



It's in the DNA: Cisco Unveils Architecture to Enable End-to-End Digital Transformation

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IDC's Quick Take

On March 2, 2016, [Cisco unveiled its Digital Network Architecture \(DNA\)](#), which it describes as "an open, extensible and software driven architecture for digital business." Cisco DNA seeks to build upon the ethos of a policy-driven and software-defined approach to unify and "automate" network infrastructure in its ability to support end-to-end digital transformation — from "campus to branch, wired to wireless, core to edge." And in that context, Cisco intends to raise the profile of the network from a platform for connectivity to one that provides a foundation for automation, policy-driven security, and insightful analytics that can provide several business benefits.

Product Announcement Highlights

There are multiple elements to Cisco DNA. First is that the Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM), the enterprise software controller announced earlier, is now available and shipping. In addition, APIC-EM has been fortified with new features such as Cisco Plug and Play automation software that promises to eliminate the need for any staging for preconfiguration or truck rolls to remote locations. The Plug and Play feature resides on either Cisco routers or switches and communicates directly with the controller for faster deployment of services. The second new APIC-EM feature is EasyQoS, which dynamically updates network QoS settings based on application policies. Essentially, APIC-EM is the backbone of Cisco's enterprise SDN solution and one that will provide the core automation capabilities that Cisco intends to continue to build upon.

The second element is Cisco Intelligent WAN (IWAN) Automation Services built on APIC-EM. This service automates the deployment and management of Cisco's IWAN on the Cisco enterprise routing platforms, eliminating manual configuration tasks and automating Cisco "best practices" for application prioritization, path selection, and caching. With IT's focus on improving user access and experience to cloud/SaaS applications, especially from remote/branch locations, evangelization around SD-WAN architectures has begun in earnest, and Cisco's IWAN capabilities are a step forward in that direction.

The third element relates to virtualization functionality, specifically for network and security services in the enterprise branch. This element, termed by Cisco as Enterprise NFV, consists of an API-enabled network OS, Evolved Cisco IOS XE, that is designed for programmability, controller-based automation, and serviceability. While only supporting select models today, Cisco promises that Evolved Cisco IOS XE will be extended throughout the switching and routing portfolio. A compelling aspect of the new OS is its inclusion of Enterprise NFV covering the entire networking stack. Interestingly, this is the most open element of the architecture, with the ability to be deployed on a Cisco hardware platform, Cisco server platform (UCS E-Series on ISR 4000 and UCS C-Series), or any x86-based server platform.

The fourth and final element is Cisco Connected Mobile Experience (CMX) Cloud. CMX is Cisco's engine for WiFi-enabled location-based services (LBS), now providing Presence Analytics and Connect through a

SaaS model. Integration into the DNA should allow for more automated customer engagement programs over the network and more efficient usage of the insights generated by this engagement. There is significant potential for the insights generated by CMX in DNA environments to create a feedback loop that effects changes on the network.

IDC's Point of View

This is a timely introduction of key architectural changes from Cisco, as enterprises grapple with supporting digital transformation of their businesses. As business models become more closely intertwined with IT-enabled applications and infrastructure — and thus become fully dependent on the network — it is critical to achieve greater convergence and automation of networking elements, having them be able to "talk to each other" from end to end. The automation and programmability baked into APIC-EM shows promise that it will be a tool that can help get network managers out of "keeping the lights on" thinking and into more proactive collaboration with the lines of business in terms of digitizing the business.

For Cisco, DNA establishes leadership in the enterprise (campus) SDN and NFV space. Despite adherence to many of the tenets of these technologies, most of the elements offered in many vendor solutions (including Cisco's) have been closed platforms. This provides an opportunity for Cisco to leverage its proven enterprise networking technologies in the context of an automated, programmable infrastructure that is now relatively open as well. Detractors will caution that this is potentially yet another strategy for vendor lock-in, but customers will get to evaluate the merits of continuity of their installed base, with a migration toward an open, virtualized environment.

Ultimately, Cisco DNA is a game changer, and one that will likely elicit a response from key infrastructure players and solution providers. Even though analysts, vendors, and early adopter end users have for years espoused the potential benefits of SDN and NFV-enabled agility for business transformation, there had not emerged an end-to-end solution built around automation and programmability. The true measure of success will be customer adoption, but at any rate, this moves the needle in the direction of the agile, software-defined enterprise.

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