

Executive Summary

Cloud architecture enables IT to be delivered as a service and delivered only when it is needed over the network from central, secure public and private data centers. Enterprises are looking for cloud architectural solutions to reduce cost, reach new efficiency levels, and facilitate innovative business models that drive revenue growth and increase competitive differentiation.

Cisco CloudVerse is a comprehensive architectural approach that encompasses many clouds. CloudVerse is an end-to-end architecture that includes the network within data centers, between public and private data centers, and for mobile and fixed network connections to end-users, including the employees and customers of the enterprise. The network is at the center of the CloudVerse approach. It is used to provide on-demand, secure, reliable, high-quality, and resilient cloud services.

ACG Research presents an economic modeling exercise of the journey from individual virtualized data centers to the network-centric approach of CloudVerse to cloud service delivery. The exercise includes the realized benefits of existing cloud solutions that employed the CloudVerse approach and the expected benefits that will be captured through extending the approach end-to-end across the network and by optimizing services across many public and private clouds. The modeling exercise measures the additional benefits of CloudVerse beyond those produced by the virtualization of individual data centers using three metrics are a reduction 1) in service and application provisioning time; 2) in cloud service delivery total cost of ownership (TCO); and 3) in the maintenance expense share of

Key Takeaways

CloudVerse uses the network to enable a global scope across many clouds and down into the infrastructure, applications, people and processes.

- Network intelligence produces economic benefits beyond those of virtualization of individual data centers.
- Leverages network intelligence to reduce service and application provisioning to 15 minutes.
- Reduces cloud service delivery TCO by 50% to 85% over and above TCO reductions due to individual data center virtualizations.
- Reduces maintenance share of the IT budget from 60% under individual data center virtualizations to 30%.

Introduction

A cloud revolution is brewing, and it promises to radically transform the way we compete, collaborate, and consume business services. A cloud combines computing, networking, storage, management solutions, and business applications across multiple geographical locations and many resource providers. The key advantage for enterprises is that this fusion of technologies enables IT to be delivered as a network service only when it is needed and leverages the network to source services from multiple, secure public and private data centers thereby altering the way that content is delivered and transforming the ways in which people work and collaborate.

Enterprises are looking for cloud architectural solutions to reduce cost, reach new efficiency levels, and facilitate innovative business models that drive revenue growth. Cloud solutions offer increased business agility, reach and scalability, which support new services innovation, competitive differentiation and faster time to market through adoption of new technologies. Cloud solutions can also dramatically reduce IT maintenance expenses and free up IT budgets so that staff can undertake more innovation projects.

The economic benefits of moving from individual virtualized data centers to the global network-centric CloudVerse approach are explored using a modeling exercise. The exercise employs three metrics that are strategic to IT operations:

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

The following sections describe CloudVerse and present the economic modeling exercise.

CloudVerse Architectural Approach

Cisco CloudVerse is a comprehensive architectural approach. Its scope is global across many clouds and down into infrastructure, network, applications, people and processes, for example, a retail customer utilizes a collaboration service from a service provider, customers' data from a private cloud location and security from another managed service provider.

The end-to-end network is at the center of the CloudVerse approach. CloudVerse addresses the network within data centers, between public and private data centers, and for mobile and fixed network connections to end-users, including the employees and customers of the enterprise. CloudVerse 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 workload or consuming resources from the best location.

CloudVerse allows enterprises to offer high-value services that can be delivered with high quality of experience and managed SLAs from the cloud with the flexibility, scalability and application functionality of private networks and data centers. The security architecture of CloudVerse embeds security into every component of the infrastructure and is an end-to-end system specifically designed for cloud services.

CloudVerse is open to all applications, including Cisco's applications, partners' applications (for example, SAP), enterprises' custom developed applications, legacy applications and "designed for the cloud" workloads. Not only does CloudVerse 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.

CloudVerse provides management and automation to agilely support the dynamic nature of cloud. This includes moving workloads and shared resources across applications and on-demand response to changing internal or market-driven demands. It 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 CloudVerse

The movement to a global network-centric CloudVerse solution from individual virtualized data centers is modeled as a journey over time. The modeling exercise includes:

- Hard data from completed CloudVerse projects
- Projected benefits created by:
 - Modeling the benefits of capacity sharing across multiple data centers achieved by applying intelligent network capabilities of CloudVerse
 - Modeling OpEx reductions achieved by applying lifecycle process automation capabilities of CloudVerse

The following paragraphs summarize the modeling exercise and provide several examples of results from realized and projected benefits that depend on full end-to-end deployment of CloudVerse.

Figure 1 summarizes the total economic benefits of the modeling exercise.

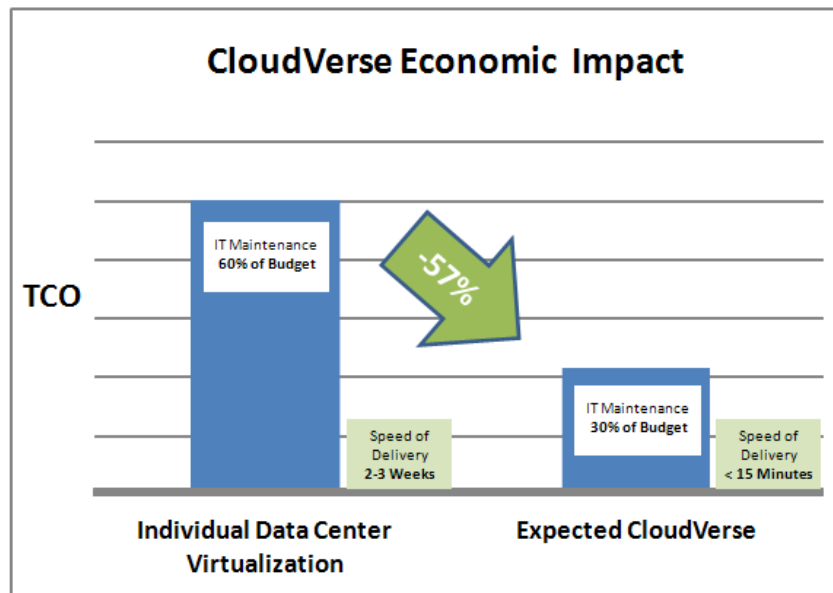


Figure 1 – Economic Impact of CloudVerse

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

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

The CapEx portion of the TCO analysis is the infrastructure spend required to deliver these services, both for the initial deployment as well as 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 and able to augment resources from other services and locations during peak demand situations. This allows service deployments to be more efficient and thus reduces the CapEx spend.

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 in CloudVerse, 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 CloudVerse solution.

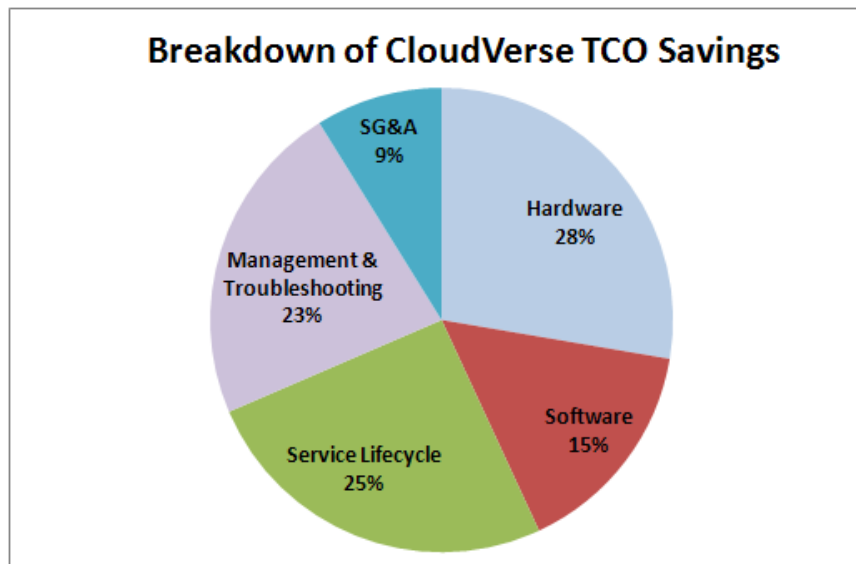


Figure 2 – Breakdown of CloudVerse TCO Savings

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 of CloudVerse. Sales, general, and administrative (SG&A) expenses are overhead costs that decline along with reductions in the direct costs.

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 CloudVerse approach.

The architectural approach of CloudVerse optimizes resources across many data centers, the network, multiple clouds, and a rich ecosystem of integrated solutions. 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 6,000 branch offices found that it would save more than \$100 million over five years¹ by using HCS and refreshing its network following the architectural approach of CloudVerse.

CareCorp National, LLC, a specialty benefit management company that pioneered evidence-based medical treatments, provides another example of the cost and service delivery reduction benefits of CloudVerse. The company reduced its time to launch new lines of business from six months to two weeks and increased the time software engineers can devote to development projects from 50% to 80%. The CloudVerse 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.

¹ The savings are net of the investment in HCS and the network refresh.

Projected Benefits

Two examples of projected benefits are provided: 1) the management and automation features of CloudVerse; and 2) network intelligence used to reduce data center peak capacity.

The management and automation features of CloudVerse are an important source of its economic benefits. CloudVerse integrates storage, computing and network 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. These processes evaluate the impact 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 home-grown scripts, which results in the retention of many manual tasks.

Table 1 compares the operations expense of the five work processes using CloudVerse versus traditional methods for a private cloud. The private cloud is for a large enterprise with four large European campuses with a total of 12,000 employees. It offers collaboration, VDI, and private infrastructure as a service.

Lifecycle Processes	Annual Operation Expenses (\$ 000s)		
	Traditional Methods	CloudVerse	% Savings
Creating: Create from bare metal to running service	\$2,100	\$240	89
Scaling : Add capacity to meet demand	\$4,320	\$1,080	75
Onboarding: Add new enterprise/department	\$21,600	\$2,400	86
Maintaining: Upgrade, patch, change	\$5,400	\$1,800	67
Operating: Manage, troubleshoot, repair	\$3,000	\$300	90
Total OpEx	\$36,420	\$5,820	84

Table 1 – Example Private Cloud OpEx Savings from CloudVerse

The management and automation features of CloudVerse reduce OpEx by 84% 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 CloudVerse management and automation. Moving to CloudVerse management and automation also dramatically reduces speed of delivery from two to three weeks to 15 minutes.

The network-centric CloudVerse approach includes the capability to optimize the sourcing of data and content across the network, many data centers, and clouds. This network intelligence can be used to peak data center capacity across geographically distributed data centers². Peak capacity reductions flow through directly to lower CapEx and TCO 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% was identified. The reduction is achieved by shifting end-users' peak period computing loads from heavily utilized data centers to those that are lightly loaded. The TCO reduction is net of the increased cost of transporting users' sessions farther distances to more remote but less heavily loaded data centers.

Conclusion

Cisco CloudVerse is a comprehensive architectural approach with global scope that encompasses many clouds, infrastructure end-to-end, applications, people and processes. The network is at the center of the CloudVerse approach. It is used to provide on-demand, secure, reliable, high-quality, and resilient cloud services.

ACG Research presented an economic modeling exercise of the journey from individual virtualized data centers to full, end-to-end implementation of the network-centric CloudVerse approach to cloud service delivery. The modeling exercise projects an expected cloud services delivery TCO reduction of an additional 50% to 85% beyond that delivered by virtualization of individual data centers. Speed of delivery is reduced from two to three weeks to 15 minutes. The model also projects that the IT maintenance share of the IT budget will drop from 60% when individual data centers are virtualized to 30% when CloudVerse is fully implemented end-to-end.

ACG Research

ACG focuses on providing market analysis and consulting to help service providers, enterprises, and vendors monetize their existing infrastructures and increase operational efficiency and profitability. Through ROI and TCO analysis, product and service message testing, and business model review, reports and forecasts, ACG gives you strategic and tactical advice, services and products, and timely answers so that you can better understand market dynamics and grow your telecom operations more efficiently and profitably. Copyright © 2012 ACG Research.

² This is analogous to the use of the power grid by the electric power industry to reduce power plant peak capacities.