



# Cisco Digital Network Architecture



## What is Cisco® Digital Network Architecture (Cisco DNA™)?



Virtualization, automation, analytics, and cloud, in one architecture. The Cisco Digital Network Architecture (Cisco DNA) gives you an open, software-driven platform that integrates all these technologies. It enables business and IT and provides the roadmap to a digital-ready network so you can innovate more quickly, reduce costs, and lower risk with services that are easy to consume.

Introducing an entirely new era in networking.  
Constantly learning. Constantly adapting. Constantly protecting.  
The Network. Intuitive.



## Market drivers: Why do organizations require Cisco DNA?



Digitization is fueled by primary technology trends: mobility, the Internet of Things (IoT), cloud, and security. Only the network brings all these elements together to allow organizations to reach their full potential. Customers looking to digitize their business will need to evolve to a network that operates at digital speed:

- Speed for business data and insights that provide real-time and historical information for better decision making or for building new business models
- Speed for IT by simplifying the network and automating processes, enabling IT to quickly adapt to new business requirements while meeting service-level agreements
- Speed for security by quickly identifying threats through real-time networkwide visibility and rapid threat containment, while achieving sustainable compliance



## What are the primary principles of the architecture?



The following are the core principles of the architecture, which is designed to help businesses innovate more quickly, reduce cost and complexity, and lower risk:

- **Virtualization:** Cisco is virtualizing 30 years of networking innovation by decoupling software from hardware and giving customers the freedom to run Cisco and third-party services on any platform, as well as the flexibility to run applications over the network
- **Automation:** Using controllers and open APIs, Cisco is simplifying the network through abstraction and centralized policy enforcement that allows IT to focus on business intent and consistently apply configurations to improve service and keep operations consistently secure from the core to the edge
- **Analytics:** Cisco is exposing network data to deliver rich contextual insight into users, applications, devices, and threats to help the business and IT make better decisions
- **Cloud services management:** To provide IT on-demand scale of network services and faster time to value, Cisco is building for cloud consumption. Cisco will continue to adopt more cloud-managed models for simplified management; provide cloud-edge network services for public and hybrid cloud deployments; and, where possible, deliver cloud Software as a Service (SaaS) for ease of consumption



## How does Cisco DNA accelerate digital transformation?



Cisco has reimagined the network to become open, extensible, and software-driven through programmability, service extensibility and virtualization. This allows IT to quickly adapt to the ever-changing demands of business with innovative services that provide:

- **Insights and actions:** Understand user behavior and application performance to make better business decisions and drive new experiences

- **Automation and assurance:** Dynamically adapt policy across the entire network, monitor service levels, and automatically adjust to demands of digitization
- **Security and compliance:** Gain a strategic vantage point into risk and threats by using the network as a sensor and enforcer to quickly identify and mitigate threats



## What are the benefits of DNA for customers?



Primary benefits of Cisco DNA are:

- **IT agility and scale:** Through policy-based automation, IT can roll out and manage services across hundreds of devices and sites that meet the business intent, consistently reaching 85 percent faster network service provisioning. Through virtualized services, IT delivers a more dynamic network that can easily provision, expand, and reallocate services quickly across different hardware platforms with no service calls
- **Reduced risk:** By embedding security everywhere with the industry's best threat protection, IT can detect and contain threats more quickly. Based on the 2017 Cisco Annual Cybersecurity industry report, the average threat detection is 100 days, whereas Cisco brought it down to 6 hours
- **Improved user experience:** IT can deliver differentiated experiences through contextual insights that empower employees, better engage customers, and improve application experience. Through data analytics and contextual insights, IT and business can better understand network patterns related to users, applications, and things. IT can help the business make decisions about issues such as staffing, effectiveness of promotions, workplace efficiency, customer trends, and more
- **Investment protection:** Subscription-based Cisco ONE™ Software, with license portability, provides twice the value compared to a la carte purchasing, allowing customers to start their digital transformation on our currently shipping portfolio



## What are some of the components and innovations of Cisco DNA?

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The Cisco Digital Network Architecture includes:

- Built-in automation to reduce the complexity, costs, time, and effort to deploy, manage, and maintain networks and services
- Pervasive analytics to provide insights into network operations, IT infrastructure, and the business
- Virtualization to run services anywhere, independent of the underlying platform: physical, virtual, on the premises, or in the cloud
- Open, extensible, and programmable at every layer, integrating Cisco and third-party technology, open APIs, and a developer platform
- Security innovations to use your network as a powerful security sensor and enforcer

For an overview of the Cisco Digital Network Architecture, including components and innovations, visit <http://www.cisco.com/c/en/us/solutions/collateral/enterprise-networks/cisco-digital-network-architecture/solution-overview-c22-736580.pdf>.



## How do customers consume this architecture?

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Cisco Digital Network Architecture services will be delivered through Cisco ONE Software, which provides simplified, high-value solutions with license portability and purchase flexibility. Customers can start their Digital Network Architecture journey today on our current portfolio and know that they can continue to adopt network innovations in the months and years ahead through the power of software.



## How does Cisco Meraki™ fit into DNA?

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The Meraki® cloud-managed product offering foreshadows the ease of use and deployment that will become a design pattern across the entire Cisco enterprise product portfolio. The architectural goals will focus on providing consistency of orchestration across all domains, including networks based on Meraki.



## What makes DNA security approach different than traditional perimeter-based security?

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In the past, security has typically been predicated upon a perimeter defense composed of technologies such as firewalls, intrusion detection, VPN, and access control. As threats become more prevalent in the increasing numbers and diversity of attached endpoints, this model becomes more difficult to defend unless you have advanced security on every network port to both see and control every activity on the network. The Cisco DNA approach enhances your ability to see every communication on the network and cloud using the NetFlow data created by network devices. This data is analyzed to detect and clarify threats using solutions such as Stealthwatch®, Identity Services Engine (ISE), and Cisco Umbrella™ cloud-based security.

Cisco DNA also allows IT to take instant action by directing Cisco TrustSec® to rapidly contain a threat right from the Stealthwatch management console. The result is an integrated solution with visibility and control for virtually every communication, which could be missed with a traditional perimeter security approach.

**Q** **What's the difference between SDN and Cisco DNA?  
How do they relate to each other?**

**A** The Open Networking Foundation (ONF) defines SDN as “an emerging architecture that is dynamic, manageable, cost-effective, and adaptable, making it ideal for the high-bandwidth, dynamic nature of today’s applications. This architecture decouples the network control and forwarding functions, enabling the network control to become directly programmable and the underlying infrastructure to be abstracted for applications and network services.”

Cisco Digital Network Architecture transcends the technology-centric collection of network technologies that make up SDN and concerns itself with bringing these technologies together into a holistic architecture to achieve business outcomes. Cisco Digital Network Architecture is a way to make network services relevant as well as easy to use in an enterprise architecture journey to digital transformation. It is an architectural suite that includes ready-to-use applications as well as easily consumable APIs. Cisco is committed to help our customers to successfully evolve to SDN while maximizing their investment protection.

**Q** **How do I get started?**

**A** Cisco Advanced Services and authorized Cisco partners can help you begin your journey with strategy and analysis services and readiness assessments, as well as planning, design, and migration services.

**Q** **Where do I learn more?**

**A** To learn more, go to <http://www.cisco.com/go/dna>.