platform Web Console dashboards, or views, are configurable pages of network information that can include maps, charts, summary lists, reports, events, links to other resources, or other widgets.

The SolarWinds Platform Web Console is built of default dashboards. You can customize these pages or create new ones from scratch.



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Integrations

Seamless deployment within your infrastructure

SolarWinds comes with hundreds of out-of-the-box integrations and an open REST API, allowing you to make it part of the workflows you need. Using integrations, you can achieve superior productivity by streamlining your visibility under one platform

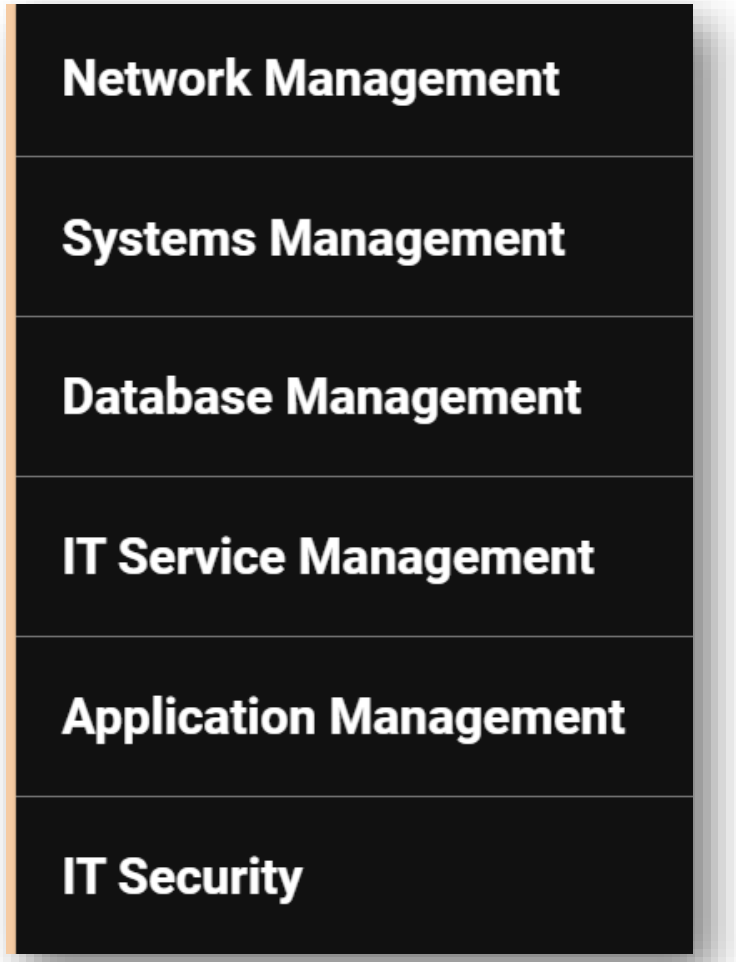
Integration and Adapters

HCL MyXalytics has adapters and works in tandem with leading third-party tools to ingest and process data streams and convert them into insightful and intuitive reports.

Network
Monitoring
SolarWinds

Modules

Like many monitoring vendors, SolarWinds offers additional modules for **virtualization, application monitoring and security/change control**. What's different is how these modules work together. With SolarWinds, you don't buy a central management piece and add modules onto that.



Network Management

Network management tools do configuration and traffic intelligence, performance monitoring and topology mapping, to understand, and resolve issues. An integrated, multi-vendor approach that's easy to use, extend, and scale to keep distributed networks optimized.

TOP PRODUCTS

Hybrid Cloud Observability

Network Configuration Manager

Kiwi Syslog Server NG

Network Performance Monitor

Netflow Traffic Analyzer

Network Topology Manager

Network Performance Monitor (NPM)

Quickly detect, diagnose, and resolve network performance problems and outages. Multi-vendor network monitoring built to scale and expand with the needs of your network.

NETWORK AVAILABILITY MONITORING

Network Performance Monitor (NPM) is a network diagnostics tool built to continuously monitor network device performance and availability and aid in network troubleshooting when problems arise. With intelligent network alerting, NPM lets you know the moment key performance metrics pass critical thresholds, so you can begin troubleshooting as soon as issues occur.

CRITICAL PATH VISUALIZATION

With path visualization you get complete visibility into all critical networks for deeper insights and faster time to resolution. Analyze performance, traffic, and config intelligence across hybrid networks. You can also know about outages before your users.

INTELLIGENT MAPPING

This feature displays a map of physical and logical relationships between entities monitored by the Orion Platform products you've installed. Auto-generated or created from scratch, Orion Maps can help you quickly isolate and identify critical health and performance issues surfaced by NPM.

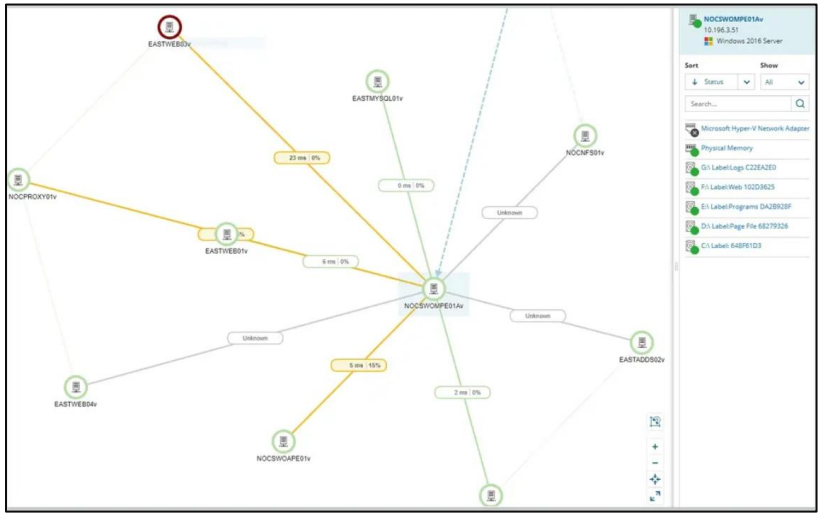
PERFORMANCE ANALYSIS

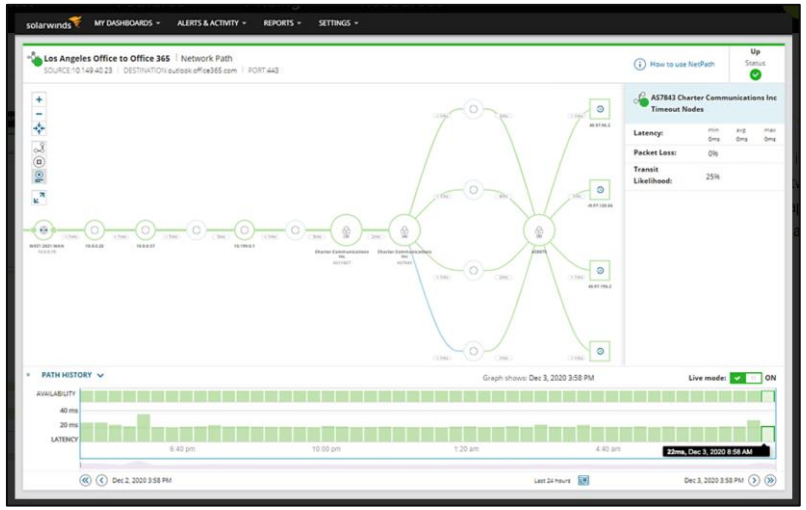
It enables operators to better focus on key issues without telemetry data deluge, helping teams make more informed decisions and be more productive.

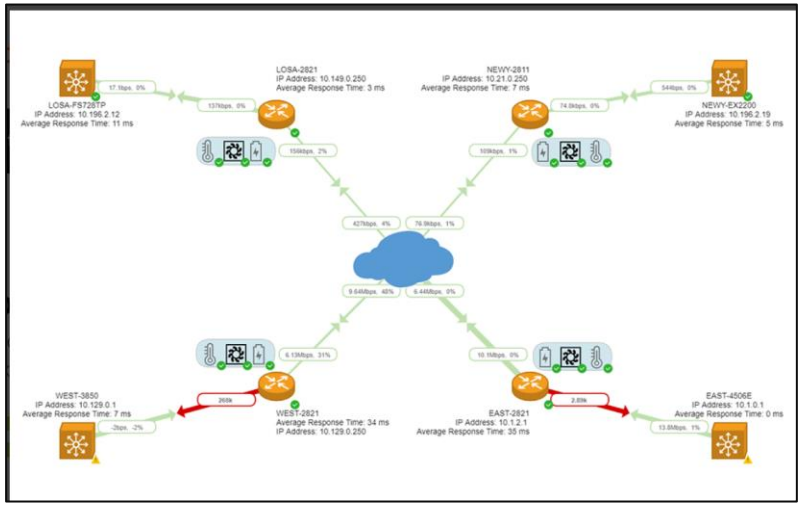
ADVANCED ALERTING

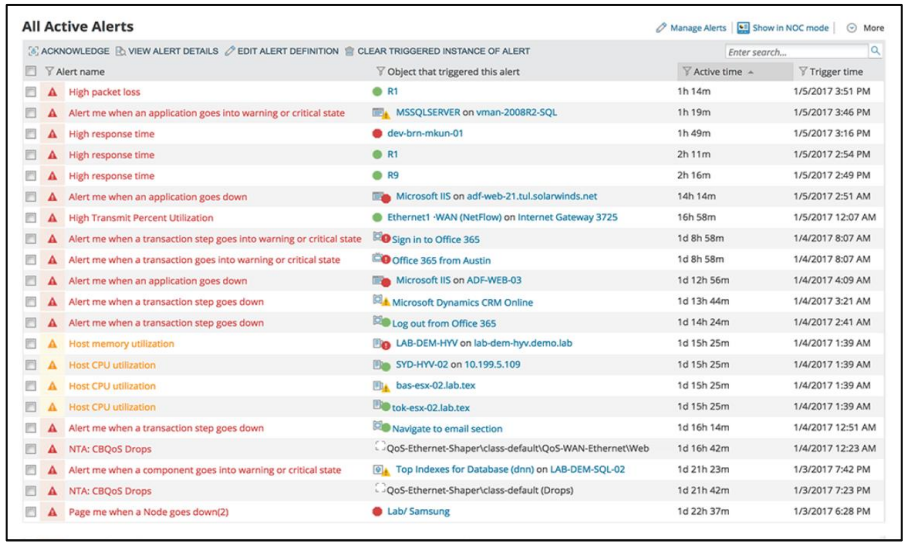
With Network Performance Monitor (NPM), you can use or modify built-in default alerts, or set precise custom alerts according to your needs. For large networks, you can leverage intelligent alerting to help avoid an influx of unnecessary notifications. You can also create notifications that are dependency- and topology-aware so you only receive alerts that are truly critical.

NPM Dashboard









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Network Configuration Manager (NCM)

Improve network reliability and security by managing configurations, changes, and compliance using a comprehensive network management system.

NETWORK AUDITING FOR COMPLIANCE

Network Configuration Manager (NCM) can help you automate and centralize the way you track and review devices across your network, including multi-vendor devices. You can also monitor configurations, changes, and backups from a unified dashboard.

Easily scan your network devices' firmware for reported CVEs that can help to keep your network secure and compliant. Also,

- Keep devices current and stay ahead of network vulnerabilities
- Prevent unauthorized network configuration changes
- Use Network Configuration Audit network routers and switches for compliance

VULNERABILITY DETECTION

NETWORK AUTOMATION

Network Configuration Manager (NCM) leverages network automation to make bulk configuration changes to wired and wireless devices. This helps you save time and reduces errors associated with manual updates. You can use the platform to design change templates and create standardized configurations, or you can turn to its built-in workflows to review, approve, schedule, and push bulk configuration updates.

SolarWinds Network Configuration Manager helps ensure a high level of network reliability and uptime by:

- Saving time and effort with automated, scheduled backups
- Storing configuration data centrally
- Quickly recovering from device or configuration failures
- Getting alerts and error reports

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CONFIGURATION BACKUP AND RESTORE

NETWORK INVENTORY

Network Configuration Manager (NCM) can help you maintain an accurate, up-to-date inventory of your network devices and minimize the time you spend compiling and updating device information. You can use Network Configuration Manager to automatically import and discover devices and obtain detailed inventory information.

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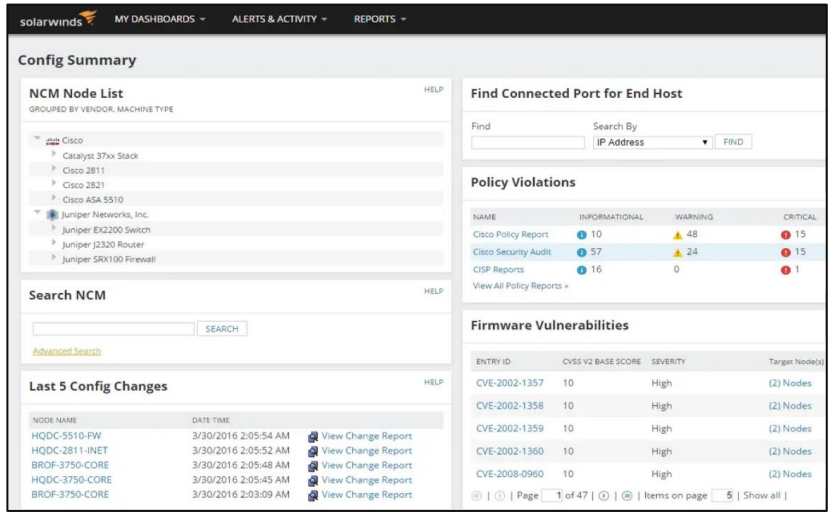
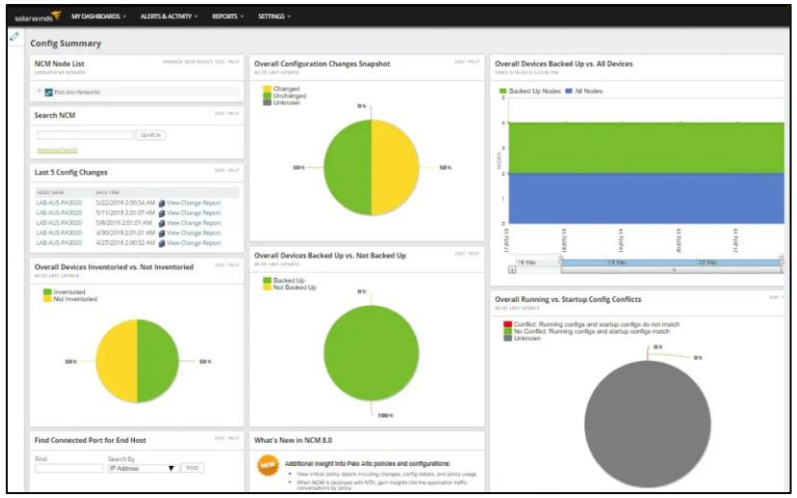
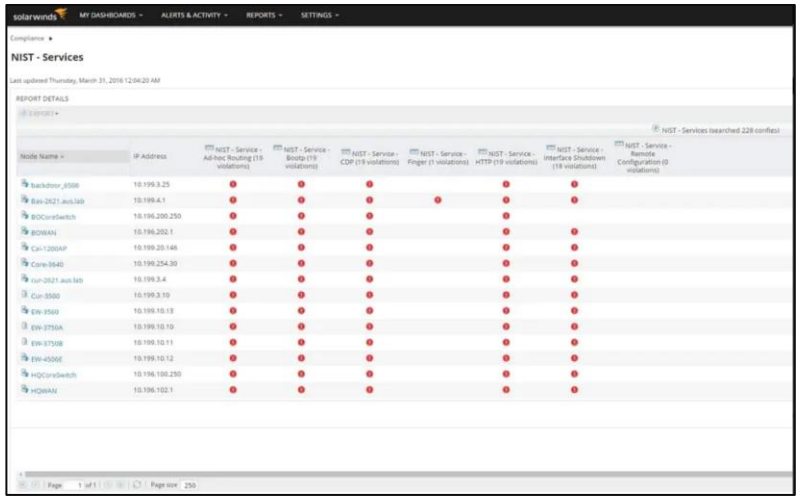
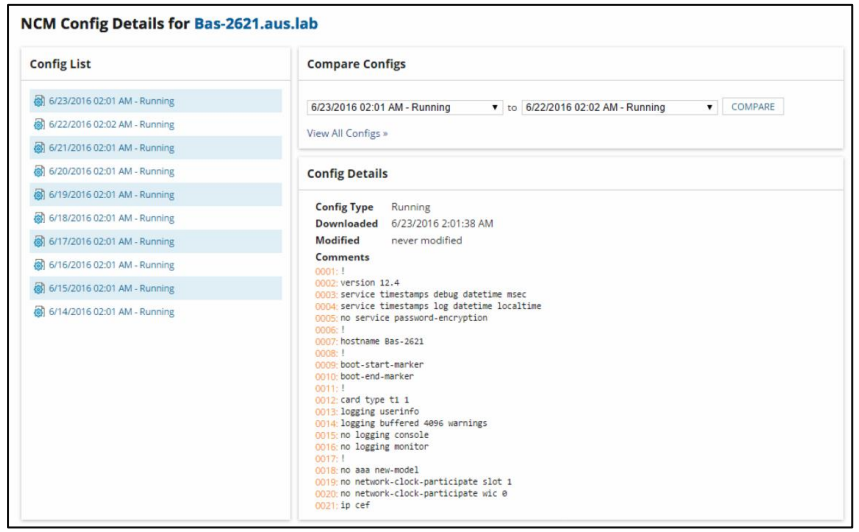
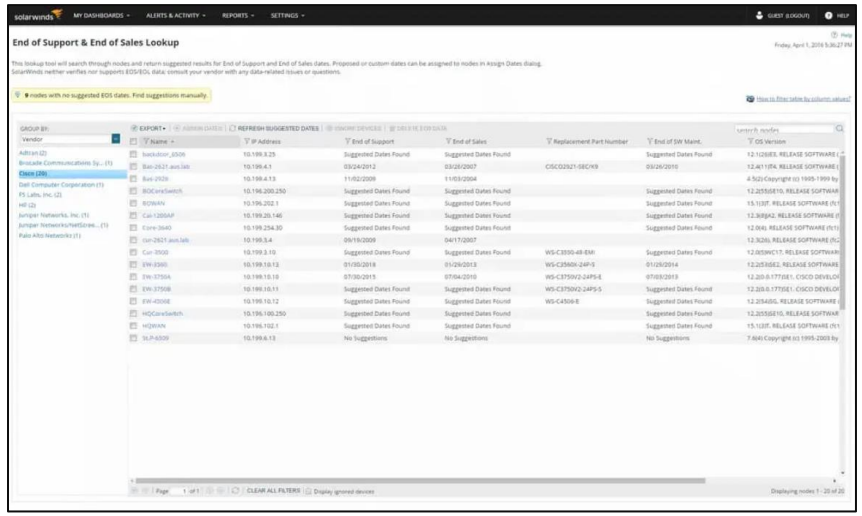
NCM Dashboard











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NetFlow Traffic Analyzer (NTA)

Real-time network utilization monitoring tool, NetFlow analyzer, and bandwidth monitoring software.

BANDWIDTH MONITORING

NTA enables admins to collect, monitor, and analyze flow data using Cisco NetFlow, sFlow, J-Flow, IPFIX, or NetStream. Using NBAR2 insights and WLC monitoring, SolarWinds NTA can also provide better visibility into application and wireless traffic trends, bandwidth usage, and network performance.

NetFlow is a network protocol developed by Cisco for collecting IP traffic information and monitoring network flow.

NetFlow Traffic Analyzer (NTA) uses flow-based monitoring to collect and analyze flow data from multiple Cisco vendors, including NetFlow v5 and v9, Juniper J-Flow, sFlow, Huawei NetStream, and IPFIX. NTA's flow navigator can allow you to create and access personalized network traffic views.

WHAT IS NETFLOW?

NETFLOW COLLECTOR

TRAFFIC ANALYSIS

You can build customizable reports and alerts to help you detect issues at the first sign of trouble. NTA is built to report on current and historical network traffic data, including flow data and CBQoS data, so you can detect trends in peak bandwidth usage and adjust policies for better management.

NetFlow Traffic Analyzer (NTA) identifies network congestion issues fast and displays the specific endpoints or applications consuming the most bandwidth. Isolate bandwidth usage issues with an intuitive point-and-click interface and flow data analysis from multiple vendors, including NetFlow v5 and v9, Juniper J-Flow, sFlow, and more.

NETWORK CONGESTION

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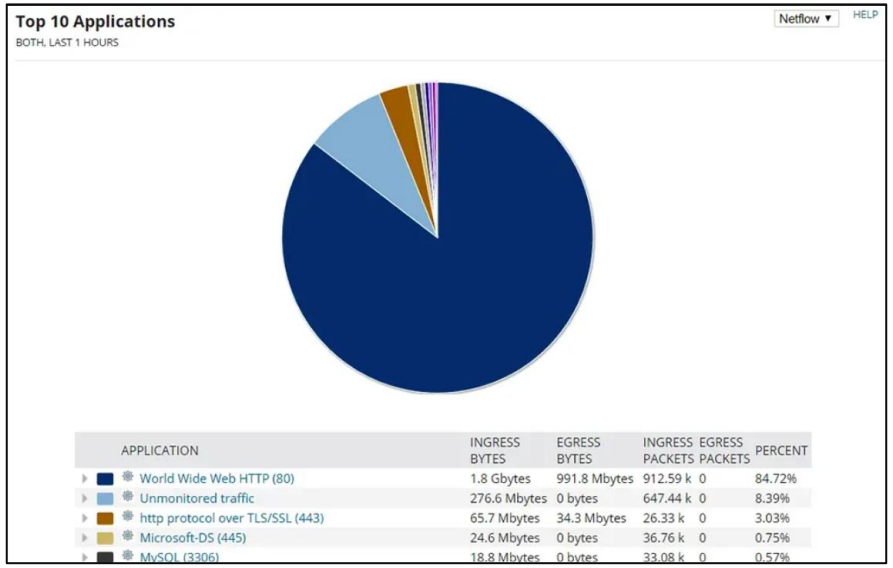
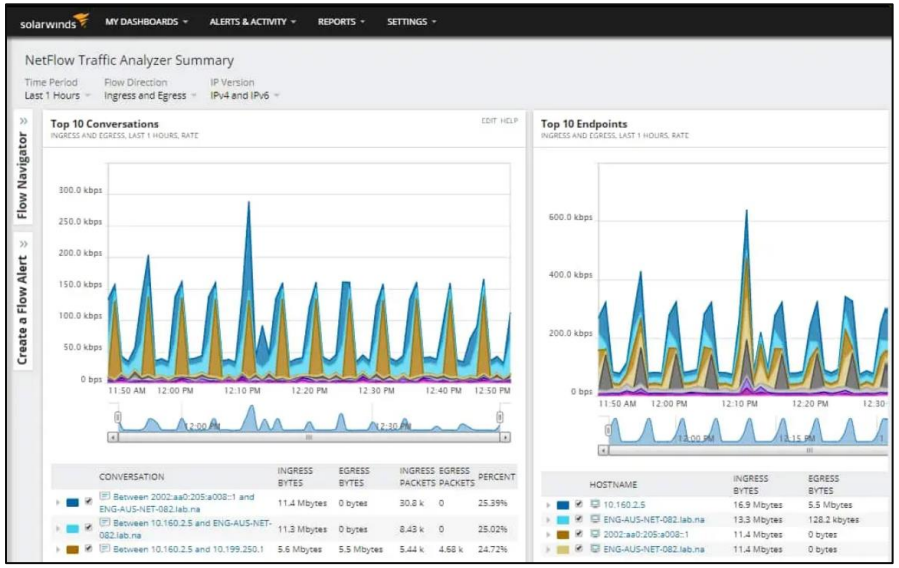
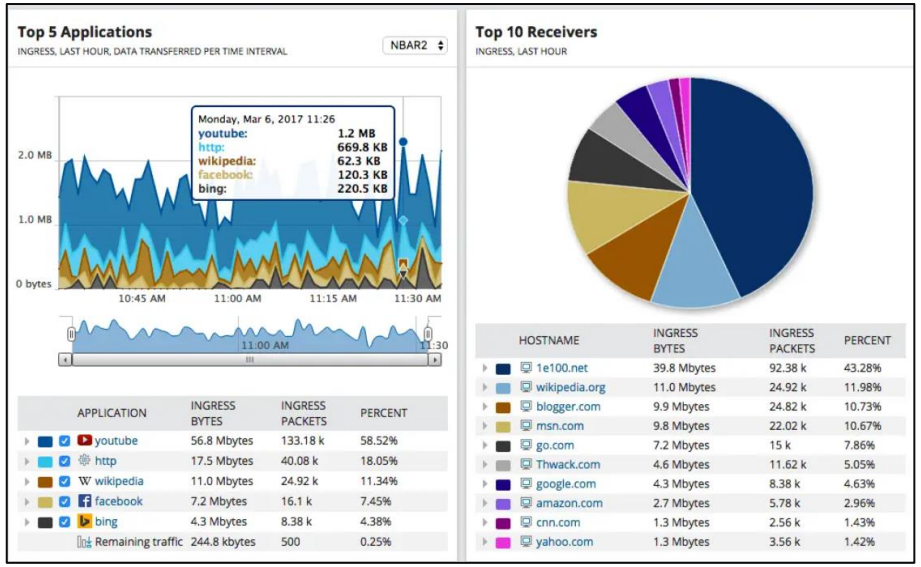
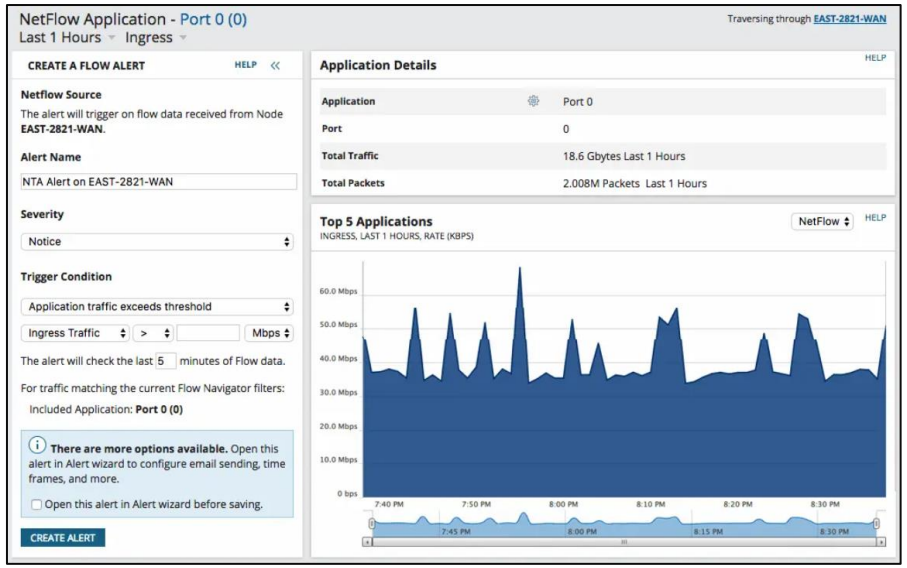
NTA Dashboard









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Systems Management

Comprehensive server and application management that's simple, interoperable, and customizable from systems, IPs, and VMs to containers and services. Optimize resource usage and reduce MTTR with powerful monitoring, discovery, dependency mapping, alerting, reporting, and capacity planning.

TOP PRODUCTS

Hybrid Cloud Observability

Server & Application Monitor

Virtualization Manager

Storage Resource Monitor

Web Performance Monitor

Server Configuration Monitor

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Server & Application Monitor (SAM)

Monitor applications and their supporting infrastructure, whether running on-premises or in the cloud

END-TO-END MONITORING

Server & Application Monitor (SAM) end-to-end monitoring tools deliver a deeper view of your applications environment to help identify and troubleshoot performance issues before end-users are impacted. Intelligent application monitoring alerts eliminate false positives and alert you when health indicators reach warning or critical thresholds and deviate from baseline performance.

SERVER CAPACITY PLANNING

Server & Application Monitor (SAM) helps you do this by providing built-in capacity forecast charts and metrics to help you identify when server resources reach warning and critical thresholds. You can trend peak and average capacity over time to make more accurate capacity forecasts—in addition to finding and fixing server capacity issues before they impact end-user productivity and business function.

CUSTOM APP MONITORING

(SAM) monitoring provides one unified framework to monitor the status and performance of customized applications alongside commercial applications.

- Detect performance issues and downtime in custom applications
- Get notified on deviations from baseline thresholds
- Monitor CPU, memory, and response time for application performance counters and services
- Schedule periodic application discovery; create application maps and NOC views

APPLICATION DEPENDENCY MAPPING

You can poll dependencies and create maps to monitor incoming network connections for a managed server or application. Polling data can allow you to monitor applications with attention to specific nodes.

SAM application discovery tools are designed to provide visibility into server activity, allowing you to view what inbound connections are linked to your application and servers.

AZURE MONITORING

(SAM), helps to monitor both your complex Azure environment and other infrastructure for more contextual overviews and insights.

The single-pane-of-glass dashboard is built to offer you insights into systems, applications, and infrastructure performance, regardless of where they reside. Visualize and correlate metrics across your entire environment and define "what's normal" with dynamic baselining and alerting.

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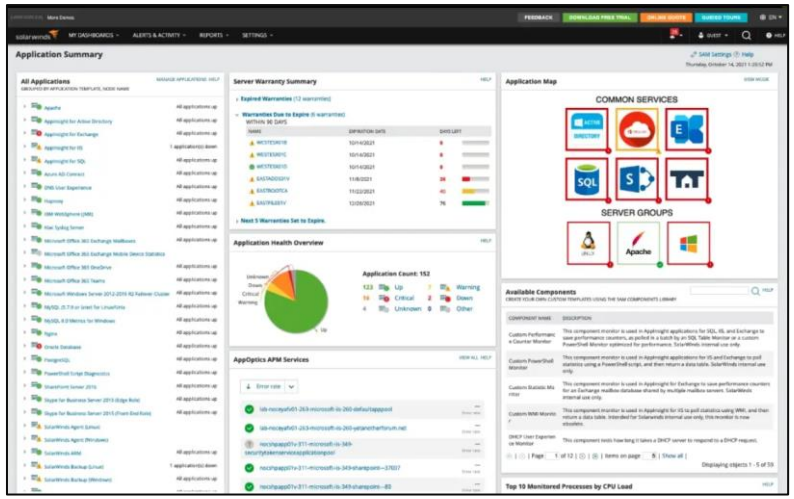
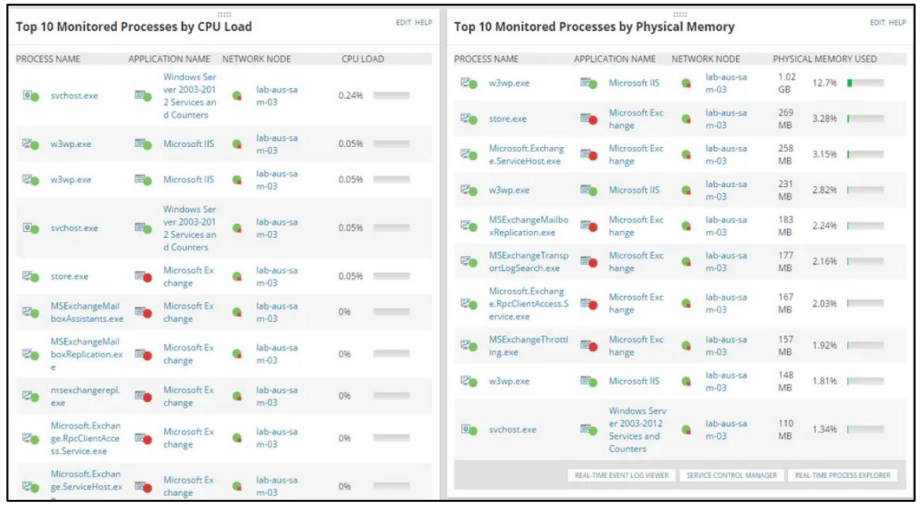
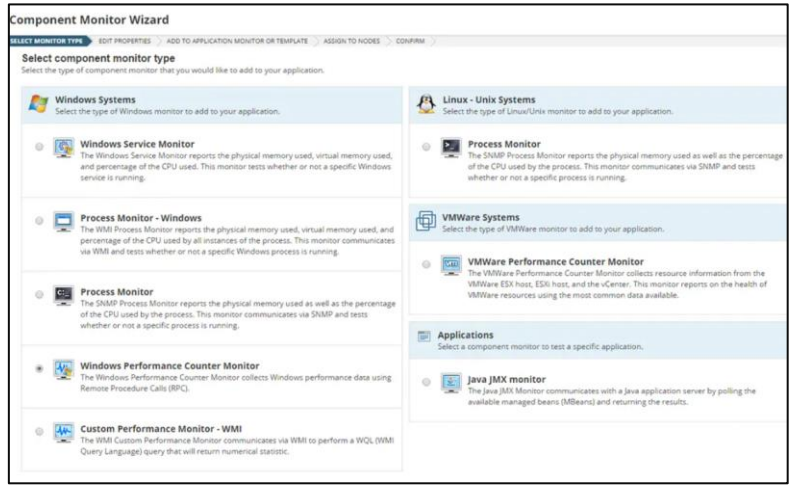
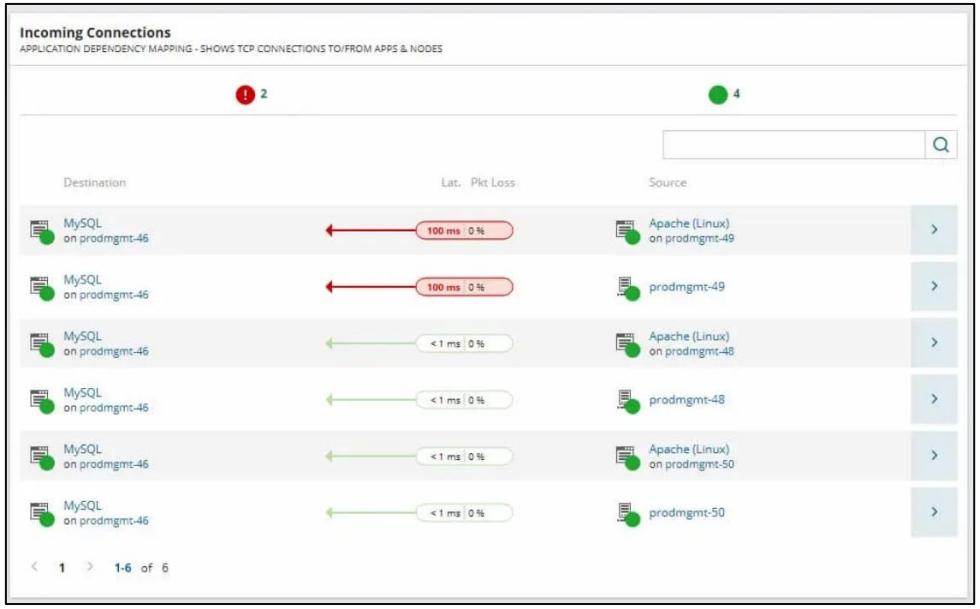
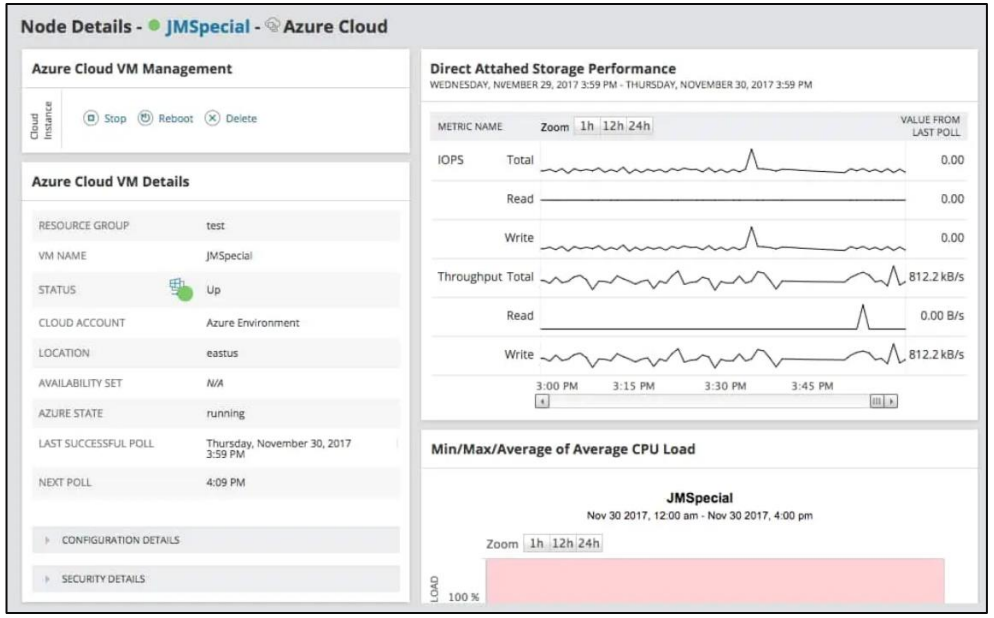
SAM Dashboard











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Virtualization Manager

Virtual machine monitoring and management designed to resolve performance issues.

VIRTUALIZATION PERFORMANCE MANAGEMENT

Virtualization Manager (VMAN) dashboards are built to show virtual server performance for VMware vSphere, Nutanix AHV, and Microsoft Hyper-V environments. VMAN is designed to provide environment views capable of automatically mapping virtual machines (VMs) to their underlying host, storage, and related objects, allowing you to quickly see virtual server performance correlations.

CAPACITY PLANNING

(VMAN) includes a VM capacity planning feature designed to help you predict CPU, memory, network, and storage needs for your Microsoft Hyper-V and VMware vSphere environments.

By using current VM growth and resource constraints stats, you can more easily determine hardware purchase needs.

SPRAWL MANAGEMENT

Reclaim virtual resources instantly with VM sprawl alerts and recommendations from Virtualization Manager

- Free up resources by identifying and deleting zombie, idle and stale VMs.
- Help ensure optimal performance by right-sizing under-allocated or over-allocated VMs.
- Prevent resource contention by removing orphaned VMDK files.

PREDICTIVE RECOMMENDATIONS

Virtualization Manager has built-in, actionable intelligence that provides recommendations to optimize your VMware, vSphere, and Microsoft Hyper-V environments. Detailed recommendations alert you to specific performance problems and include the ability to execute the fix.

CHARGEBACK REPORTING

Virtualization Chargeback Reporting for Better IT Budgeting

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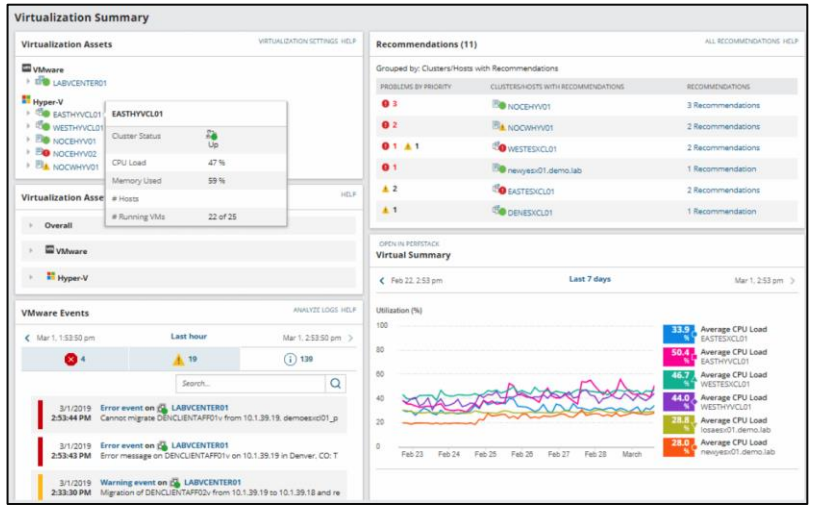
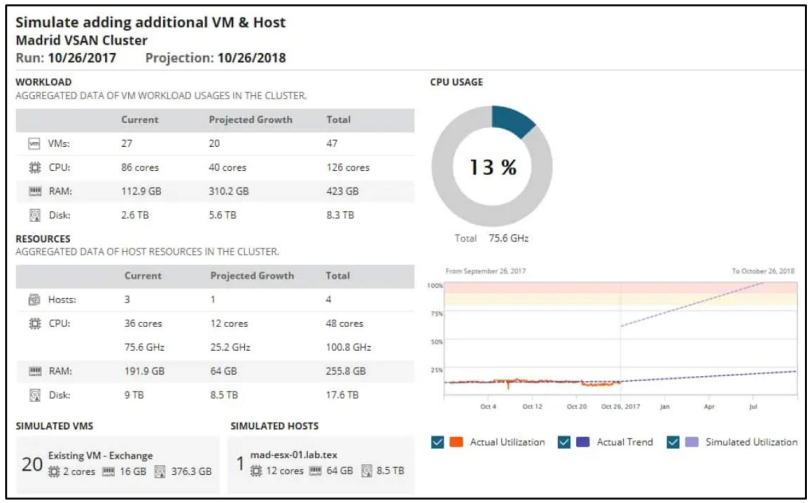
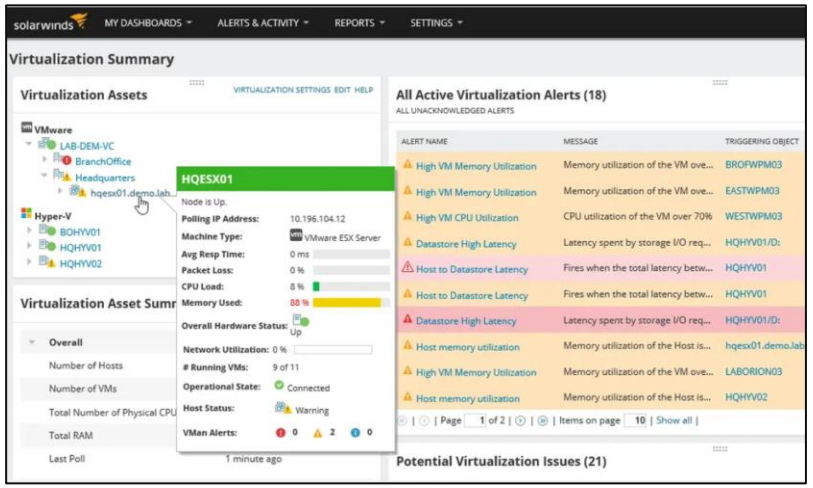
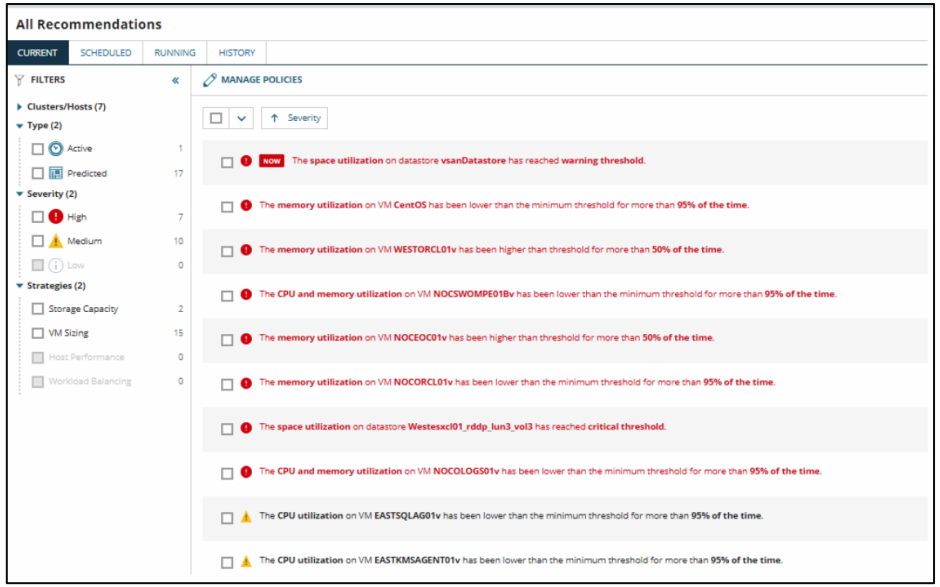
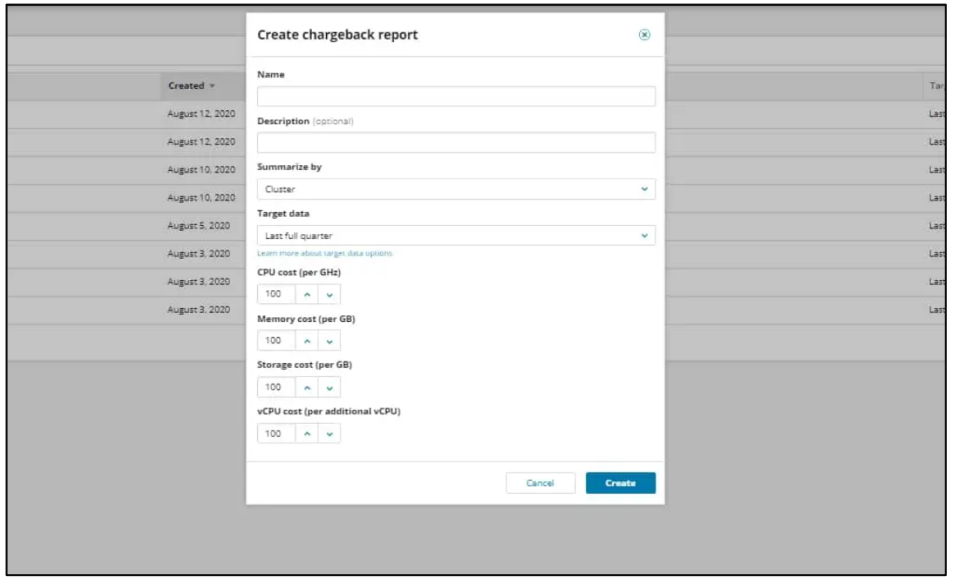
VM Dashboard











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Server Configuration Monitor

Detect and compare configuration changes to your servers, databases, and applications

Key Features

- Baseline server and application configurations on Windows and Linux
- Alert and report on deviations from the baseline in near real time
- See who's making configuration changes on servers or applications
- Compare current configurations to previous versions
- Correlate configuration changes with performance metrics
- Track server hardware and software inventory

Improve Visibility and Team Accountability
Don't let unexpected or unauthorized configuration changes compromise your environment.

Server Compliance Monitoring
Quickly understand if config changes line up with an outage or performance issue.

Simple, Integrated Experience
Get a unified experience with other SolarWinds systems, servers, and network management products.

Affordable
Simple-to-understand, affordable licensing allows you to fully support multiple projects.

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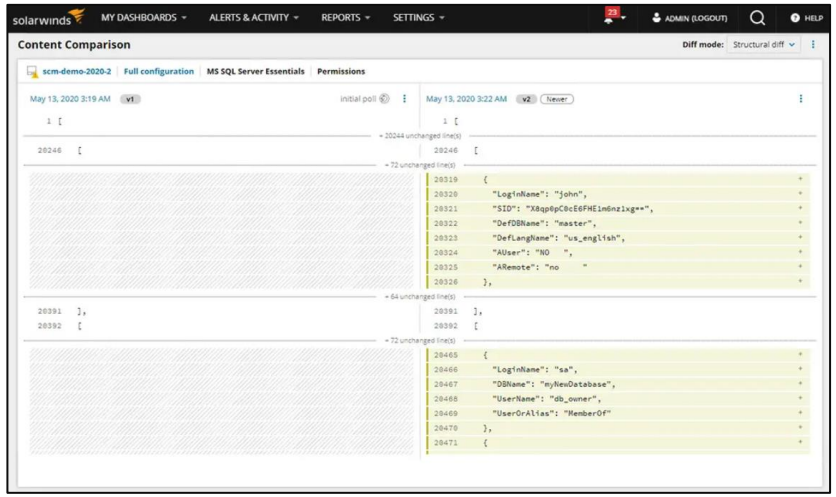
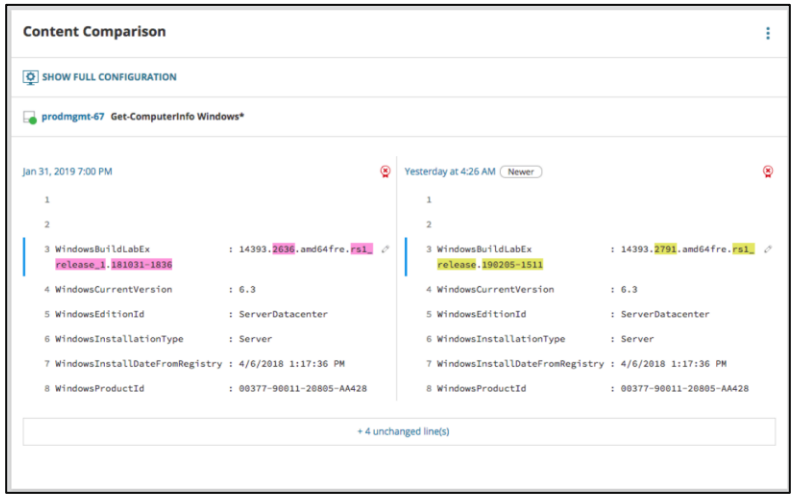
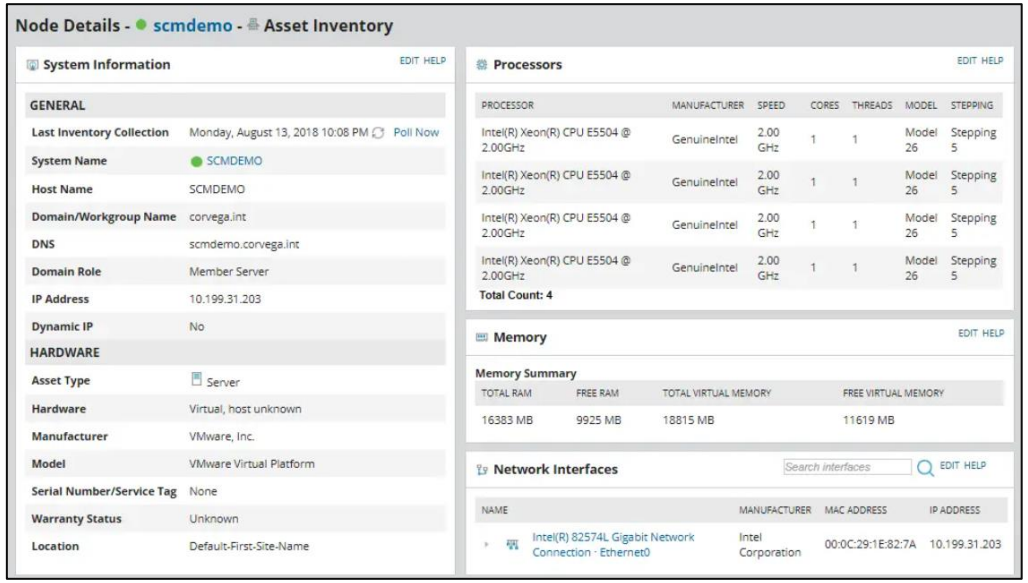
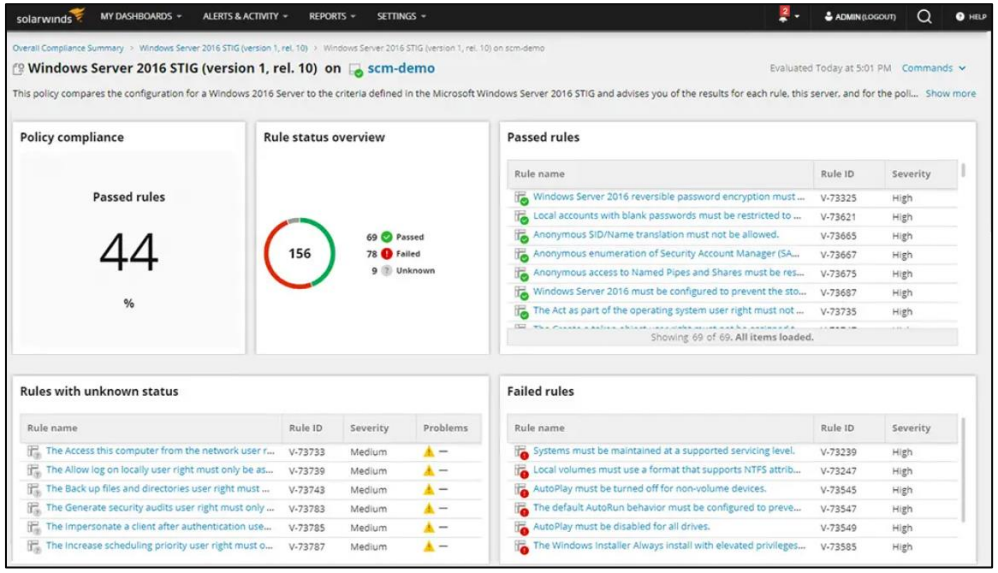
Server Configuration Monitor Dashboard









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Database Management

Monitor, analyze, diagnose, and optimize database performance and data ops that drive your business-critical applications. Unify on-premises and cloud database visibility, control, and management with streamlined monitoring, mapping, data lineage, data integration, and tuning across multiple vendors.

TOP PRODUCTS

Database Performance Analyzer **SQL Sentry**

Database Performance Analyzer

Monitor and optimize multiple database management system (DBMS) platforms for cloud and on-premises environments.

MACHINE LEARNING

Database Performance Analyzer (DPA) helps automate the "understanding" of normal behavior patterns. Don't let knowledge walk out the door when a key resource moves on; automate and retain the knowledge to benefit everyone on your team.

CROSS-PLATFORM DATABASE SUPPORT

Database performance management system is designed to help admins more easily troubleshoot and resolve DBMS performance issues by monitoring performance and providing root-cause analysis of your database using multi-dimensional views to answer the who, what, when, where, and why of performance issues.

EXPERT TUNING ADVISORS

Database Performance Analyzer (DPA) is built to collate SQL statement data every second and can help you identify which SQL queries to focus on.

CLOUD DATABASE SUPPORT

With 24/7 Azure monitoring, SolarWinds® Database Performance Analyzer (DPA) is built to identify spikes in wait time behavior in a multi-dimensional way, making it easier to zero in on what's causing the bottleneck and more easily understand where it's coming from.

AUTOMATION MANAGEMENT API

DPA is designed to help you investigate and identify inefficient queries that could lead to higher I/O, longer wait times, blocking, or resource contention—all of which can interfere with database performance and, in turn, the end-user experience.

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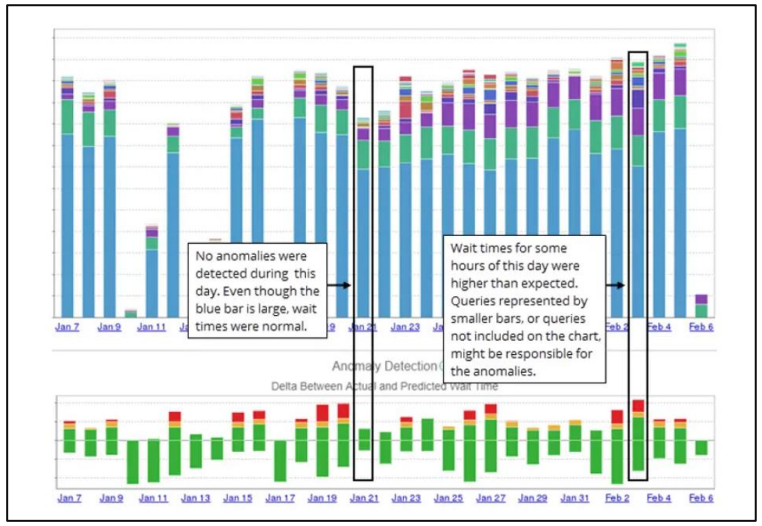
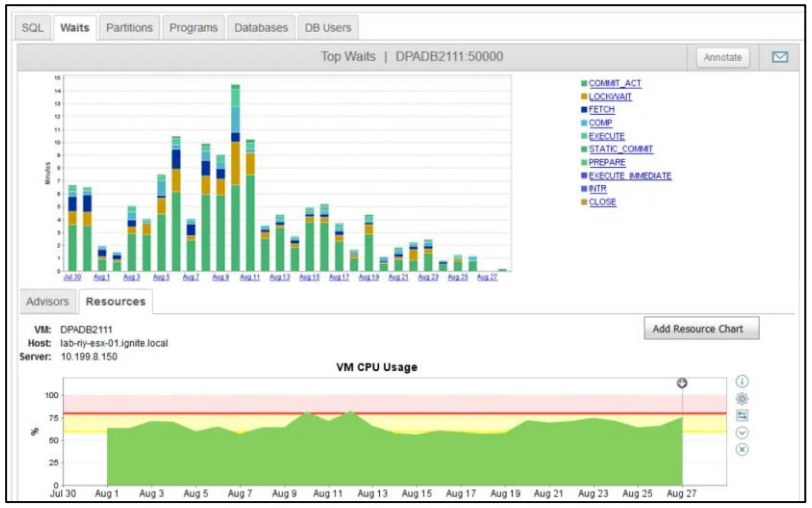
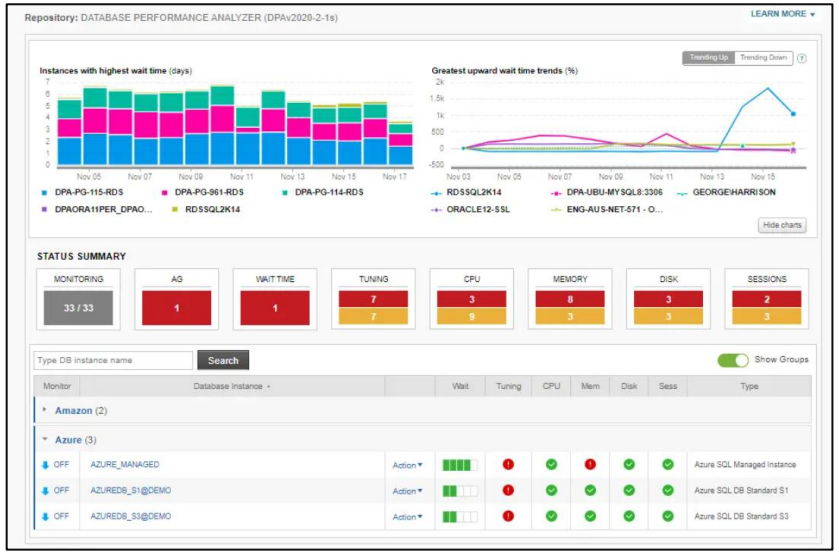
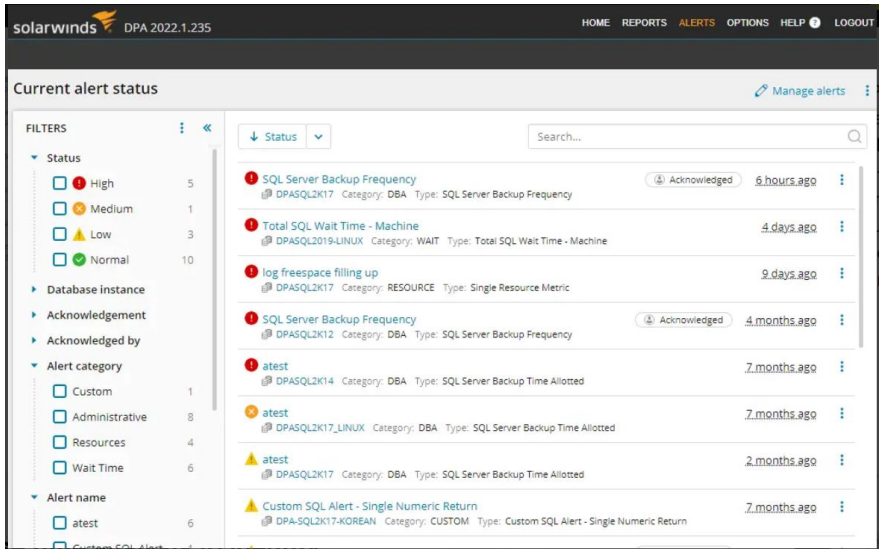
Database Performance Analyzer Dashboard









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Licensing

SOLARWINDS HCO has two licensing models; "Essentials" and "Advanced".

Feature	Essentials	Advanced
Infrastructure, Network, and Application Performance Monitoring	✓	✓
Physical and Virtual Hosts, Device, and VoIP Monitoring	✓	✓
Application-Centric Database Monitoring	✓	✓
IP Address Management	✓	✓
Log Management and Analysis	✓	✓
Automated Discovery and Dependency Mapping	✓	✓
Historical and Real-Time Dashboards	✓	✓
Intelligent Alerting and Customizable Reporting	✓	✓
Built-In Intelligence for Metric & Event Correlation and Anomaly Detection	✓	✓
Network Flow and Bandwidth Monitoring		✓
Virtualisation Performance Management		✓
Configuration Management for Networks, Servers, and Applications		✓

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