Cisco's Virtualized Multiservice Data Center (VMDC)

EFFICIENCY, AGILIGY, SIMPLICITY AND SCALABILITY FOR YOUR DATA CENTER

Building the Unified Data Center

The data center infrastructure is critical to the evolution of IT from a cost center to a business enabler by delivering the infrastructure and applications required rapidly and efficiently. Virtualization and cloud technologies have changed the way IT managers think about the data center. Applications no longer map to a single physical server (or set of servers) and storage – virtualization is the first step at leveraging pools of compute and storage resources to optimize the underlying infrastructure. Cloud delivers this infrastructure and platforms as a service. This, in turn, helps IT itself to be delivered as a service.

The Cisco Unified Data Center (UDC) changes the economics of the data center by unifying compute, storage, networking, virtualization, and management into a single, fabric-based platform, designed to increase operating efficiencies, simplify operations, and provide business agility. This approach allows IT to move from being a cost center to providing IT services that create competitive advantage.

VMDC – Reference Architecture for UDC

The Virtualized Multiservice Data Center (VMDC) is a reference architecture for building fabric-based infrastructure delivered by the Unified Data Center platform. VMDC provides design guidelines that demonstrate how customers can integrate key Cisco and partner technologies, such as networking, computing, integrated compute stacks, security, load balancing, and system management into a data center architecture that supports critical IT initiatives, such as consolidation/virtualization, desktop virtualization, application migration and roll-outs, public, private and hybrid cloud deployments, BC/DR, and building out new data centers.

The VMDC architectures conform to the Cisco Validated Design process for end-to-end system level testing and documentation for delivery of high quality solutions that bring together networking, compute, storage and networking services, in a secure, highly available, easy to manage, and cost effective manner.

VMDC Enables IT-as-a-Service (ITaaS)

Cisco's VMDC provides a superior foundation for cloud computing by unifying computing, networking, storage, and management in a common platform designed to automate deployment and management across physical and virtual resources for optimal delivery of IT-as-a-Service (ITaaS).

- Eliminates infrastructure and application silos, increasing resource utilization and achieving better economies of scale
- Provides automatic and consistent deployment and management of IT resources, increasing predictability and accelerating time to service
- Reduces the need for complex integration, freeing resources (budget, time, and staff) to support and guide business innovation
- Provides consistent security throughout the fabric layers eliminating threats and ensuring visibility

Figure 1. Cisco VMDC Solution Framework
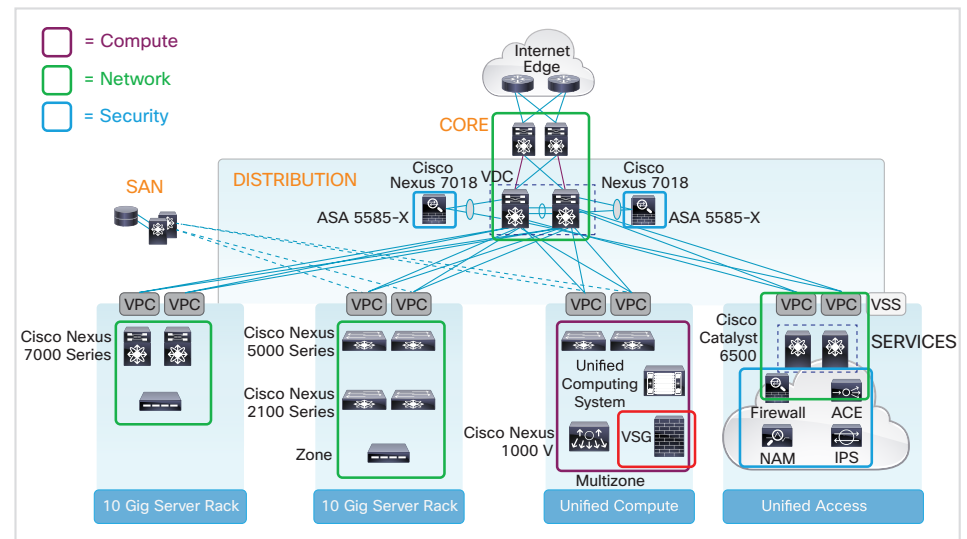
The VMDC Architecture

The VMDC architecture, consisting of Unified Data Center and Data Center Interconnect, together with other architectural components such as infrastructure abstraction, orchestration and automation, assurance, as well as integrated services and applications, provide a comprehensive guideline for deployment of cloud infrastructure and services at multiple levels. This integration data center solution is comprised of the components detailed in Table 1.

Table 1. Cisco VMDC Solution Components

Network	• Cisco Nexus 5500, 7000 Switches • Cisco Nexus 2200 Fabric Extenders • Cisco Catalyst 6500 Series Switches • Cisco ASR1000, ASR9000, CRS-1 routers (WAN edge)
Compute	• Cisco Unified Computing System • Cisco UCS 5108 Blade Server Chassis/UCS-IOM-2208XP • Cisco UCS B230/250/440 M2 Blade Servers • Cisco UCS VIC-M82-8P VIC 1280 • Cisco UCS M81KR VIC • Cisco UCS 6248UP 32 unified port fabric interconnect
Storage	• Cisco MDS 9506 and MDS 9513 Multilayer Directors • EMC Symmetrix V-MAX with virtual provisioning, EMC-VNX • NetApp FAS3170 and NetApp FAS6080
Virtualization	• VMware vSphere • VMware ESXi 5.0 Hypervisor • Cisco Nexus 1000V Switch (virtual access switch)
Network Based Services including Security and Load Balancing	• Cisco ASA 5585-X Adaptive Security Appliance, Catalyst 6500 Series ASA-SM • Cisco Nexus 1000V Switch, ASA 1000V Cloud Firewall and VSG • Cisco ACE 4710 Appliance, Cisco ACE-30 Appliance • Cisco IPS 4500 Series Sensors • NetApp vFiler and Virtual Service Domains
Management and Orchestration	• BMC Cloud Life Cycle Management suite • VMware vCenter • Cisco UCS Manager • Zenoss Cloud Service Assurance

What Are the Benefits of VMDC?

Business Benefits
- Enables business agility through faster provisioning of IT infrastructure and delivery of IT as a service, on-demand
- Creates financial efficiencies by reducing infrastructure expenditures (CAPEX) and operational expenses (OPEX) to increase profitability
- Simplifies IT management to support scalability, further control costs, and facilitate automation — key to delivering IT as a service and cloud applications

Customer Benefits
- Predictable deployment time and cost through use of an end-to-end validated, scalable and modular architecture
- Multiple Application and Service enablement over a unified infrastructure
- Rapid service provisioning and management using a comprehensive automation framework with portal-based resource provisioning and management capabilities
- Efficient and flexible workload deployment through use of shared resource pools and service catalogs

Why Cisco?

Because this type of infrastructure takes a holistic approach, Cisco provides customers with the potential to fundamentally change the economics of the data center, the management of the applications that run on it, and the productivity of the staff that operates it — enabling dramatic and sustained cost reductions. This kind of data center can be architected to efficiently enable change — automating management and security, and delivering IT-as-a-Service.

For More Information

www.cisco.com/go/vmdc.