



Cisco Digital Network Architecture

Introducing a new era in networking with intent-based networking.

Intent-based networking is the difference between a network that needs continuous attention and one that simply understands what your organization needs and makes it happen. It's the difference between doing thousands of tasks manually and having an automated system that helps you focus on business goals.

Cisco® Digital Network Architecture (Cisco DNA™) is your team's bridge to an intent-based network. It is an open, extensible, software-driven architecture that accelerates and simplifies your enterprise network operations, while lowering costs and reducing your risk. Only Cisco provides a single network fabric that is powered by deep intelligence and integrated security to deliver automation and assurance across your entire organization at scale. Cisco DNA gives IT time back from time-consuming, repetitive network configuration tasks so you can focus on the innovation your business needs.

Cisco DNA automation and assurance are built on a Software-Defined Networking (SDN) controller, rich contextual analytics, network virtualization and the limitless scalability of the cloud.

This is an entirely new era of networking.

Most Cisco routers, switches and wireless systems shipping today support Cisco DNA now or with a software update. And with new software subscription offers to choose from—DNA Premier, DNA Advantage, and DNA Essentials—you can benefit from new innovations activated through software.

Benefits

- Achieve greater business agility with faster network services provisioning
- Lower costs with reduced network installation time and faster troubleshooting
- Reduce risk with faster threat detection
- Innovate faster by delivering differentiated experiences through contextual insights
- Protect investment with license portability and access to ongoing innovations
- Streamline IT processes and enhance application experiences with open platform APIs, adapters and SDKs



“Normally we have to fight for 5 percent savings, but with DNA we got it instantly.”

Blair Antcliffe
Energy Engineer, UBC

Why an intent-based network?

How does an intent-based network help you in business terms? It allows you to continuously align your network to your organization's needs. It delivers contextual network-based insights, automates processes and protects against threats. For example, it learns the performance needs of all your applications and services and continuously adapts end-to-end to achieve the required service quality. And, it automatically applies access policies between, users, applications and devices, consistently anywhere across the network. And, it understands operational compliance requirements and continuously verifies that golden software images and patches are applied.

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 platforms that integrate with applications, systems and domains beyond the network.
- 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.

- Simple network visibility is morphing to predictive and contextual analytics for users, devices, applications, things and the network at all points in time.

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.

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 reimaged our network architecture with the following characteristics:

- **Centralized management:** Design, provision, enable policy and assure network services through cloud-enabled, centralized management. Enable visibility of end-to-end network services for campus and branch environments, on-premises or in the cloud.

Getting started with Cisco DNA

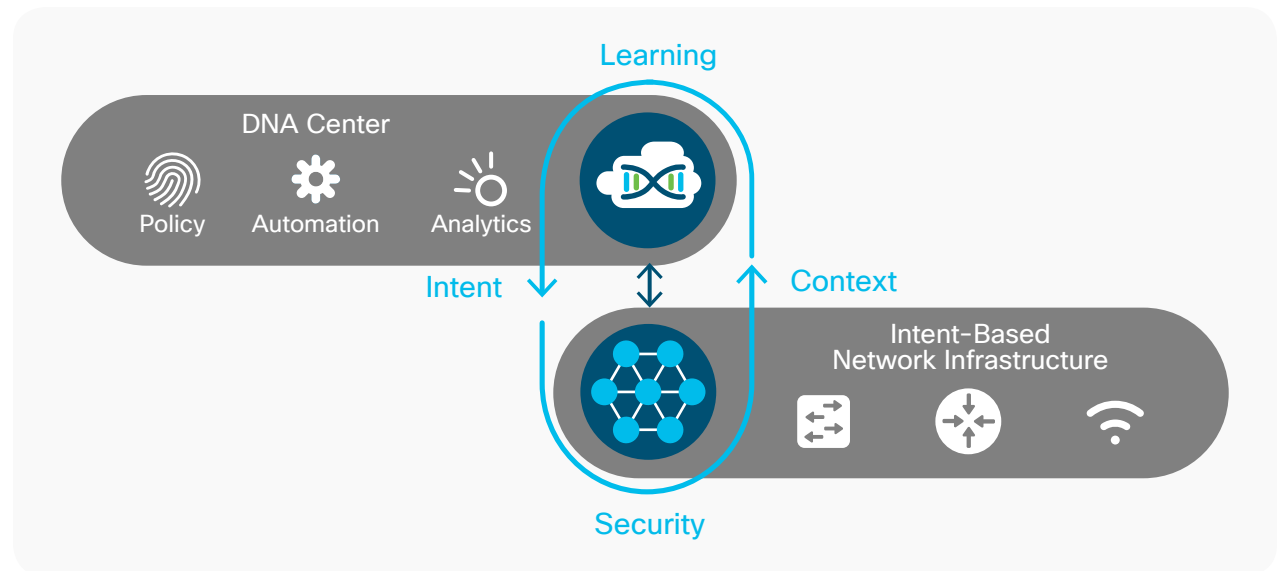
Navigating your journey to an intent-based network can be challenging without a guide. That's why Cisco has worked with IDC to develop a network capabilities roadmap that charts the different attributes networks will exhibit at each stage of the journey. This framework will help you understand where you are relative to your peers, plan where you want to be and assess the benefits of moving from stage to stage. [Learn more](#)

Cisco Services

No matter where customers are in their journey, Cisco and our partners offer services expertise to help customers accelerate their digital network transformation, from readiness assessments and scalable designs to automation tools and award-winning support. Our services help customers speed their deployments, reduce risk and complexity and provide business continuity as they refresh their network. [Learn more](#)

- **Automation:** Fully automate the network infrastructure based on one policy across the entire access network, acting as a single fabric, with Cisco SD-Access. Accelerate branch deployments with Cisco SD-WAN. Simplify and scale operations by automating day-to-day configuration, provisioning, and troubleshooting.
- **Assurance:** Proactively predict performance through machine learning to correlate user, device and application data for contextual business and operational insights. Identify issues and provide actionable insight to deliver better, more personalized experiences.
- **Security:** Mitigate threats with end-to-end network segmentation and enforce security policies across the network. Identify and mitigate threats and vulnerabilities with network analytics - even in encrypted traffic.
- **Virtualization:** Deploy network services in minutes on any platform - branch, colocation or public cloud - and connect users to applications with one seamless network.
- **Open platform:** Streamline IT operations, enable innovation and align to business intent by making the network open and extensible for integration with other systems and applications.

Figure 1. Cisco DNA architecture



We've applied these characteristics to our enterprise networking products and solutions (Table 1) so you can move forward with building an open, extensible, and agile network. Figure 1 depicts how DNA is a system that is constantly learning, adapting and protecting to deliver contextual insights and continuous support for business intent.

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.

[Learn more](#)

Customer success stories

Today, customers are winning against the competition with Cisco digital-ready networks. Take a look at the latest customer case studies to learn how customers are deploying Cisco DNA solutions and creating new business value.

[Learn more](#)

Table 1. Cisco Digital Network Architecture products and solutions

Product or solution	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 DNA Center™	A single dashboard for managing your enterprise network. Uses intuitive workflows to simplify provisioning of user access policies combined with advanced assurance capabilities. Provides open platform APIs, adapters and SDKs.	Makes it easy to design, provision, and monitor the network. Increases user satisfaction with a policy-driven onboarding experience and increases network uptime. Streamlines IT, integrates with other domains and supports 3 rd party vendor devices.
Cisco Software-Defined Access (SD-Access)	Secure end-to-end segmentation, automated user policy access and a single network fabric across wired, wireless and IoT environments.	Enables network access in minutes for any user or device to any application without compromising security.
Cisco SD-WAN	A cloud delivered architecture that manages your WAN and branches centrally to simplify and accelerate delivery of secure, flexible and rich services.	Delivers better user experiences for applications residing on-premise or in the cloud. Achieve greater agility and cost savings through easier deployments and transport independence.
Cisco DNA Security	Provides visibility by using the network as a sensor for real-time analysis and intelligence. Your network also enables you to have more granular control to enforce policy and contain threats across the network.	Reduce risk and protect your organization against threats – even in encrypted traffic. Gain 360-degree visibility through real-time analytics for deep intelligence across the network. Lower complexity with end-to-end security.

Why Cisco?

With our deep understanding of technology and relationships with IT, Cisco can help bring your IT and boardroom together to work effectively towards better outcomes for IT and the business. With Cisco DNA, we can help you create revenue opportunities, lower costs, reduce risks and ensure regulatory compliance. And we can help you simplify IT operations and accelerate the network's response to changing IT and business needs.

Together with our partners, we help you innovate, manage market transitions and turn technology into business advantage.

Next steps

For more information, visit the Digital Network Architecture website at:

<https://www.cisco.com/go/dna>

Product or solution	Description	Benefits
Cisco DNA Assurance	Provides rich contextual visibility into the user application experience with historical, real-time, and predictive insights across users, devices, applications, and the network. With real-time telemetry capabilities notifies of network conditions that require network operations attention.	Allows you to identify root causes and provides suggested remediation for faster troubleshooting. Integration with Cisco DNA Center provides an easy-to-use single dashboard with insights and drill-down capabilities. Machine learning continually improves network intelligence to predict problems before they occur.
Digital-ready infrastructure	Physical or virtual routing, switching and wireless products that serve as the foundation for Cisco DNA.	Robust infrastructure built from the ground up with Cisco DNA software capabilities in mind to move faster, more efficiently and more securely.

DNA Software

You can start your journey today to an intent-based network using your current portfolio of Cisco network equipment and then continue to adopt network innovations in the months and years ahead through the power of DNA software.

To activate DNA capabilities on Cisco routers, switches, and wireless products, you will need a DNA Center appliance and DNA software subscription licenses for each [router](#), [switch](#), and [wireless](#) device. You have a choice of three licensing tiers for each device: DNA Essentials, DNA Advantage, and DNA Premier.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#)