

Cisco IT Insights

Cisco IT Global Cloud Strategy

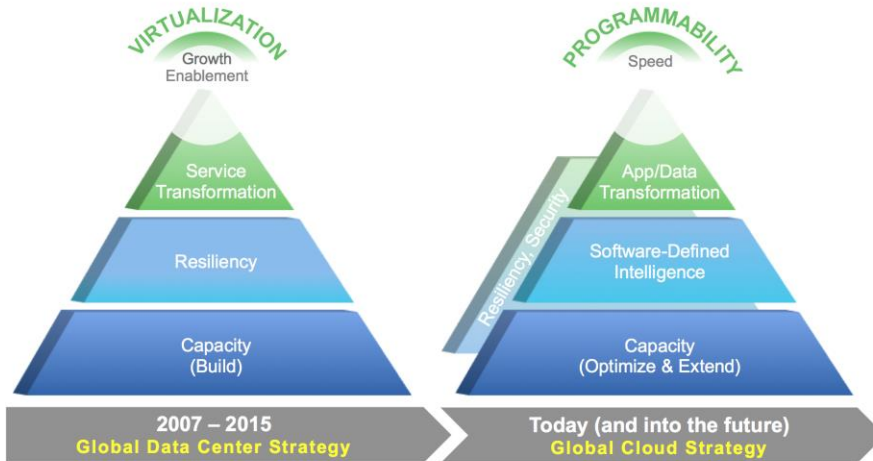
What

A growing trend is to move IT services from delivery via the traditional enterprise data center to delivery over private or public clouds. This trend has a dramatic effect on how Cisco IT is designing, building, and operating our data centers, as reflected in the Cisco® IT 2016 Global Cloud Strategy (GCS). The strategy outlines our planned key areas of investment in data center and cloud services over the next five years.

The GCS builds upon our previous work to create a unified, virtualized IT infrastructure that provides more capacity, flexibility, and resiliency. The strategy also reflects our current work to develop containerized applications that are based on a micro-service, cloud-native architecture.

Figure 1 shows how our data center strategy has evolved to reflect Cisco IT's growing focus on cloud services and applications.

Figure 1. Evolution of Cisco IT Data Center Strategy to Support Cloud Services



The new strategy for cloud and data centers focuses on two key dimensions. First is a programmable infrastructure that extends current capabilities for orchestrating multitenant cloud services to support a hybrid private and public cloud environment. This environment adapts automatically to changing application needs.

The second dimension is in the architecture of applications, going beyond those that are considered cloud-tolerant. The new GCS transforms applications to be cloud-native, designed from the start to intelligently maximize their use of cloud capabilities to achieve positive business outcomes.

The elements of the Global Cloud Strategy work together to achieve the target outcomes listed in Table 1.

Table 1. Cisco IT 2016 Global Cloud Strategy Target Outcomes

Target Outcome	Achieved By
Speed and Agility	Transforming applications to a cloud-native architecture where applications maximize their use of cloud capabilities and interact directly with cloud services Making all platforms and infrastructure programmable and API-driven through cloud-based consumption Using policies and profiles for secure application placement and flexible workload delivery via containers, virtual machines, and physical servers
Simplicity and Operational Excellence	Using data-driven operational insights to manage complexity in an increasingly dynamic cloud environment
Cost Optimization	Avoiding large capital investment by optimizing infrastructure that resides within existing data center facilities Increasing the density and use of infrastructure resources Shifting to a converged, multitenant infrastructure with flexible infrastructure assets
Extended Capacity	Using public cloud services opportunistically with a secure, hybrid cloud model
Resiliency and Performance	Enabling geographically distributed applications and data that can self-heal and be located close to end users for the best user experience
Security	Shifting security tools to a software-centric, virtualized form factor where security can accompany highly portable applications and data

Why

The GCS is designed to help IT keep pace with the speed of business. Flexibility and programmability in cloud services, both private and public, will increase our speed and responsiveness to serve changes in Cisco business activity.

We are already seeing a faster process for application provisioning and can activate new application instances on demand because of three factors:

1. APIs expose our private cloud services to applications.
2. We combine those services with cloud-native applications that have the intelligence to use the APIs.
3. We use policy-based cloud orchestration.

These factors also allow applications to dynamically optimize themselves at run time, without the need for IT staff to make configuration or infrastructure changes.

For cost optimization, we can automatically scale infrastructure resources up or down based on an application's real-time load. If application use increases, we can quickly scale up the associated resources to meet demand so users don't experience slow performance. Similarly, we can avoid the cost of over-provisioning by easily scaling down application resources when demand declines.

Improvements in application resilience and user experience are possible because we can automatically distribute an application based on defined threshold parameters. We can also replicate or move applications with confidence that security will follow.

The data center infrastructure and platforms are designed for the programmability and multitenancy that support more flexible application lifecycle environments. Traditionally, we dedicated infrastructure and platforms for the application development and stage lifecycles, separate from the infrastructure used for production deployment. With the new GCS, we use multitenancy and logical separation for different lifecycles, which allows us to consider an application instance as non-production one day and as production the next day. This method makes production deployment simpler and more flexible for the application teams. After the switch to production, incremental infrastructure resources are easy to add as needed to support full application operation.

Enterprise data centers are costly to build and operate, so another key goal of the new cloud strategy is to optimize our existing data center infrastructure and capacity. This optimization is based in part on making greater use of data center resources. Also important is a regular technology refresh cycle, which allows us to take advantage of improved density in hardware and greater intelligence in software.

The GCS will help us quickly deploy IT resources within a specific country or global region to support greater resiliency. This flexibility also will serve business needs such as compliance with data sovereignty laws, faster file downloads for customers, and faster performance for the engineering platforms used by Cisco development teams located global-wide.

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