



Accedian Skylight for Cisco Network Automation

Deliver exceptional customer experience with real-time orchestrated assurance

Orchestrated networks and service assurance play a critical role in driving speed to revenue from advanced network services with competitive SLAs.

Overview

The accelerated pace of a “digital-first” approach to business, underpinned by critical networks, is driving demand for reliable, high-performance, and secure private connectivity from Communications Service Providers (CSPs). Enterprise customers expect immediate and flawless service turn-up based on the agreed Service Level Agreements (SLAs). CSPs need to transform and automate network operations to accelerate the time to market for high-quality services to meet customer demands and stay competitive.

With the growing complexity of networks and the shift to cloud networks and edge applications, complete visibility of both the network performance (underlay) and service quality is critical to delivering the best customer experience. Accedian Skylight™ delivers a cloud-native integrated view of the network (underlay) and service quality, coupled with machine learning-powered analytics, for precise, near-real-time performance insights. Together with the Cisco Crosswork™ network automation platform, this enables service providers to cut through the noise and pinpoint the service degradation issues that may impact customers and automate actions to maintain the quality of the customer experience.

Benefits

- Deliver services faster and “right the first time” with on-demand service activation testing.
- Unlock revenue from advanced services with orchestrated continuous assurance and automated service lifecycle management.
- Optimize end-user Quality of Experience (QoE) through real-time performance KPI measurements.
- Differentiate network services with multi-tenanted self-service portals that offer real-time service KPIs and SLA reporting.
- Resolve problems quickly with automation and reduce costs of testing efforts across multi-vendor networks, services, and domains.

“The insight Accedian provides into network health is extraordinary. For a recent high-profile meeting in which video was paramount, Accedian Skylight allowed us to know in advance and in real time that there would be no issues. If an issue comes up, we have full history and metrics including network jitter, bandwidth usage, and KPIs with minimum overhead.”

- Greg Sachs
SVP, Chief Technology Officer,
Farmers & Merchants Bank

Figure 1. Accedian Skylight aligned to Cisco Crosswork

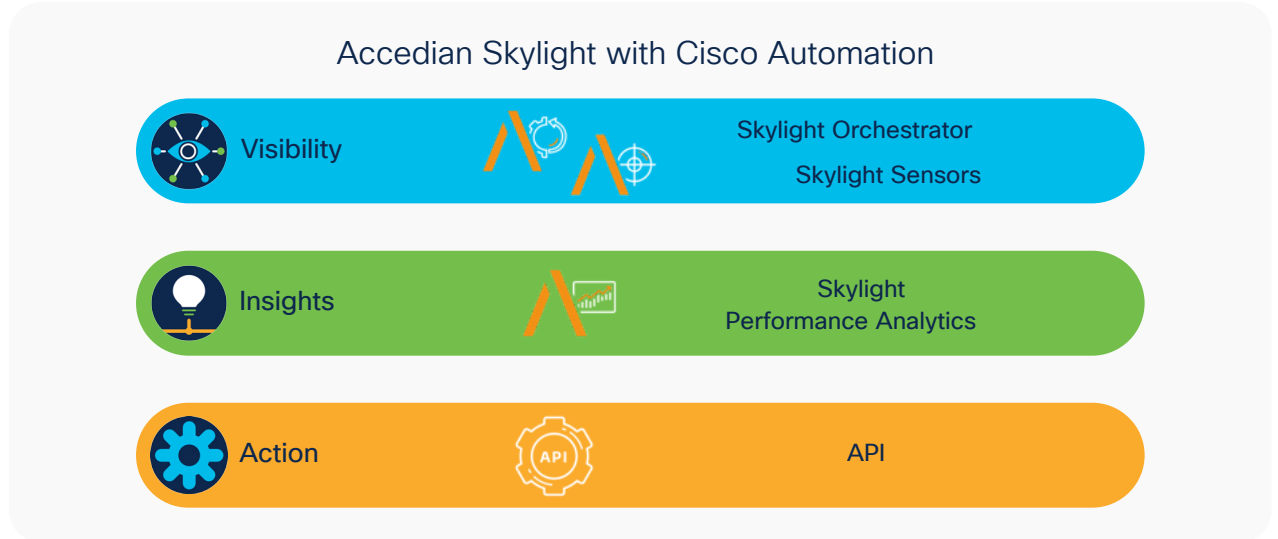
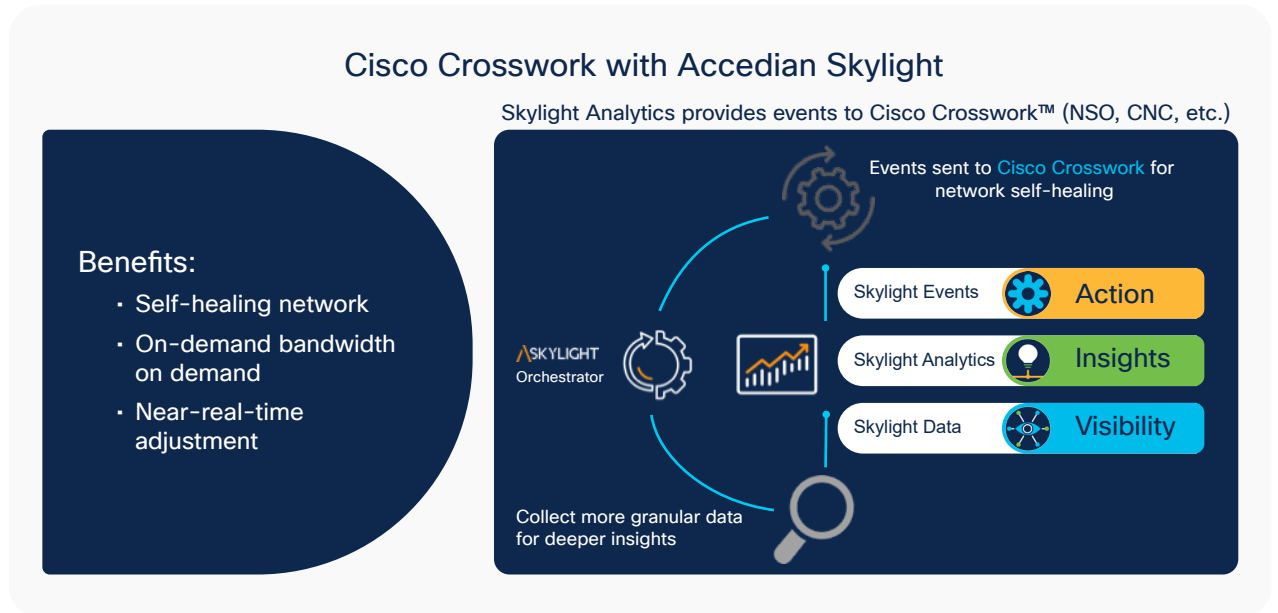


Figure 2. Benefits of Accedian Skylight for Orchestrated Assurance



“Colt’s vision is to become the most customer-oriented business in our industry. This partnership marks the continuation of a journey that will deliver exceptional customer performance monitoring and the ability to augment Colt’s operational systems with real-time performance data. Equally important is the capability to offer bespoke customer insights, supporting our customers in their own digital evolution.”

– Robin Farnan

EVP Operations and Engineering,
Colt

Customers can be lost in seconds

The performance of networks that underpin digital businesses, remote working, global supply chains, secure company communications, cloud applications, and software-defined networks is more critical than ever. CSPs have an opportunity to unlock new revenue by improving network performance and service quality and offering more robust network performance SLAs to attract enterprise customers.

High-quality, private, secure networks for critical business applications and cloud connectivity are growing in demand. This is driving the need for solutions that help network operations to improve customer experience and accelerate troubleshooting when things do go wrong, while also improving overall efficiency and reducing operational expenditure.

Orchestrated networks and assurance are key enablers of both service agility and gaining revenue from new advanced services while also “doing more with less” in terms of resources. Performance visibility and gaining real-time insights into how networks and services are performing are key requirements. For complex multi-vendor hybrid networks, consistent end-to-end service performance measurement can help drive automation in real time and help you to meet demanding enterprise customer SLAs.

You can’t detect performance degradations that impact service quality and customers’ critical networks and applications without that real-time visibility into what is happening every second in the network.

How it works

Accedian Skylight’s test and monitoring capabilities can be orchestrated and fully automated through the Cisco Crosswork network automation platform.

- Skylight test agents can be deployed using Cisco® Network Service Orchestrator (NSO) and authenticated through Skylight Orchestrator, a centralized management and provisioning solution of testing and monitoring agents. Skylight Orchestrator supports real-time streaming of monitoring/test data and ensures that service performance is observed in real time, which allows proactive intervention before the end-customer Quality of Experience (QoE) is impacted.
- Skylight aids orchestrated assurance by provisioning tests, producing KPIs and reports, and streaming data as a part of the automated workflow defined in activation testing templates and other automated test sequences. NSO triggers these templates using the NETCONF and YANG API to achieve closed-loop automation. This actively verifies that services work after being provisioned by NSO and continue to perform over the service lifecycle.
- Performance data insight and events can be further analyzed in Skylight analytics or can be sent back to Cisco Crosswork Automation Platform to correlate performance KPIs with other events coming from the infrastructure to support SLA management, AI/analytics, databus, and self-service portals.

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Elastic business services example

A service provider is offering elastic services with the ability to increase or decrease bandwidth based on real-time performance and actual usage.

When the initial 1-Gbps service is turned up, Skylight test agents are instantiated by NSO to validate throughput and performance. The test results are then streamed back to Crosswork Automation Platform (CAP). If the test “passes,” the service moves into the “live” state.

As customer traffic is added to the connection, Layer 2 to 7 performance is continuously monitored in real time, and any degradations are automatically reported back. CAP can then decide to make infrastructure provisioning changes to either increase bandwidth or adjust the service parameters. As the real-time performance feedback loop is continuous, this process can be repeated dynamically.

The end customer benefits from a flexible service where they only pay for the capacity used. The service provider benefits from being able to dynamically adjust bandwidth and service performance based on real customer traffic.

Key features

- Fully cloud-native, software-based solution with open APIs
- Lightweight sensors for active-synthetic monitoring and testing and real end-user experience
- Multi-vendor network and service performance visibility from core to edge, public to private cloud, physical to virtual, Layer 2 to Layer 7
- Microsecond latency measurements and sub-1% packet loss for critical 5G and premium business services
- Real-time performance data for closed-loop automated assurance and orchestration
- Analytics powered by machine learning to analyze and correlate performance data with metadata to automate detection and speed up troubleshooting

Elastic business services

Challenge

A service provider wants to offer elastic services with the ability to increase or decrease bandwidth based on real-time performance and actual usage.

Solution

When the initial 1-Gbps service is turned up, Skylight test agents are instantiated by NSO to validate throughput and performance. The test results are then streamed back to Crosswork Network Controller (CNC). If the test “passes,” the service moves into the “live” state.

As customer traffic is added to the connection, Layer 2 to 7 performance is continuously monitored in real time, and any degradations are automatically reported back. CNC can then decide to make infrastructure provisioning changes to either increase bandwidth or adjust the service parameters. As the real-time performance feedback loop is continuous, this process can be repeated dynamically.

Benefits

For end customer:

Flexible service where they only pay for the capacity used.

For service provider:

Dynamically adjust bandwidth and service performance based on real customer traffic.

Key components

Accedian Skylight’s cloud-native assurance platform provides network and service performance visibility with a multi-layered approach to monitoring and assuring network domains (access, aggregation, transport, edge, and core).

- A flexible combination of software agents and capture sensors, virtualized functions, and Small Form-factor Pluggable (SFP) hardware that comprise the sensor layer.
 - **Skylight sensor agents** – A container-based microservices testing framework for active (synthetic) test traffic generation and reflection.
 - **Skylight capture sensor** – Protocol performance management for multi-layer environments (DNS, TCP, HTTP, etc.).
 - **Skylight control sensor** – A virtualized VNF controller. Can also be combined with Skylight hardware modules and SFPs to collect performance data from Layer 2 to Layer 4 across multi-vendor networks.
 - **Skylight sensor: SFP compute, module (1G and 10G)** – A range of hardware-assisted components with patented FPGA technology for advanced assurance capabilities, including bandwidth utilization monitoring down to 1-ms sampling, service activation test generation, and distributed packet capture.
- **A virtualized orchestration layer** centralizes management and orchestration of the sensors, leveraging local controls and REST API automation. It can also feed data into third-party platforms for planning and troubleshooting. Skylight orchestrator automates the configuration and service provisioning and testing for fast service turn-up.
- **Skylight performance analytics** combines data from all Skylight sensors and third-party sources into a single pane of glass. It offers machine learning-powered alerts and rapid troubleshooting for network and application performance issues. Real-time intelligent monitoring also helps to predict and automate fixes. Skylight analytics correlates relevant metadata, aggregates third-party data, and sends performance KPIs to external systems for improved decision making, capacity planning, and proactive issue resolution.
 - Analyze, monitor, and search any performance data in real time to prevent and predict issues before they impact customer experience.
 - Ingest, enrich, and correlate data from multiple sources to uncover “invisible” network issues and identify the root cause of service problems.
 - Investigate and explore any “data source” at the point of a query (when the user needs it), rather than data ingestion (when you get the data), which delivers flexibility and dramatically reduces costs in terms of storage.

Collaboration between service provider and regional bank to gain visibility to broadband issues

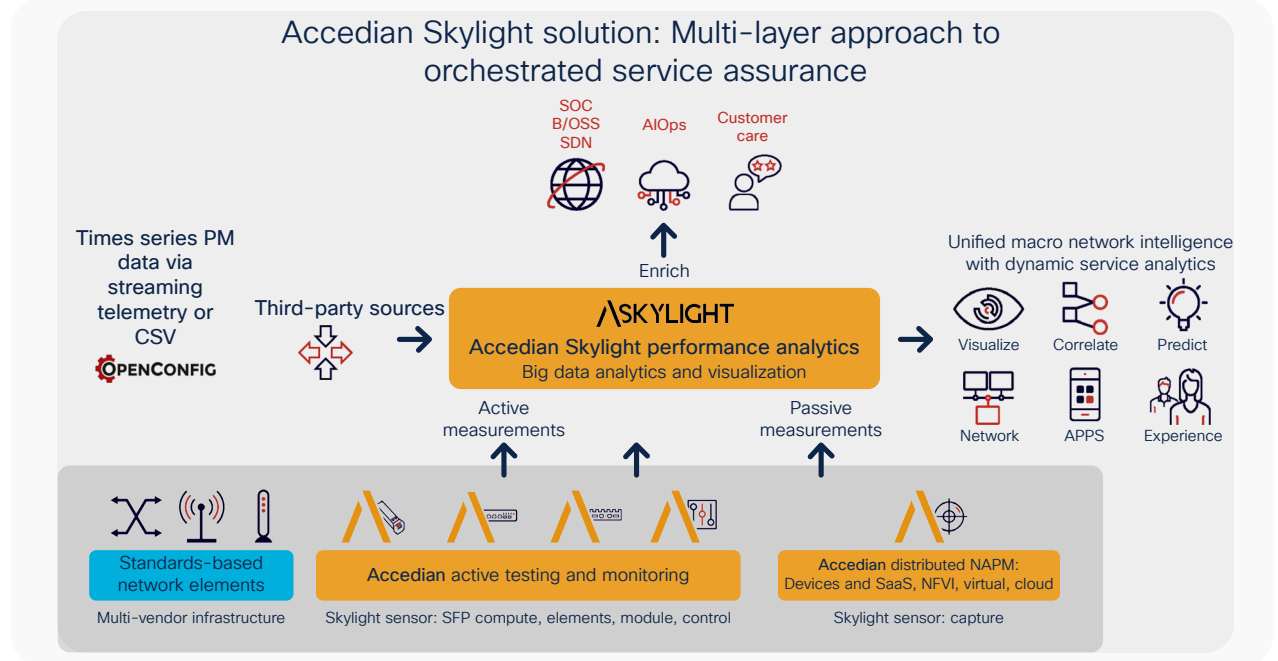
Challenge

A regional bank lacked visibility to troubleshoot performance challenges.

Solution

Gained visibility to network performance affecting video conferencing and other business-critical apps that were impeded with unresolved service provider tickets. Accedian Skylight established a dialogue of specific metrics that the service provider could act on to resolve customer performance issues faster and accelerate the bank's digital transformation.

Figure 3. Accedian Skylight performance analytics



Use Cases

Industry name	Use case description
5G service assurance	<ul style="list-style-type: none"> Validate 5G service activation and on-going service performance Confirm network layer readiness to carry 5G service slices Confirm service slice performance throughout the service lifecycle Support dynamic slice orchestration
Elastic business services	<ul style="list-style-type: none"> Continuously monitor utilization and bandwidth Real-time feedback loop to the service orchestrator Dynamic circuit/connection provisioning for optimal performance and provisioning cost

Benefits

- Detection of microbursts and macro broadband issues with Skylight to resolve issues
- Immediate ROI for investment in Accedian Skylight solution
- Resolution of open mystery performance problems
- Identified routers with performance issues that previously had been difficult to isolate and diagnose
- Reduction in mean time to repair
- Performance visibility improved the relationship between the enterprise and their service provider with transparent SLA metrics for services on both sides
- Enable collaboration for fast resolution between service provider and enterprise

Industry name	Use case description
Differentiated business services	<ul style="list-style-type: none"> • Analytics-driven customer portal for upsell • Use service assurance to offer competitive SLAs on availability, latency, and MTTR • Proactive monitoring of end-user connections and services to improve QoE • Reduce customer churn • Drive down operational costs (troubleshooting and MTTR)
Carrier IP transport layer service assurance	<ul style="list-style-type: none"> • Validate the service path at initial activation • Continuously monitor the network and application layers throughout the lifecycle of the service • Facilitate advanced troubleshooting
Comprehensive traffic peering analysis at the transport edge	<ul style="list-style-type: none"> • Continuously monitor performance to optimize the peering points to maximize end-user QoE • Provide differentiated QoS and QoE sensitive services to end users and internal service provider customers • Enable advanced troubleshooting and root-cause analysis
Cisco routed multi-vendor optical network with Crosswork Hierarchical Controller	<ul style="list-style-type: none"> • Monitor the performance of multi-vendor networks • Drive real-time changes and optimize network resources • Automate service provisioning and assurance • Ongoing visibility of QoS and QoE and proactive notification of degradations • Validate the service path at initial activation • Continuously monitor the network and application layers throughout the service lifecycle • Enable advanced troubleshooting

The Cisco and Accedian SolutionsPlus Partner Advantage

Orchestrating assurance with Cisco

Accedian is proud to announce that it has become an official member of the Cisco DevOps SolutionsPlus Program. This means that CSPs worldwide can approach Cisco and approved Cisco partners to purchase Accedian Skylight as a validated solution and addition to Cisco Crosswork.

Cisco provides comprehensive lifecycle service automation to enable faster design and delivery of high-quality customer services and experiences, accelerating digital transformation for hybrid networks.

Cisco helps automate processes by bringing together closed-loop visibility, insights, and actions to manage business resiliency and IT agility. Cisco collaborates with partners like Accedian with network service quality and real user experience visibility, insights, and actionable events to inform and enrich the automation of the network to deliver digital business outcomes and quality customer experiences.

Figure 4. Network health insights with Accedian Skylight

Network Health insights with Accedian Skylight



Normally, during business days, the network can display burstiness (as show with the throughput in blue). But in the specified window of time, the customer experienced network downtime. This was because the end result of packet loss and delay is reduced network throughput, resulting in poor performance.

Gain visibility to automate assurance of the customer experience

Orchestrated assurance enables you to deliver services right the first time. Maintain customer satisfaction with performance visibility, precise and real-time insights, and the ability to act immediately with Cisco automation.

For more information on Cisco's network automation portfolio for service providers, please visit www.cisco.com/go/crosswork. To learn more about differentiating your services with exceptional customer experience, or to schedule a demonstration of Accedian Skylight, contact your Cisco sales representative.

Figure 5. Use cases: Cisco Crosswork Automation with Accedian Skylight

