Cloud Services – The Network is Key

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Cisco is the leader for Cloud Building

Vision: Lead the **next era of IT** ecosystem in which the **networked cloud** transforms the way we work, live, play and learn

**Strategy 1**: Enable cloud providers to build a robust infrastructure upon which to offer public and hybrid cloud services

**Strategy 2**: Enable transformation to agile and secure IT with private and hybrid clouds

**Strategy 3**: Drive innovation and standards in order to provide interoperability between networked cloud providers
The Cloud Computing Journey

- Automation
- Consolidation
- Virtualization
- Public Cloud
- Hybrid Cloud
- Inter-Cloud
Cisco IT Cloud Journey - CITEIS

100% Physical, Legacy Computer Platform

Average TCO

Speed of delivery
6–8 Weeks

-37%

IT Maintenance/ IT Innovation
70/30

40% Physical, 60% Virtual Legacy Computer Platform

Average TCO

Speed of Delivery
2–3 Weeks

-31%

IT Maintenance/ IT Innovation
60/40

25% Physical, 75% Virtual, Unified Computing Platform, 100% Automated

Average TCO

Speed of Delivery
15 Minutes

IT Maintenance/ IT Innovation
40/60

Virtualization

Automation and Cloud Computing
Economics of IT investments – Cloud demand side
Idle IT $$ Deliver No Strategic or Tactical Benefits

Current
60–80 % IT ‘Lights On’

Next Step
Consolidation & Virtualization

Focus on using SP Cloud

Hybrid Cloud Bursting

QA
DevTest
DR
Cloud

Peak

Average
Service Catalogue is the starting point

Service definition including Service Level Objectives and Pricing will influence the fulfillment decision.
Typical Questions That Need Consideration…

**Applications**
WHAT IS MY APPLICATION PORTFOLIO?
Where is the growth/advantage/waste?

**Cost**
WHAT IS THE CURRENT COST BASE OF SERVICE DELIVERY? What are the goals & opportunities?

**Risk**
HOW DO I SECURE MY ENVIRONMENT? What are the reputational & regulatory considerations?

**Funding**
HOW IS INFRASTRUCTURE FUNDED TODAY? Does the funding model allow/enable transformation?

**Innovation**
ARE WE MARKET COMPETITIVE? What is our time to market for new initiatives/products/services/campaigns? What could/should it be?
Cloud provides many deployment options - HCS

- Pure Hosted
- Hybrid
- Remote Managed On Premises
- Large Enterprise Private Cloud

Partner Public Cloud-Based Services

Virtualized Applications on UCS Platform

Management

Traffic Aggregation

Cisco Cloud-Based Services

PSTN

Cisco Cloud-Based Services

Customer 1
Customer 2
Customer 3
Customer 4
Customer 5
Considering Top 5 Use Cases for IaaS Delivery

- Business Process
- Application-Led Offer
- Basic Offer

- Business Continuity
- Outsource One-Time Needs
- Special Workgroup Needs
- Special Technology Needs

- Collaboration
  - Disaster Recovery
  - DevTest QA Environment
  - Virtual Desktop VDI/ DaaS
  - High-Performance Computing

- No-Frills Storage
- Compute as a Service

* Potential (2013 – WW Estimate)

Source: Cisco IBSG
Compute as a Service
Basic Requirements Checklist

- “On-demand” resources and “at scale”
- Performance, availability, elasticity, and flexibility
- Dynamic resource allocation
- Automated self-provisioning and de-provisioning through web-based and API interfaces
- Ubiquitous network access
- Complete control of Instances and transparent service orchestration
- Multi-tenant infrastructure to support multiple business applications
- Detailed reporting and usage-based billing
- Workload movement; cloud bursting
- Security and SLAs guaranteed
- Added features at extra cost
Disaster Recovery Services

Figure 1: The Gap Filled By Cloud Recovery Services

Synchronous replication

Asynchronous replication

Gap

- Seconds
- Minutes
- Hours
- Days

Data Loss

Recovery from tape

Hot sites
Shared IT equipment

Cold sites
Shared IT equipment

Cost

Source: Forrester Research, Inc.
Dev/Test & QA in the Cloud:
Requirements Checklist

- Cloud and data center requirements
  - Multi-tenant environment for develop and test and preproduction rollout
  - Diversity of infrastructure: Replicate production environment as close as possible
  - Management of development platform: Server images, with patching
  - Rich toolset for full application lifecycle management
  - Pay-as-you-use licensing
  - Metrics to define and track application performance

- WAN requirements:
  - Reliability SLAs and performance (latency)
  - Bandwidth on demand for performance testing
Snapshot of a VDI Cloud Service
Essential elements of a Cloud Service

Applications and IT services

Elastic Infrastructure

Data Centers

IP Core

High-speed Access

Backbone

End-user Device

Automated Operations and Security
Cloud Infrastructure Built for Scalability
Add Capacity For System, Not Single Service

Capacity Consumed

Available Capacity

Added infrastructure is dynamically discovered, and comes online to meet any required demand.
Cisco Unified Fabric Evolution
Continued Architectural Innovation

2008

- SIMPLE
- AGILE
- EFFICIENT

2010

- FabricPath: Architectural flexibility and scale
- OTV: Workload mobility
- FEX-link: Simplified Management
- VN-Link: VM-aware networking
- DCB/FCoE: Consolidated I/O
- vPC: Active-Active uplinks
Fibre Channel over Ethernet
Delivering Network Agility in the Data Center

- Mapping FC frames over Ethernet Transport
- Enables Fibre Channel to run over a lossless Ethernet medium
- Single Adapter, less device proliferation, lower power consumption
- NO gateways required

Data Center Bridging Standards
Unified I/O Transport
VM-level Network Platform

Network container implemented by 1000v

- Network policies assigned to each virtual machine instance
- Automatic network configuration based on policies
- Policies travel with VM instances during re-provisioning and vMotion events

Nexus 1000v + vNIC

Cisco VN-Link: Virtual Network Link

- Policy-based VM Connectivity
- Network and Security Service Portability
- Maintains Wire-once Operations Model

Nexus / UCS / ASA / etc.
Cisco OTV: VMotion Across Data Centers
Live migration of VMs from one data center to another

Data Center A

Ethernet Extension

Long Distance VMotion

Data Center B

This represents a significant advancement for virtualized environments by simplifying and accelerating long-distance workload migrations.

Ben Matheson, Senior Director, Global Partner Marketing
Cloud Network Platform
end-to-end SLA enforcement & monitoring

- SPs/MSPs can differentiate by providing end-to-end SLAs as opposed to resource-specific SLAs
- Cisco can uniquely support end-to-end monitoring and service delivery assurance for Cloud-based services
- APM (Application Performance Mgmt) provides a foundation that is being extended into the Data Center
Key to Broader Adoption of Cloud: Trust

Cisco has developed Network Trust solutions delivered in the Cloud and by the Cloud

Security
Control
Service-Level Management
Compliance
Journey to the Cloud Roadmap: Leveraging your DC Architecture Investments

1. Unified Network

2. Unified Computing System

3. Nexus 1000v

4. Unified, validated building blocks

5. Unified Service Delivery

Choice in Consumption Models: 
- Public
- Private
- Hybrid

SaaS Cloud Service

IaaS Cloud

Architectures

Consolidation Virtualization

Leveraging your DC Architecture Investments
Cisco Advanced Services: Cloud Enablement


“What architecture maximizes virtualization, orchestration speed & chargeback capability?”

“How do we realize our Cloud architecture – on-time, within budget and in our environment?”

“How do we ensure Cloud evolution and ongoing cost reduction?”

Cloud Strategy Service
- Assess Strategy
  - Technology & Security
  - Management Tools
  - Operational Readiness
  - Chargeback Approach
  - Program & Architecture Management Offices

Cloud Planning & Design Service
- IaaS Design
  - Technology & Security
  - Tools Architecture
  - SLA Design
  - Chargeback Design
  - Program & Architecture Management Offices

Cloud Implement & Integrate Service
- Implement & Integrate
  - Technology & Security
  - Tools
  - Staging & Validation
  - Program & Architecture Management Offices

Cloud Optimization Service
- Optimize via...
  - Architectural reviews
  - Security Audits
  - Cost reduction exercises
  - Process Improvements
  - Tool customization

Accelerate Time to Value
Worldwide Expertise
Worldwide Presence
Proven Delivery Capability
Delivering Unique Cisco Insight
Cisco’s Cloud Strategy

Addressing Our Customers’ Business Challenges

Deliver products, solutions & services to organizations to build secure Clouds

Enable Service Providers to deliver secure Cloud solutions & services to their customers

Advance the market for Cloud by driving technology innovation, open standards and ecosystem development
Cloud Standards in an interdependent Cycle with Customer Architecture & Requirements

Architecture and Standardization in a Development Cycle

Customer Requirements

Cisco Cloud Architecture Development

Cloud Standards: Influence & Feedback

Standards
Cisco Long Term Vision — The Intercloud
Flexible Infrastructure and a New Application Platform

A Federation of Clouds Based on Open Standards:
- Naming and Discovery
- Trust
- Exchange and Peering

Dynamic Workload Migration
Applications Integrate Services from Multiple Clouds
Cisco Builds Clouds which Simplify IT for Business

**Providing**
- Flexibility of resource allocation
- Efficiency of resource allocation
- Democratization of resource allocation

**Enabling**
- Agile IT service delivery
  Time to market reduced 50+%
- Cost Optimization
  Higher server and storage utilizations
  Operations costs lowered 25-30%
- Required Trust levels: Security, Compliance, SLA and Control