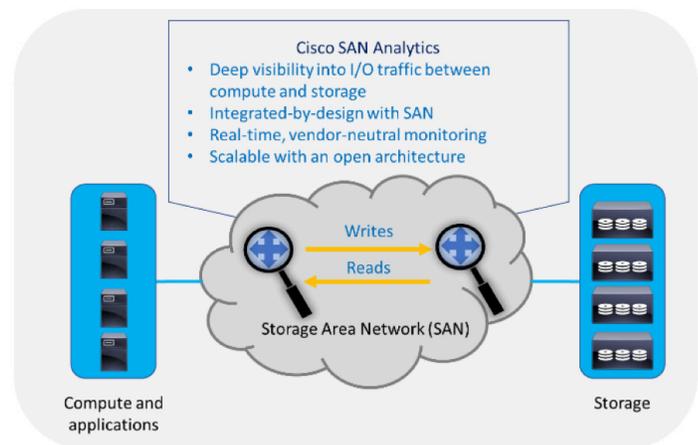


VirtualWisdom & Cisco SAN Analytics: Better Together

Cisco and Virtual Instruments have partnered to provide unprecedented value to our joint customers. Virtual Instruments brings 10+ years of expertise in hybrid infrastructure management. Cisco brings 15+ years of expertise in storage networking. Cisco SAN Analytics integrates with Virtual Instrument’s VirtualWisdom® infrastructure monitoring and AIOps platform to help customers - optimize infrastructure and assure application performance.

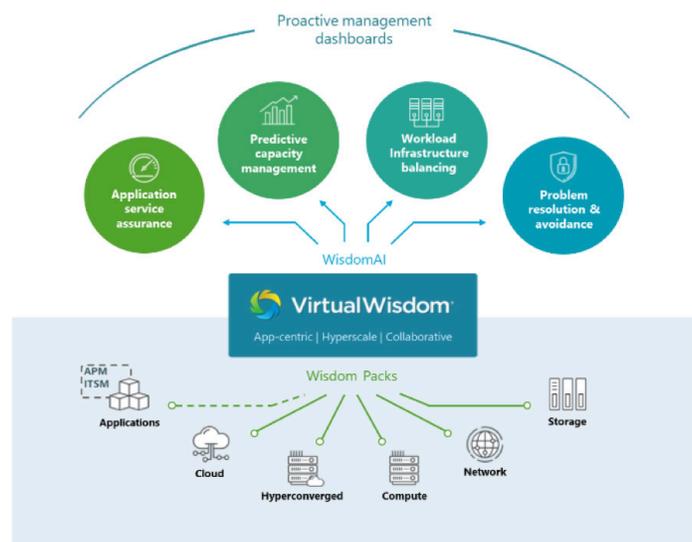
Cisco SAN Analytics overview

Cisco SAN Analytics offers end-to-end visibility into Fibre Channel block storage traffic (SCSI and NVMe). The solution is natively available in the Cisco® MDS 9000 switch family. Due to its integrated-by-design architecture, Cisco SAN Analytics delivers deep visibility into I/O traffic between the compute and the storage infrastructure. This insight into I/O traffic adds to the visibility obtained from individual ports, switches, servers, virtual machines, and storage arrays.



VirtualWisdom overview

VirtualWisdom uses an agentless approach to hybrid infrastructure management. Proactive insights are delivered via dashboards personalized for each level of the organization. These insights are powered by WisdomAI, a purpose-built analytics engine built to enable AIOps from the data center to the public cloud. The platform combines and correlates infrastructure data collected from compute, network and storage. Metrics are ingested into the hyperscale platform, empowered by WisdomAI. VirtualWisdom helps customers assure application service, predictively manage capacity, balance infrastructure workloads, and proactively resolve problems.

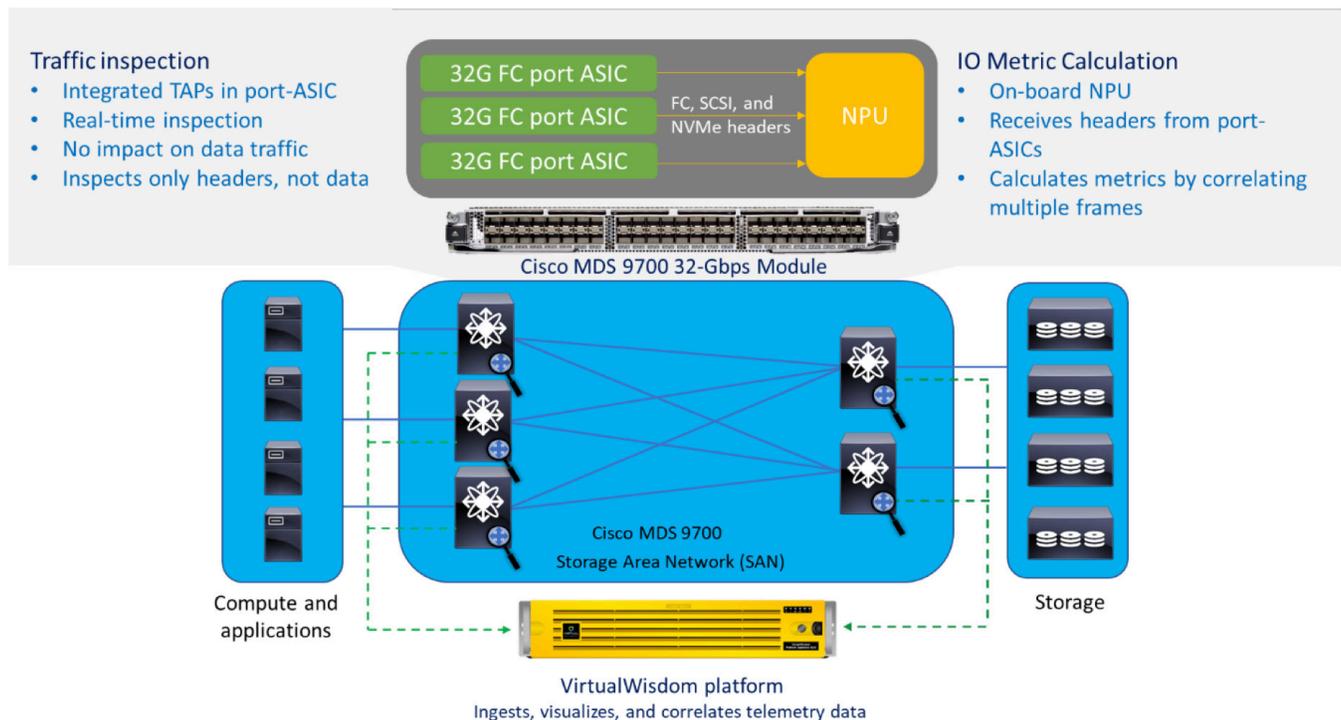


Cisco SAN Analytics and VirtualWisdom: working together to optimize infrastructures and assure application performance

Data collection

Cisco SAN Analytics delivers NVMe and SCSI traffic inspection and is integrated into the latest-generation ASICs available on Cisco MDS 9000 family switches. The ASICs capture and inspect frame headers without any performance or feature penalty. No application data is inspected or persisted during this process. Metric calculations are performed internally on the switch using an on-board Network Processing Unit (NPU). Flow metrics are generated and optimized by correlating multiple frames with common attributes (frames from the same host port, for example).

The availability of a programmable NPU on the switches enables tremendous possibilities. New capabilities can be added by a non-disruptive software upgrade. For example, in the future, more metrics can be calculated, including vendor-specific extensions. As the size of the fabric grows, the resources for traffic inspection and metric calculation also grows as the NPU is integrated into the Cisco MDS 9000 product family.



Value for joint customers

Application service assurance

VirtualWisdom understands where the applications are deployed, their business importance, how they utilize infrastructure, and real-time service levels and changes. Cisco SAN Analytics enhances VirtualWisdom's ability to provide deep insight into the health, utilization, and performance of the storage infrastructure supporting applications without requiring agents or probes to be deployed.

Increased fabric visibility

The integrated-by-design architecture of Cisco SAN Analytics provides complete visibility into your fabrics. Traffic can be inspected at storage ports, ISL ports, or host ports, delivering always-on visibility and anomaly detection in near-real time.

Problem resolution and avoidance

VirtualWisdom automatically reduces noise associated with alarms, correlates and ranks potential root causes, tracks resolution status, and makes actionable recommendations on resolution.

Scalability

Cisco SAN Analytics natively scales up with the size of your SAN. Whether it is a small SAN comprising a single pair of switches or a large SAN with thousands of ports, you gain visibility as soon as end devices are connected.

Fabric balancing and capacity management

VirtualWisdom enables customers to proactively optimize their infrastructures. The Cisco SAN Analytics integration with VirtualWisdom provides the monitoring data to forecast storage port capacity, detect multipathing issues, and provide optimal queue depth settings for hosts.

Affordability

Data collection is integrated into the switch, which makes it extremely affordable to enable traffic inspection, resulting in significant CapEx savings for customers.

Ease of deployment

No external probe or TAP hardware is required for traffic inspection or metric calculations. Metric streaming is enabled by a single command within seconds, with no downtime.

About the Cisco MDS 9000 product line

Cisco has been on the frontline in the storage networking industry since the inception of Cisco MDS 9000 switch family in 2002. Customers have benefitted by unbeatable investment protection and many of the industry's first offerings, such as hard and smart zoning, VSANs, RESTful APIs, slow drain device detection and recovery, etc. Now, the hardware and software innovations on the Cisco MDS 9000 switch family offer industry's first native solution to provide visibility into your SCSI and NVMe workloads over a Fibre Channel fabric.

About Virtual Instruments

Virtual Instruments delivers the industry's only real-time AIOps platform for mission-critical IT infrastructure – from the data center to the public cloud. The VirtualWisdom and WorkloadWisdom® platforms provide unprecedented visibility into the performance, health, and utilization of IT infrastructure – empowering our customers to guarantee the performance and availability of their mission critical applications and to proactively prevent application slowdowns and outages.

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