

Session 1-2

Cisco Architectures for the
Enterprise

Business Drivers for a New Network Framework

- A network design must meet the increasingly complex requirements of the organization that it supports
- Organisations are looking for:
 - Techniques to enhance customer relationships,
 - Accommodate a mobile workforce and increasing productivity

Business Drivers for a New Network Framework

- Looking for ways to integrate emerging technologies such as: wireless, virtualization, video etc.
- Need for flexible and dynamic network architecture

Business Drivers

- Business drivers that can impact network architecture:
 - Business forces
 - Technology-related forces
 - IT challenges

Business forces

- Return on investment - is it cost beneficial?
- Regulation - Is the company compliant with the required regulations?
- Competitiveness - Are we competitive enough? How can we be more competitive? Innovation?

Technology-related forces

- Removal of borders – Access to network resources enabled
- Virtualization – cost reduction etc
- Growth of applications – demand for new products, service, security at LOWER costs

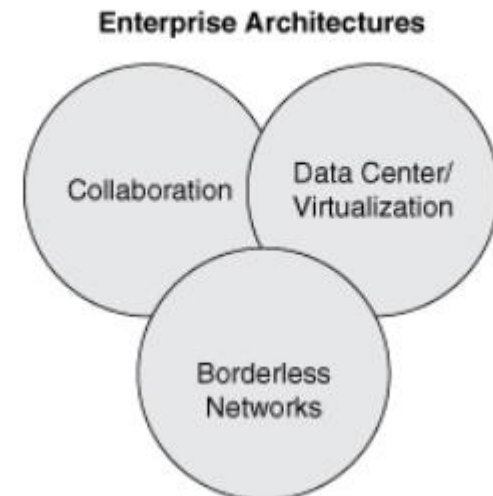
IT challenges

- Network infrastructures are mainly separated into three IT groups:
 - Data center: Servers and storage networks
 - Network: Routing, switching, security, and wireless WAN
 - Applications: Voice and video
- Own experience, budget and challenges

Cisco Network Architectures for the Enterprise

- Framework to create three architectures for each group that provides for optimization at an individual level and the integration with other areas

Figure 1-1. *Cisco Enterprise Architectures*



Borderless Networks Architecture

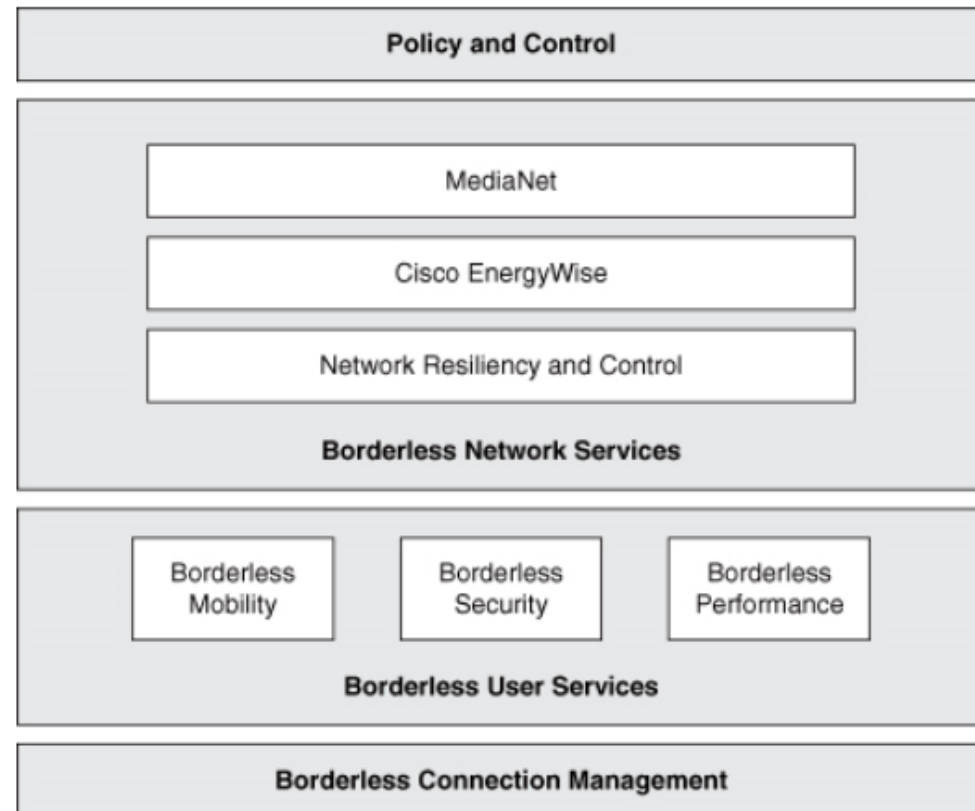
- Next-generation solution that enables connectivity to anyone and anything, anywhere, and at any time - IOE
- Challenges to the network
 - Security
 - Reliability
 - Availability

Borderless network architecture

Four major blocks:

- **Policy and Control**
 - Policies are applied to all users and devices across the architecture
- **Network Services**
 - Services include resiliency and control
 - EnergyWise and Medianet provide capabilities to borderless networks
- **User Services**
 - Services include mobility, performance, and security
- **Connection Management**
 - Delivers secure access anytime and anywhere

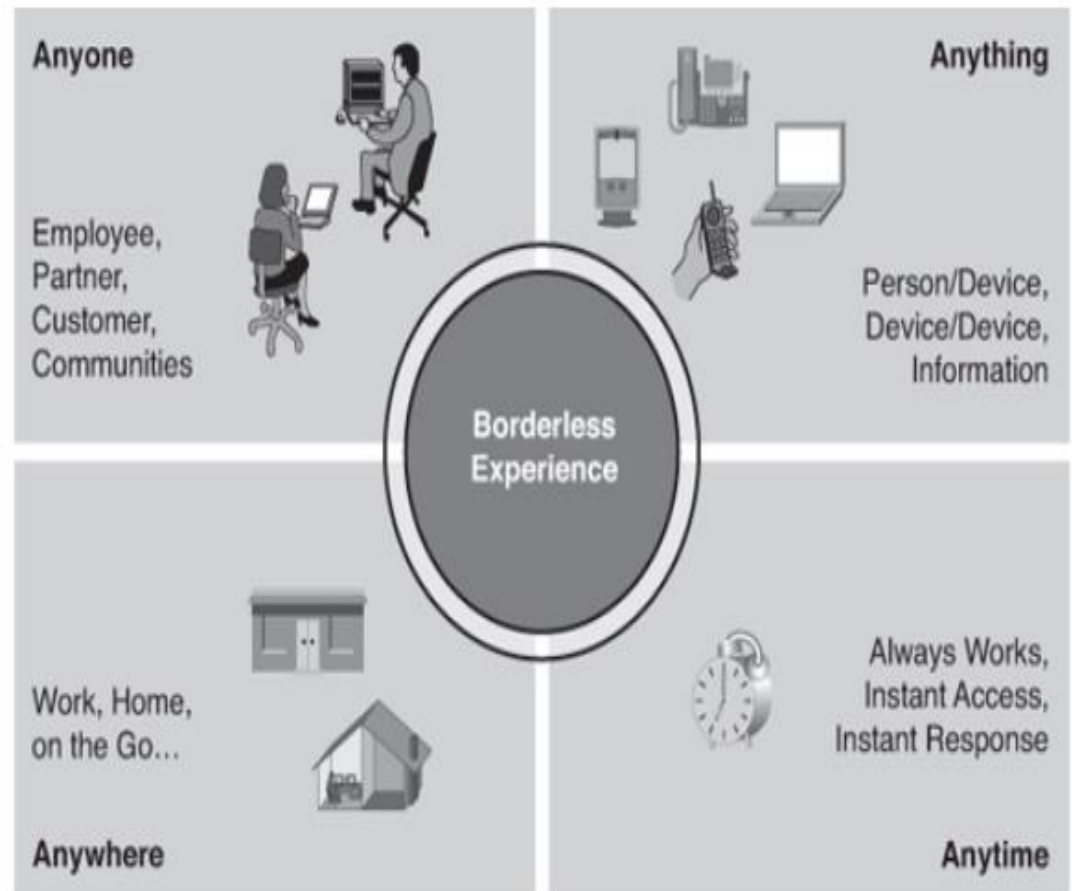
Figure 1-2. Borderless Architecture



Borderless network architecture

The borderless architecture optimizes both business and network performance

Figure 2-2 Cisco Borderless Networks Architecture



Collaboration Architecture

- Faster and more complex world that required organizations to change the way they operate
- Growing demand for enterprises to:
 - Expand business capabilities
 - Operate more efficiently
 - Improve real-time information access
 - Enhance user interactions

Collaboration Architecture

Collaboration architecture is composed of three layers:

■ **Communication and Collaboration Applications** -The layer contains:

- conferencing
- customer care
- enterprise social software
- IP communications
- messaging,
- Mobile applications
- TelePresence

Collaboration Architecture

■ **Collaboration Services -**

services that support the collaboration applications

- presence,

- location,

- session management,

- contact management,

- client frameworks

- tagging, and

- policy and security management

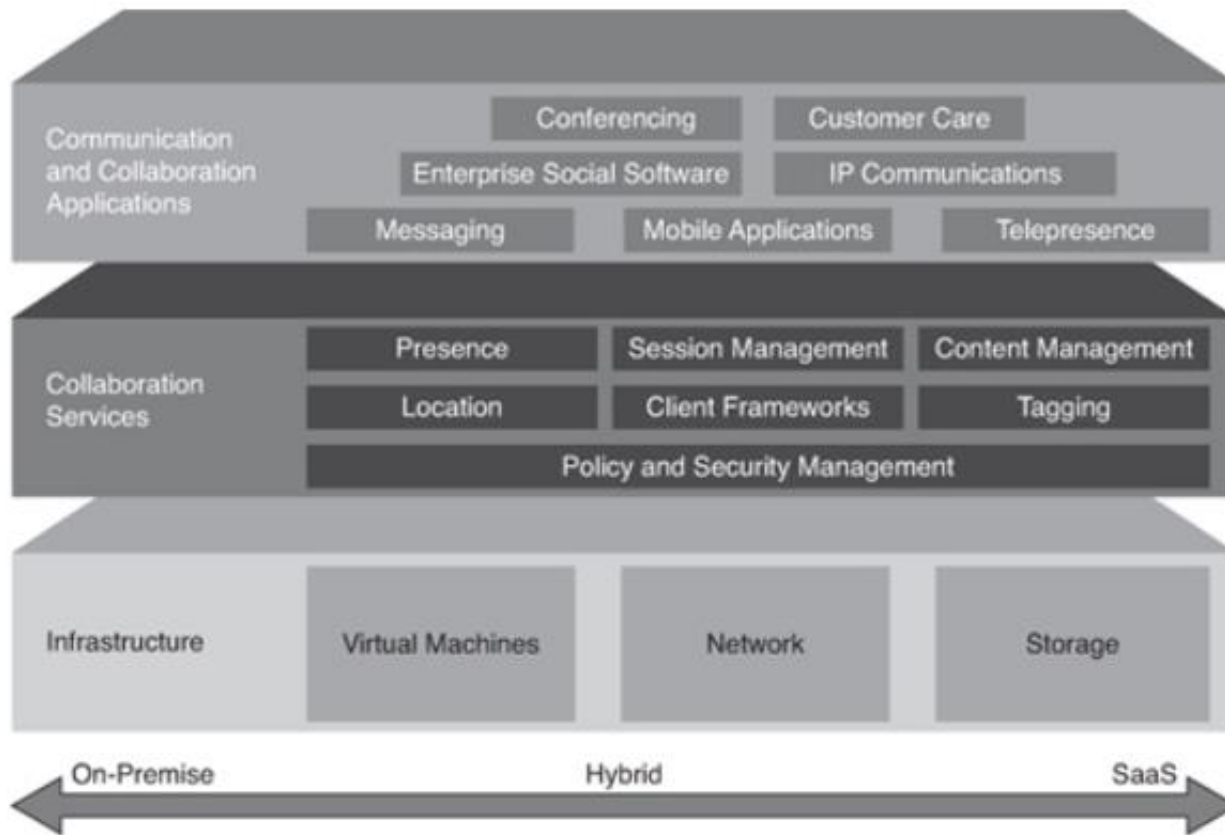
Collaboration Architecture

■ **Infrastructure**

- Responsible for allowing collaboration anytime, from anywhere, on any device
- Virtual machines,
- The network, and
- Storage

Collaboration Architecture

Figure 2-4 Cisco Collaboration Architecture

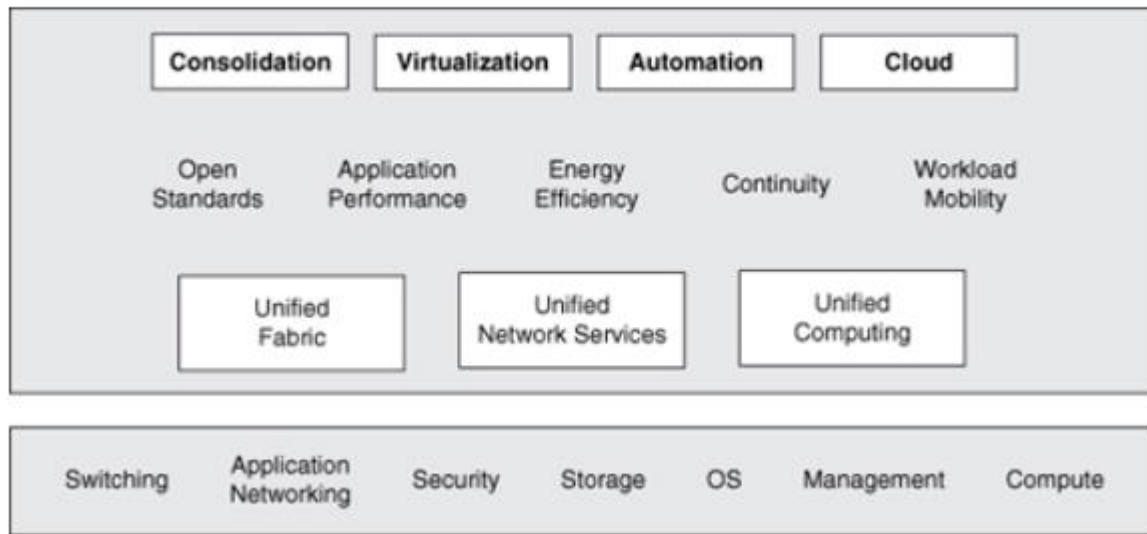


Data Center/Virtualization Architecture

- Built upon Cisco Data Center 3.0
- Comprises a comprehensive set of virtualization technologies and services that bring:
 - The network
 - Computing
 - Storage
 - Virtualization together to provide
 - Flexibility, visibility and policy enforcement the Virtualized data center

Data Center/Virtualization Architecture

Figure 1-3. *Data Center Architecture Framework*



Data Center/Virtualization Architecture

Table 2-2 *Virtualization Technologies and Services*

Technology/Service	Function
Cisco Unified Computing System	Unifies network, computing, and virtualization resources into a single system that delivers end-to-end optimization for virtualized environments while retaining the ability to support traditional operating system and application stacks in physical environments
VN-Link technologies, including the Nexus 1000V virtual switch for VMware ESX	Delivers consistent per-virtual-machine visibility and policy control for SAN, LAN, and unified fabric
Virtual SAN, virtual device contexts, and unified fabric	Help converge multiple virtual networks to simplify and reduce data center infrastructure and total cost of ownership (TCO)
Flexible networking options	Support all server form factors and vendors, including options for integrated Ethernet and Fibre Channel switches for Dell, IBM, and HP blade servers, providing a consistent set of services across the data center to reduce operations complexity
Network-embedded virtualized application networking services	Allow consolidation of remote IT assets into virtualized data centers

Summary

Table 1-2. *Benefits of Cisco Network Architectures*

Benefit	Description
Functionality	Supports organizational requirements
Scalability	Supports growth and expansion of organizational tasks
Availability	Provides services reliability, anywhere and anytime
Performance	Provides responsiveness, throughput, and utilization on a per-application basis
Manageability	Provides control, performance monitoring, and fault detection
Efficiency	Provides network services and infrastructure with a reasonable operational costs and appropriate capital investment

Network Design Methodology

- Understanding the Network Architectures for the Enterprise
- Identifying Design Requirements
- Identifying Customer Design Requirements
- Characterizing the Existing Network and Sites
- Using the Top-Down Approach to Network Design