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Cisco's Network Assurance Tools Take Intent-Based Networking One Step Further

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IDC's Quick Take

Cisco has launched a set of enhanced management capabilities that provide users with deeper visibility into what's happening in their network and the ability to continuously verify the network is operating correctly. These network assurance tools are the latest addition to the company's ambitious strategy to deliver on the emerging industry vision of intent-based networking (IBN). While the initial functionality of these platform enhancements moves the needle when it comes to improved operational efficiency and automation, as machine learning and modeling technology (and other core functions) that underpin many of the more advanced features are further developed, they will prove even more valuable to enterprise IT.

Product Announcement Highlights

In June 2017, Cisco launched its vision for implementing IBN by using big data analytics, machine learning, and advanced automation software to monitor and control enterprise networks (for more on Cisco's IBN strategy, see IDC #US42930717). Cisco has branded this overhaul of network design and management the Digital Network Architecture (DNA). Initial components of Cisco DNA included a next-generation line of Catalyst 9000 Switches; SD-Access, which is a platform for automating access and segmentation policies for users and devices across the network; and Encrypted Traffic Analytics (ETA), which analyzes traffic packet metadata to sniff out threats, even if that traffic is encrypted. The assurance tools now announced at the company's Cisco Live Barcelona event are the latest additions to the DNA portfolio and one of the company's major releases since the IBN launch.

The two assurance products for Cisco DNA include Cisco DNA Center Assurance, which is deployed in enterprise and campus networks to provide visibility, management, and troubleshooting of network issues, and Cisco Meraki Wireless Health, which provides fine-grained network usage information in the company's cloud-based Meraki networking platform. To support these products, Cisco developed a custom graph database that ingests data from more than 100 sources to create a historical context of network usage and performance. Future releases of assurance products will provide deeper operational insights across these domains, plus visibility into and forecasting of network patterns in SD-WAN environments.

In the datacenter network, the launch of Cisco's Network Assurance Engine advances the company's IBN vision to augment its existing Cisco ACI and Cisco Tetration platforms. It uses mathematical models of the datacenter network to provide continuous verification of the environment's operations, model changes, provide details insights, and take automated corrective actions.

IDC's Point of View

Cisco's IBN strategy represents not just an overhaul of the company's datacenter and campus hardware (including the Nexus 9000 and Catalyst 9000 switches) and the associated network software but it's also the company's well-guided effort to use analytics and machine learning to help create a better software-based network management portfolio. Given the increased demands on the network in the coming years — as cloud usage continues to rise and IoT deployments ramp up — tooling that optimizes network performance, provides enhanced visibility, and automatically remediates issues will be valuable. IDC believes the promise of IBN is not complete unless customers are able to express the intent they have for their network and verify that it has been properly implemented.

DNA Center Assurance (Enterprise/Campus)

In enterprise and campus networks, DNA Center Assurance's guided remediation functionality, which suggests ways to troubleshoot issues, is an important step in helping to make Cisco's promise of an intuitive network a reality. Future releases will have enhanced functionality for predicting usage and automatically remediating issues (instead of just suggesting fixes), which could eliminate problems before they impact users. DNA Center Assurance can also monitor connectivity health for Apple iOS devices in the network, which is based on the partnership between Cisco and Apple that was first announced in 2015.

Customers get integrated visibility of their campus networks across multiple sites, a two-week detailed history of network activity for investigating exactly where and why problems occurred, and the ability to isolate components that contributed to the root cause. The Meraki Wireless Health product allows customers to zero in on specific access points to analyze which users and type of traffic may be having issues. Cisco will continue to develop the functionality of these products and provide deeper integration across other components of IBN, including the designing of policies and configuring them across the network.

Network Assurance Engine (Datacenter)

In the datacenter, Cisco has introduced the Cisco Network Assurance Engine. Its purpose is to provide intent assurance — the confirmation that the datacenter network is doing exactly what the network operator intends it to do. Based on mathematical models of the network, Network Assurance Engine continuously verifies and validates the entire network, ensuring that it is operating correctly and faithfully adhering to operator intent.

There are two primary use cases for Cisco Network Assurance Engine in the datacenter:

- **Predicting the impact of changes (changes either to intent or unplanned changes/events on the network).** The benefits that can accrue from being able to predict these changes are operational agility (operators can make changes with greater foresight and confidence), minimized risk of network failures caused by human error, and accelerated migrations.
- **Proactively verifying networkwide behavior.** The benefits here are that operators can ensure the presence of essential connectivity, proactively eliminate potential network outages or vulnerabilities before they impact the business, and enhance service-level agreements.
- **Ensuring network security policies and compliance.** The benefits are to reduce security risk and achieve continuous and provable compliance with business rules.

Meanwhile, Cisco's announcement comes as enterprise IT staff are working to gain visibility into multicloud infrastructures. While traditional network assurance suppliers are stepping up to buyer demand with updates, Cisco's new capabilities suggests a fundamental change in how enterprises buy and build platforms for network assurance. Competitors and partners will need to respond with revised messaging around their value proposition and how they complement (or compete) with each other and with continued innovation, especially for those with multivendor network infrastructures. As Cisco continues to develop assurance tools that integrate across various segments of the network (from the datacenter to the campus and out to the branch and cloud) and incorporate additional sources of data (such as from AppD), they will increasingly become enterprisewide IT operations platforms.

These new capabilities represent Cisco's continued efforts to transition to a software and recurring revenue-based portfolio. DNA Center Assurance will be available via the Cisco ONE subscription package, and Meraki's assurance features will be available later this quarter as part of the standard Meraki software subscription.

The need to provide detailed insight and analytics into what's happening on the network continues to grow rapidly, across all network domains — across service providers, in enterprise datacenters, and now in campus and edge environments. Cisco's new assurance tools go a step beyond visibility to ensure that polices and "intent" created for the network can be implemented in a flexible and dynamic manner. IDC believes that, as these platforms mature, they will gain additional functionality toward full-blown network automation, directionally a key element of all IT organizations embracing digital transformation.

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