Tier 3 Provides Secure Cloud Storage Infrastructure with NetApp MultiStore

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CUSTOMER PROFILE

Tier 3 delivers enterprise-level managed services to small to medium-sized businesses (SMBs), offering end-to-end IT management. The company prides itself on providing enterprise-level support, redundancy, and scalability and running the best and most up-to-date enterprise technology, including VMware® ESX, NetApp storage solutions, and HP ProLiant servers, to deliver an unmatched infrastructure as a service (IaaS) platform.

Tier 3 staff is highly trained: each level III engineer has at least four years of experience running IT environments with 300 or more servers. Each client gets its own dedicated team of five engineers, a business manager, and an executive sponsor. Unlike many other service providers, Tier 3 offers a simple, affordable pricing structure with a convenient, easily understood monthly cost for each hosted server instance. Since opening its doors in 2000, Tier 3 has grown more than 50% each year.

"We truly believe that IT can be delivered better, and we always work to improve upon our past challenges," says Jared Wray, principal of Tier 3. "Tier 3's mantra is virtual-ize, optimize, and above all simplify. With NetApp systems, NetApp MultiStore®, and VMware, we have transformed our data centers into shared, yet secure clouds of server, network, and storage resources."

THE CHALLENGE

Fast, robust disaster recovery: a requirement for IaaS
A proven storage infrastructure is an essential element of the services that Tier 3 provides. Clients expect their stored data to be avail-able immediately, around the clock, and they also want to make sure that it is reliably backed up for disaster recovery (DR) purposes. According to Wray, DR is often neglected by IT organizations because of the cost and technical know-how required, making it among the most important services Tier 3 can offer. The company automatically replicates customers' data to its secondary data center to facilitate data recovery. Every client now has a one- to eight-hour service-level agreement (SLA) for restoration of its services in case of a disaster. This is included at no additional cost. Tier 3 is able to offer this due to NetApp.

Tier 3 had been using Dell EqualLogic SAN and third-party deduplication solutions exclusively in its two data centers in Seattle, Washington, and Salt Lake City, Utah, to deliver storage as a service (StaaS) to clients as part of its overall infrastructure services. In fact, Tier 3 was the second largest EqualLogic customers in the

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Remy O'Keefe
Business Manager, Tier 3

northwestern United States. Despite this heavy investment, the previous solution was lacking in terms of fast backup and recovery, resulting in unacceptable outcomes for clients.

"It was taking us 24 hours to back up 80TB, the amount of information in our Seattle data center," says Wray. "Restoring data for a single customer, maybe 10TB worth of information, took us three and a half days. It was an unacceptable time frame for our clients and for us. We had to streamline the entire backup and DR process."

Privacy, without the high price
In addition to DR challenges, data privacy emerged as both a concern and a priority in Tier 3's shared data center environment. Many clients opt to store their data on a partition of a shared storage system, which alleviates the need to pay Tier 3 to purchase and administer dedicated hardware. The service utilizes NetApp MultiStore to satisfy their clients' security needs. While sharing the storage infrastructure reduces costs, clients want to maintain their data privately from other Tier 3 customers.

"Our clients want dedicated enterprise storage, with all the security and privacy that it affords, but they don't want to pay the cost," explains Remy O'Keefe, business

manager for Tier 3. "The key for us to address client requirements is providing virtualized storage that is separate and secure, yet affordable."

The need for improved manageability
At the same time as Tier 3 was looking for ways to improve the capabilities of its virtualized environment for clients, the company sought to streamline its own internal storage management processes. Tier 3 engineers needed to better monitor performance and capacity metrics and automate backup and restore processes. To save costs and maximize the use of resources, the Tier 3 team also needed a better way to reclaim storage space when allocating new or current virtual machines.

THE SOLUTION

Accelerating data backups and restores from days to hours
When NetApp told Tier 3 that backups or restores would take only about an hour using NetApp solutions, Tier 3 was skeptical. However, eager to shorten its lengthy backup and restore cycles, Tier 3 purchased two NetApp FAS3140HA storage systems and began using NetApp SnapMirror® for maintaining up-to-the-minute copies of client data and for making sure of easy failover and failback capabilities in the

event the primary site's data ever became inaccessible. The NetApp FAS3140HA storage systems at Tier 3's two data center facilities host nearly 1,200 virtual machines running VMware ESX virtualization software, creating a dynamic infrastructure within Tier 3's data centers.

Tier 3 uses NetApp in an IP SAN (iSCSI) to increase resource efficiency and cope with changing application requirements and fast data growth. "If we have a Windows® cluster setup, for instance, and clients need a shared drive, iSCSI is an efficient way to accomplish it," says Wray. "In a virtualized environment, iSCSI is ideal because it scales to over 1PB and gives us the ability to move data or add storage on demand in minutes, without downtime."

With the NetApp storage system in place, skepticism soon turned to enthusiasm when the NetApp estimates regarding backup and recovery proved true. Backups took one hour instead of 24, and restores went from more than three days down to one hour. NetApp deduplication, a core component that comes at no additional charge with NetApp's storage operating system Data ONTAP®, is used to control data proliferation and maximize storage system resources, all without degrading performance.
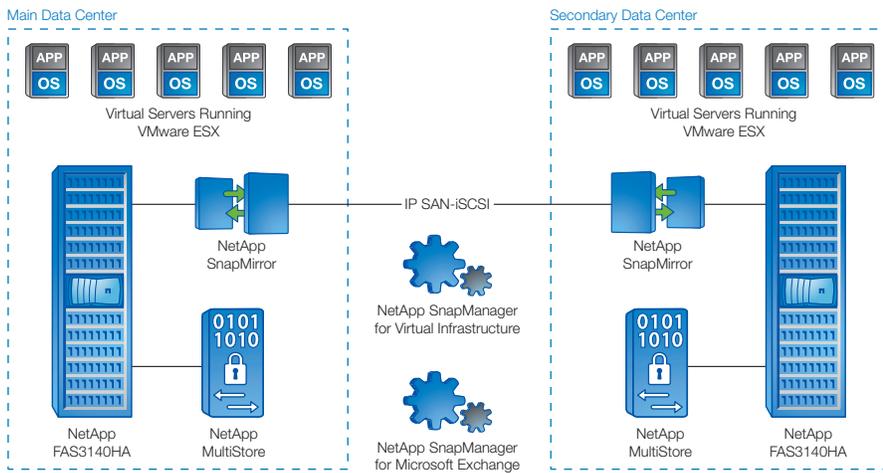
Figure 1) Tier 3 storage infrastructure.

"Our customers are blown away when we tell them how fast we can back up and restore data," says O'Keefe. "With NetApp, we're giving clients not just lip service but a real DR solution that can recall their data within an hour. It virtually guarantees their business continuity."

Private storage islands

To offer clients dedicated storage without the cost, Tier 3 uses hundreds of NetApp MultiStore virtual controllers on NetApp FAS3140HA storage systems. Each virtual storage controller is private and secure, even though it runs on the company's shared storage systems. Tier 3 leverages NetApp MultiStore capabilities to offer clients secure, transparent enterprise storage capabilities, including their own security zones, authentication, and naming conventions. According to Wray, shared storage using MultiStore costs about 80% less for customers and 50% less for Tier 3 than dedicated storage, all while maximizing storage utilization in Tier 3's virtual infrastructure.

"NetApp MultiStore is truly one of the coolest things I have ever seen," says Wray. "We haven't seen another storage vendor handle virtual storage as well as NetApp. MultiStore is awesome."

Tier 3 is also using SnapManager® for Virtual Infrastructure to support the efficiency, flexibility, and scalability of hundreds of virtual servers. SnapManager for Microsoft® Exchange helps Tier 3 streamline storage management and simplify configuration, backup, and restore operations for clients using Tier 3 services to host Microsoft Exchange server databases.

The company simplifies management of its NetApp storage infrastructure using Operations Manager and Protection Manager. The Tier 3 team uses Protection Manager to establish policies that define how data is protected and Operations Manager to obtain a consolidated picture of all of the company's storage resources, regardless of their physical location, to monitor performance and capacity metrics.

BUSINESS BENEFITS

A competitive advantage for clients

For clients, Tier 3's use of NetApp solutions has a major positive impact on business continuity. Clients have their own private, secure dedicated storage facility, without paying for it or maintaining it on their own.

"With NetApp MultiStore, our customers can have their own private storage island provisioned in about an hour with all the features

of an individual, dedicated SAN: DR, scalability, and more," says Wray. "When we tell clients that we will give them their own virtual SAN, one that works just the same, is just as fast, and you get all the NetApp features to boot, they love it. It's a competitive advantage for us and them."

Most Tier 3 customers can't afford spending $300,000 to $600,000 for a dedicated SAN. Many of them have makeshift data centers that might or might not include enterprise-quality equipment and services, yet Tier 3 can provide the equipment, services, and NetApp storage they need virtually, providing affordable enterprise-class solutions for small business customers.

More efficient use of storage and easier management

Tier 3 has seen tremendous efficiencies since adopting NetApp solutions. Using NetApp deduplication, the company can quickly reclaim up to 67% of the space on VMware virtual machines, a massive plus in terms of maximizing storage resources, all without the performance hits previously experienced with other deduplication solutions. And, using MultiStore, Wray estimates that Tier 3 has eliminated the need for at least half of its storage devices through consolidation.

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To accommodate its rapid growth, Tier 3 is building four more data centers, complete with NetApp storage solutions. "We see NetApp as a strategic partner as we expand our cloud storage infrastructure to more SMBs," says Wray. "A large number of our clients literally could not be in business without us. With NetApp, we can save time and money in managing our storage environment and optimize storage utilization, generating savings that we can pass along to customers in the form of lower costs. Many clients' savings are about 10 to one if you calculate what it would cost them to sustain an IT infrastructure on their own. We offer a monthly price, high uptime, enterprise support, and innovative solutions, and we find that our use of NetApp storage solutions is a major selling point."

SOLUTION COMPONENTS

NetApp products
NetApp FAS3140HA storage systems

Data ONTAP 7G operating system

NetApp MultiStore

NetApp SnapMirror

NetApp Operations Manager

NetApp Protection Manager

SnapManager for Virtual Infrastructure

SnapManager for Microsoft Exchange

NetApp deduplication

Protocols
NFS

CIFS

iSCSI

Third-party products
VMware ESX

Environment
Hosted applications: Microsoft Exchange, Active Directory, MySQL, Apache, Ruby on Rails, ADP, Terminal Services, Distributed File Services, Microsoft IIS, Microsoft Dynamics

Hosted database: Microsoft SQL Server®

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