Cisco Nexus Dashboard

Contents

Cisco Nexus® Dashboard transforms data-center and cloud network operations with simplicity, automation, and analytics.

Product overview

In this era of digital transformation and business resiliency, continuous innovation is critical for organizations to succeed, and experiencing downtime along the way is not an option. Users increasingly demand more features, better usability, reliability, and environmental sustainability from the applications they use.

The network plays a huge role in meeting such demands, and provisioning reliable data-center and cloud-networking services as fast as possible, when and where organizations need it, is a must. However, network infrastructure management is becoming more complex, diverse, and distributed, with multiple configuration points, monitoring tools, and vast amounts of data generated every second (Figure 1).

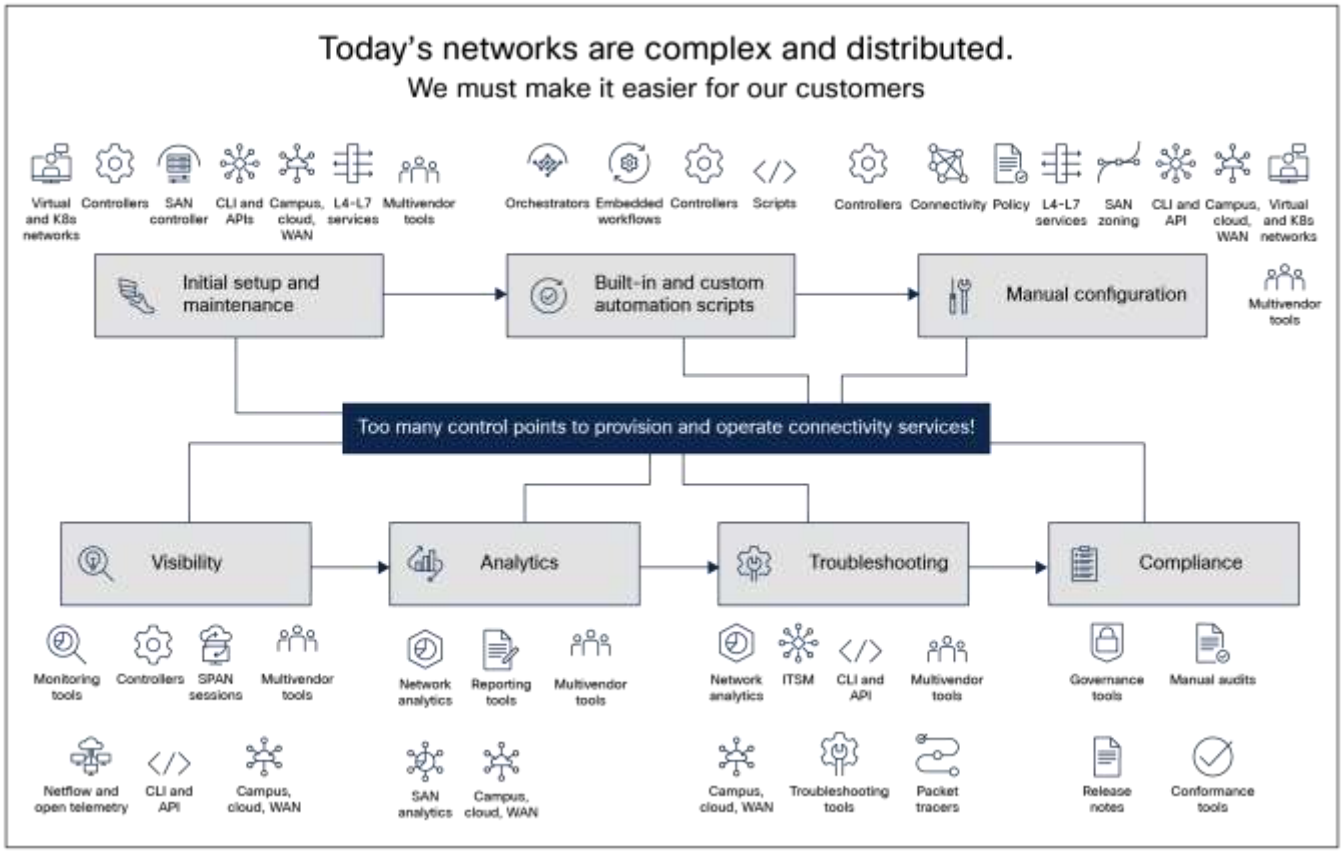

Figure 1.
Network complexity in a hyper-diverse and hyper-distributed world

Having an inconsistent way of configuring, provisioning, and operating the network often leads to human errors, potential security holes, and a reactive break-then-fix model that commonly increases downtime due to manual correlation and endless finger-pointing between teams.

Included with every Cisco Nexus 9000 switch tiered licensing purchase, Cisco Nexus Dashboard provides a single focal point to unite the disparate network configurations and views of multiple switches, data centers, and clouds (Figure 2).

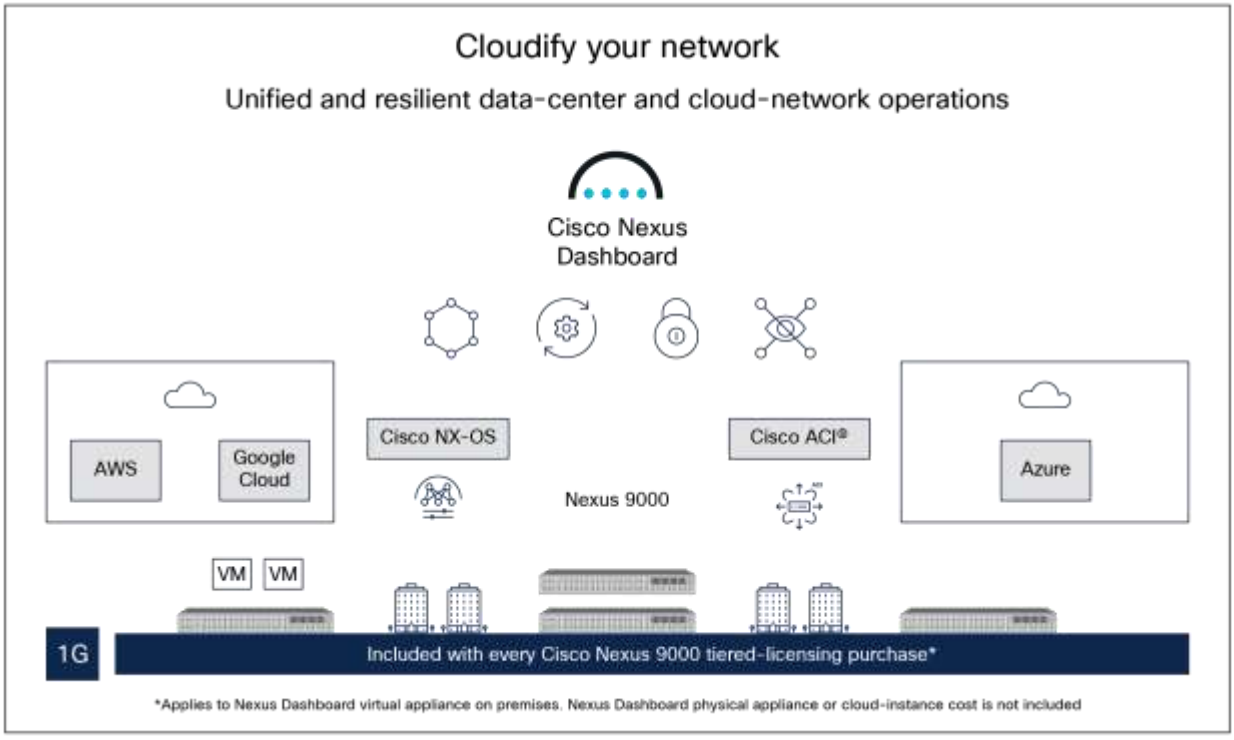

Figure 2.
Cisco Nexus Dashboard: powering automation and analytics with a unified, agile, and sustainable networking platform

By providing a single point of management that empowers users to provision and operate their networks across different switches, fabrics and locations, Cisco Nexus Dashboard is evolving to become one of the simplest ways to provision, monitor, and manage data-center and cloud networks.

Cisco Nexus Dashboard provides multiple services (Figure 3) that bring the one of the best of cloud-operational models to your networks, whether Cisco® Application Centric Infrastructure (Cisco ACI®), Cisco NX-OS (through the Cisco Nexus Dashboard Fabric Controller service and/or running in standalone mode), or a Cisco Cloud Network Controller running in a public cloud provider environment.

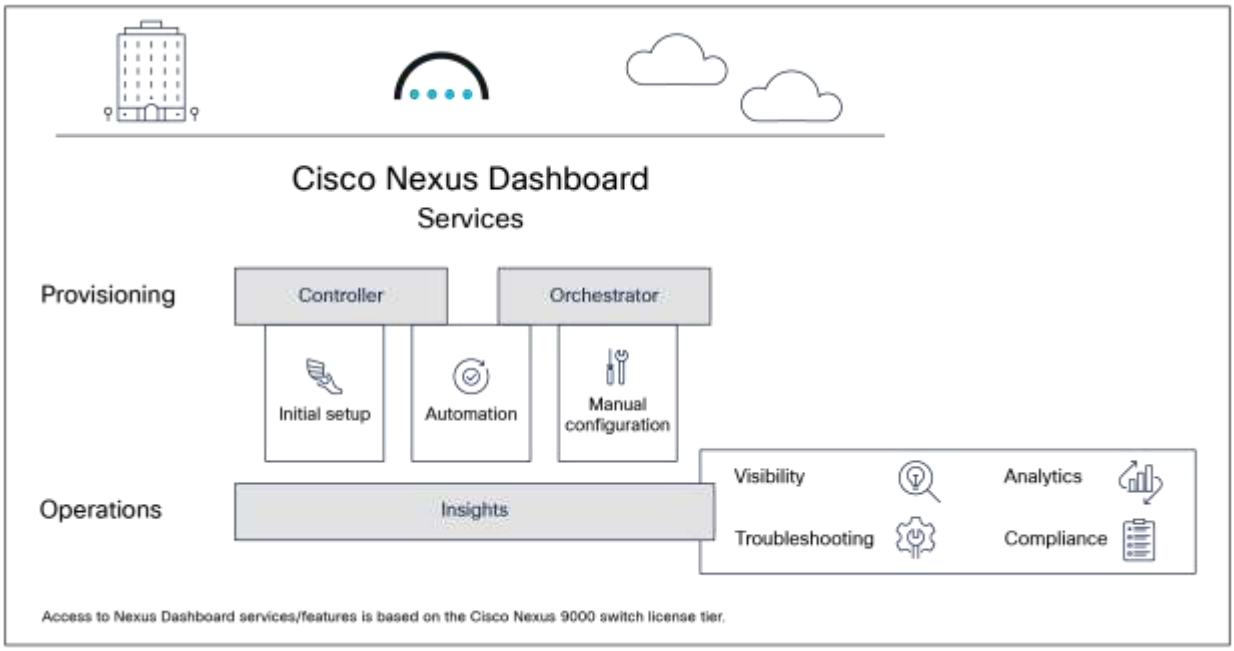

Figure 3.
Cisco Nexus Dashboard platform

With Cisco Nexus Dashboard, you get a unified operations view across all your fabrics and clouds and the services they consume. It scales out based on the size and number of fabrics and the operational services used to manage them.

The Cisco Nexus Dashboard Admin Console (Figure 4) informs the operator of the health of the various clusters, fabrics, clouds, and infrastructure services to quickly detect issues and their root cause, allowing users to toggle between the different Cisco Nexus Dashboard services as needed.

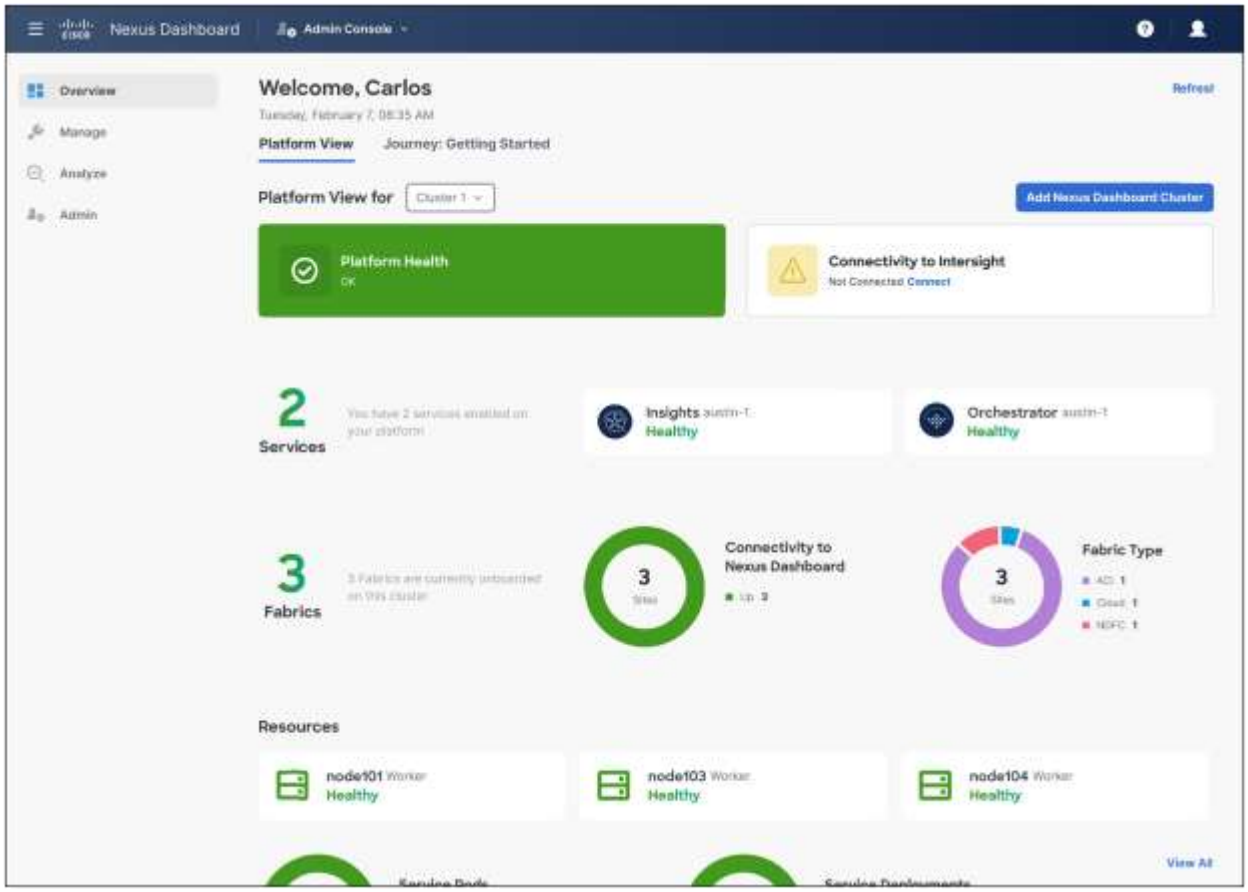

Figure 4.
Cisco Nexus Dashboard Admin Console

Operational infrastructure standardization and toolchain unification directly lead to operational excellence and savings and free up resources for business innovation.

Cisco Nexus Dashboard services

- **Cisco Nexus Dashboard Fabric Controller**, Cisco Nexus Dashboard Orchestrator, and Cisco Nexus Dashboard Insights services are being integrated into the Cisco Nexus Dashboard as native services as part of simplifying the overall consumption experience for our customers. Cisco Nexus Dashboard Fabric Controller (NDFC) consolidates management for multiple NX-OS-based switches, bringing automation and monitoring for LAN, EVPN VXLAN, and SAN fabrics. Simply choose an operational mode (LAN, SAN), discover new and/or existing switches, and leverage the benefits of Zero-Touch Provisioning (ZTP), fabric monitoring, backup, faster provisioning and upgrades, and much more. NDFC supports Cisco (including Nexus, Catalyst®, and ASR routers) and third-party devices.

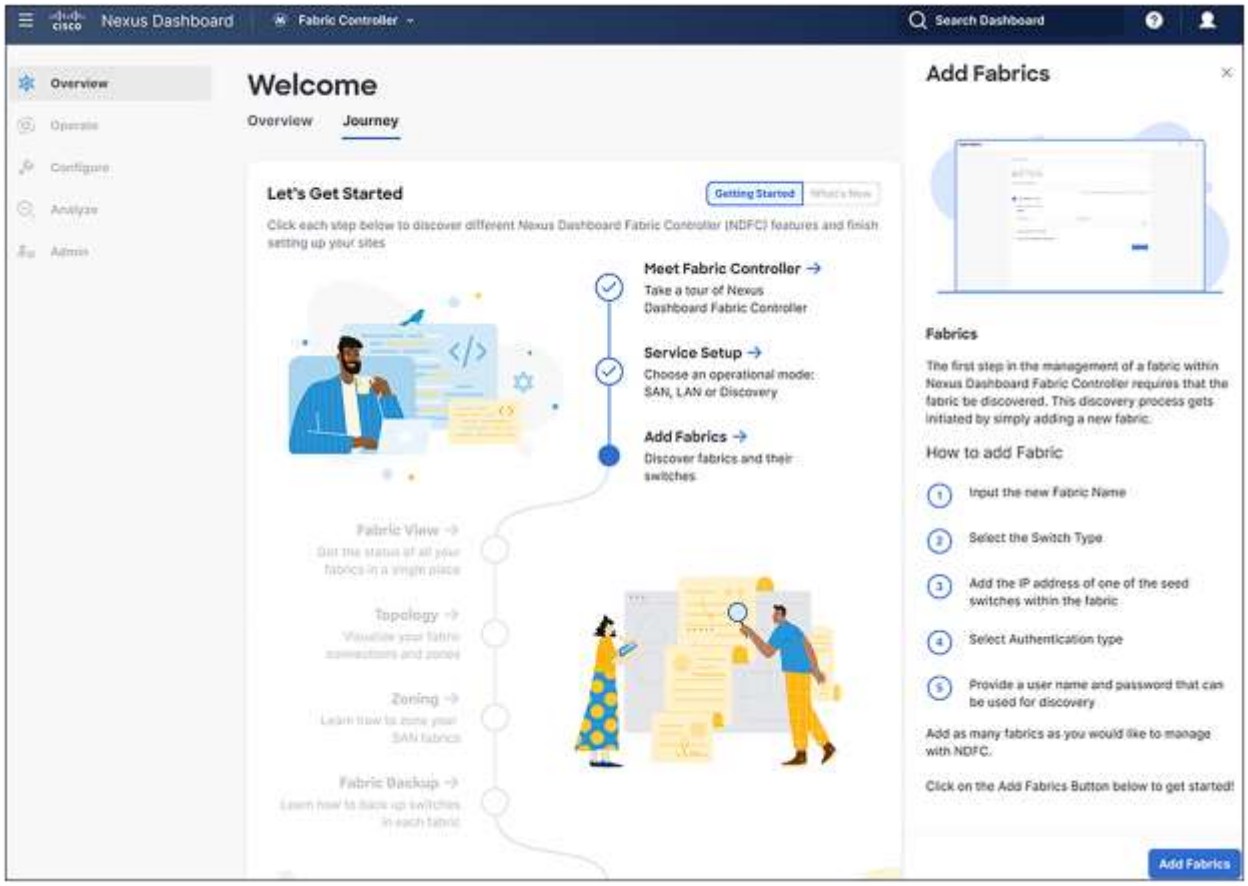

Figure 5.
Cisco Nexus Dashboard Fabric Controller consolidates management and automation for Cisco NX-OS LAN and SAN networks

- **Cisco Nexus Dashboard Orchestrator** allows operators to easily interconnect fabrics and/or clouds over any routed network, facilitating data-center and cloud migrations, as well as network extension across fabrics. Organizations can also centralize network and policy configurations and set up connectivity at scale. Besides rendering configurations defined in the template(s) to the local data center or cloud controller, it enables separation of fault domains, federation of data-center and cloud networks, and business resiliency at a global scale. Nexus Dashboard Orchestrator also enables end-to-end change-management workflows, centralized fabric management and upgrades, multicloud/hybrid-cloud connectivity, normalized segmentation, and security policies across the data center, SD-WAN, and enterprise branch and campus networks. For example, the SD-WAN integration provides application-aware SLA-based routing (policy-based path selection and QoS treatment) in the SD-WAN infrastructure used for interconnecting fabrics.

Figure 6.
Cisco Nexus Dashboard Orchestrator automates fabric interconnect sand centralizes network configurations across Cisco ACI, Cisco NDFC, and cloud networks (through Cisco Cloud Network Controller)

- **Cisco Nexus Dashboard Insights** allows operators to minimize downtime by turning hardware and software telemetry into insights (including anomalies and advisories) to identify potential issues and recommendations to fix them, gathering years of experience under a single network-operations platform. It can also take advantage of its analytics to learn more about sustainability, compliance, changes, and traffic behavior (including flow records, drop, congestion, latency, AI/ML RoCEv2, and more). It also minimizes risk by providing pre- and post-upgrade assistance and can enhance visibility by integrating tools from vendors such as VMware, Splunk, ServiceNow, Panduit, and many more. It incorporates a set of advanced alerting, baselining, correlation, and forecasting algorithms to provide a deep understanding into the behavior of the network. The Insights service and AppDynamics® are tightly integrated to pinpoint exactly where and when an application issue originated from a network perspective.

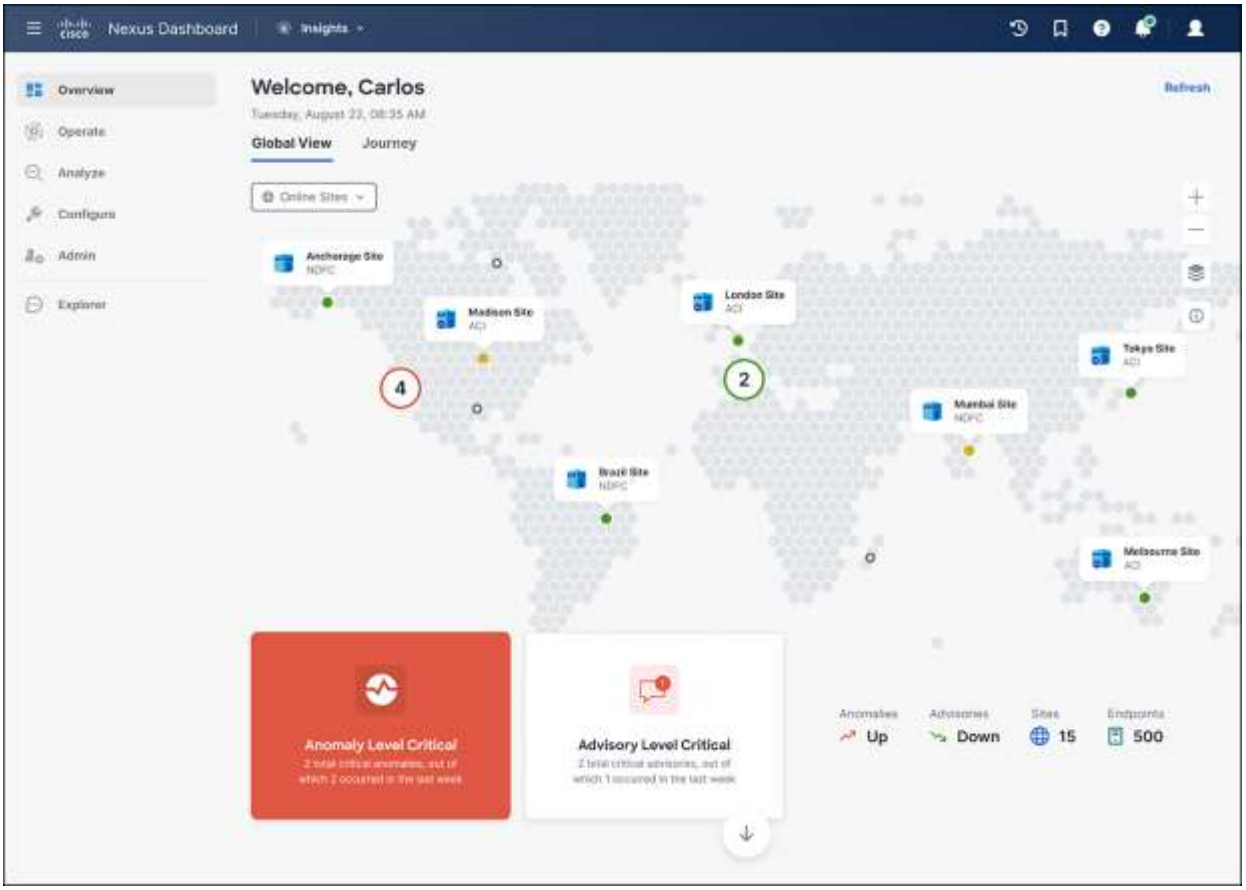

Figure 7.
Cisco Nexus Dashboard Insights monitors network health across Cisco ACI, Cisco NX-OS, and cloud networks

- **Third-party applications:** Cisco Nexus Dashboard offers an open API model with a rich suite of services for third-party developers to build applications. REST APIs allow third-party tools to authenticate and integrate with key services such as Nexus Dashboard Insights and Nexus Dashboard Orchestrator. Currently supported third-party integrations in the Nexus Dashboard ecosystem include ServiceNow ITSM/ITOM, Splunk SIEM, HashiCorp Terraform, and Red Hat Ansible.

Features and benefits

Table 1. Features and benefits

Feature	Benefit
Single Sign-On (SSO)	Seamless user experience while using Cisco Nexus Dashboard Fabric Controller, Insights, Data Broker, or Orchestrator within one or multiple Nexus Dashboard clusters by integrating LDAP, Radius, or other remote authentication services.
Multifactor authentication	Reduce risk of static passwords and increase security with DUO supported multifactor authentication
Unified operations platform	Clustered, highly available, and scale-out platform infrastructure that includes all services (Insights, Orchestrator, and Fabric Controller) in a single software image* Minimizes maintenance and lifecycle management vs. siloed operations infrastructure

Feature	Benefit
Single pane of glass to manage the operations infrastructure	A single pane of glass to manage Cisco Nexus Dashboard services and infrastructure
Multi-Cluster support	With Cisco Nexus Dashboard, operators seamlessly consume services they have access to through a single portal, even if they are running on different Nexus Dashboard clusters.
Physical, virtual, and cloud form factors	Deploy Cisco Nexus Dashboard in any form factor—physical, virtual, or cloud*[1]
Cloud-site onboarding	Onboard and manage multicloud environments with site onboarding for Amazon AWS, Microsoft Azure, and Google Cloud (requires Cisco Cloud Network Controller)
Cisco Intersight integration	Integrate to Cisco's cloud operation platform to have access to features like Connected Technical Assistance Center (TAC), Sustainability Energy Sources, advisory updates and many others.
Air-gap support	Customers who can't connect to the internet can utilize Insights' advisory features to better identify risks to their infrastructure (including PSIRTs, defects, EoX notices, and field notices).

Prominent features

Seamless operator experience powered by Cisco Nexus Dashboard

Too often the network operations team spends most of its time gathering troubleshooting data to triage and root cause an issue. The burden of tying together siloed insights from a fragmented operational toolkit often lies with the operations team. As the company's data-center footprint extends from the on-premises data center to the cloud, and as modern application architectures become the de-facto standard, the operations team needs a unified operations toolchain with a seamless user experience to maintain and operate such complex environments.

Cisco Nexus Dashboard unifies these disparate toolsets and experiences for the operations teams to consume the rich and powerful capabilities of day-2 operations solutions and executes multi-fabric policies from a single pane of glass. Unnecessary handoffs between toolchains and dealing with multiple portals and credentials to get to troubleshooting data and insights have become a thing of the past. Cisco Nexus Dashboard offers a powerful and rich set of capabilities, such as:

[1] Only Nexus Dashboard Orchestrator service is currently available on Cisco Nexus Dashboard cloud form factor.

* Single software image available in Nexus Dashboard 3.1 and later.

- **Single Sign-On (SSO):** SSO powers the frictionless interaction between one or multiple Cisco Nexus Dashboard clusters and their hosted services. The operator logs in once and is able to switch seamlessly between services and also site controllers such as Cisco APIC, Cisco Cloud Network Controller, or Nexus Dashboard Fabric Controller.
- **Unified operations platform:** The Cisco Nexus Dashboard platform is a powerful unified platform capable of scaling out horizontally to accommodate application needs. With a modern microservices infrastructure services stack on a clustered architecture, the same underlying platform can be used to cohost configuration automation capabilities (through Controller and/or Orchestrator) and telemetry/analytics (through Insights), reducing the burden of underlying software and hardware lifecycle maintenance.
- **Sustainability:** Nexus Dashboard Insights provides detailed reports on power consumption, energy sources, and emission rates for your fabrics based on location. Additional integrations with leading power-management vendors such as Panduit deliver new sustainability insights to enable our customers to gain real-time and historical insights into the power consumption of the IT equipment in their data center and estimate the energy footprint of their operations.

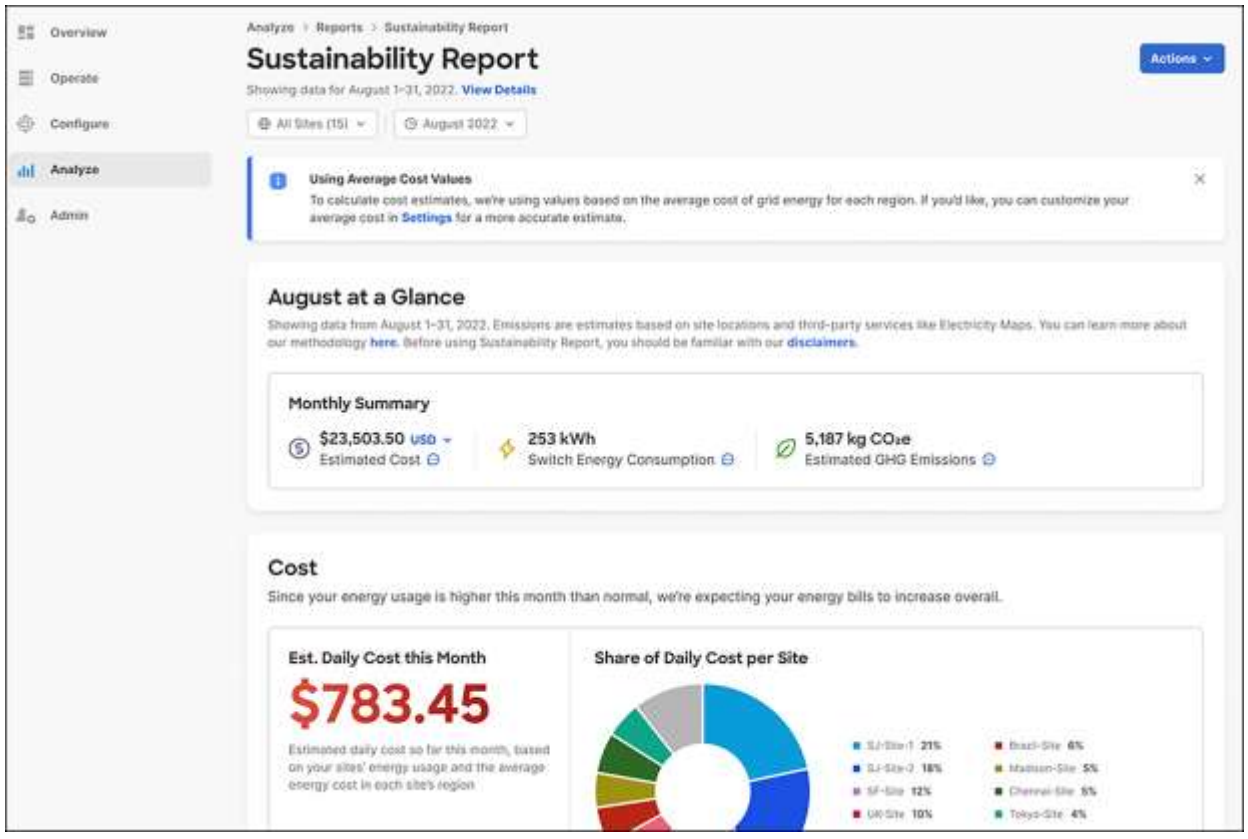

Figure 8.
Cisco Nexus Dashboard Insights' Sustainability Report provides a persona-based dashboard giving RBAC-based access to the different services and sections within the Nexus Dashboard platform

- **Common infrastructure services:** Cisco Nexus Dashboard provides a host of common infrastructure services, such as common site onboarding, authentication domains, Role-Based Access Control (RBAC), notification services, and API services.
- **Flexible deployment options:** Cisco Nexus Dashboard portfolio comprises physical, virtual, and cloud form factors, giving customers unprecedented flexibility while deploying their operations infrastructure and at the same time ensuring a common and unified operator experience through a single pane of glass.
- **Programmable infrastructure:** Third-party automation tools are critical to improving reporting workflows and responding to issues encountered by distributed workloads. Cisco Nexus Dashboard has built-in integrations with many third-party services such as ServiceNow, one of the most prevalent IT service management platforms. With the ServiceNow integrations, NetOps and DevOps teams can open and track tickets from within Nexus Dashboard. From one portal, operations teams get visibility into the status of open tickets, resulting in the automation of troubleshooting for faster resolutions across fabrics.
- **SR-MPLS with Nexus Dashboard Orchestrator:** With Cisco Nexus Dashboard Orchestrator, SR-MPLS policies can be centrally automated across 5G telco cloud fabrics (central, regional, and edge data centers). Cisco Nexus Dashboard with Insights and Orchestrator services is the most comprehensive way to automate distributed data centers—overcoming the challenges of managing the infrastructure, applications, and data sources distributed over disparate locations.

With these services integrated in Cisco Nexus Dashboard, NetOps teams can achieve command and control over global network fabrics, optimizing performance and attaining insights into data-center and cloud operations.

Platform support

For detailed platform and compatibility support, refer to: https://www.cisco.com/c/dam/en/us/td/docs/Website/datacenter/day2ops/index.html.

Table 2. Platform support

Cisco Nexus Dashboard	Form factor	Maximum Cluster scale*	Sites supported	Services/Integrations supported
Release 2.2	Physical, virtual, and cloud form factor in cluster	Up to 7 physical Up to 9 virtual	Cisco ACI, NDFC, public cloud	Cisco Nexus Dashboard Orchestrator (NDO), Nexus Dashboard Insights, ServiceNow, VMware vCenter
Release 2.3	Physical, virtual, and cloud form factor in cluster	Up to 7 physical Up to 9 virtual	Cisco ACI, NDFC, public cloud	Cisco Nexus Dashboard Orchestrator (NDO), Nexus Dashboard Insights, ServiceNow, VMware vCenter, AppDynamics, DNS
Release 3.0	Physical, virtual, and cloud form factor in cluster	Up to 7 physical Up to 9 virtual	ACI, NDFC, Public Cloud	Cisco Nexus Dashboard Orchestrator (NDO), Nexus Dashboard Insights, Nexus Dashboard Fabric Controller (NDFC), ServiceNow, VMware vCenter, AppDynamics, DNS

Cisco Nexus Dashboard	Form factor	Maximum Cluster scale*	Sites supported	Services/Integrations supported
Release 3.1	Physical, virtual, and cloud form factor in cluster	Up to 7 physical Up to 9 virtual	ACI, NDFC, NX-OS (standalone), Public Cloud	Cisco Nexus Dashboard Orchestrator (NDO), Nexus Dashboard Insights, Nexus Dashboard Fabric Controller (NDFC), VMware vCenter, AppDynamics, DNS, Panduit

*Active nodes in cluster. Up to 2 physical standby nodes may be added

For exact application versions and services co-hosting requirements, please refer to the compatibility matrix.

Licensing

Cisco Nexus Dashboard software does not require an additional license and it is included with all Cisco Nexus 9000 switch tiered-license purchases. Service and feature access is based on the purchased licensing tier. Nexus Dashboard Fabric Controller is offered as part of Cisco Data Center Networking (DCN) Essentials. Nexus Dashboard Orchestrator is offered as part of DCN Advantage. Select Cisco Nexus Dashboard Insights features are available in DCN Essentials and DCN Advantage licensing tiers. Previously only DCN Premier customers could access Cisco Nexus Dashboard Insights features. This change allows all Cisco Nexus customers to access select Cisco Nexus Dashboard Insights features and realize additional use cases and value for each tier.

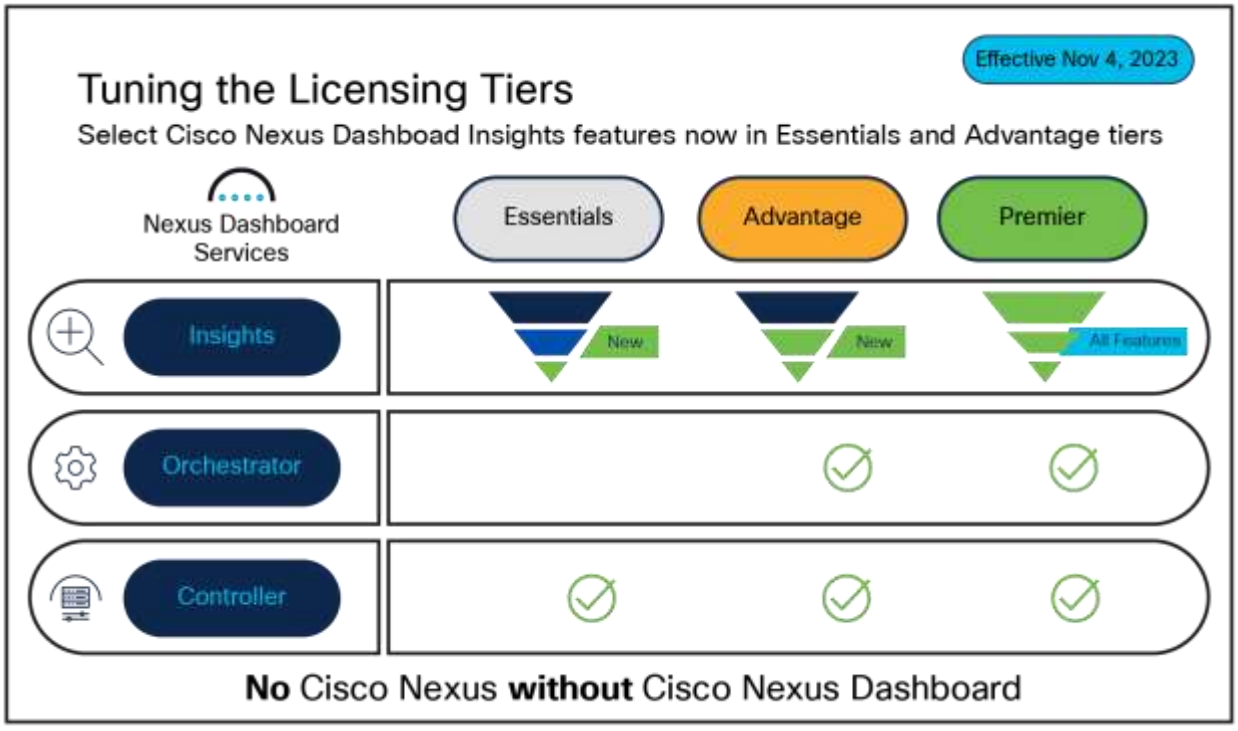

Figure 9.
Tuning the Data Center Networking (DCN) licensing tiers

For a guide to Cisco Nexus Dashboard ordering, please refer to the ordering guide.

Licensing: There are no additional licensing requirements for Cisco Nexus Dashboard. For a guide to ordering, please refer to the ordering guide.

Product specifications

Please refer to the sizing guide for physical and virtual cluster size guidelines.

Table 3. ND-CLUSTER-L4 (based on Cisco UCS M6 Server) – Cisco Nexus Dashboard platform cluster hardware specifications

Hardware specifications	Cisco Nexus Dashboard platform cluster node specifications
Memory	256 GB
Processors	1
Hard disk	4* 2.4 TB each = 9.6 TB total
SSD	960 GB
NVMe	1.6 TB
Power supply	1050 Watts 1600 Watts
Software	nd-dk9.3.1.1x.iso

Table 4. Virtual form factor requirements

Hardware specifications	Cisco Nexus Dashboard virtual node specifications
Memory	64 G
Processors	16 vCPUs
Hard disk	550 G application nodes (1536 G SSD/NVME required for Insights)
SSD or NVMe	3 TB for data nodes only
Software	nd-dk9.3.1.1x.qcow2 (KVM) nd-dk9.3.1.1x.ova (VMware ESXi 6.5/7/8)

Table 5. Amazon AWS cloud form factor requirements per node of Cisco Nexus Dashboard

AWS native resources	Cisco Nexus Dashboard cloud node specifications
Amazon EC2 Instance Type	m5.4xlarge (recommended), m4.4xlarge
Amazon Elastic Block Store (EBS)	100G gp2 SSD, 300G gp2 SSD
Amazon Simple Storage Service (S3)	Standard S3 storage
Marketplace link	https://aws.amazon.com/marketplace/pp/prodview-agdixxd5lgi6q

Table 6. Microsoft Azure cloud form factor requirements per node of Cisco Nexus Dashboard

Microsoft Azure resource name	Resource type	Minimum requirement
Instance type	Compute	Standard_D16s_v3
Azure management disk	Storage	OS disk 50 GB
Azure data disk	Storage	Data disk [250/500 GB]
Virtual networks	Network	2
Static public IP addresses	Network	3
Total public IP addresses (static public IP addresses and dynamic public IP addresses)	Network	3
Network security groups	Network	3
Application security groups	Network	3
Application gateways	Network	1
Virtual machines	Compute	3
Marketplace link	https://azuremarketplace.microsoft.com/en-us/marketplace/apps/cisco.cisco-nexus-dashboard-solution?tab=Overview	

Table 7. Supported site types and integrations on Cisco Nexus Dashboard

Cisco Nexus Dashboard	Cisco ACI	Cisco NDFC*	Cisco NX-OS (standalone)	Public cloud
Cisco Nexus Dashboard Release 2.2	Yes	Yes	No	Yes
Cisco Nexus Dashboard Release 2.3	Yes	Yes	No	Yes
Cisco Nexus Dashboard Release 3.0	Yes	Yes	No	Yes
Cisco Nexus Dashboard Release 3.1	Yes	Yes	Yes	Yes
Insights Release 6.1 on Nexus Dashboard 2.X	Yes	No	No	No
Insights Release 6.2 on Nexus Dashboard 2.X	Yes	Yes	No	No
Insights Release 6.3 on Nexus Dashboard 3.0	Yes	Yes	No	No
Insights on Nexus Dashboard 3.1	Yes	Yes	Yes	No
Orchestrator 3.7(2) on Nexus Dashboard 2.X	Yes	Yes	No	Yes
Orchestrator 4.1(2) on Nexus Dashboard 2.X	Yes	Yes	No	Yes
Orchestrator 4.2 for Nexus Dashboard 3.0	Yes	Yes	No	Yes
Orchestrator for Nexus Dashboard 3.1	Yes	Yes	No	Yes

Cisco Nexus Dashboard	Cisco ACI	Cisco NDFC*	Cisco NX-OS (standalone)	Public cloud
VMware vCenter integration (onboarding)	Yes	Yes	Yes	No
ServiceNow, Splunk		All controllers		
HashiCorp Terraform, Red Hat Ansible				

* For Nexus Dashboard Fabric Controller details, please consult the corresponding data sheet.

For exact application versions and services co-hosting requirements, please refer to the compatibility matrix.

Table 8. Ordering information

Part number	Product description
ND-CLUSTER-L4	Cisco Nexus Dashboard platform cluster based on Cisco UCS M6 server
ND-NODE-L4=	Cisco Nexus Dashboard platform node based on Cisco UCS M6 server
ND-UNI-DK9-3.1	Cisco Nexus Dashboard software
ND-VIRTUAL	Cisco Nexus Dashboard virtual platform (OVA, KVM)

Table 9. Cisco Nexus Dashboard third-party ecosystem

Partner	Integration capability	Applications link
ServiceNow	Ticketing automation for Cisco Nexus Dashboard Insights anomalies and advisories, including the ability to filter specific categories and severity	Cisco Nexus Dashboard Insights App for ServiceNow Platform*
	ServiceNow incident visibility and management on Cisco Nexus Dashboard	ServiceNow App for Cisco Nexus Dashboard*
	Visibility into network and application entities and policies defined on the Cisco Nexus Dashboard Orchestrator and business service mapping	Cisco ACI/Nexus Dashboard Orchestrator App for ServiceNow Platform
Splunk	Real-time and historical monitoring (organization-specific KPIs and dashboards), troubleshooting, cross-tier correlation, and alerting automation for Cisco Nexus Dashboard Insights	Cisco Nexus Dashboard Insights App for Splunk Cisco Nexus Dashboard Insights Add-on for Splunk
HashiCorp Terraform	Terraform provider to support Cisco Nexus Dashboard Orchestrator Automation	Terraform Provider for Nexus Dashboard Orchestrator Automation
Red Hat Ansible	Ansible module to support Cisco Nexus Dashboard Orchestrator Automation	Ansible Collection for Nexus Dashboard Orchestrator Automation
VMware vCenter	Virtual Machine telemetry and health visibility	Cisco Nexus Dashboard Insights, Cisco Nexus Dashboard Fabric Controller integration
Panduit	Panduit iPDU monitoring for sustainability, energy consumption, cost and energy sources	Cisco Nexus Dashboard Insights integration

Warranty information

Cisco Nexus Dashboard platform clusters have a 90-day limited liability warranty.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to **information about key environmental sustainability topics** (mentioned in the "Environment sustainability" section of the CSR Report) are provided in the following table:

Table 10. Cisco Nexus Dashboard environmental sustainability

Sustainability topic	Reference
Information on product-material-content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE Compliance

Reference links to **product-specific environmental sustainability information** that is mentioned in relevant sections of this data sheet are provided in Table 11.

*Not available for all Nexus Dashboard/Nexus Dashboard Insights versions

Table 11. Cisco Nexus Dashboard environmental sustainability

Sustainability topic	Reference
General	
Eco-design compliance (EU ErP Lot, etc.)	Table AA. Product compliance
Environmental certifications (EPEAT, Energy Star, etc.)	Table BB. Product compliance or Platform features/benefits
Power	
Idle, typical, or max product power	Table CC. Product specifications
Hardware-enabled energy features	Table DD. Platform features/benefits
Software-enabled energy features	Table EE. Platform features/benefits
Power supply information	Table FF. Product specifications
Power calculator	Table GG. Product specifications
Material	
Unit weight	Table HH. Product specifications
System weight (product + packaging)	Table II. Product specifications
Recycled content	Table JJ. Product specifications

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Learn more

Power your digital operations transformation with Cisco Nexus Dashboard

Are your operations teams tasked with delivering security, uptime, and business continuity on a complex data center infrastructure? Do they have the right tools that provide proactive change management and precise troubleshooting information tied together in a unified, easy-to-consume user experience? Start powering the transformation of the networking operations teams by standardizing on the Cisco Nexus Dashboard experience. Meet and exceed critical business mandates of agility and availability as you operate your secure, intent-based data center from Cisco Nexus Dashboard.

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Support

As applicable, Cisco will provide support for the product as described here:
https://www.cisco.com/c/dam/en_us/about/doing_business/docs/cisco-software-support-service.pdf

Document history

Table 12. Document history

New or revised topic	Described in	Date
First draft		May 1, 2021
Second draft		May 12, 2021
Third draft		December 15, 2021
Fourth draft		March 14, 2022
Fifth draft		May 23, 2023

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