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TruCluster vs. Sun Cluster — Compaq Still Rules

Brad Day

Catalyst

Client inquiries

Question

How does Compaq's *TruCluster* Server solution compare with Sun's Cluster 3.0 technology?

Answer

The best-of-breed functionality in single system image (SSI) cluster designs continues to be provided in Unix-based (and proprietary) cluster solutions. While **Sun** Cluster 3.0 has made significant strides in its cluster functionality over its predecessor, Cluster 2.2, **Compaq** *TruCluster* Server software (Version 5.1) with SSI capabilities still rules in meeting the more demanding high-availability business and technology requirements of the CTO. Most CTOs who have built applications on cluster architectures are now changing their selection criteria — a SSI cluster design has to strike an equal balance among three critical areas:

1. Scalability: Can I get more useful work done as I grow my cluster complex?
2. Availability: Can the application continue to run, even with cluster component failures?
3. Manageability: How much extra work is involved to add, manage and remove resources from the cluster?

Selected scalability, availability and manageability features of Sun Cluster and *TruCluster* Server software are compared in the table below.

The term “clusters” is often interpreted to mean anything from fast computing interconnects to any form of distributed computing technology that offers some sort of fail-over functionality. Within the distributed computing environment (the best cluster architecture) SSI now offers four important advantages over traditional single server systems: (1) highly available and scaleable support for applications, (2) significant capacity for modular growth of different types of computing resources, (3) near-linear scalability of performance, and (4) the upgrading of software without interruption of work in progress.

In addition, management of an SSI cluster can now be as easy as management of a single server. Lack of widespread acceptance of the cluster computing concept in the last several years, due to integration and management complexity, has more recently been overcome through advanced SSI functionality and the evolution of cluster-optimized file systems, networks and devices.

With a 20-year heritage of cluster technology development in **Digital** and Compaq, *TruCluster* Server software still remains the bellwether for excellence in Unix cluster design. Although global devices, global file services and global network services have significantly improved the SSI capabilities of Sun Cluster 3.0 over its predecessor Sun Cluster 2.2, Compaq *Tru64* Unix with *TruCluster* Server software still rules as the best-of-breed SSI cluster solution available today. Having conducted several informal interviews with the CTOs of many Fortune 500 companies that are adopting the SSI cluster architecture, we believe their high-availability systems goals remain consistent, and surprisingly identical, across different lines of business. More specifically, we believe that Compaq *Tru64* Unix with *TruCluster* Server software still does the best job of equally addressing these business objectives, which include:

1. Manage a cluster of systems as if it were a single system.
2. Increase application throughput by enabling data and network services to scale to additional processors by adding nodes to a cluster framework.
3. Ensure improved availability of data, network and applications to end users, by tolerating the kinds of hardware, software and human errors that would normally take down a single server system.
4. Provide enhanced availability of the system by enabling the ongoing maintenance of the cluster through changes to the cluster computing environment without having to disrupt the cluster production system.

Compaq *TruCluster* Server (Version 5.1) vs. Sun Cluster (Version 3.0)

Feature	<i>TruCluster</i>	Sun Cluster
Variety of server models (different processor types) supported	Yes (common configuration practice)	Yes, but Sun recommends homogenous cluster models (Sbus/PCI mix of server technologies is not supported)
Cluster interconnects supported	Memory Channel, Fast and Gigabit Ethernet	Fast and Gigabit Ethernet
Interconnect latency (performance overhead)	Memory channel (approx. 30 microseconds); Ethernet derived (approx. 60 to 120 microseconds)	Ethernet derived (60 to 120 microseconds)
Maximum number of: <ul style="list-style-type: none"> • Active data storage paths to a shared disk storage device • Nodes directly connected to shared storage device 	8 8	1 2
Shared root disk	Yes	No
Single security domain (single password, groups, hosts, etc.)	Yes	No
Cluster-wide device and file namespace	Yes	Yes (global devices)
Network load distribution	Yes (common cluster address with automatic load balancing)	Yes (global network services)
Cluster file system	Yes (coupled with direct I/O capability from all nodes)	Yes, (but achieved with global file service, not direct I/O)
Supported file systems	UFS, AdvFS, MFS, CDFS and DVDFS	UFS
File size limit/file system size limit	16TB/16TB	1TB/1TB
Maximum number of nodes: <ul style="list-style-type: none"> • Performing simultaneous FILE I/O directly to shared storage (without cluster interconnect) • Performing simultaneous RAW I/O directly to shared storage 	8 8	1 2

Source: Giga Information Group