

SkyLIGHT Director™

Network Performance Management Platform

Product Benefits

- Point-and-click web browser based user interface
- Centralized fault management
- Northbound SNMP API for Network Management System (NMS) alarm integration
- Commissioning workflows for efficient node turn-up
- Job scheduling for automation
- Plug & Go™ inventory discovery
- Remote device inventory and management
- Network-wide configuration backup and restore functions
- Network-wide firmware upgrades
- Network-wide inventory
- One-second, stream-based performance data collection
- Centralized service turn-up validation
- Commissioning templates
- Radius based authentication
- Appliance-based deployment

As Carrier Ethernet continues to grow, network operators are increasing their footprint to reach new customers, open up new markets, and increase their revenue stream.

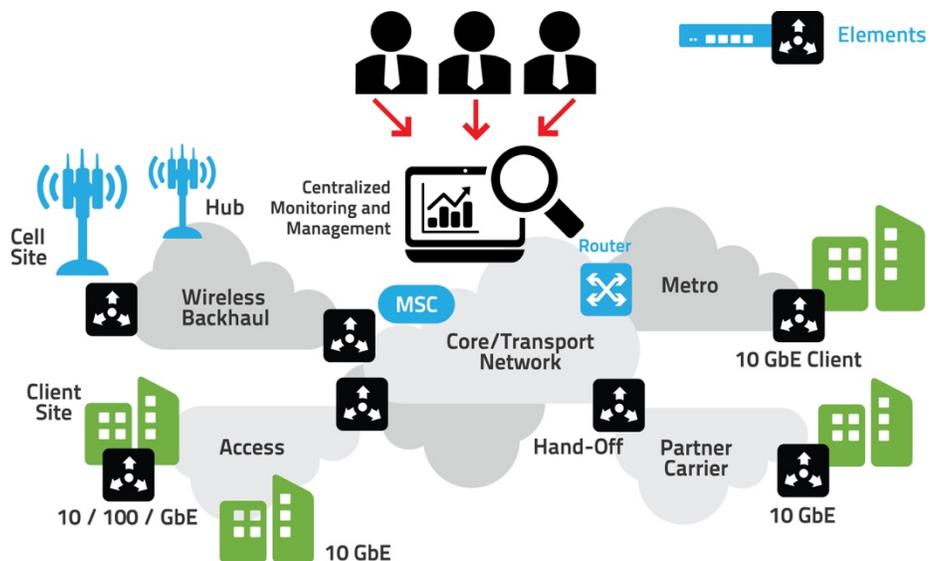
Managing networks has become increasingly complex; reducing operational expenses and increasing productivity become key strategies in maximizing shareholder value.

Accedian SkyLIGHT Director™

SkyLIGHT Director™ is a centralized management platform for Accedian network performance elements and modules. It provides FCAPS functionality for Accedian performance elements and modules including the CE, FS, FS 10G, LT, GE, GT, GX, FSX, NE, AT, Classic Actuator/VCX, Nano, and ant.

Multiple concurrent users can view and manage these Accedian devices, greatly simplifying the tasks of network operators. From initial installation through unit lifecycle administration and maintenance, SkyLIGHT Director simplifies, secures and accelerates Ethernet service validation, fault management, and performance.

Management of Accedian Devices

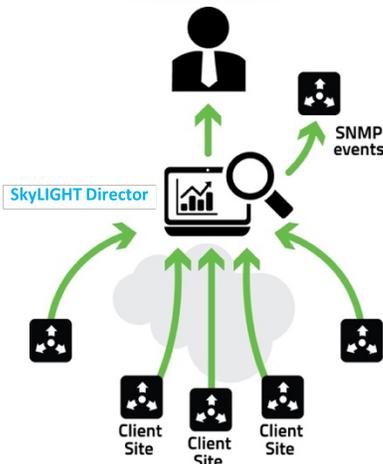


SkyLIGHT Director combines proven open source platforms with a browser-based end user interface to provide a powerful management tool for your Accedian products. Built around a robust task automation engine, it can perform network-wide operations for device backups, device commissioning, firmware upgrades and even run multiple concurrent service validation tests.

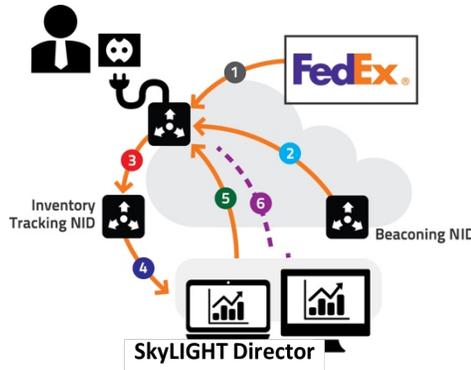
By extending the Accedian Plug & Go™ instant provisioning system, SkyLIGHT Director reduces operational effort to an absolute minimum. New units go from the box to being managed in just minutes.

Feature Benefits

- **Alarm Banner**
 - Real-time updates
 - Provides bird's-eye view of alarms in the network
- **Alarm Event List**
 - Alarm details pane
 - Severity, description and probable cause information
- **Alarm Query**
 - Supports queries per network element, time range, severities, and probable cause
- **Alarm Synchronization**
 - SNMP listener for real-time events
 - Periodic resynchronization with network elements for alarm list accuracy
 - Detects and raises alarms upon loss of contact
- **Northbound Event Forwarding**
 - Up to four SNMP receivers
 - SNMP V3 Support
 - Provides inform and notification support
 - Sends out keep-alive messages to ensure connectivity



Plug & Go NMS/SkyLIGHT Director Integration



1. Device is received and powered on the network
2. Device receives periodic beacons from the beaconsing NID and configures its management channel from the beacon information
3. Device identifies itself to the inventory-tracking NID
4. SkyLIGHT Director™ monitors the tracking NID and adds the new device to its list
5. SkyLIGHT Director establishes communication
6. SkyLIGHT Director provisions the device

Fault Management

The SkyLIGHT Director Vision Module provides centralized fault management for a rapid view of your network health. An alarm banner is always visible, providing a quick tally of all active alarms, as well as any loss of connectivity to the underlying elements.

Total events: 31 | 1 Critical | 21 Major | 9 Minor | 0 Warning | 0 LOC

Operators can drill down in the active alarms event list, which displays the most recent events in the system. This list provides alarm conditions, source entities and probable cause details.

The screenshot shows the 'Active alarms' section of the SkyLIGHT Director interface. It contains a table with columns for Severity, Time, Alarm number, Serial number, Condition, and Description. Below the table is a 'Details' pane for a selected alarm.

Severity	Time	Alarm number	Serial number	Condition	Description
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-44-43	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-44-43	OVERHEAT-THRESHOLD	First overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-44-110	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-44-110	OVERHEAT-THRESHOLD	Second overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-44-214	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-44-214	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-45-90	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-45-90	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-45-139	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-45-139	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-47-45	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-47-45	OVERHEAT-THRESHOLD	First overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-47-182	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-47-182	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-48-101	OVERHEAT-THRESHOLD	First overheat threshold
CRITICAL	2016-01-27 13:40:16-05:00	8.0.2	TeSN10-251-48-101	OVERHEAT-THRESHOLD	Second overheat threshold
MAJOR	2016-01-27 13:40:16-05:00	8.0.1	TeSN10-251-48-109	OVERHEAT-THRESHOLD	First overheat threshold

Showing 200 most recent alarms.

Details:

Severity: CRITICAL | Network element: GSN10-251-0-245 (sim-10.251.0.245) 10.251.0.245
 Service Affecting: NSA | Condition: OVERHEAT-THRESHOLD
 Source entity: | Probable cause: UNKNOWN
 Last Updated: 2016-01-27 13:14:00-05:00 | Description: Second overheat threshold

Total events: 15158 | 7572 Critical | 7578 Major | 2 Minor | 6 Warning | 0 LOC

SkyLIGHT Director™ provides real-time events by listening for activity from the underlying network. The alarm list is periodically refreshed on each device to maintain accurate alarm counts and to ensure operators are provided with an exact view of active alarms.

Alarm Query

Sorting and filtering active alarms is possible through an active alarms query tool. The multiple query options available can be combined to provide a view based on specific network elements, severity or time range.

NE label: | Source entity: | From: | Filter | Clear

Serial number: | Alarm severity: | To:

IP address: | Probable cause:

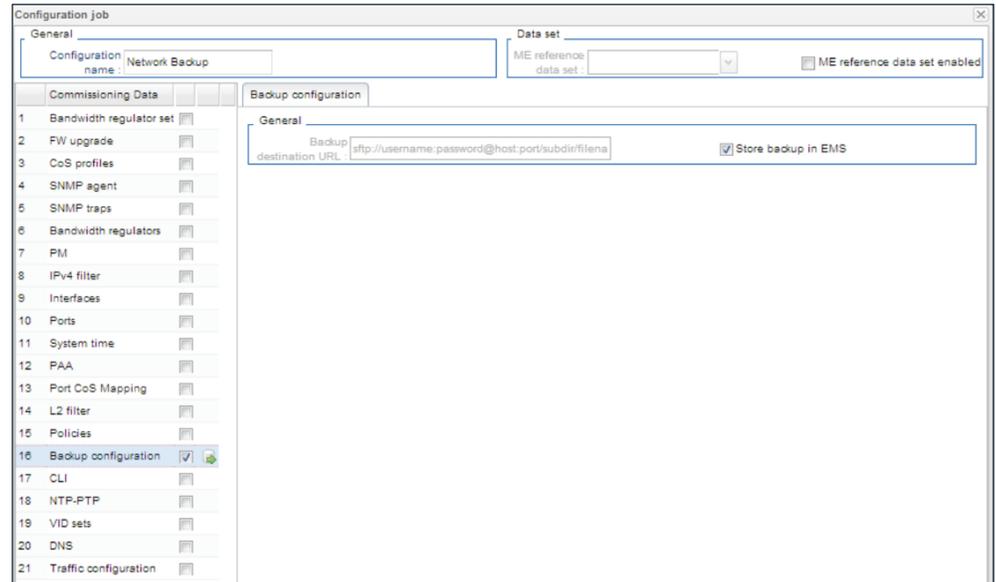
Feature Benefits

- **Inventory Collection**
 - Device Name
 - Device model
 - Serial number
 - Firmware version
 - Management IP address
 - Ports and interfaces
- **Backup and Restore**
 - Centralized archive of device node configuration information
 - Support for concurrent backups
- **Firmware Upgrade**
 - Centralized management of firmware upgrades
 - Support for concurrent firmware distributions to performance modules and

Configuration Management

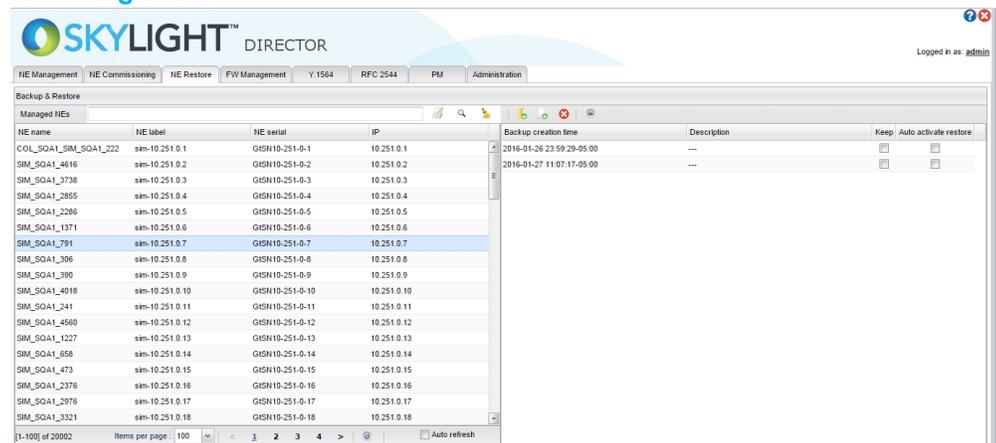
The SkyLIGHT Director Vision Module automates network-wide configuration management through its inventory collections, unit backup archiving and export functions and firmware management capabilities. Its task automation engine can process thousands of Accedian devices at the same time. Configuration files can be stored on either the server or on an external server, depending on your specific requirements.

Configuring a Backup Job



Quickly restore a unit's previous configuration or swap in a replacement unit in a few easy steps.

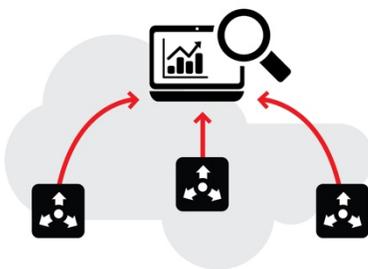
Restoring a Node



The SkyLIGHT Director™ Vision Module supports large-scale firmware upgrades for individual units, as well as for groups of units that can be broken down into smaller target clusters for incremental execution.

Multi-threaded batch processing and status tracking enable full-inventory upgrades to be completed and verified within time-sensitive maintenance windows.

SkyLIGHT Director



Firmware Upgrades

SkyLIGHT Director



Device Turn-Up Made Simple

- Centralized template-based commissioning of Accedian Network Performance Elements. Intuitive GUI-based templates reduce operator's node turn-up times.
- Automated commissioning on device installation.
- Batch support for mass deployment of commissioning changes. No more logging into individual nodes for bulk edits.
- Data set support provides the means to tailor templates to specific node attributes while keeping wildcard values for common attributes.
- Daily scheduling for execution of routine tasks and deferred scheduling for the execution of unattended tasks.
- Progress tracking for job monitoring and job control to interrupt in-progress activities.
- REST based API for OSS integration
- Direct OPEX savings resulting from improved efficiencies in device turn-up times and consistency.

Device Commissioning

SkyLIGHT Director provides network operators with template-based commissioning tools to standardize and streamline the device turn-up process.

Leveraging the flow engine, commissioning operations can be either launched automatically upon device installation or scheduled for a single device or multiple devices concurrently.

Commissioning Configuration Job

Configuration Job Execution

Name	Label	Serial
VisionMetric-LB	Loopback	G017-0782
Boston-sub1	BOSTON-SUB1	G036-0331
Boston-CO12	BOSTON CO12	G082-0452

Configuration Job Scheduler

Feature Highlights

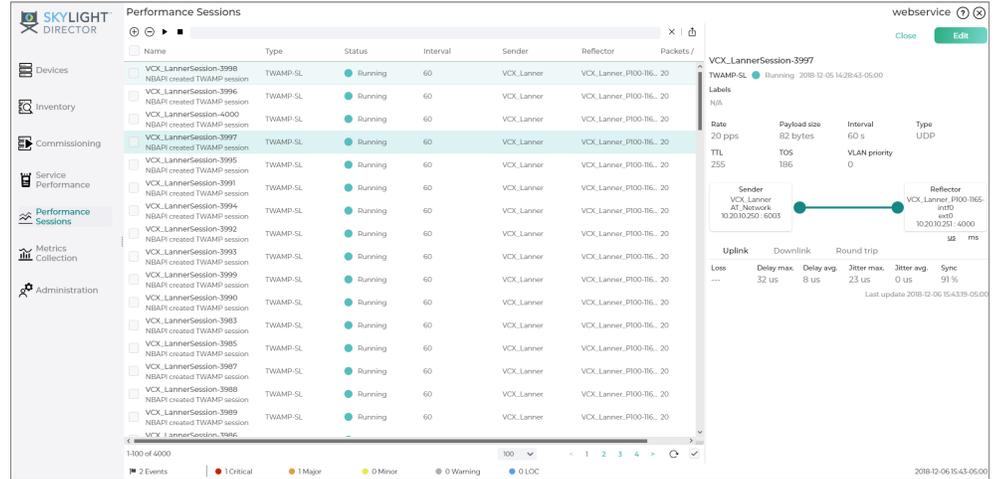
- Standards-based one-way network performance assurance solution using ETH-OAM, TWAMP and Accedian Standards+
- Standards+ supports extended measurement types for even greater performance visibility
- Patented, high-accuracy one-way delay measurement technique without need for synchronized hardware test points at each end of connection
- Centralized or distributed measurement injection using SkyLIGHT VCX
- Centralized provisioning, management, mediation and reporting
- Integrated into the SkyLIGHT DataHub IQ platform
- Achieve sophisticated monitoring with Service OAM 802.1ag/Y.1731, Accedian PAA™, and FlowMETER™ support

SkyLIGHT Session Management

Create, Verify, Validate

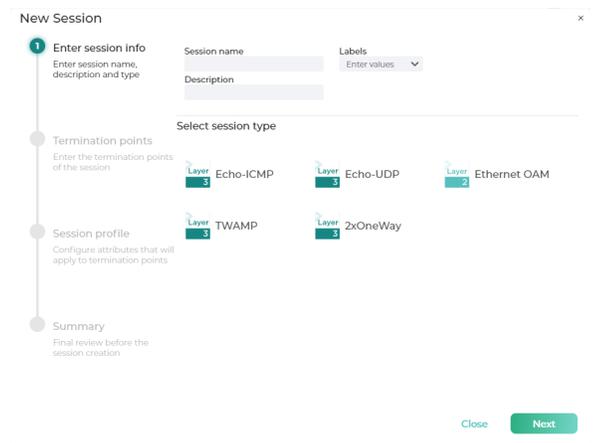
As part of the SkyLIGHT performance assurance platform, SkyLIGHT Director provides comprehensive tools to verify network service level agreement (SLA) conformance on a granular and continuous basis, using TWAMP and Ethernet DMM sessions. The SkyLIGHT performance assurance platform enables highly accurate, one-way monitoring of network performance without the need for external synchronization.

End-to-end SLA Monitoring



Point and Click Session Control

- **Session Creation** – wizard-based panel guides users through the session creation steps
- **Automated Inventory** – network wide inventory simplifies selection of session source and reflector endpoints
- **Reflector Inventory** – supports Accedian and third-party standards-based reflectors of measurement frames sent from SkyLIGHT VCX
- **SkyLIGHT Integration** – export performance data to DataHub IQ platform



Feature Highlights

SkyLIGHT Director's permanent data stream distribution enables:

- Centralized configuration and collection of performance metrics for up to 4,000 devices at one-second granularity (clustered configuration)
- Immediate access to available data
- Scales to thousands of units and up to 200,000 one second data streams
- Streamlines the device and appliance CPU and memory profiles
- Optimized network bandwidth
- Reception of one-second bins for:
 - PAA™
 - Policies
 - Port Statistics
 - Regulators
 - FlowMETER™
- Reception of one-minute bins for all historical data
 - Service OAM DMM, Packet Loss, TWAMP, Shaper, Service Availability (SA), SA Metrics and Service Level Management
- Distribution of performance data to third-party systems through SFTP and RSYNC

Metrics Collection

Data is the great equalizer. Providing network operators and service providers with insightful data about the performance of their network is the only way to ensuring SLAs are being met and the required quality of service is being delivered to end customers.

SkyLIGHT Director is a performance data collection and distribution engine that provides near-real-time statistics, down to one-second granularity.

In order to optimize network bandwidth while minimizing CPU and data-caching requirements, a permanent data stream is established between devices and the SkyLIGHT Director platform.

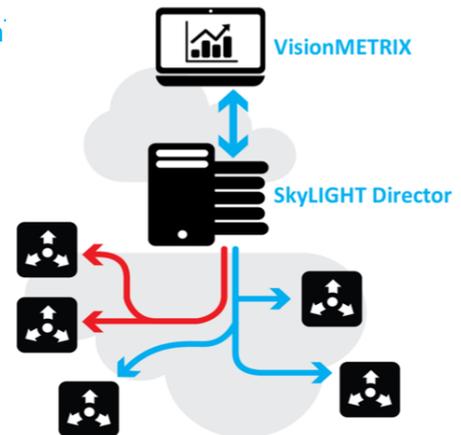
Performance Data Streams

Label	Serial	Model	Version	Last Collected	Pending Since
NE-SIM-TEST1	SNZ102502241	AMN-1000-TE	AEN_0_2_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST2	SNZ102502261	AMN-1000-TE	AEN_0_2_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST3	SNZ102502261	AMN-1000-TE	AEN_0_3_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST4	SNZ102502271	AMN-1000-TE	AEN_0_4_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST5	SNZ102502281	AMN-1000-TE	AEN_0_5_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST6	SNZ102502291	AMN-1000-TE	AEN_0_6_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST7	SNZ102502301	AMN-1000-TE	AEN_0_7_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST8	SNZ102502311	AMN-1000-TE	AEN_0_8_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST9	SNZ102502321	AMN-1000-TE	AEN_0_9_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
NE-SIM-TEST10	SNZ102502331	AMN-1000-TE	AEN_0_10_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025022537	SNZ1025022537	AMN-1000-TE	AEN_0_2_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025022718	SNZ1025022718	AMN-1000-TE	AEN_0_4_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025022620	SNZ1025022620	AMN-1000-TE	AEN_0_3_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025023119	SNZ1025023119	AMN-1000-TE	AEN_0_8_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ102502284	SNZ102502284	AMN-1000-TE	AEN_0_5_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025023333	SNZ1025023333	AMN-1000-TE	AEN_0_10_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025022439	SNZ1025022439	AMN-1000-TE	AEN_0_2_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025022730	SNZ1025022730	AMN-1000-TE	AEN_0_4_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ102502306	SNZ102502306	AMN-1000-TE	AEN_0_7_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ102502246	SNZ102502246	AMN-1000-TE	AEN_0_2_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025023312	SNZ1025023312	AMN-1000-TE	AEN_0_10_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None
SNZ1025023150	SNZ1025023150	AMN-1000-TE	AEN_0_8_1123510391428546175107697312	28 Mar 2013 20:05:00 GMT	None

Performance Data Status

Name *	Serial	Agent state	Streaming state	PAA	Policy	Regulator	DMM	PL	SA	SA Metric	SLM
SN1025020510	SN1025020510	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502052	SN102502052	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502053	SN102502053	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502056	SN102502056	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502063	SN102502063	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502067	SN102502067	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502073	SN102502073	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502077	SN102502077	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502078	SN102502078	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN1025020810	SN1025020810	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502087	SN102502087	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN1025020810	SN1025020810	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502096	SN102502096	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502098	SN102502098	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502106	SN102502106	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502107	SN102502107	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN1025021110	SN1025021110	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502118	SN102502118	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN1025021210	SN1025021210	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
SN102502129	SN102502129	true	true	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min

SkyLIGHT Director Data Distribution



Service Turn-Up Validation Made Simple

- Y.1564 and RFC-2544 testing with Layer-2 and Layer-3 support
- One-way and two-way configurations
- VLAN, DSCP and PCP flow validation
- CIR and EIR throughput characterization
- Centralized configuration of up to eight flows per suite
- Configuration of multiple validation suites
- Generic suites can be used as templates for consistent validation across an entire network
- Site-to-site or site-to-multisite configuration
- Concurrent flow execution for true service validation
- Automatic configuration of reverse flows for one-way tests
- Automatic creation and control of Layer-3 loopbacks
- Centralized validation of circuit configuration and performance
- Validation launch and status updates from the SkyLIGHT Director Web UI
- Retrieval and archival of validation results that can be used as “birth certificates”

Service Performance

RFC-2544 and Y.1564 Testing

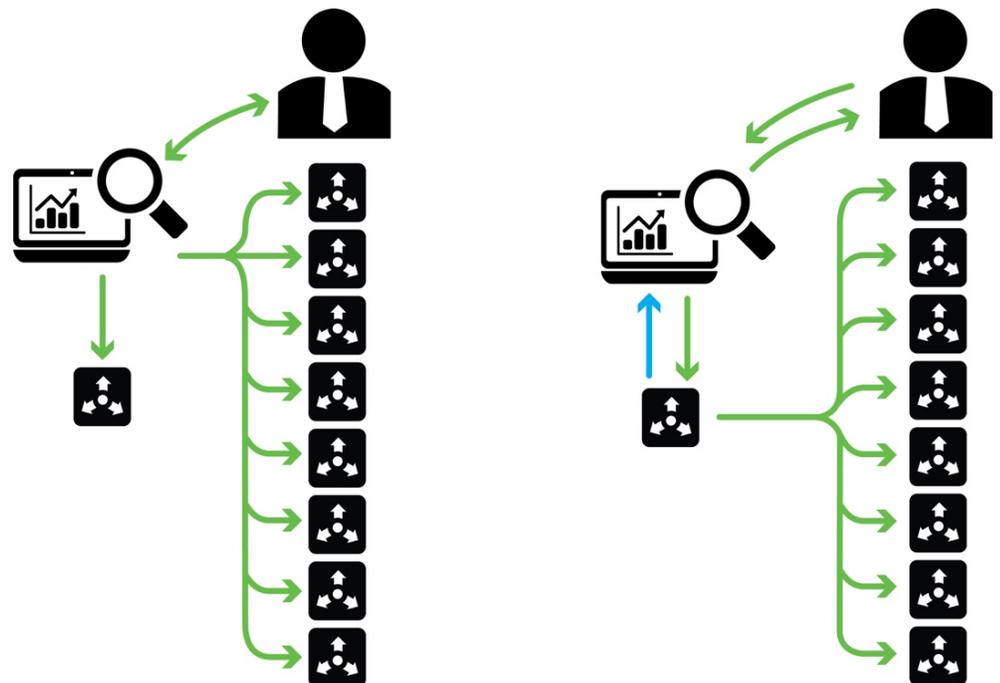
SkyLIGHT Director offers Vision SP (Service Performance) as an optional value-added application. Vision SP is an ITU-T Y.1564 and RFC-2544 coordinator that enables centralized configuration and control of service validation tests.

From one central screen, network operators can configure tests that include loopbacks for two-way flows and offering the possibility to configure reverse tests for one-way flows.

Once tests are configured, SkyLIGHT Director is used to launch them from a central location. Test progress can then be monitored and test results retrieved in real time as the test runs.

Leveraging the Vision SP task-automation engine, multiple tests can be executed in parallel by multiple operators, providing a truly centralized service-validation hub.

Near-end and far-end inventory drop-down lists guide operators through the test configuration process by suggesting available Layer-2 and Layer-3 interfaces on the target endpoints. SkyLIGHT Director™ handles the testing configuration on all nine devices.



Once configuration jobs are set up, SkyLIGHT Director applies them to network elements from a central location. Leveraging the task-automation engine, multiple configurations can be applied to one or several network elements in parallel.

Feature Highlights

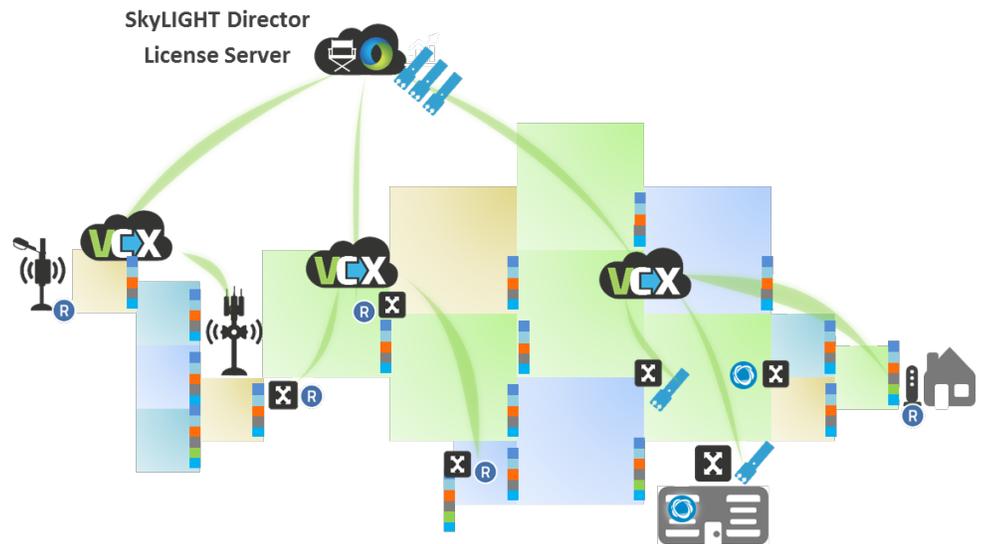
- Simplified license management for SkyLIGHT™
- Supports VCX FlowMETER™, FlowBROKER™ and Service Activation Testing functions
- Pooled license distribution for network mobility
- Simplified reporting of license consumption in the network
- Support for both permanent and renewable license models
- Based on industry leading Flexera™ embedded licensing technology
- Virtualized deployment model
- Scalable to hundreds of thousands of performance modules

Centralized Licensing for SkyLIGHT™ Solutions

Pooled License Distribution

The SkyLIGHT Director License Server provides a central repository of all license entitlements in your network.

License consumers, such as SkyLIGHT VCX, are configured to request licenses from this central location, allowing the same licenses to be shared amongst all SkyLIGHT VCX instances in your network.



Capacity Management of Licenses Features

Using a simple graphical interface, operators can quickly deploy entitlements to the network; view the number of entitlements available as well as those that are in use.

Virtualized Deployment Model

Available as both VMWare and KVM virtual appliances, the License Server is deployed to existing customer virtualization infrastructures with a lightweight footprint. It can also be deployed to an Accedian SkyLIGHT Appliance.

Specifications

	Supported Browsers	Firefox version 21 and above, Google Chrome version 28 and above	
	SkyLIGHT Analyzer PC	Windows XP and Windows 7 / i5Core or better / 2 GB RAM / 1 GB disk space / Java Runtime Environment 1.8 and up	
Vision	Appliance Type	KVM	VMWare
	Supported Hypervisors	KVM 3.10+ kernel / libvirt 1.2.8	VMWare 5.5 / 6.0 / 6.5
	CPU	6 CPU Cores	6 CPU Cores
	RAM	30 GB	30 GB
	Disk Size	400 GB	400 GB
	Management Port	virsh	VMWare console
	Network Interfaces	Up to 8 virtual interfaces	Up to 8 virtual interfaces
	Disk I/O	Solid State Drive / 5K read & write operations per second @ 6 KB. Average latency of 5ms (30 second window)	
	Redundancy Scheme	Warm Standby	Warm Standby
	Supported Devices	5,000	5,000
	Supported Remote Devices	100,000	100,000
	Supported Devices Clustered ²	N/A	N/A
	Supported Performance Sessions	20,000 @ 1 minute granularity	20,000 @ 1 minute granularity
	Supported Supervision Endpoints	100	100
	Supported Reflectors	20,000	20,000
	Supported SLAs	500	500
	Data Retention (perf. sessions)	One week @ 1 minute granularity	One week @ 1 minute granularity
	Metrics low-res devices	5000	5000
	Metrics high-res devices	1000	1000
	Max number of concurrent users	20	20
Manager	Appliance Type	KVM	VMWare
	Supported Hypervisors	KVM 3.10+ kernel / libvirt 1.2.8	VMWare 5.5 / 6.0 / 6.5
	CPU	4 CPU Cores	
	RAM	16 GB ³	
	Disk Size	120 GB ⁴	
	Management Port	virsh	VMWare console
	Network Interfaces	Up to 8 virtual interfaces	
	Disk I/O	Solid State Drive / 5K read & write operations per second @ 6 KB. Average latency of 5ms (30 second window)	
	Data Retention	One week @ 1 minute granularity	
	Redundancy Scheme	Warm Standby	Warm Standby
	Supported Sessions	20,000 @ 1 minute granularity stand alone	20,000 @ 1 minute granularity stand alone
	Supported Devices	100	100
	Supported Reflectors	20,000	20,000
	Supported SLAs	500	500
	Max number of modules	20,000	20,000
	Max number of concurrent users	10	10
License Server	Appliance Type	KVM	VMWare
	Supported Hypervisors	KVM 3.10+ kernel / libvirt 1.2.8	ESXi 5.5 +
	CPU	2 CPU Cores	2 CPU Cores
	RAM	4 GB	4 GB
	Disk Size	40 GB	40 GB
	Management Port	virsh	VMWare console
	Network Interfaces	Up to 8 virtual interfaces	Up to 8 virtual interfaces
	Supported Devices	50	50
Max number of concurrent users	10	10	

1. When collocated with Manager module on SkyLIGHT Director Appliance
 2. Requires 4 physical appliances in a cluster configuration
 3. 8 GB when collocated with Vision module on SkyLIGHT Director Appliance

4. Supports up to 1TB; plan 80 GB per week of result data storage
 5. When collocated with Vision module on SkyLIGHT Director Appliance

Features

	SkyLIGHT Director Features	Classic Actuator	GE	AT-108 AT-1008 AT-1024	SkyLIGHT VCX	FS	FSX	TE	GT / GX	CE/NE/LT
Common Features	Firmware Version	6.8+	4.9	1.1 & 2.1	2.2+	1.0+	2.1+	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	Configuration Backup									
	Configuration Restore									
	Job Scheduling									
	Firmware Upgrade									
	Standing Alarms									
Alarm Bursts	300 alarms in 15 seconds									
Commissioning	Commissioning Workflows	N/A	4.9	1.1 & 2.1	2.2+	1.0+	2.1+	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	Supported Templates	N/A	Custom Commands	Custom Commands	CFM, Custom commands, DMM Reflector, Loopback, FlowMETER, Discovery Configuration	DNS, system time, SNMP agents and traps, NTP, PTP, PAA, ports, management interfaces, L2 filters, VID sets, IPV4 filters, bandwidth regulators, regulator sets, COS profiles, VC agent, policies, traffic configuration, custom commands, Y.1731, TWAMP, MFD, NE Attributes & user management				
Metrics Collection	Streaming API	N/A	N/A	N/A	2.2+	1.0+	2.1+	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	Granularity – Low Res				2.2+	1.0+	2.1+	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	Granularity – High Res max 2000 streams per device				2.2+	1.0+	2.1+	6.3.1+	6.4+ / 7.4+	6.3.1+/6.3.1+/7.1+
	Bandwidth Requirements (average, max collections enabled per device)				200 Kbps (low) 350 Kbps (high)	16 Kbps (low) 43 Kbps (high)	200 Kbps (low) 350 Kbps (high)	16 Kbps (low) 43 Kbps (high)	43 Kbps (low) 147 Kbps (high)	200 Kbps (low) 350 Kbps (high)
Service Performance	Y.1564 Support	N/A	N/A	N/A	N/A	1.0+	N/A	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	Y.1564 Flows Supported				N/A	2	N/A	2	8	8
	RFC-2544 Support				2.2+	1.0+	N/A	6.0+	6.4+ / 7.4+	6.0.1+/6.0.1+/7.1+
	RFC-2544 Flows Supported				Licensed	1	N/A	1	1	1
	EMIX Support				N/A	No	N/A	No	Yes	Yes
	Number of Tests Defined (per device)				Licensed	16	N/A	16	16	16
	Number of Running Tests (per device)				Licensed	1	N/A	1	1	1
	Number of Running Tests (per SD)				20					
Number of Tests defined (per SD)	100,000									