Insight Analytics
Insight Analytics is a powerful integrated analytics module within the Pluribus UNUM platform that provides the IT operations team with proactive insight into network and application performance to assure peak operating performance and meet user experience expectations. Insight Analytics leverages embedded Netvisor monitoring telemetry and packet flow data sources to enable pervasive visibility across the network, eliminating the need for expensive probes or complex monitoring overlay networks.

Integrated Netvisor telemetry monitors every TCP connection, including traffic within a VXLAN tunnel, across the entire fabric at the speed of the network to track east/west and north/south traffic flows, as well as virtualized workloads to expose important network and application performance characteristics.

Insight Analytics leverages the collected network intelligence from the UNUM database, which stores up to 2.5 billion flows, to build knowledge of the network, and enables contextual drill-down from dashboards and analysis views. The UNUM analytics engine constantly monitors and analyzes all traffic and transactions to identify network and application performance characteristics, allowing IT operations to quickly identify performance trends and interrelationships in real time. User-defined alert notifications can be generated when anomalies are discovered, such as volumetric changes, performance deviations or threshold-based violations, enabling rapid triage to precisely pinpoint root cause and speed resolution.

Insight Analytics provides extensive operational intelligence that supports many performance management use cases, allowing operators to quickly pinpoint performance issues, accelerate troubleshooting, improve operational intelligence, identify security risks and speed remediation.

Network Intelligence in a White Box Environment
Insight Analytics tracks network and endpoint service state and performance across the Adaptive Cloud Fabric to understand how the users and services are consuming the infrastructure, and conversely, how the infrastructure is supporting the users and services.

The intelligence garnered from across the fabric enables operators to analyze and compare actual versus desired performance and implement corrective actions such as changes to policy, rerouting traffic to implement on-demand changes to the infrastructure. Since all visualization is done within the same platform, changes can be implemented from a single pane of glass, simplifying operations and speeding change implementation.

UNUM Insight Analytics (IA) provides a suite of tools designed to analyze data with search capabilities on information collected from UNUM collectors (a designated switch UNUM uses to collect fabric information), packet capture analytics and monitoring capabilities.
Flow Analytics

IA - Flow Analytics collects fabric and network flow data over time, and graphically displays the information via a variety of tools.

- The **Connections** dashboard allows network admins to measure, sort and analyze TCP connection states (SYN, SYN-ACK, EST, FIN, etc.) by service, client, domains and many other options over time.

- The **Traffic** dashboard breaks flows down into busiest services, servers, domains and switches.

- **Dynamic Flow Mapping (DFM)** dashboard illustrates the total connections based on server, state and endpoints.

- **Custom Tagging** enables customers to choose up to 100 different options to tag IP addresses, VLANs, MAC addresses and switch ports with metadata/contextual tags, and then aggregate or filter their flows based on their custom tags.

- **Report** dashboard displays a standardized view of high-level flow statistics over the past seven days.

- **VMware vSphere integration** - The Netvisor vCenter Connection Service provides UNUM Insight Analytics with virtual machine and virtual network configuration data, allowing any recorded communication to be identified and indexed. This enables insight into the virtualization layer.

Switch Analytics

UNUM IA Switch Analytics enables port telemetry and device diagnostics via a selection of searchable options such as fabric node, switch port, vport (virtual port) and state, including a dashboard of all ports in the fabric.

- **Switch Analytics Notifications** allow users to sort and analyze syslog and SNMP data, as well as schedule reports and configure alerts.

- **The Schedule Reports** module provides a method of creating customized reports, which are then sent by email to the user. Schedule Reports notifies the user of useful monitoring information, such as the information in the standardized view reporting high-level flow statistics over the past seven days. **Use of the scheduler is an option that requires an additional license.**

- **The Alerts** module provides a method of creating alerts notifying the user of critical monitored events. Alert Details, Alert Conditions, Schedule Details and Alert Action parameters can all be adjusted depending on the monitoring and alerting requirements. **Use of the Alerts module is an option that requires an additional license.**
Pluribus UNUM Insight Analytics is deployed in one of two scenarios. The first is with in-line Pluribus Netvisor switches to maximize the capture switch telemetry for analysis, providing a comprehensive view of the fabric, including syslog and SNMP. Netvisor Flow or nvFlow is the technology used by Netvisor One to collect metadata and telemetry for the Insight Analytics database.

Deployment Options

Pluribus UNUM Insight Analytics is deployed in one of two scenarios. The first is with in-line Pluribus Netvisor switches to maximize the capture switch telemetry for analysis, providing a comprehensive view of the fabric, including syslog and SNMP. Netvisor Flow or nvFlow is the technology used by Netvisor One to collect metadata and telemetry for the Insight Analytics database.

Search

UNUM Insight Analytics utilizes a powerful, distributed engine to store, filter, correlate and visualize vast amounts of data in real time, while isolating and filtering specific flows from millions, all in a fraction of a second.

Features of the search engine include:

- Powerful query syntax to filter flow metadata information based on field-based exact matches, regular expressions, ranges and Boolean operators.
- Selected views from the Connection Dashboard.
- Aggregated flow stats: duration, latency, total bytes per connection.
- Extensive “time machine” functionality with absolute or relative year/month/day/hour/minute/second granularity.
- IP geolocation for client and servers.
- Detailed flow table consisting of over 30 metadata fields associated with each flow.

Potential use cases for Pluribus Insight Analytics Alerts and programmable tagging include the detection of unauthorized access attempts, DDOS attacks or fabric node failure.

Deployment Option #1 - UNUM Insight Analytics with In-line Pluribus Netvisor OS Switches.
The Pluribus UNUM platform is simple to deploy and can manage and support any sized network with multiple fabrics distributed across multiple locations. Licensing is elastic, enabling pay-as-you-grow flexibility. Insight Analytics is a fully integrated module of UNUM that is optionally activated through a license key.

**Insight Analytics**

Insight Analytics is available in two versions depending on the monitoring capacity required. The standard version supports up to 100 million flows and the high-capacity version supports up to two billion flows.

**Support and Professional Services**

Pluribus Networks offers a wide range of advanced services spanning the entire network lifecycle to protect investments and help accelerate success from initial deployment to ongoing optimization. Multiple extended support options are available, including on-demand global support, on-site support, advanced hardware replacements and customized technical training. Professional implementation services can help design, deploy and optimize the operating environment tailored to your organization’s specific requirements. Maintenance options include direct access to a team of expert network engineers with deep networking experience and our self-service online Customer Portal. For more information about Pluribus support options, visit [http://www.pluribusnetworks.com/support](http://www.pluribusnetworks.com/support) or contact a Pluribus Networks authorized reseller.

**Pluribus UNUM and Netvisor OS Compatibility**

Pluribus UNUM supports the equivalent release of Netvisor OS, plus the prior version. For example, UNUM 3.1.x supports NVOS versions 3.1.x and 3.0.x. For other combinations, please contact Pluribus Networks customer service before deploying.

**Please Note:** early field trial (EFT) features are not fully tested and are annotated in the Pluribus UNUM release notes. Before implementing an EFT feature in production, please consult your local partner or Pluribus Networks account team.

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**Ordering Information**

The Pluribus UNUM software can be deployed as an OVA/virtual appliance on customer-provided hardware or can be delivered pre-configured on a server appliance for turnkey deployment. Ordering information is for Pluribus UNUM, Insight Analytics and the optional hardware appliances. Support is not included, and the desired support should be ordered separately. Subscription-based options are available.

**Pluribus UNUM Software**

- **UNUM-LIC** — Pluribus UNUM Unified Management, Automation and Analytics Platform - includes support for 10 Netvisor devices.

**Insight Analytics Module License**

Insight Analytics is optionally licensed in addition to the Pluribus UNUM software.

- **IA-MOD-LIC** — Pluribus Insight Analytics module - supports up to 100 million flows and includes first 10 monitored Netvisor devices.
- **IA-HC-MOD-LIC** — Pluribus Insight Analytics High-Capacity (HC) module license supports 100 million+ flows and includes the first 10 monitored Netvisor device. Cannot be deployed on customer hardware – high-capacity server appliance required.

**Pluribus UNUM Server Appliance**

- **AP-BASE-HW** — Standard hardware server appliance for UNUM software or UNUM + Insight Analytics module supporting up to 100M flows. Hardware only – requires software licenses.
- **AP-HC-HW** — High-capacity hardware server appliance for UNUM + Insight Analytics Module supporting over 100M flows. Hardware only – requires software licenses.
Specifications

The following are highlights of features provided by the Pluribus UNUM platform. Many automation capabilities are integrated as part of the Netvisor ONE OS and are not included in this summary.

Operational

- Runs in a VM as a virtual appliance
- Single node deployment
- High-performance cluster supported for analytics
- Device inventory
- Manual device discovery
- Automatic device discovery via LLDP
- Zero-touch provisioning (ZTP)
- Per-device logs of all actions taken by the portal
- Device connectivity status (up/down)
- Network provisioning - configuration
- Switch configuration management
- Change history tracking
- Device configuration validation
- View devices through network provisioning
- Filter view of network provisioning based on devices
- Topology mapping for Netvisor-enabled devices
- Third-party device topology mapping and visualization requires LLDP

Task Management

- Task scheduling
- Task panel identifying completed and pending tasks
- Automated task creation
- Log files for all tasks and commands issued to the fabric

Configuration

- Automated ongoing device configuration change management
- Automated detection and rollback of invalid configuration changes
- Network-wide rollback supported from Netvisor OS

Telemetry Supported

- nvFlow for real-time analytics stream from Netvisor devices
- SNMP
- Syslog

High-Capacity Server Appliance Hardware Scalability

Fabric Management

- Up to 200 Netvisor ONE devices
- Up to 12 Adaptive Cloud Fabrics

Insight Analytics

- Ingestion rate of up to 10,000 nvFlow connection records per second combined
- Long-term retention of up to 2.5 billion nvFlow records
- 30-day rolling window (FIFO) of up to 3 billion nvFlow records combined
- Seven-day rolling window (FIFO) of syslog and SNMP records

Pluribus NUM Virtual Appliance Operational Requirements

The Pluribus UNUM application is deployed as an OVA on customer-provided hardware. The installation of Pluribus UNUM and Insight Analytics should be on a dedicated system with the following requirements for each VM:

- Hardware requirements: 8 vCPUs, 64 GB RAM, 300 Gb HD
- Hypervisor requirements: VMware ESXi version 6.5 or 6.7. Versions earlier than 6.x have not been tested.
- Client requirements: Google Chrome (Version 44+), Mozilla Firefox (version 39+)

Pluribus Hardware Server Appliance Specifications

Standard Server Appliance Hardware Specifications

The UNUM standard hardware appliance is a 1RU server with UNUM pre-installed. For complete details, refer to the Pluribus UNUM data sheet. Server specifications are:

- Single server with 4 CPU cores (8 vCPU), 128 GB Ram, 480 GB SSD
- Dual 1G Base-T NIC, dual 10G Base-T NIC
- IPMI 2.0 + KVM with dedicated LAN
- Dual power supplies

High-Capacity Server Appliance Hardware Specifications

The UNUM High-Capacity Server Appliance is optimized to support medium to large Insight Analytics deployments where higher flow volume and storage capacity are required. Requires the high-capacity Insight Analytics software. Available only with a Pluribus-provided hardware appliance. For complete details, refer to the Pluribus UNUM data sheet.

- Quad server chassis
- Dual power supply
- Each server provides:
  - 16 CPU cores (32 vCPU), 64 GB RAM, dual 1.2 TB SSD
  - Dual 10 G Base-T NIC
  - IPMI 2.0 + KVM with dedicated LAN

OVA or Standard Server Appliance Scalability

Fabric Management

- Up to 100 Netvisor ONE devices
- Up to six Adaptive Cloud Fabrics

Insight Analytics

- Ingestion rate of up to 1,000 nvFlow or connection records per second combined
- Long-term retention of up to 100 million nvFlow records
- 30-day rolling window (FIFO) of up to 100M nvFlow records combined
- Seven-day rolling window (FIFO) of syslog and SNMP records

Pluribus Hardware Server Appliance Specifications

- Single server with 4 CPU cores (8 vCPU), 128 GB Ram, 480 GB SSD
- Dual 1G Base-T NIC, dual 10G Base-T NIC
- IPMI 2.0 + KVM with dedicated LAN
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- Up to 100 Netvisor ONE devices
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- Ingestion rate of up to 1,000 nvFlow or connection records per second combined
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- 30-day rolling window (FIFO) of up to 100M nvFlow records combined
- Seven-day rolling window (FIFO) of syslog and SNMP records