Rackspace Case Study

FCIA
FIBRE CHANNEL INDUSTRY ASSOCIATION

EDISON

Executive Summary

Summary

When Rackspace, an industry leader in enterprise-class hybrid cloud infrastructures, sought to increase the capability, efficiency and reliability of their data centers, they turned to the purpose-built storage solution—Fibre Channel.

Challenges:

- Meet scalability demands associated with growth

- Deliver reliable service over a variety of workloads and platforms

- Minimize management and associated costs

Fibre Channel Benefits:

- Fabric-based protocol built for enterprise storage– Fibre Channel

- Fast, simple and elastic networks for simplified scaling and evolution

- Maximization of capital resources by increasing utilization

Rackspace Case Study

Customer

Rackspace, founded in San Antonio in 1998, has rapidly become the service leader in cloud computing, having now expanded to include nine data centers across four continents. Providing enterprise-class hybrid cloud infrastructures to a spectrum of large and small businesses, Rackspace combines public cloud, private cloud, and dedicated bare metal computing to tailor the ideal infrastructure for each customer's specific needs.

Rackspace SAN Responsibilities

Provisioning, decommissioning and re-provisioning servers for various client projects keeps the Rackspace infrastructure in a perpetual state of flux that creates steep demands for the Rackspace SAN, which must act as the conduit between servers and storage. Hundreds of thousands of customers look to Rackspace to deliver the best-fit infrastructure for their IT needs and depend on Rackspace to leverage a storage infrastructure that allows workloads to perform their best, whether on the public cloud, private cloud, dedicated servers or a combination of platforms.

The Need for a Reliable, Scalable and Efficient Infrastructure

What Rackspace needed was a simple, efficient design for each data center that allowed them to be easily scalable to meet the rigors of their provisioning demands, as well as the reliability that their customers expected. More precisely, they needed to establish a "plug-anywhere-in-the-data-center" model, unrestricted by the physical location of hosts or connectivity platforms. It was important that the storage infrastructure was capable of responding to unexpected customer growth and proven to support the additional connections of expanding storage and/or new servers. Fibre Channel (FC) was chosen due to its ability to maximize port utilization, offer the greatest flexibility and ease deployment constraints that would help ensure Rackspace customers received the "Fanatical Support" for which the company is known. To realize such a model, in 2012 Rackspace began outfitting their data centers with 16Gb FC, the purpose-built,proven network for storage engineered to meet Rackspace's high demands. At present, 16Gb FC SANs are fully deployed in eight of Rackspace's nine data centers with the remaining Hong Kong facility's conversion to Fibre Channel scheduled for completion in 2014.

Rackspace Case Study

Business Results

Due to business processes or regulatory practices, some Rackspace customers require dedicated SAN environments. Other customers can run their workloads on a public cloud, private cloud, dedicated servers or a combination of platforms. The Fibre Channel SAN ensures all perform equally well. Numerous Rackspace representatives attest that the use of Fibre Channel has substantially enhanced the capabilities, simplicity and efficiency of their data centers. "Storage is one of our most critical components of our solution offerings," said Sean Widige, CTO Rackspace. "We rely on Fibre Channel because it enables us to quickly scale and meet our customers' increasing demands. It also allows the customer freedom to utilize any of our service platforms, while ensuring integrity of their data."

The following were among the advantages Rackspace realized by deploying Fibre Channel:

- **Simplicity**

  Deploying Fibre Channel has allowed Rackspace to simplify their storage infrastructure, while simultaneously creating a denser environment, which permits more ports per square foot of data center space. In the company's Chicago data center, 16 directors now accomplish the same work that required 30 older director class systems before the transition to Fibre Channel. This represents an approximate 33 percent reduction in footprint.

- **Efficiency**

  Improves utilization and increases efficiency through the proliferation of virtualization requirements demand the reliable performance levels. Virtual machine mobility demands the higher speeds that Fibre Channel provides for Rackspace to link each of three global data centers. Fibre Channel provides exceptionally fast (up to 64Gbps) connectivity between six directors, ensuring a far more reliable medium. At the same time, Fibre Channel enables flatter, faster and simpler fabrics, which increase consolidation and reduce network complexity and costs.

- **Economy/Resource Maximization**

  Rackspace's enhanced storage infrastructure footprint contains a high-density port count—which means that Rackspace requires less space for infrastructure and thus has more actual "rack space" to sell. Additionally, the lower per-port power that Fibre Channel draws has considerably eased the strain on data centers nearing capacity. Case in point: Rackspace had begun to experience energy issues in their data centers, these issues subsided immediately after high-density Fibre Channel port count was deployed, despite the continued (and continuing) growth of Rackspace's data centers.

- **Scalability**

  Working with Rackspace Fibre Channel Architects, Fibre Channel engineers designed a fabric for Rackspace that was easy to grow and manage, and which allowed data center technicians to connect any device to any switch in the fabric. Flat, simple, and elastic, the Fibre Channel fabric can easily scale up and down in response to Rackspace's needs.

A Closing Note on Fibre Channel

In considering the benefits above, one begins to understand why Rackspace, along with 90 percent of Fortune 1000 data centers, trust Fibre Channel with their storage needs. These enterprises realize that data connectivity is more than just speed, but also about scalability, data integrity, operational simplicity, mission-critical performance, virtualization and reliability. "For Rackspace, density and the ability to use all of our capacity is critical to our financial performance," says Widige. "Fibre Channel allows us higher densities, the ability to leverage the infrastructures across our customer base and more readily monetize our capital investments."

Whether it is in the service of Rackspace or a smaller enterprise, Fibre Channel continues to prove its superior value in each of these areas, and demonstrates why it is the purpose-built storage solution.