The OrionX Constellation: Data Center
Composable Infrastructure

DriveScale Launches New Scale-Out Platform

Event

OrionX Advice

DriveScale's solution for scale-out computing is a significant advance in system design and deserves serious consideration by enterprises and cloud service providers alike, especially for Big Data workloads.

The DriveScale team's record of innovation and execution, together with the quality of the company's early customers (AppNexus, ClearSense, and DST Systems) and partners (Foxconn), and the level of funding it has received ($15m Series A) position it well for the market.

Building Value from Volume

The nirvana of system design has long been that magical system that uses high-volume components to deliver a high-value system. This means a system where customers can disaggregate compute, memory, storage, and networking when it comes to buying them, but can re-assemble them dynamically in any ratio and at wire-speed into tightly integrated systems. Composable, programmable, or software-defined infrastructure; or infrastructure-as-code, are labels on efforts and innovations towards this goal.

DriveScale takes the next logical step towards the industry's long-held wish: building value from volume. This is why it is a significant advance in system design.

Scale-Out@Scale: The Problem Virtualization Cannot Solve

Scale-out architectures take the first step towards this nirvana, but only in small configurations (say, below 32 nodes). But large-scale clusters with hundreds of nodes are quite common now. At scale, the flexible-looking cluster is anything but.

Using hard-wired CPU-memory-storage-networking building blocks is the norm in scale-out computing. The resulting clusters cannot be ideal for all apps and cannot remain ideal for any app over time. Small inefficiencies (e.g. mismatched configurations, high cost nodes, unused capacity, time-consuming recovery from failures) add up and accumulate with every additional change until they become impossible to ignore.

Software-based virtualization can mask some of this inefficiency, but only by lowering performance or increasing costs. Of course, many workloads such as Hadoop, Analytics, or HPC, often do not even use virtualization, and Cloud environments that do, either manage small and dedicated virtual clusters or pay the price by absorbing inefficiencies or by overprovisioning.

Clusters at scale need a lot more than virtualization. There is a growing need to bring back some of the capabilities of scale-up: high degree of

control over resources, predictability of system performance and availability, ease of management, etc.

The DriveScale Solution

In simple terms, the DriveScale solution:

+ decouples compute purchases from storage, which can lower costs by shifting purchases towards commodity drives in industry standard JBODs and diskless servers, and by tracking each component's technology curve independently.

+ physically rewires storage and servers on software command to create clusters with optimal hardware configurations, improving performance and asset utilization.

This is currently a unique capability in the market. Innovations in the past have been focused on disaggregation of power, cooling, and networking, or via network-attached sharable storage or memory, which do not provide the bandwidth and latency that qualifies as "wire-speed."

Areas of innovation in the future would include the ability to monitor, reconfigure, and manage clusters based on predictive and reactive intelligence to enable new ways of optimizing system configuration, or recovering from failure and enhancing application availability.

Summary

Market trends point to a rapidly expanding base of scale-out applications across the enterprise, not just in Big Data Analytics. DriveScale's dynamic hardware reconfiguration can enable a host of capabilities and services that simplify the provision and management of optimal clusters.

Customers with large scale-out deployments have very likely experienced the problems that DriveScale technology can solve, including:

+ configurations that are out of balance soon after purchase,

+ difficulty to upgrade an existing cluster with new technology while retaining predictable performance

+ difficulty in recovering from failures

Customers who have modest size clusters but anticipate growth may not have seen the problems yet but would benefit from anticipating them and forming a coherent plan to mitigate them. In both cases DriveScale can be an important ally.