North American Service Provider Tracks Multiple Benefits of Unified Computing Infrastructure for Private Cloud

Championed by CIO, Cisco Unified Computing System gains popularity in provider's environment ahead of coming compute infrastructure refresh.

EXECUTIVE SUMMARY

PRIVATE CLOUD

- Industry: Telecommunications

BUSINESS CHALLENGE

- Lower application infrastructure costs, decrease operational complexity, and deploy and support applications more quickly across the organization to meet increasing demands
- Understand value and benefits of private cloud model for internal IT

NETWORK SOLUTION

- Private cloud solution built with Cisco cloud infrastructure, including Cisco Unified Computing System and Nexus switches

BUSINESS RESULTS

- Significant CapEx and OpEx benefits catalogued by Cisco sales team in conjunction with customer administrators
- Comparison of costs over seven years show dramatic difference: more than US$57 million accumulative savings projected from legacy infrastructure to private cloud deployed with Cisco infrastructure
- Cisco UCS deployed in application test and development environment

Business Challenge

Large companies and government agencies often struggle to manage multiple isolated departments with slow, complex workflows, redundant solutions, and bloated expenditures. Computerization and networking technologies have been somewhat effective in countering such inefficiencies and excesses. Now the advent of cloud computing holds tremendous promise as a way to further reduce capital and operational expenditures (CapEx and OpEx), flatten IT infrastructure, and achieve greater agility for organizations.

One of the largest network service providers in North America has aggressively embraced the deployment of public cloud services for its customers. The service provider's own IT organization, however, has taken a more cautious, incremental approach when looking at deploying a private cloud for internal use. Citing a Gartner study claiming vendor products behind the private cloud infrastructure were not ready for the market, the IT organization adopted a "wait-and–see" attitude,

Cisco, however, has countered Gartner's assertion, believing that for forward-thinking providers, the time to build a private cloud is now. Working closely with the provider to demonstrate the benefits of a private cloud infrastructure based on the Cisco Unified Computing System™ (UCS™), the Cisco team has been working with the customer to compare Cisco® UCS to the provider's legacy server infrastructure.

Network Solution

In early 2012, Cisco deployed two Cisco UCS stacks within the provider's test/development lab. Each stack included:

- Cisco UCS 6100 Series Fabric Interconnects, with a low-latency, 10 Gbps unified fabric supporting IP traffic, storage, and management functions
- Cisco UCS 5100 Series Blade Server Chassis
- Cisco UCS B-Series Blade Servers
- Cisco UCS 2100 Series Fabric Extenders, which connect the blade server chassis to the Cisco Fabric Interconnects

- Cisco UCS virtual interface cards (VICs) that extend fabric interconnect ports directly to virtual machines, operating systems, and hypervisors
- Cisco UCS Manager, providing integrated, unified management of compute, network, and storage elements

Cisco UCS is the first converged data center platform that combines industry-standard, x86-architecture servers with networking and storage access into a single converged system. The system is entirely programmable, using unified, model-based management to simplify and speed deployment of enterprise-class applications and services running in bare-metal, virtualized, and cloud-computing environments. The system's unified I/O infrastructure uses a unified fabric to support both network and storage I/O, while Cisco Fabric Extender technology extends the fabric directly to servers and virtual machines for increased performance, security, and manageability.

Through the automation and standardization of IT processes, Cisco UCS brings industrialization to IT. It is the first self-aware, self-integrating, converged system that automates system configuration in a reproducible, scalable manner. It incorporates a simplified architecture that eliminates the complexity of rack-in-a-box blade systems, while overcoming the issues of virtualization by interconnecting servers and virtual machines with an equivalent level of visibility and control. The system is a programmable infrastructure that is controlled by unified, model-based management and where server identity, personality, and I/O connectivity are abstracted. Cisco UCS supports running any workload on any resource with dynamic provisioning, making it the ultimate platform for building private clouds.

Business Results

Cisco showed developers within the service provider's test/development department how they could simplify and accelerate server operations and save significantly on operational expenses with Cisco UCS, Table 1. The proposed Cisco UCS environment results in much lower setup and management costs.

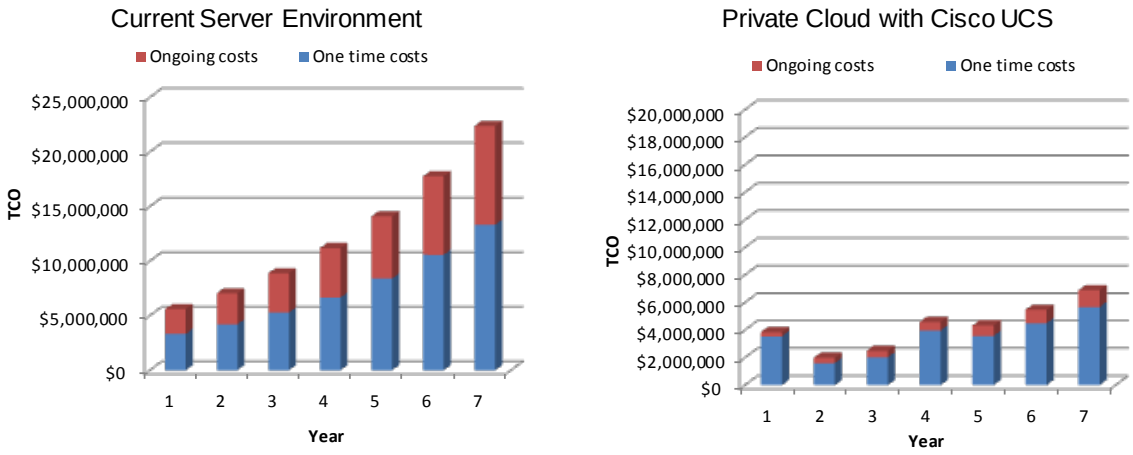
Table 1. Comparison of Server Operations Costs: Legacy Environment versus Cisco UCS

Costs for Server Administration	Current Server Environment	Cisco UCS Environment
One-time server setup	$2,288	$500
Hosting and management (monthly)	$110	$50
Server decommission (per server)	$920	$100
Average time spent per VM	4 days	½ day
Average cost per VM (based on $90,000 full-time employee)	$1,384	$173

Today, the internal customers go through a manual specification process with the internal IT that can take approximately a week. And when internal customers are finished with servers in the test/development environment, administrators find them hard to provision, and the servers often sit idle. With Cisco UCS, virtual machines are easy to provision, using a portal, and then re-provision, using the point-and-click server profile templates provided by Cisco UCS Manager. Servers can be re-provisioned quickly to flexibly accommodate new or periodic workloads.

Over time, the cost comparisons between the two different compute environments are significant. Based on the projected applications needs within the service provider, the Cisco team calculated that the legacy server environment will entail costs of more than $5.59 million in the first year and will grow to $22 million in year seven, Figure 1. By contrast, the ongoing and one-time costs for deployment of a private cloud using Cisco UCS result in decreases in years two and three, with overall costs of $3.8 million in the first year and $6.2 million in year seven, far below costs for the current approach.

Figure 1. Total Cost of Ownership Comparison



Aside from the money saved, the provider's IT department will be able to serve the needs of diverse internal users more quickly and utilize resources more efficiently. This enhanced agility could provide the engine for new business initiatives, marketing campaigns, and innovative business models involving external partners that may be granted access to select application resources in the cloud.

PRODUCT LIST

- Cisco UCS 6100 Series Fabric Interconnects
- Cisco UCS 5100 Series Blade Server Chassis
- Cisco UCS B-Series Blade Servers
- Cisco UCS 2100 Series Fabric Extenders
- Cisco UCS virtual interface cards
- Cisco UCS Manager

With the current infrastructure support agreements set to run out at the end of fiscal 2012, the service provider is looking closely at other applications that could be deployed on Cisco UCS. The company has talked to the Cisco IT department to understand the best practices and benefits experienced when Cisco migrated to private cloud services. One challenge and big opportunity that has become clear: merging the separate departments for network, application, and server administration, which will collapse into a more integrated, efficient, cost-effective workforce under Cisco unified computing.

For More Information

Managed and Cloud Services

To find out more about managed and cloud services, go to: http://www.cisco.com/en/US/partner/netsol/ns1098/networking_solutions_solution_category.html.

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