

Extreme VCS Fabric Provides Automation Through Zero-Touch Provisioning, Self-Forming Trunks, and Logical Chassis

The data center is evolving, driving requirements for infrastructure that can support dynamic growth in Virtual Machines (VMs), distributed applications, and big data, as well as the transition to cloud-based computing—without compromising performance. IT service delivery and data center operators need networks that offer high performance and are operationally efficient, automated, and—most importantly—elastic. The ideal network must be easy to manage and must scale out to meet future business demand.

Scale-out is an architectural trend that is becoming common in all aspects of data center design, due to the very tangible benefits of a scale-out model.

Why Scale-Out?

The scale-out approach provides three key benefits. First, scale-out enables network expansion over time as a business grows. You can horizontally scale spine switches as the number of leaf switches increase. Scale-out architecture also enables the creation of resilient network fabrics, eliminating “single point of failure” and potential downtime. Most importantly, a scale-out network architecture delivers compelling economic benefits. Unlike

scale-up architecture, a scale-out model lowers up-front investment. It uses high-density fixed switches, lowering the total cost of ownership and reducing power, cooling, and data center space.

While scale-out architecture provides many more benefits than scale-up architecture, trade-offs do exist. As additional capacity and performance are needed, new switches must be added to the scale-out architecture, increasing operational complexity with the additional provisioning of hardware and network change. As a result, it is critical for organizations to implement scale-out solutions that offer greater automation and programmatic control of their data center resources. A network fabric such as an Extreme VCS fabric contributes features that decisively deliver needed automation, control, and simplicity.

Zero-Touch Scale-Out with VCS Fabric

Extreme VCS Fabric was designed from the ground up to facilitate and optimize scale-out architectures. With zero-touch capabilities, scale-out makes it simple to add, move, or remove network resources without changing configurations to the existing network. Zero-touch provisioning enables simple rapid deployment. As one of the many VCS Fabric



Figure 1: The VDX 6940-36Q spine and leaf switch.

automation capabilities, VDX switches are preconfigured such that when a new switch is deployed, only a power and network connection is required for the switch to become a member of the fabric. Inter-switch links are automatically formed between new members and all of the switches in the fabric. As a foundation to simplifying scale-out architecture, this method of installation eliminates the use of a manual process and reduces complexity. VCS Fabric offers many other capabilities that enable scale-out networks.

Why the VDX 6940?

The VDX 6940, with its industry-leading density, is a perfect fit for scale-out network architecture. In a 1 RU form factor, it can provide up to 36 40 Gigabit Ethernet (GbE) ports or 144 10-GbE ports.

The scale-out of a fabric depends on the port density of the spine switches. By deploying the industry's highest density VDX 6940, organizations can build a large scale-out network fabric. In addition, VDX 6940 offer a unique balance between two conflicting attributes: buffer and latency. VDX 6940,

with a purpose-built data center chip, excel in optimizing buffer and latency, making them ideal for a wide variety of workloads. VDX 6940 deliver 700 nanosecond (ns) any-port-to-any port latency and offer an industry-leading 24 megabyte (MB) deep buffer in a single Application-Specific Integrated Circuit (ASIC) design. In addition to high density, low latency and large buffers, VDX 6940 offer many advanced capabilities such as VXLAN Gateway, OpenFlow 1.3, converged ports (Ethernet and Fibre Channel), and more.

Eliminate Network Downtime

Scale-out architectures provide a compelling advantage to alternative scale-up routes. You can add capacity incrementally as needed. In a fabric, scale-out architectures are more resilient, eliminating "single point of failure" and downtime. Fixed form factor high-density switches require a lower up-front investment, as well as less power, cooling, and space. Scale-out with these small form factor core devices can reduce capital costs by as much as 50% and can save 30% or more on operational expense.

Fixed format switches such as the VDX 6940 offer high-density, optimized buffer and latency, making them ideal for data center or cloud provider networks. VCS Fabric, simple provisioning and management, one- and two-tiered architectures, and a low cost makes the scale-out model an improved operational experience over a scale-up approach.

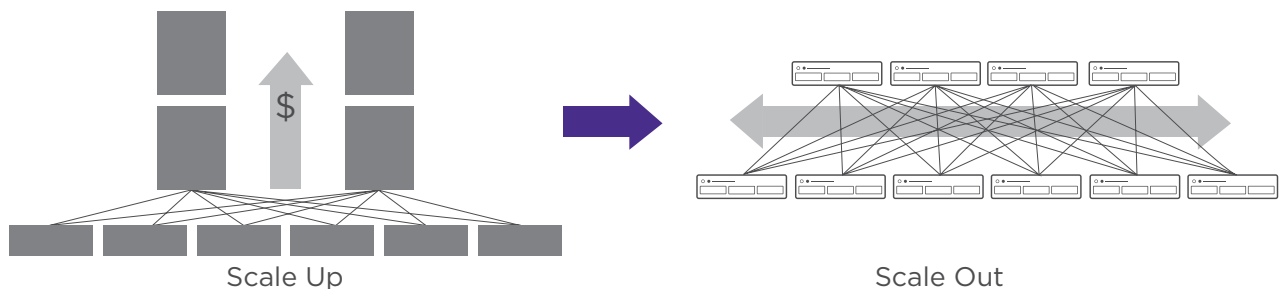


Figure 2: Scale-out architectures drastically reduce costs and improve network resiliency.