

Cisco Virtual Services Architecture

Validated Designs



EFFICIENT, SECURE, RESILIENT, AGILE, SIMPLE, AND SCALABLE REFERENCE DESIGNS FOR YOUR DATA CENTER

Introduction

Cloud computing has the potential to be one of today's biggest business opportunities for service providers throughout the world, but something this disruptive to the IT market also comes with challenges. Cloud computing offers an opportunity to increase efficiency and reduce costs in the IT portion of the business, and decision makers are beginning to pay attention. Service providers can take advantage of cloud opportunities by creating unique and innovative solutions beyond traditional services and can differentiate their companies if they can achieve these goals:

- Provide flexible consumption models at a lower entry cost
- Provide end-to-end application visibility and control for detailed support of mission-critical business applications at the required service and performance levels
- Offer low-cost disaster recovery on multitenant platforms for service-level agreements (SLAs) that require short recovery times
- Offer a comprehensive and modular solution with a smaller physical footprint and more virtual devices
- Provide a wider range of options to support a dynamic hybrid cloud strategy
- Provide service tiers without operation complexity
- Support leading third-party products for cloud ecosystems

The Cisco® Virtual Multiservice Data Center (VMDC) Virtual Services Architecture (VSA) cloud solution preserves the unique benefits of the previous releases of Cisco VMDC while offering a highly scalable multitenant solution that is automated to transform the data center into a dynamic cloud environment. And Cisco Virtual service Architecture doesn't just provide scalable, secure, resilient infrastructure, but it also offers these benefits:

- Simplified deployment of new services
- High service availability
- Regulatory compliance and support for self-service IT models
- Evaluation of network function virtualization
- Software-defined storage and the use of virtual appliances for resource optimization

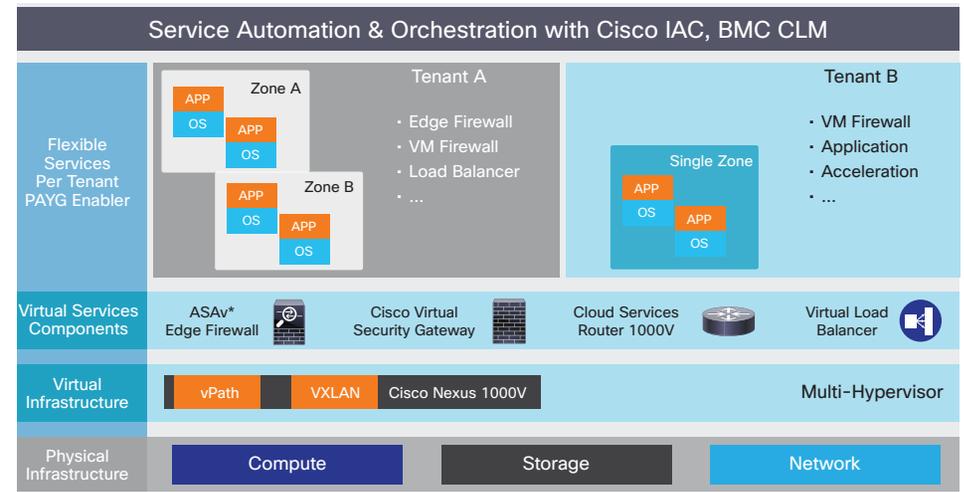
Cisco Virtual Services Architecture is a fully validated systems testing initiative that provides a prescriptive framework with test results, increasing operation efficiency and allowing private and public cloud providers to focus on their core business objectives.

Cisco VSA Solution Overview

Cisco VSA validated designs have evolved the unified computing components of the Cisco VMDC architecture, shifting virtualized service functions from the unified fabric and data center networking portions of the infrastructure. The solution consists of three modular layers (Figure 1):

- Unified computing and integrated systems (UCIS), providing server and application virtualization, typically consisting of Cisco FlexPod and Vblock™ Systems
- Unified fabric and data center networking (UFDC), providing network and network-based services virtualization
- Data center interconnect (DCI), providing transparent multisite connectivity

Figure 1. Cisco VSA Solution Overview



The solution is complemented by cloud service management components that enable end-to-end provisioning and orchestration, along with monitoring and assurance.

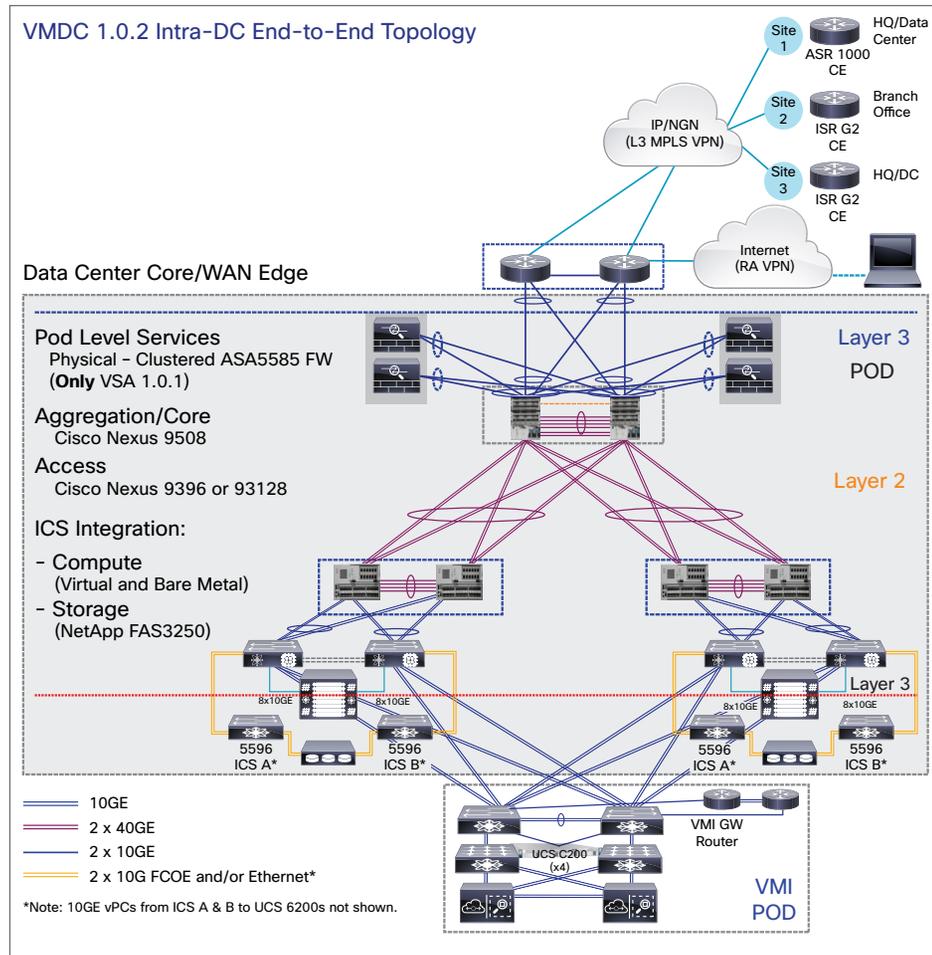
Cisco VSA shifts network service functions to the UCIS in a way that builds on existing design guidance for the UFDC and DCI layers, along with previous guidance for the UCIS layers for computing and storage for application workloads.



Cisco VSA Data Center Architecture

The Cisco VSA data center architecture conforms to the Cisco Validated Designs guidelines for end-to-end system-level testing and documentation for delivery of high-quality solutions. It describes the network components used in the Cisco VSA solution and provides a snapshot of the topology within the data center as well as the overall system end-to-end topology (Figure 2).

Figure 2. Cisco VSA Data Center and End-to-End System Topology



Business Benefits of a Cisco Virtual Service Architecture Data Center

- The solution enables business agility through faster provisioning of IT infrastructure when coupled with a Cisco VSA automation solution such as Cisco Intelligent Automation for Cloud (IAS) 4.0 or a partner solution such as BMC Cloud Lifecycle Manager (CLM).
- The solution creates financial efficiencies by introducing more virtual form factors. This feature provides the foundation for pay-as-you-grow services capability, reducing capital expenditures (CapEx) and operating expenses (OpEx) and dramatically increasing profitability and reducing total cost of ownership (TCO).
- In addition to increased business flexibility, the solution increases deployment flexibility. This model works on traditional architecture based on classic Ethernet as well as on newer next-generation fat tree models using evolved Layer 2 forwarding models such as Cisco Application Centric Infrastructure (ACI). The Cisco VSA model also applies to new cloud platforms such as OpenStack, providing homogeneity in networking and secure tenancy models.
- The solution offers predictable deployment time and cost through the use of end-to-end validated, scalable, and modular architecture. The application-centric virtual building blocks defined in Cisco VSA can be scaled within a single data center to accommodate growth on demand and also applied at remote data centers, providing homogeneity for end-to-end management and performance tuning, whether in a private or hybrid public and private cloud.
- As Cisco technology continues to evolve, the architectural features of the cloud system are applicable to both existing Cisco VMDC and next-generation Intercloud solutions.



Why Cisco?

Cisco VSA mitigates the risks of adopting new technology through extensive testing and validation of reference guidelines by Cisco. This validation results in accelerated value: IT can change the economics of the data center, achieving IT simplicity, financial efficiency, and business agility through rapid deployment of validated infrastructure. Customers can use the Cisco VMDC reference architecture:

- As infrastructure solutions that help customers optimize infrastructure and add higher-layer offerings such as platform as a service (PaaS) and software as a service (SaaS)
- As a fully validated system testing initiative that provides a prescriptive framework with test results

The Cisco reference architecture has proven value for enterprises, service providers, and public-sector organizations that are integrating networking, computing, storage, and management building blocks into a cohesive architecture.

For More Information

- Cisco VMDC: www.cisco.com/go/vmdc
- Cisco VMDC VSA design guides: http://www.cisco.com/c/en/us/td/docs/solutions/Enterprise/Data_Center/VMDC/VSA/1-0-2/DG/VMDC_VSA_1-0-2_DG/VMDC_VSA_1-0-2_DG_1.html