

Private Cloud: Deliver Agility and Efficiency Through Better IT



The Cisco Private Cloud Portfolio Provides Agile and Efficient Service Delivery for Sustainable Business Advantage

What You Will Learn

Enterprises are often held back by an inflexible and complex IT infrastructure that cannot keep up with the new application and service demands of an increasingly distributed workforce. These restraints result in slow rollout of critical applications and services, constrained resources, poor operation visibility and control, and unpredictable system integration. The Cisco® Private Cloud portfolio provides agile and efficient service delivery, including the virtualization, simplification, automation, and acceleration of applications and services that can provide a sustainable business advantage. Importantly, Cisco provides an open, standards-based data center network architecture and ecosystem that maintains customer choice and increases business value while substantially decreasing the total cost of ownership (TCO).

The Move to Private Cloud

For chief information officers (CIOs) and IT leaders, the range of cloud computing solutions can be overwhelming. Enterprises have many options for acquiring, building, and consuming IT services. Cisco is playing a major role in the cloud computing evolution by participating in private cloud (internally owned), service provider cloud (externally delivered), and hybrid cloud (a combination of the two) services, all connected by an intelligent network that delivers performance, security, and availability for the most mission-critical applications.

Cloud computing arose from the need of the largest web providers to scale to thousands of servers with highly automated management systems. Other web companies with lesser needs immediately adopted these new service offerings due to the pace of business enablement they offered. Eventually, the cost efficiency and IT agility of this approach caught the attention of enterprise CIOs and their IT departments.

Forward-looking CIOs, who in the past may have compared themselves mainly with their peers, now compare their costs with those of the broader cloud market. In many cases, they are finding that their own internal costs are several times greater than those for services provided by cloud service providers. It is this discrepancy that is causing the huge interest by enterprises in private, or on-premises, clouds.

Are private clouds possible? The answer is yes. Many of the operational models developed from running large, web-scale cloud services can be applied within the enterprise. For an IT department, this means moving in the direction of becoming an internal service provider and delivering IT as a service. It also means assessing how resources can be pooled across functional areas to increase efficiency, and potentially restructuring portions of IT to focus on innovative projects for the business.

Challenges

Unlike many public cloud services, which built their infrastructure from scratch, enterprises face the challenge of maintaining many existing systems in addition to looking for ways to technologically move IT forward. For many enterprises, the move to a fully automated data center with dynamically allocated resources, self-service provisioning, and service-level chargeback is still a vision for the future. Although IT departments know that 70 to 80 percent of their resources are consumed by maintenance activities, they are constantly looking for new ways to free resources to deliver innovations for the business. This task can be daunting with older technologies and architectures. The Cisco Private Cloud portfolio is uniquely positioned to address these challenges, with networking, computing, storage, and management solutions

A main concern for IT departments is slow responsiveness to business demands. Today, a request to provision an application can take weeks or months. Often infrastructure must be physically provisioned or reprovisioned for each change. Service provisioning is further complicated by the separate infrastructures, decision-making functions, and processes that exist within IT departments. These delays in delivering a requested service can lead to dissatisfaction, with the result that the line-of-business group may seek alternative sources of IT capabilities. Forward-looking IT departments are not only trying to respond to business demands more efficiently, but they are also beginning to explore solutions that allow self-service capabilities to extend to segments of the end-user community. This operational model will allow IT to begin to deliver service levels that match or exceed those that public cloud services provide to their users and to offer them in a secure, controlled environment.

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Many IT departments have established cross-functional projects to rapidly virtualize their x86 server platforms and applications, resulting in significant cost savings in power, cooling, and rack space in their data centers. However, virtualization has created new challenges with the need to manage and orchestrate all the virtual machines dynamically moving around the data center and between data centers. Often, IT must redesign the network, security policies, and operation processes to adapt to this new data center model. IT departments are demanding a level of control at the network, security, and policy layers that matched what they had prior to virtualization. They require visibility into the movement of applications between servers and around the data center to enforce compliance, governance, and auditing requirements. At the same time, they are looking for solutions that allow them to use the dynamic new capabilities of virtualization to create more flexible and effective business resilience and disaster recovery models for the business.

Cost and constrained IT resources are other large problems. Most departments are faced with stagnant or declining budgets, but are being asked not only to maintain the

current environment but support new initiatives tied to critical organizational needs such as revenue growth and regulatory compliance. With 70 to 80 percent of IT resources consumed by maintenance, not many resources are left for potential new investments. Cloud computing represents a tremendous opportunity to simplify the overall infrastructure—not just by reducing equipment needs, but also by streamlining processes and organizational structure—which translates to more IT budget and resources for new initiatives.

Enterprises also often have a problem with system integration. Whether the barriers are created by technology or by organizational boundaries, difficulties in integrating server, storage, network, and management resources often restricts an enterprise's capabilities in moving to the cloud. For that reason, a solution must offer ease of deployment while being able to integrate with other best-in-class technologies.

Cisco Private Cloud Architecture

The Cisco Private Cloud portfolio (Figure 1) is built on a modular architecture that allows customers to migrate to cloud models at a pace that fits their business needs.

Figure 1. Cisco Private Cloud Portfolio



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The Cisco solution offers four main benefits to help enterprises move toward private cloud computing and better IT service:

- **Virtualization:** Virtualization is a primary initiative for enterprises today. The benefits of virtualizing servers are obvious: reduced costs, more efficient use of resources, and the capability to deploy services quickly. However, virtualization of the server is only one element of the transformation. The other element is the response of the rest of the infrastructure; this includes helping ensure that availability, security, and resilience mechanisms are in place in the network.
- **Simplification:** Standardization of architectures and components and multivendor integration provide means for responding quickly to new requirements and requests. Through Cisco's data center portfolio, including Cisco Unified Fabric, Unified Computing, and Unified Network Services, Cisco is simplifying the data center through consolidation of network fabrics, network operating systems, and services, and integrating the organizational silos surrounding them. This consolidation leads to greater efficiencies in the management of the data center infrastructure. Equally important, this transformation can occur in an evolutionary way, rather than requiring complete system removal and replacement.
- **Automation:** After costs and processes have been aligned to meet business requirements through consolidation, virtualization, and simplification, many IT departments want ways to sustain those efficiencies by implementing automation across the infrastructure. To help improve operations for customers moving to cloud computing, the Cisco Unified Computing System™ delivers increased process automation through open XML APIs, allowing enterprises to integrate with their management, orchestration, and automation vendors of choice. By focusing on deep integration with leading cloud management partners through open APIs, Cisco's cloud portfolio gives enterprises the flexibility to build private clouds and to begin to use hybrid cloud capabilities as their business requirements change.

- **Acceleration:** A challenge many customers face is how to quickly integrate all the components required for virtualization and automation so that they can enable IT as a service. Cisco has partnered with leading storage vendors, including EMC and NetApp, to create packages of infrastructure that are pretested and validated and that can be enabled rapidly to support business and IT applications. With open APIs and third-party party management tools, enterprises have a choice of cloud management providers.

Why Cisco for Cloud Computing?

While the market is beginning to evolve in the way that it delivers cloud computing infrastructure and services, it is important to remember that cloud computing is ultimately about delivering new business flexibility, agility, and innovation through new uses of technology. Cisco is uniquely positioned to deliver those advantages to enterprises through these features:

- **The network:** Cisco delivers integrated, standards-based networking solutions that provide the critical underpinnings for cloud computing, including "anywhere" connectivity, scalable bandwidth, service-level agreement (SLA) management, security and risk management, application and workload mobility, and business resilience. Cloud computing is the most network-centric operations model in IT history, and Cisco has the differentiated products, systems, and services, plus the knowledge, to deliver exceptional value to the cloud from the network.
- **Innovation:** The Cisco Unified Computing System is optimized for virtualization and cloud computing. By completely rethinking the way that infrastructure and applications can be deployed virtually, Cisco is providing innovation to change the way the data center is operated. This innovation extends to unified fabric and unified network services, delivering a secure cloud environment for collaboration, mobility, and video applications and other applications to meet business needs.

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- **Integration:** Cisco accelerates customers' capability to buy, consume, and operate private cloud services through the delivery of pre-integrated solutions. By using the Cisco Validated Design process and working jointly with ecosystem partners, Cisco has created solutions that help remove risk and accelerate deployment of virtualized cloud infrastructure while providing tight integration with industry-leading cloud management platforms.
- **Openness:** The openness of the Cisco Private Cloud solution extends to both the standards and the ecosystem. Cisco has taken a leadership role in developing appropriate cloud infrastructure standards for the industry. Cisco also has developed a strong industry ecosystem of partners that together deliver innovative, integrated solutions for customer choice and flexibility. Unlike other solutions, which lock customers into a vertically integrated stack or take away control and ownership through outsourcing, the Cisco Private Cloud solution allows customers to maintain trust in their data, operation policies, and governance models in place today.

Continuing Your Journey

Cisco's approach to a private cloud model assumes that private cloud is not an end state, but rather a portion of an every evolving IT portfolio. It enables an open, modular architecture that can accommodate future innovations and strategies, such as hybrid cloud services between public and private clouds. The model Cisco has created for the enterprise helps IT departments move from a siloed model to delivery of IT as a service at their own pace. This approach helps ensure that users, whether they are departments, lines of business, or partners, have an optimal experience when engaging with IT and receiving their required services. Cisco delivers exceptional control of both server and networking platforms, helping ensure outstanding openness and control.

For More Information

For more information, please go to www.cisco.com/go/privatecloud.



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