Cisco Digital Network Architecture

BENEFITS

- Greater business agility with faster network services provisioning
- Lower costs with reduced network installation time
- Reduced risk with faster threat detection
- Investment protection with license portability and access to ongoing innovations

Transform Your Network for the Digital Age

Cisco® Digital Network Architecture (DNA) is an open, extensible, software-driven architecture that accelerates and simplifies your enterprise network operations. Cisco DNA frees your IT staff from time-consuming, repetitive network configuration tasks so they can focus instead on innovation that positively transforms your business. You finally have the flexibility to centrally manage your enterprise network, quickly provision new devices, and turn up network functions with a few clicks, all while lowering costs and reducing your risk.

Cisco DNA lets you do this using automation built on a software-defined network (SDN) controller, rich contextual analytics, network virtualization, and the limitless scalability of the cloud. Most Cisco routers, switches, and wireless systems shipping today support this architecture now or with a software update. And with Cisco ONE™ Software, you can continue to protect your investments and benefit from new architecture innovations that can be activated through software.

Why a Digital-Ready Network?

How does an open, software-driven network help you in business terms? It delivers network-based insights, automates processes, and protects against threats. For example, in the digital age, you can mine network analytics that reveal users' locations and behaviors. Analytics can tell you how customers move through your store or venue and how that's reflected in what they consume. Analytics can also tell you whether or not a building is occupied, so you can reduce you heating and lighting costs.

What makes all this possible is a fundamental transformation occurring in how networks are built and run:

- Closed and hardware-centric models are giving way to open, programmable, and software-centric ones.
- Manual, repetitive command-line-interface-driven management is being largely superseded by policy-based automation.

- Perimeter-based, reactive security has been supplanted by network-embedded, context-based security that reaches from the cloud to the enterprise edge.
- IT-centric analytics are morphing into business-centric analytics.

Cisco DNA reflects all these changes. With this architecture, business and IT can become far more nimble and respond to business conditions quicker and more intelligently.

> Normally we have to fight for 5 percent savings. We have to usually spend a great deal of money to get 5 percent savings.
>
> **— Blair Antcliffe**
> **Energy Engineer, UBC**

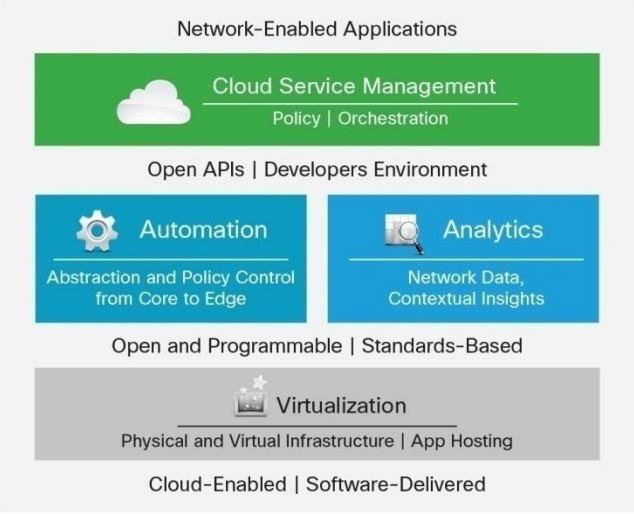
Speed and Simplicity to Meet Growing Demands

Traditional networks continue to face box-by-box deployment and management challenges. Provisioning, monitoring, and troubleshooting services are a painstakingly manual process. While compute cycles can be delivered in seconds, networking functions and services traditionally require weeks and sometimes months to deploy.

Traditional network architectures are unable to scale for the digital era. Cisco has reimagined our network architecture with the following characteristics:

- **Virtualization:** Network virtualization through the decoupling of hardware from software gives you the freedom to run services on any platform and to run third-party applications over the network.
- **Automation:** Controllers simplify the network through abstraction and automation and provide a platform for consistent policy enforcement. This speeds up application and service rollouts while reducing risk. IT staff gain the time to focus on business strategy instead of operations.
- **Analytics:** A digital-ready network can reveal rich contextual insights into users, applications, devices, and threats to help the business and IT make better decisions.
- **Cloud service management:** Cloud-based services provide fast service adoption with on-demand scale and support a broad partner ecosystem.

Figure 1. Cisco Digital Network Architecture



We've applied these characteristics to Cisco DNA technologies so you can move forward with building an open, extensible, and agile enterprise network. Table 1 describes many of the architectural innovations, and Figure 1 depicts the architecture.

Table 1. Cisco Digital Network Architecture Components and Innovations

Component	Description	Benefits
Cisco IOS®-XE Software	Enhanced operating system software for Cisco devices that supports programmability, controller-based automation, and serviceability.	Provides IT flexibility through programmability, network functions virtualization (NFV), and SDN-based automation.
Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM)	SDN controller that works with your existing network infrastructure to deliver policy-based automation.	Automates tasks, orchestrates workflows and policies, and simplifies operations.
Cisco Intelligent WAN (IWAN) App	Simplifies deployment of software-defined WAN (SD-WAN) for the branch.	Lets you build a rich and highly secure corporate WAN and deliver a great user experience.
Cisco Path Trace	An application that visually displays every element of the network path from your source to your destination using APIC-EM.	Can enable faster troubleshooting and reduce network downtime.
Cisco Plug and Play	When devices are plugged into the network, this feature automatically sends their location to APIC-EM. The controller then auto-configures the device to start communicating with the network.	Accelerates deployments and lowers costs (up to 79 percent).
Cisco Easy Quality of Service (EasyQoS)	Sets QoS policy across the network in minutes based on application priority. Automatically changes QoS policy when applications are no longer in use.	Delivers optimal application experience without the cost of manually tuning the network for application performance.
Cisco DNA Virtualization	Decouples software services, such as routing, switching, firewall, WAN optimization, and others, from underlying proprietary hardware. Virtualize the branch and campus with Enterprise NFV. Virtualize the network perimeter with Secure Agile Exchange.	Lets you quickly start up software instances of network functions wherever you need them in the network, without having to buy, deploy, and test proprietary hardware appliances.
Cisco Enterprise Network	Turns the network into an end-to-end sensor and enforcer that detects and stops sophisticated security threats. Uses Cisco Identity Services Engine (ISE) with Cisco TrustSec®, Cisco Stealthwatch®, and Cisco Umbrella™ Cloud Security.	The network detects and stops threats faster across all segments to better protect business assets.
Cisco CMX Cloud	Location-based service collects analytics on user behavior.	Gives you insights into users so you can better engage and serve customers.

Cisco DNA services are delivered through Cisco ONE™ Software, which provides simplified, high-value solutions with license portability and flexibility. You can start your journey today to a digital-ready network on our current portfolio of network equipment and then continue to adopt network innovations in the months and years ahead through the power of software.

Getting Started with Cisco DNA

Navigating your journey to a digital-ready network can be challenging without a guide. That's why Cisco has worked with IDC to develop a network capabilities roadmap that charts the different attributes networks will exhibit at each stage of the journey. This framework will help you understand where you are relative to your peers, plan where you want to be, and assess the benefits of moving from stage to stage. Once you are ready to get started, Cisco Services can help you create a strategic plan to achieve business objectives through technology while maintaining a stable, secure network during your transition. Learn More

Cisco DNA Promotions

Going digital has never been easier. Check out the latest promotions to help you get started on your journey to a digital-ready network.

http://www.cisco.com/c/dam/en/us/solutions/collateral/enterprise-networks/cisco-digital-network-architecture/dna-promotions-flyer.pdf

Customer Success Stories

Today, customers are winning against the competition with Cisco digital-ready networks. Take a look at the latest DNA customer case studies to learn how customers are deploying DNA solutions and creating new business value: http://www.cisco.com/c/en/us/about/case-studies-customer-success-stories.html.

Why Cisco?

Going digital takes thought and experience. For 30 years, Cisco has been committed to changing the way the world works, lives, plays, and learns. We have helped the world connect to the Internet; embrace voice, video, and data communications; and blend technology and business together in ways that many thought were impossible. Together with our partners, we have been able to help our clients innovate, manage market transitions, and turn technology into business advantage.

With our deep understanding of technology and relationships with IT, Cisco can help bring IT and the boardroom together to work effectively toward a joint solution. Using our Digital Network Architecture, we can help you create revenue opportunities, lower costs, reduce risks, and ensure regulatory compliance. And we can help you simplify your network and accelerate its response time to business needs.

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital® can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce capital expenditures. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. Learn more.

Next Steps

For more information, visit the Digital Network Architecture website at http://www.cisco.com/go/dna.

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