

Cisco Software-Defined Networking: Different Solutions for Different Needs

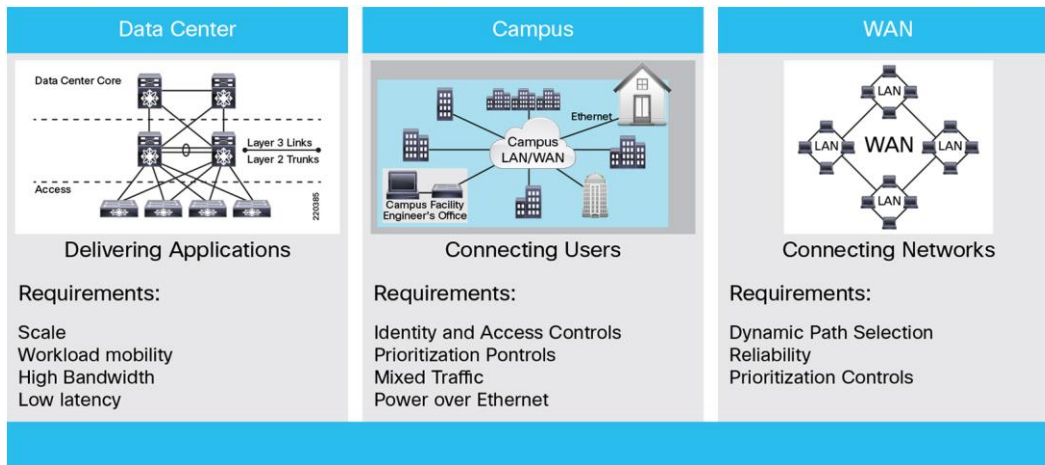
What You Will Learn

Software-defined networking (SDN) is rapidly changing the way that organizations view and operate networks. SDN primarily seeks to address the lack of agility found in existing networks. Various implementations of SDN have emerged within the industry, each seeking to address specific environments and use cases.

Cisco's position on SDN is that one size does not fit all. At the operational level, for example, manufacturing, medical, public-sector, and cloud environments all have very different IT requirements. At the technology level, data center, WAN, and campus networks also have very different requirements. These differences in requirements create the need for a portfolio of solutions to address SDN and achieve the agility, portability, security, and cost savings that it promises.

Different Environments Have Different Needs

Figure 1. Shows Some of the Differing Requirements of Data Center, Campus, and WAN Environments.

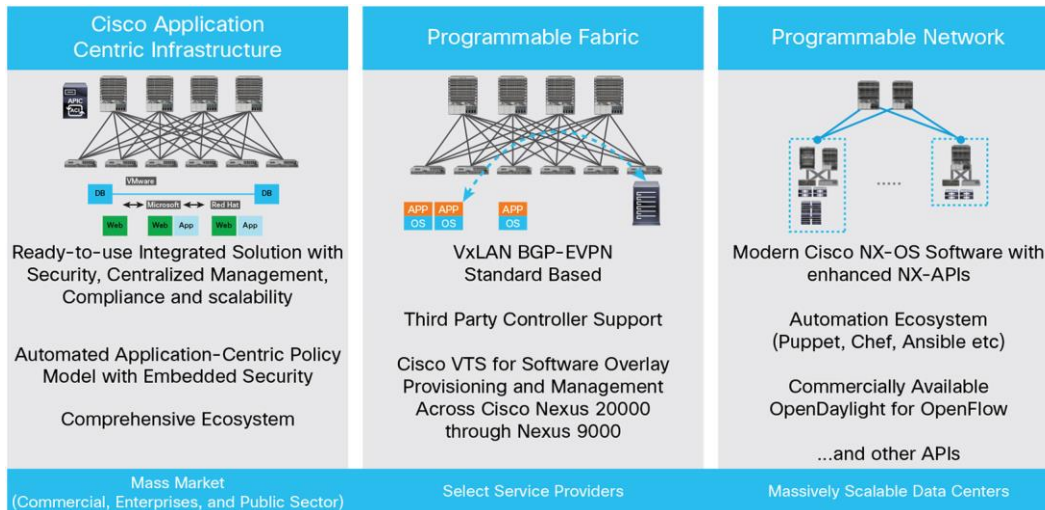


Although different, campus and WAN environments have many similarities, and in most cases their requirements can be addressed by the same SDN solutions. For these networks, Cisco supports the Cisco® Application Policy Infrastructure Controller Enterprise Module (APIC EM) or commercially available versions of the OpenDaylight (ODL) Controller.

In the data center, the landscape is much more varied. Different business requirements, sizes, and scales create disparate demands on data center networks. The needs of massively scalable data centers, service providers, and the mass market are very different. Even a single organization may have multiple data centers, each with different requirements. For example, a cloud provider may have on data center for its cloud offering and another for its internal IT resources.

Cisco's SDN Solutions

Figure 2. Cisco Data Center SDN Solutions



Cisco's lead solution for SDN in the data center is Cisco® Application Centric Infrastructure (Cisco ACI™). Cisco ACI is the industry's most comprehensive SDN solution, with ready-to-use automation from the physical hardware through virtual services. This solution is targeted at the mass market as well as at specific service and cloud provider environments.

For service provider customers with expertise in managing separate underlay and overlay fabrics, Cisco offers programmable fabrics. These fabrics are based on industry standards such as Border Gateway Protocol and Ethernet VPN (BGP-EVPN) and Virtual Extensible LAN (VXLAN) and support central provisioning through the Cisco Virtual Topology System (VTS) controller or third-party controllers.

For massively scalable data centers, typically cloud providers, Cisco offers the industry's leading programmable network options. In these environments, the software delivering infrastructure as a service (IaaS), platform as a service (PaaS), or software as a service (SaaS) to the end customer is already designed to do most of the work. These environments need network switching with a robust set of programmability and automation tools to give customers flexible options for integrating their custom software offerings.

Table 1. Cisco Solutions

Cisco Product	Use Case	Category
Cisco ACI	Integrated Overlay and Underlay Policy-Based Automation	Data Center
Virtual Topology System	Overlay Automation	Data Center
OpenDaylight Version Supported by Cisco	OpenFlow Traffic Engineering Other Open-Source Modules	Data Center, Campus and WAN
APIC EM	WAN and LAN Automation	Campus and WAN

Conclusion

Overall, the Cisco SDN stance is customer choice. We strive to provide the right options for the unique challenges of different customer environments and business models. From the industry's leading SDN solution, Cisco ACI, to open-source options based on OpenFlow, Cisco has the right SDN solution for the broad customer base we support.

For More Information

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