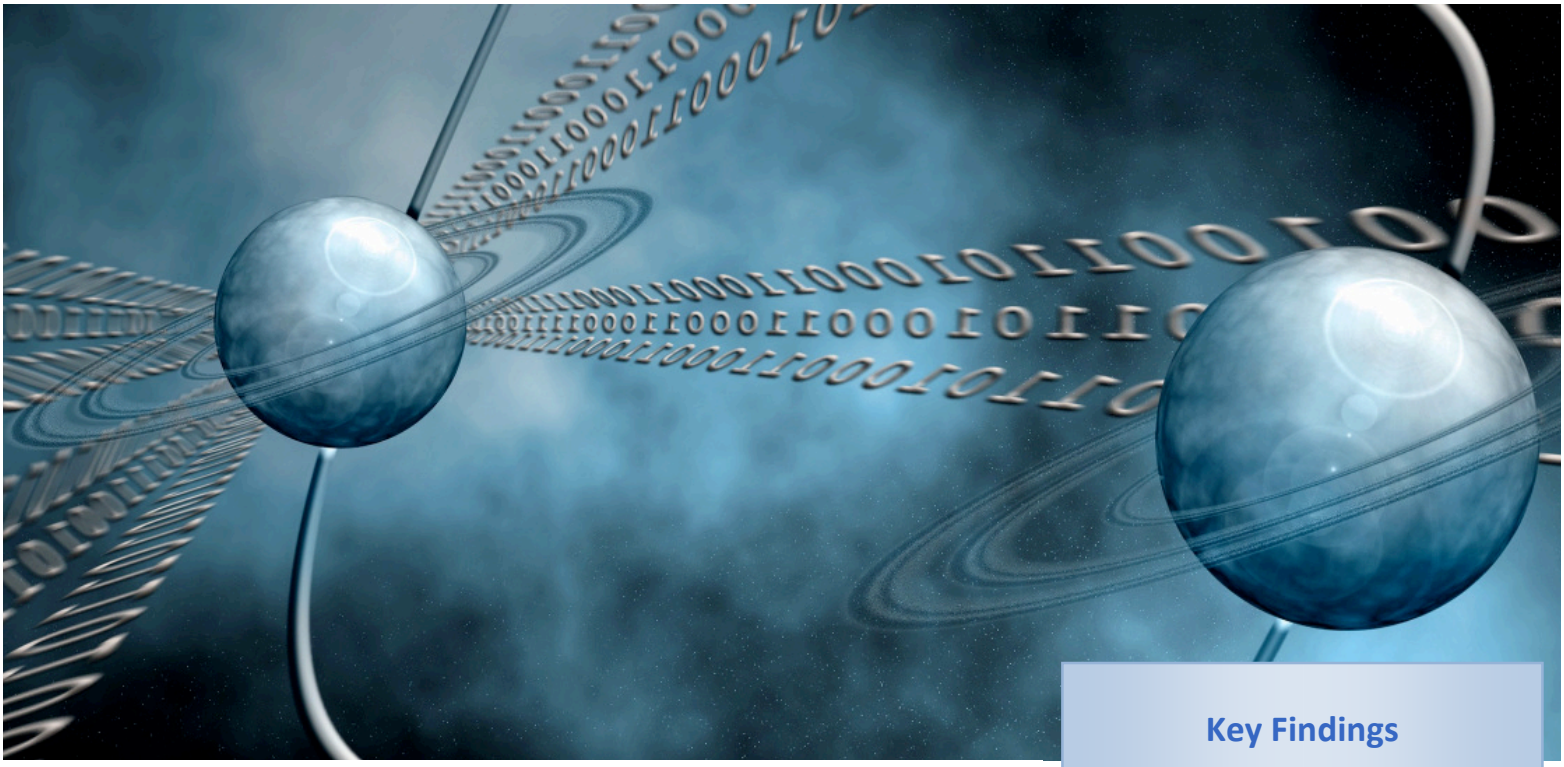
# Economic Benefits of Cisco's Cloud Strategy



## Executive Summary

Cloud computing enables IT to be delivered as a service, whenever and wherever it is needed, from central, secure, public and private data centers. Enterprises are looking for cloud architectural solutions to reduce costs, reach new efficiency levels, and facilitate innovative business models that promote revenue growth and increase competitive differentiation.

The Cisco® cloud portfolio is an end-to-end architectural approach that enables the world of many clouds: private, public, and hybrid, with numerous variations. Cisco offers the Unified Data Center, Cloud Intelligent Network, and Cisco-validated applications in ways that have never existed before. Empowered by a unique set of capabilities within, between, and beyond the cloud, IT can guarantee the service experience while simultaneously reducing the time, cost, and resources needed to deliver and scale. One such integrated solution is the Cisco Hosted Collaboration Solution (HCS). For example, a large North American financial institution with 100,000 phones and more than 6000 branch offices found that it would save more than $100 million over five years for assured voice services by using HCS and refreshing its network.

In this document, ACG Research models the underlying infrastructure of Cisco's cloud portfolio. Future white papers will focus on applications and services developed or validated by Cisco. For simplicity, we will consider a private cloud implementation of cloud infrastructure compared with individual virtualized data centers as a baseline. The model includes expected benefits from taking advantage of the end-to-end infrastructure and by optimizing services across public and private clouds. We measure the benefits in three ways:

- Service and application provisioning time
- Cloud service delivery total cost of ownership (TCO)
- Maintenance expense share of the IT budget

### Key Findings

Cisco's cloud portfolio enables the world of many clouds—private, public, and hybrid—by offering assured application experience and new levels of agility and security. The Cisco approach uniquely integrates data centers, networks, and applications.

Network intelligence applied across people, applications, and processes can dramatically improve economics beyond simple data center virtualization. It can:

- Reduce service and application provisioning time to 15 minutes
- Reduce cloud service delivery TCO by 50 to 85 percent beyond TCO reductions from data center virtualization
- Reduce the maintenance share of the IT budget from 60 to 30 percent

## Introduction

A cloud revolution is brewing, and it promises to radically transform the way we compete, collaborate, and consume business services. Cisco views the cloud as a combination of computing, networking, storage, management solutions, and applications across multiple geographical locations and resource providers. Cisco's cloud portfolio facilitates the world of many clouds: private, public, and hybrid, by helping to ensure application experience, security, and rapid scaling across the infrastructure by uniquely integrating data centers, networks, and applications.

The key advantage for enterprises is that this fusion of technologies delivers new levels of customer experience, end-to-end TCO, and efficiency while freeing IT to innovate with increasingly complex applications and services.

The economic benefits of moving from individual virtualized data centers to the Cisco approach are estimated using an in-depth modeling exercise. The analysis used three metrics that are strategic to IT operations:

- Total cost of ownership of cloud services: Operations expense (OpEx) and capital expense (CapEx) to deliver cloud-based services
- Speed of IT service delivery: Speed of compute service provisioning and delivery of applications and services to end users
- Percentage of IT budget used for maintenance: Addressing the issue that high maintenance costs stifle innovation

The following sections describe Cisco's cloud solutions and present the economic modeling exercise.

## The Cisco Architectural Approach

Cisco provides a comprehensive cloud architectural approach. It treats multiple data centers and networks as a vast pool of dynamic resources that constitute the cloud. It uses the visibility of applications, users, and devices and the availability of infrastructure to optimize service delivery from the cloud. For example, the Cisco approach allows a retailer to use a collaboration service from a service provider, access customer data from a private cloud location, and apply security policies from yet another managed service provider.

The end-to-end network is at the center of the Cisco cloud strategy. IT addresses the network within data centers, between public and private data centers, and in mobile and fixed network connections to end users, including the employees and customers of enterprise. Cisco optimizes the sourcing of data and content across the network and public and private data centers. These optimization capabilities can be integrated with service orchestration software (cloud management software) so that the intelligence in the network can be used as decision criteria for managing the cloud—deploying workloads or consuming resources from the best locations.

Cisco's cloud solutions allow enterprises to offer high-value services that can be delivered with a high quality of experience and managed service-level agreements (SLAs) from the cloud with the flexibility, scalability, and application functionality of private networks and data centers. Cisco's security

architecture embeds security into every component of the infrastructure and is an end-to-end system specifically designed for cloud services.

This cloud portfolio is open to all applications, including Cisco applications, partner applications (for example, from SAP), enterprise custom-developed applications, older applications, and "designed for the cloud" workloads. Not only does this approach resolve the technology issues of delivering applications using the cloud, but it also includes validated solutions with partners for the go-to-market model, ongoing software licensing, financing, and on-demand billing.

Cisco provides management and automation to rapidly set up and deliver cloud services. This includes moving workloads and shared resources across applications and on-demand responses to changing internal or market demands. Cisco provides a unified management framework for simplified management and automation across physical and virtual data center resources to accelerate delivery of IT services and cloud applications.

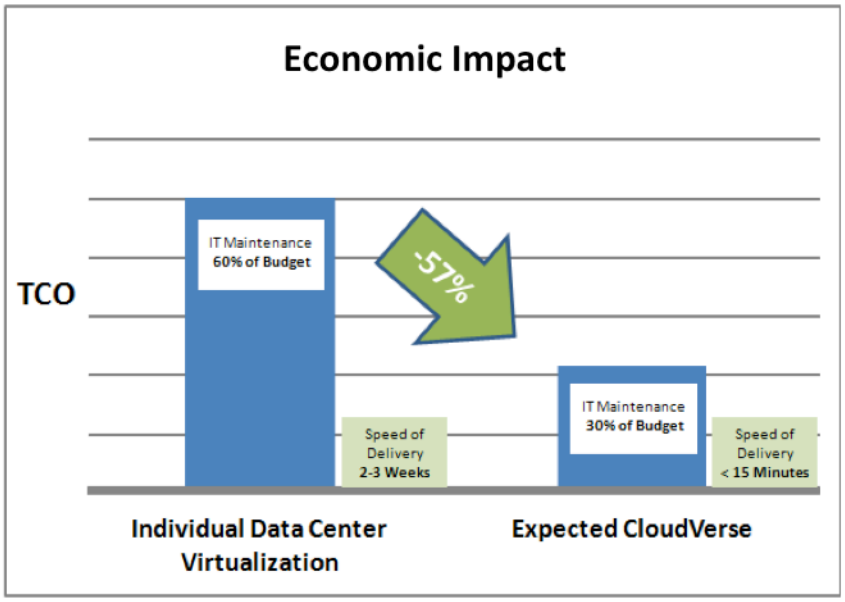
## Economic Impact of Cisco's Cloud Portfolio

ACG modeled the journey from individual virtualized data centers to a full cloud implementation and validated the results with examples of realized benefits by customers. The modeling exercise included:

- Data from completed Cisco cloud deployments
- Projected benefits estimated by:
    - Modeling the benefits of capacity sharing across multiple data centers achieved by applying intelligent network capabilities
    - Modeling OpEx reductions achieved by applying lifecycle process automation capabilities

Figure 1 summarizes the total economic benefits derived from the modeling exercise.

**Figure 1 Economic Impact of Cisco's Cloud Portfolio**



The expected cloud services delivery TCO reduction of 57 percent is achieved through implementation of the complete Cisco portfolio. Speed of delivery is reduced from 2 to 3 weeks to 15 minutes. IT maintenance consumes 60 percent of the IT budget when individual data centers are virtualized. This is expected to drop to 30 percent of the IT budget when the Cisco portfolio is fully implemented. These benefits are derived from three main factors:

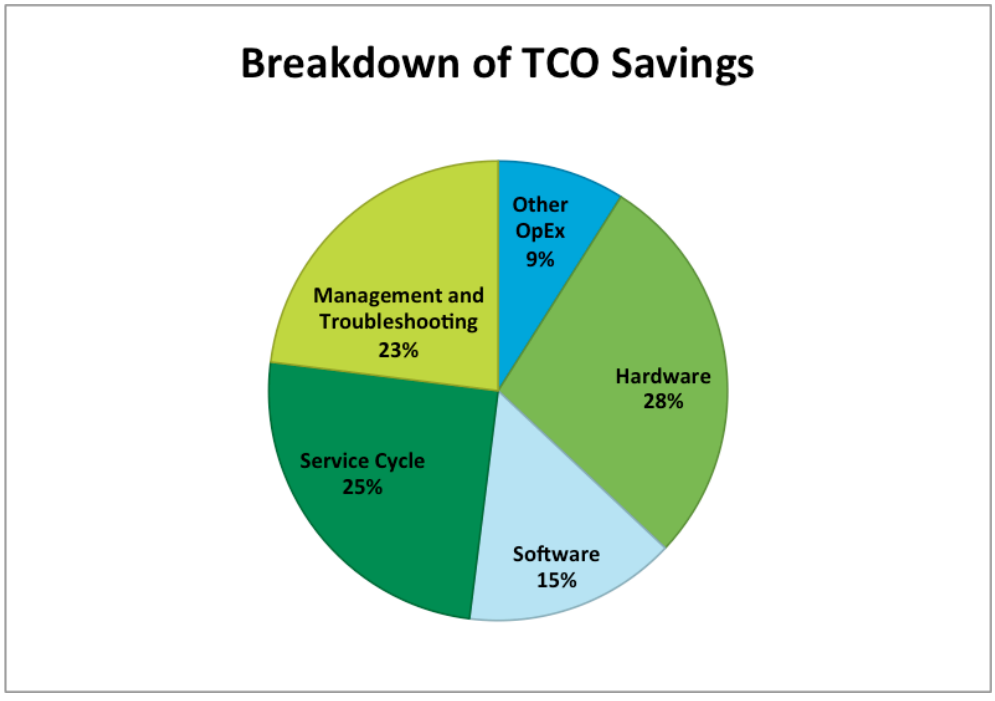
- Integration across the network, storage, and servers to offer services with high availability, reliability, and security
- Optimization of resources from a pool that encompasses many clouds using end-to-end network intelligence
- Enhancement of IT department efficiency with better interoperability, easier management, and greater automation

The CapEx portion of the TCO analysis is the infrastructure spending required to deliver these services, both for initial deployment as well as for scaling up to meet the increasing service requirements. CapEx is divided into four categories to build a complete picture of the economics of moving workloads to the cloud: network, storage, computing, and software licensing. Services are delivered over the network with the capacity to augment resources from other services and locations during peak demand situations. This allows service deployments to be more efficient and thus reduces CapEx.

The CapEx benefits and the flexible scaling of infrastructure are also enabled by Cisco's broad ecosystem of partners and the inclusion of professional services, which allow for the establishment of cloud services and the ability to scale up the deployment using public and private clouds when there is increasing demand on the network.

Figure 2 shows a breakdown of TCO savings from the complete Cisco Cloud Portfolio.

**Figure 2 Breakdown of TCO Savings**



The savings are distributed quite evenly across all expense categories. Hardware cost savings are derived primarily from the increased utilization that is obtained through end-to-end intelligent networking. Service lifecycle, management, and troubleshooting costs are reduced through the management and automation features provided by Cisco technologies.

### *Realized Benefits*

Projects at a large North American financial institution and a U.S.-based benefit management company provide data on benefits that have been realized by using the Cisco approach.

Cisco's architecture optimizes resources across many data centers, the network, multiple clouds, and an extensive ecosystem of integrated solutions. One such integrated solution is the Cisco HCS. For example, a large North American financial institution with 100,000 phones and more than 6000 branch offices found that it would save more than $100 million over 5 years by using HCS and refreshing its network following the Cisco architectural approach. The savings are net of the investment in HCS and the network refresh.

CareCore National, LLC, a specialty benefit management company that pioneered evidence-based medical treatments, provides another example of the cost and service delivery reduction benefits resulting from its partnership with Cisco. The company reduced its time to launch new lines of business from 6 months to 2 weeks and increased the time software engineers can devote to development projects from 50 percent to 80 percent. The unified solution for the data center and its structured approach to service provisioning reduced the staffing requirements for managing the infrastructure and accelerating service introductions. For example, rather than purchasing, deploying, and configuring new servers and then connecting them to the data center network and storage, a server administrator simply clicks to apply a predefined service profile to any available blade server.

### *Projected Benefits*

Two examples of projected benefits involve the management and automation features, and the network intelligence used to reduce data center peak capacity.

The management and automation features of Cisco cloud solutions are an important source of its economic benefits. Cisco integrates storage, computing, and networks to truly realize the value of services delivered from the cloud. ACG Research analyzed the economic impact by breaking down the cloud services provisioning lifecycle into five work processes. The research evaluates the impact on these processes of high levels of automation, service catalogs, and provisioning policies that take most of the manual tasks out of the cloud services provisioning lifecycle. In contrast, traditional provisioning methods employ semi-automation and enterprise-developed scripts, which results in the retention of many manual tasks.

Table 1 compares the modeled operations expense of the five work processes using Cisco's cloud portfolio with traditional methods for a private cloud. The private cloud is for a large enterprise with four large European campuses and a total of 12,000 employees. The enterprise offers collaboration, virtual desktop infrastructure (VDI), and private infrastructure as a service.

**Table 1 – Modeled Private Cloud OpEx Savings from Cisco Approach**

| Lifecycle Processes | Annual Operation Expenses ($ 000s) | | |
|---|---|---|---|
| | Traditional Methods | Cisco Approach | % Savings |
| Creating: Deploying from bare metal to a running service | $2,100 | $240 | 89 |
| Scaling : Adding capacity to meet demand | $4,320 | $1,080 | 75 |
| Onboarding: Adding new enterprise departments | $21,600 | $2,400 | 86 |
| Maintaining: Upgrading, patching, and changing | $5,400 | $1,800 | 67 |
| Operating: Managing, troubleshooting, and repairing | $3,000 | $300 | 90 |
| **Total OpEx** | **$36,420** | **$5,820** | **84** |

The management and automation features of Cisco's cloud portfolio reduce OpEx by 84 percent in this case study example. Onboarding (bringing a new department or user into the system) is the single largest contributor to provisioning lifecycle expenses and realizes the greatest benefit from Cisco's cloud management and automation. Moving to Cisco management and automation technology also dramatically reduces speed of delivery from 2 to 3 weeks to 15 minutes.

The Cisco cloud architectural approach includes the capability to optimize the sourcing of data and content across the network, many data centers, and many clouds. This network intelligence can be used to optimize peak data center capacity across geographically distributed data centers. Peak capacity reductions lead over time to lower CapEx and OpEx because data centers are designed to meet peak capacity requirements. ACG Research studied the use of network intelligence to reduce data center peak capacity across 10 globally distributed public data centers. A potential TCO reduction of up to 35 percent was identified. The reduction is achieved by shifting end-users' peak-period computing loads from heavily used data centers to those that are lightly loaded. The TCO reduction is net of the increased cost of transporting users' sessions longer distances to more remote but less heavily loaded data centers.

## Conclusion

The Cisco cloud portfolio is a comprehensive architectural approach. It treats multiple data centers and networks as a vast pool of dynamic resources that constitute the cloud. It uses the visibility of applications, users, devices, and availability of infrastructure to optimize service delivery from this cloud.

The economic modeling of the journey from virtualized data centers to the implementation of the Cisco architectural approach projects an expected cloud services delivery TCO reduction of an additional 50 to

85 percent beyond that delivered by virtualization of individual data centers. Speed of delivery is reduced from 2 to 3 weeks to 15 minutes. The model also projects that the IT maintenance share of the IT budget will drop from 60 percent when individual data centers are virtualized to 30 percent when the Cisco cloud portfolio is fully implemented end to end.

**ACG Research**

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