

cloudscale.ch

EXECUTIVE SUMMARY

Challenge

Dramatically simplify the way that customers access and use cloud services.

Solution

Brocade VDX 6940 Switches with Brocade VCS Fabric technology.

Results

- Achieved simple, cost-effective switch deployment and expansion through plug-and-play simplicity.
- Increased management efficiency through the Brocade VCS Fabric, native automation, and centralized manageability.
- Achieved predictable port-to-port latency for maximizing storage traffic performance.
- Provided outstanding customer experience with reliable, high-performance services.
- Gained competitive advantage through seamless integration and automation between control, compute, and storage.

Tomorrow's Cloud Services Have Just Arrived

When cloud services become as easy and intuitive to use as a smartphone, anyone can adopt them. And that day has arrived. cloudscale.ch is a self-service cloud platform based in Switzerland that enables its customers to launch virtual machines within seconds. With open source technologies and Brocade[®] network solutions, cloudscale.ch services make it easy to acquire—and deliver—virtual servers on demand.

Simple from the Start

cloudscale.ch was founded in 2014 with the goal of simplifying infrastructure as a service (IaaS) for IT professionals. The secret behind simplification? An entirely new user experience that allows customers to deploy new virtual servers in less than 10 seconds. Now DevOps staff, IT enthusiasts, and Web and App developers can have almost instant access to high-performance compute and distributed storage resources with a strong focus on performance, availability, and privacy. And a guaranteed uptime of 99.99 percent.

As easy as that sounds, finding and deploying the right supporting infrastructure was not. cloudscale.ch required a rock-solid, highly available network that could link easily with other ISPs and the SwissIX Internet Exchange for fast international connectivity.

"It's very expensive to run this type of business in Switzerland," said Manuel Schweizer, Chief Executive Officer at cloudscale.ch. "We had to become innovative with commodity hardware and Open Source technology to operate as efficiently as possible."

cloudscale.ch operates entirely on IP. The new network had to enable it to run its storage network on IP so that it could consolidate storage and compute resources in a single platform. The network had to work with Open Source solutions, so the company could maintain vendor independence and a cost-effective business model. To increase operational efficiency, each switch had to be intelligent and be manageable from a central location. cloudscale.ch also needed low port-to-port latency for east-west storage traffic in order to maximize performance for its customers.

WHY BROCADE

“The technology inside the Brocade VDX 6940 Switches is some of the most amazing technology out there. People need to understand that, not just for simplicity and performance, but also because it enables an impressive value ratio and port density. And that is imperative for a cloud service provider like us.”

— Manuel Schweizer, Chief Executive Officer at cloudscale.ch

Finally, Schweizer and his team wanted to work with a network vendor that allowed them to have direct contact with software engineering and product management teams to stay aligned with business strategies. These requirements were non-negotiable. However, there were also other requirements that were less easily defined.

Engineering for Customer Satisfaction

“Organizations increasingly want to outsource non-core business functions, like IT,” said Schweizer. “The next step in IT will be outsourcing and operating IT functionality in the cloud. This means that an outstanding user experience will become a critical differentiator for cloud service providers.”

So cloudscale.ch has built its network model with the vision of taking IT and an outstanding user experience to a whole new level—without making the network difficult or expensive to manage. That’s where Brocade network solutions entered the picture. As Schweizer and his team evaluated different network infrastructure platforms, they found drawbacks that would affect the user experience or manageability.

For example, other network solutions claimed to deliver 10 Gbps breakout capability on all of their 40 Gbps ports. In reality, they could not fulfill that promise, because the hardware chip did not support it. Other platforms were too complex to deploy or expand, and many relied on outdated or proprietary loop-prevention protocols.

Taking a New Approach

The team found the simplicity they were looking for in Brocade VDX® 6940 Switches with Brocade VCS® Fabric technology. The Brocade switches are

deployed in a leaf-and-spine architecture, providing cloudscale.ch with a high-density 10 GbE infrastructure, with a total of up to 144 ports on a single rack unit and complete physical redundancy using Virtual Link Aggregation Groups (VLAG) technology. The multicore processor in Brocade VDX 6940 Switches powers two separate controllers for control plane management, which enables in-service software upgrades (ISSU) as well as failover capability and redundancy.

Switching and routing redundancy protocols, including Trill, Open Shortest Path First (OSPF), Virtual Router Redundancy Protocol (VRRP-e), and Border Gateway Protocol (BGP) run in the Brocade VCS Fabric. With Brocade VCS Fabric Logical Chassis Mode, cloudscale.ch gained the distributed logic and switch intelligence it needed with centralized management for simpler operation.

Brocade VDX 6940 Switches acting as leaves provide multiple 10 Gbps connections to mixed compute and storage nodes in every rack. High-performance CPUs boost the performance of customers’ Virtual Machines (VMs) while solid-state drives maximize storage throughput and availability. All servers are interconnected with multiple 10 Gbps links to avoid bottlenecks and provide fault tolerance. Brocade CER 2024 Border Routers connect the fabric to upstream providers and the Internet exchange.

From a software perspective, the cloud platform is based on OpenStack and Kernel-based Virtual Machine (KVM) hypervisors. The KVM hypervisor technology works flawlessly with the Brocade switches. To ensure high

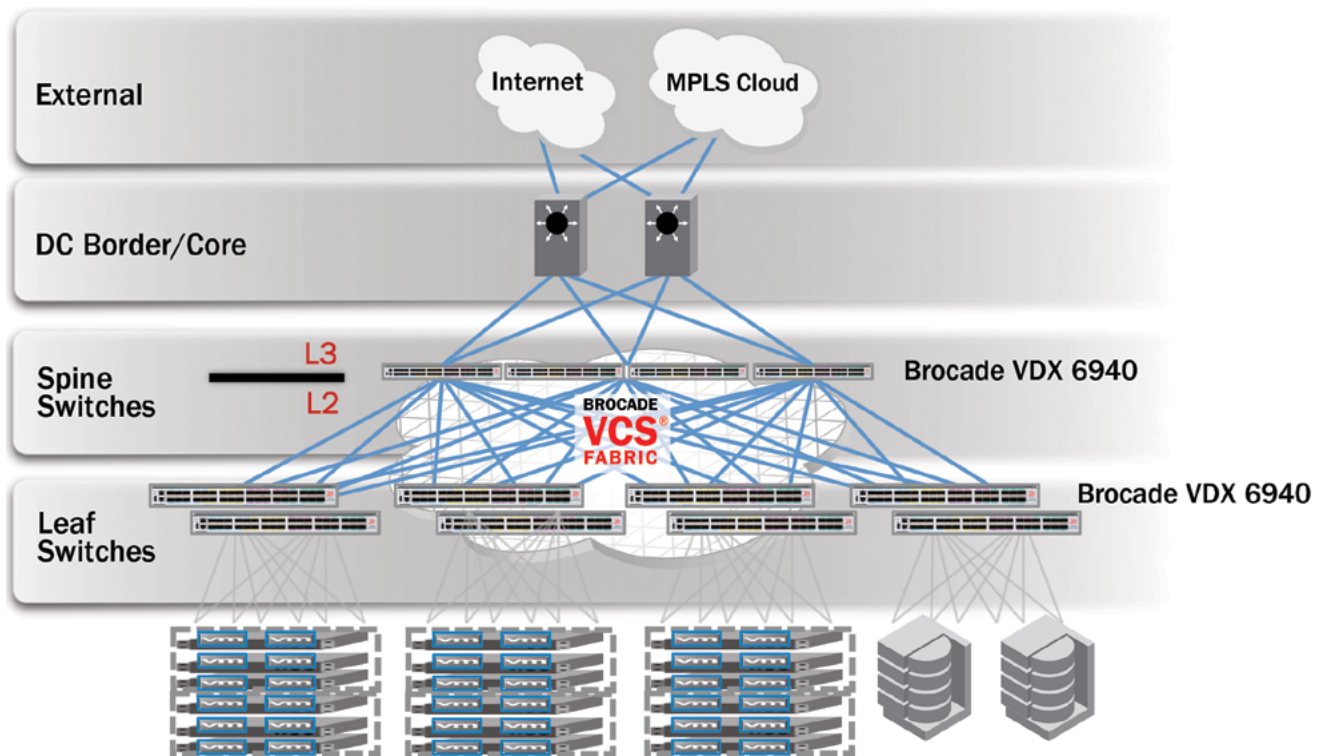


Figure 1: cloudscale.ch's Mixed Compute and Storage Infrastructure.

availability, data redundancy, and almost unlimited scalability, data is stored on a unified, distributed storage cluster powered by Ceph—a free software storage platform designed to present distributed object, block, and file storage. Ceph is setting new standards for high-performance storage, and it is being used by organizations such as CERN, the European Organization for Nuclear Research in Switzerland. cloudscale.ch also uses Neutron's distributed virtual routing feature to provide Internet connectivity directly on compute hosts.

Simpler for Everyone

Schweizer sees deploying the Brocade VDX Switches as the easiest way to future-proof the cloudscale.ch network. From plug-and-play simplicity to built-in

redundancy and intelligence, cloudscale.ch can move quickly to meet growing demand. Spinning up virtual servers has never been easier. cloudscale.ch can deploy a new physical disk in its storage cluster and it becomes available for use in just a few minutes.

"Today, we connect any ports of any Brocade VDX Switches and they automatically manage the underlying network for us," said Schweizer. "We can just plug in more switches and they work, because they are smart, they hide complexity, and it's all centrally managed. It's just so much simpler."

A Great User Experience

That same simplicity translates to cloudscale.ch customers, thanks to the outstanding user interface that the

company provides. Reduced to the bare essentials, cloudscale.ch's cloud control panel offers unprecedented efficiency and functional reliability. Now customers can access powerful services within seconds.

"We began offering the service to early customers without any instructions from our side whatsoever, and they just love it," said Schweizer. "They say it's so easy and it works exactly the way people expect it to work. One cannot see usability—one can just feel it."

High Stability and Performance

The Brocade VDX 6940 Switches just work, delivering high stability and reliable, fast performance. With flexibility to handle different latency requirements for IP storage and Internet traffic and in-service upgrade capabilities, the Brocade VDX

Switches and Ceph storage software enable cloudscale.ch to guarantee port-to-port latency from anywhere in the fabric. The switches also include stable IPv6, which is important for the Swiss company.

"The technology inside the Brocade VDX 6940 Switches is some of the most amazing technology out there," said Schweizer. "People need to understand that, not just for simplicity and performance, but also because it enables an impressive value ratio and port density. And that is imperative for a cloud service provider like us."

Working in a Positive Direction

Schweizer and his team work closely with other members of the Open Source community to help determine

the future of IT. He expects that within the next few years, more infrastructure will be outsourced to the cloud so that companies can grow dynamically with fewer resources. And he envisions thin clients and zero clients will be the devices of choice, with all work being performed in the cloud.

"We're also seeing a growing number of encryption capabilities in hardware from vendors like Brocade," he said. "I expect devices will routinely include integrated strong encryption technology. If you can encrypt data from the moment you send it to the cloud until you get it back on your device again, then it doesn't matter where it is stored or whether you trust the provider. And that will further accelerate cloud adoption."

cloudscale.ch is pleased with its strong working relationship with Brocade, and Schweizer likes the focus of the Brocade strategy. He is already looking far down the road to potentially extending cloudscale.ch's services to include DNS, load balancing, firewall, virtual routing, VPN, and monitoring services. And as Brocade sets new standards in networking technology, cloudscale.ch will be setting new standards for virtual services.

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