

# Five Secrets of Highly Effective Data Centers

More than ever, the data center is a gateway to opportunity, responsible for bringing together the data, applications, and IT resources needed to support growth and innovation. At Cisco we have the opportunity to observe how data center infrastructure is evolving in response to market and technology trends. In no particular order, here are five important strategies we see companies using to overcome the limitations of traditional IT infrastructure and transform their data centers to support innovation and growth.

## #1 Growth Requires Flexible Scaling

Data center workloads are no longer as predictable or controllable as they once were, which changes the way you need to prepare your data center for growth. Your data centers might run distributed applications (for example, backup and big data), database applications (for example, Oracle or SAP), virtualized applications (on multiple hypervisors), and cloud-based applications in an on-demand model. To manage this diversity, you want to build a network that can deliver the right type of performance, scale, and bandwidth for each of these environments. Large, discrete, and expensive upgrades are giving way to the flexible ability to turn up or turn down capacity as needed. The ability to quickly adjust the network—even automatically—to the need of a specific application distinguishes highly effective data centers. A platform such as Cisco Unified Fabric, which integrates compute, storage, networking, security, and virtualization components into a single, centrally managed data center platform, is better able to support diverse environments. Cisco's unified data center platform is easier to manage, faster to deploy, and more cost-effective to operate—which significantly speeds your data center's ability to support growth or the rollout of new applications.

## #2 Virtualization Should Deliver More than Cost Control

If the only thing you have achieved through virtualization is a decrease in computing costs, your virtualization journey has only just begun. The ability to more easily and cost-effectively move applications from one physical location to another should encourage you to revisit your business continuity and disaster recovery strategy. Many companies that were formerly unable to afford a true business continuity solution can do so after virtualizing portions of their data center. With technologies such as virtual machine mobility, your business continuity/disaster recovery strategies are enhanced through application migration, being able to perform data center maintenance without downtime, and by balancing workloads across multiple data centers to make the most efficient use of resources. However, any successful application migration will rely heavily on the underlying network infrastructure. Therefore, it is extremely important that the IP network you use not only support your virtualized environment as it scales, but that it also be resilient, robust, and highly available.

## #3 Innovation Depends on Operational Simplicity

If you have embraced virtualization and cloud, but did so by adding another layer of management to your overall infrastructure, you might have actually increased the complexity of your data center. And the biggest enemy of agility and innovation is complexity. Complexity results in longer deployments, inefficient use of staff, more opportunities for errors, and greater costs. You need to find a way to embrace new technologies while also

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simplifying the environment in which they operate. A fabric infrastructure, which links all data center resources into a single platform with a central point of management, is a better approach. Your fabric should integrate applications, storage, servers, and network infrastructure and provide direct access to both physical and virtual resources to achieve the greatest simplicity. The result will be faster deployment of new services to customers and employees, boosting revenue and productivity. With Cisco Nexus switches and fabric infrastructure in place, you can then easily take things to the next level by integrating orchestration and automation tools. Your IT staff will be freed from many tedious maintenance tasks and able to focus on more strategic projects, boosting innovation even further.

#### #4 Intelligent Networks Can Anticipate and Adapt to Changing Business Needs

Being able to adjust IT infrastructure on-demand to support the unique needs of individual applications is the next big thing for data centers. This capability will increase application performance and further speed the delivery of new applications for those who deploy it. Cisco's approach uses information the network collects about application traffic to automatically adjust network and security configurations to meet the requirements of application users. Because Cisco is building this capability into its network infrastructure, rather than providing it through incremental software, Cisco's approach—called Application Centric Infrastructure (ACI)—can be more efficient in both time and cost. ACI is receiving wide industry recognition and interest.

Security services are also an important element of an application-centric network. Next-generation security solutions eliminate the tradeoff between security and agility for data centers, private clouds, and hybrid clouds. Businesses can accelerate the pace of business when innovative security is built into their data center infrastructure.

#### #5 Open Standards—Based Networking Is the Best Investment Protection

Standards-based solutions inherently bring flexibility to your networking environment and deliver expanded options as future requirements become reality. Data centers are undergoing a major transition toward a smarter, more dynamic infrastructure. With innovation coming from many directions, the network must be capable of adapting to evolving standards and protocols, such as software-defined networking (SDN) and IT consumption patterns, such as hybrid and federated cloud deployment. To keep pace with the evolution of the data center and cloud, open standards that embrace this industry transition provide your data center networks with the best opportunity to adapt to changing conditions.

#### How Does Your Network Compare?

With these five strategies in mind, your next step is to identify any critical gaps in your current infrastructure. Vendors offering integrated professional services, like Cisco, can help complete such an assessment by offering a holistic “big picture” view across IT domains and departments, providing best practices used in previous assessments, and promoting dialog and problem solving through structured conversations. Two types of services are particularly effective at accelerating data center networking transformation projects:

- The Cisco Business Strategy and Planning Service uses proven templates for developing a business justification you can take to management and building architectural roadmaps to meet your business and IT goals.
- The hands-on Cisco Assessment Service will help you document the current state of your architecture and determine the priority of projects to create a more resource-efficient and cost-effective networking environment.

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## The Cisco Advantage

Do not settle for an inflexible IT infrastructure that grows more complex and expensive to maintain each year. Cisco data center solutions increase business value through technology innovation and efficient design. Our portfolio of data center servers, network switches, integrated security solutions, customized consulting and support services, and flexible financing options can transform your data center. Build a data center with Cisco solutions that has the performance, intelligence, and flexibility you need to quickly align IT to new business strategies. With more than 28 years of experience, more than 50 million installed devices, and measurable results in every industry, Cisco and our Cisco Channel Partners are ready help you achieve data center transformation.

## For More Information

For more information on Cisco data center network solutions, visit [www.cisco.com/go/hexus](http://www.cisco.com/go/hexus).



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