



Storage and virtualization bring competitive advantage

Secure cloud hosting provider FireHost offers customers lightning-fast performance in multiple data tiers



Customer profile

firehost
SECURE CLOUD HOSTING

Company FireHost
Industry Hosting Solutions
Country United States
Employees 100
Web site firehost.com

Business Need

FireHost provides secure cloud hosting services in a multi-tenant public cloud environment. The company was successfully running Dell™ PowerEdge™ blade servers, but its storage solution was struggling to keep up with rapid growth in the business.

Solution

FireHost deployed Dell Compellent™ Storage Center SANs in its data centers in the United States and Europe. Each array hosts roughly 1,200 VMware®-based virtual machines.

Benefits

- Less than 2 millisecond latency for data writes to storage Tiers 1 and 2
- A few hours to add storage capacity, with no downtime
- A few minutes to restore a server
- More efficient thin provisioning vs. EMC and HP solutions

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Todd Gleason, Director of Technology, FireHost

For hosting businesses, one key to success is finding storage solutions that carefully balance performance, capacity, scalability and cost-effectiveness. After some early misses, secure cloud hosting provider FireHost found its storage sweet spot in Dell Compellent technology.

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Director of Technology,
FireHost*

FireHost fills a unique market niche. “Some hosting businesses provide only expensive dedicated servers, while many cloud providers are rushing to offer the cheapest possible computing power,” says Bruce MacFadyen, COO of FireHost. “We’ve found a middle ground. We provide high performance—as well as compliance with PCI data security standards, Health Information Trust Alliance (HITRUST), ISO27001, data protection acts and more—in an environment that is entirely multi-tenant public cloud.”

The concept is gaining traction. “Over the past year, we’ve attracted the attention of some very large enterprises,” MacFadyen says. “For example, a major ticketing company is in the process of moving its servers into our environment. It wanted the ability to flex its IT infrastructure up and down based on the events in its sales pipeline. Traditional PCI-compliant environments can’t offer that.”

Scalable storage solution is the right fit

In the past three years, FireHost has experimented with technologies to find the right fit. Early on, it standardized on a VMware vSphere-based virtual platform on Dell PowerEdge blade servers, a combination that has worked well. “We’re 100 percent VMware,” says Todd Gleason, director of technology. “vSphere is the most stable and secure, most advanced, and highest-performing virtualization platform in the market.”

However, FireHost’s original storage solution had difficulty supporting the company’s rapid growth. When FireHost decided to take its storage environment in a new direction, it considered EMC® VNX, HP 3PAR and Dell Compellent solutions. “We were immediately impressed with the forward-thinking Dell Compellent technology,” MacFadyen says.

Technology at work

Solutions

Dell™ Financial Services

Services

Dell Compellent™ Copilot Optimize

Dell Support Services
-Dell ProSupport™ Mission Critical with four hour onsite response

Hardware

Brocade® M5424 Fibre Channel blade switches

Dell Compellent Storage Center SANs

Dell PowerConnect™ M8024-k 10GbE switches

Dell PowerEdge™ M1000e modular blade enclosures

Dell PowerEdge M620 blade servers with Intel® Xeon® processors E5-2600 series

Software

Dell Compellent Data Instant Replay

Dell Compellent Data Progression

Dell Compellent Dynamic Capacity

Dell Compellent Enterprise Manager with vSphere 5 Integration

Dell Compellent Fast Track

Dell Compellent Remote Instant Replay

VMware® vSphere 5



FireHost was also impressed with the solution's simplified management and with its support for both Fibre Channel and iSCSI connectivity. Perhaps most important, Dell Compellent storage offers the scalability FireHost needs.

"Compared with other storage products in the market, scalability is much better in Dell Compellent," says Gleason. "Adding capacity to an array is straightforward, and the idea of avoiding forklift upgrades was very appealing to us."

Large-scale backup solution with recovery in minutes

FireHost standardized on Dell Compellent Storage Center storage area networks (SANs). Now the company runs five SANs in its data centers across North America and Europe. Each houses three tiers of disks: solid-state drives (SSD) for Tier 1, SAS drives for Tier 2 and SATA drives for Tier 3.

The five arrays run in a "secure cloud pod" that hosts more than 5,000 virtual machines (VMs). "Successfully supporting that many systems requires quick, efficient backups," Gleason says. "We take snapshots using Dell Compellent Data Instant Replay. We can recover data from a local Replay in a matter of minutes, and Data Instant Replay is much more efficient than most snapshot technologies."

Dell Compellent Remote Instant Replay replicates incremental changes in data between the arrays over the wide-area network. "SAN-level replication provides business continuity for our customers, and it does so efficiently," Gleason says. "We use Fibre Channel exclusively for production connectivity; we use iSCSI for replication, which is far more cost-effective. We offer two weeks of backup for every secure server we sell. Remote Instant Replay enables us to meet this service-level agreement, and our recovery time is minutes in most cases."

Advanced performance with data tiering

FireHost uses Dell Compellent Data Progression to automatically move data between tiers, but its approach is somewhat unusual. "Our customers purchase SSD, SAS or SATA storage from us," Gleason says. "The

tier a customer selects is the tier the data will ultimately reside on." But to accelerate write performance, FireHost uses its SSD tier as a giant write cache.

"All customer data assigned to SSD or SAS is first written to SSD," Gleason says. "This gives us optimal performance when ingesting customer data. For customers who subscribe to SAS, Data Progression moves the data down to Tier 2 at night, as Data Instant Replay runs. We get the performance benefits of SSD and can still offer customers the lower price of higher-capacity storage. We don't have to sacrifice performance for capacity."

Dell Compellent Fast Track further increases performance by storing frequently accessed data on the outer, faster tracks of each disk. "Fast Track technology is one more piece of the puzzle in optimizing performance," Gleason says.

The combination of Dell Compellent technologies delivers great performance and storage efficiency for FireHost. "Performance discussions tend to focus on IOPS or throughput, but latency is key for us," Gleason says. "We want a response of 2 milliseconds or less for Tiers 1 and 2. Writing to SSD with the Dell Compellent solution, we achieve this. The performance is awesome!"

Competitive total cost of ownership

FireHost is achieving a competitive advantage through its Dell Compellent technologies. "The three pillars of our secure cloud hosting service are enterprise-grade security, performance and managed support," Gleason says. "Our secure cloud infrastructure, using Dell Compellent storage, can beat the performance that our enterprise customers get from dedicated servers, dedicated storage and private cloud configurations. The storage platform helps FireHost deliver the performance and security our customers need with the flexible cost model the cloud demands."

The longevity of the storage solution's different components contributes to its excellent total cost of ownership (TCO). "The fact that we can continue to use the equipment we've already invested in, even as we make upgrades, is a major benefit of Dell Compellent storage," Gleason says. "If a new connectivity

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technology comes out, we can replace the networking but continue using the rest of the array. We can replace the controllers without repurchasing the software we've already paid for, and if a new drive comes out, we can just plug it in."

FireHost also expects Dell Compellent Dynamic Capacity thin provisioning software to reduce spending on storage as the company grows. "Thin provisioning is more efficient in Compellent than in the EMC or HP systems we tested," Gleason says. "At the end of the day, total cost of ownership is a lot lower with Dell Compellent."

Simplified management for efficient upgrades

The arrays' scalability is living up to high expectations. "Adding capacity to the arrays we have in place doesn't take long," Gleason says. "Once we have the hardware, we can easily do it in a few hours, without disrupting service for our customers."

FireHost takes advantage of Dell Compellent Enterprise Manager vSphere 5 Integration to efficiently manage virtualized pools of storage resources through VMware vSphere. "This capability takes a few steps out of provisioning storage," Gleason says. "It's a very nice feature."

Other areas of storage management are similarly streamlined. "Our storage engineers love the Dell Compellent management tools," Gleason says. "Every day, we look at our I/O performance, our latency, our capacity, you name it. We require deep reporting and analytics to manage our large environment, and we get that level of insight with Dell Compellent Enterprise Manager. We estimate that we would need 25 percent more storage administration staff if we had a more traditional, block-storage environment."

70 percent more processing power in same footprint

FireHost is working with Dell to improve efficiency throughout the data center. "We recently migrated from Dell PowerEdge M910 blades to PowerEdge M620 blades," Gleason says. "We're taking advantage of the Intel Sandy Bridge processors and increasing our blade density. The two processors in a half-height M620 blade can handle 85 percent of the workload of a four-processor full-height M910 blade—so we're getting 70 percent more processing power within each full slot."

Running twice as many servers within the same footprint also helps mitigate risk. "We have a maximum number of VMs per host we feel comfortable with, and we never oversubscribe or overcommit our resources," Gleason says. "When we moved to the PowerEdge M620 blades, we increased the number of VMs we run per full slot, while reducing the number of VMs per host. Now we maintain a density that mitigates risk and is also great for our margins. We're not forced to overcommit resources to make the margins work."

Dynamic Capacity provides comparable benefits on the storage side. "Our secure cloud pod model is extremely dense," Gleason says. "Our customers' thousands of virtual machines take up very little floor space. One reason we have a small data center footprint is because we use Dell Compellent Dynamic Capacity for thin provisioning."

FireHost uses Dell PowerConnect M8024-k switches in its Dell PowerEdge M1000e modular blade enclosures. It also utilizes Brocade 5424 I/O modules for Fibre Channel connectivity because they have a track record of providing best-in-class Fibre Channel switching.

FireHost is using the Broadcom® version of Dell's unique Select Network Adapter in its PowerEdge M620 blades to improve resource utilization with Switch-Independent Partitioning technology. "Each card has two 10-Gigabit Ethernet ports," Gleason explains. "We use the partitioning technology to slice the card's aggregated 20 Gigabits into eight logical network adapters. vSphere sees the network adapters at whatever bandwidth we assign them, yet we get the benefit of 20-Gigabit throughput from the physical card. This is a huge advantage in a cloud environment."

Partnership imparts knowledge, fosters growth

FireHost keeps the infrastructure running smoothly with the help of Dell ProSupport and Dell Compellent Copilot Support, with monthly performance reports and storage analysis from Copilot Optimize. "Dell ProSupport is great," Gleason says. "We love Dell Compellent Copilot Support. Talking to Dell's support engineers helps us provide proactive support to our end users and create innovative storage architectures, while increasing FireHost's internal knowledge base. Our relationship with Dell ultimately improves the quality of service we offer our customers."

FireHost leases its storage and server hardware through Dell Financial Services. "From both a technology standpoint and a financing standpoint, Dell has really come through for us," Gleason says. "Dell Financial Services allows us to use our CAPEX money in ways that create better value for the business and ultimately our customers."

All told, Gleason says: "We get a great storage product from Dell, but the real value is in the relationship we've built. Dell and VMware have enabled FireHost to keep pace with the rapid growth we've experienced over the past three years."



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