SAPinsider

A Seamlessly Scalable Single-Node Infrastructure

Boosting Your Underlying Technology to Keep Up with Today's Data Needs

Brian Freed
Vice President, In-Memory Architecture
SGI

With SAP Business Suite 4 SAP HANA (SAP S/4HANA), SAP has doubled down on its mission of becoming the cloud company powered by SAP HANA. The SAP Simple Finance solution demonstrates unequivocally that SAP S/4HANA will be the company's unifying technology platform moving forward.

One of the drivers behind this effort is the desire to reduce business process complexity for organizations as they engineer their underlying infrastructures. And, to help further this goal, just as SAP HANA has evolved from a database and sidecar accelerator into the default platform for all SAP solutions, so too have its options for orchestrating an infrastructure to support scalability, growth, and operational simplicity.

Consider SAP Business Warehouse (SAP BW) powered by SAP HANA, a popular SAP HANA use case that, because of its analytical nature, can be supported with a scale-out network cluster. Conversely, the more transaction-based SAP Business Suite powered by SAP HANA and SAP S/4HANA have fewer options for a cluster deployment. For an enterprise that plays with many terabytes of data, a single-node, scale-up deployment is the logical choice to support transactional coherence in the stack as well as to simplify technology at the architecture level.

Simplicity Behind the Scenes

At its core, SAP HANA is a unifying platform intended to reduce complexity and drive innovation. It stands to reason, then, that an organization that leverages this technology — especially one that uses SAP S/4HANA to run the entire business in real time — also leverage an SAP-certified hardware vendor with expertise in reducing complexity, and one that has used this extensive experience to engineer a purpose-built architecture specifically for SAP HANA.

This is what sets SGI apart from other SAP-certified appliance and hardware vendors that deliver general-purpose solutions applicable to SAP HANA. SGI UV for SAP HANA leverages SGI's heritage in building and providing large, scale-up, single-node systems, and it was built from the ground up specifically to support large and growing SAP HANA software environments. A new offering in the SGI UV server line built for SAP HANA, SGI UV for SAP HANA provides four distinct advantages.

1. Seamless Scalability

Most general-purpose scale-up systems are limited to a maximum of an eight-socket single-node solution, which requires the adoption of a scale-out cluster to support further growth. SGI UV for SAP HANA, however, scales quickly and seamlessly in four-socket increments far beyond the eight-socket limitation of other systems. A four-socket SGI appliance, for example, can scale up as a single node to eight sockets in roughly 90 minutes, and this seamless scalability continues all the way to 32 sockets. SGI UV for SAP HANA is currently certified for four- and eight-socket configurations, with certification pending for scalability up to 32 sockets. This means that an enterprise can confidently limit capital expenditures (CAPEX) to an appliance that meets the current business requirements without fear that future growth will require excessive downtime or forklift upgrades.

2. Operational Simplicity

By delivering this scale-up capability in a single-node deployment, operational simplicity is unparalleled. Cluster management is known for its proliferation of network interconnects, a massive storage area network, cumbersome upgrades, and complex day-to-day administration. A growing level of complexity when scaling out in a cluster is just part of the deal. Scaling up in a

A single-node, scale-up deployment is the logical choice to support transactional coherence in the stack as well as to simplify technology at the architecture level.

single node allows for exponential operational capacity without that complexity, and with far lower total cost of ownership after the initial capital expense.

3. Future-Proof Architecture

From a hardware component perspective, SGI UV for SAP HANA is socket compatible across the next three generations of Intel chip sets, so enterprises can be confident that today's in-memory investment can be maintained and leveraged and can support upgrades throughout the life of the system.

Additionally, SGI UV for SAP HANA all but guarantees a future-proof architecture to meet an enterprise's planned and unplanned needs. If an organization sees its database expanding at a pace that will outgrow its infrastructure, it doesn't have to buy the system that will support where the business will be three to five years down the road. Instead, it will know that it can scale as needed, in four-socket increments, so it does not have to pay for unused capacity. Likewise, the ability to scale up to, pending certification, 32 sockets in a single node provides a safety net for growth in the event of an unexpected acquisition or surprise merger.

4. Enterprise-Class RAS

SGI UV for SAP HANA provides enterprise-class reliability, availability, and serviceability (RAS). Its Linux x86 environment carries over the features and functionality typical of a Unix deployment in a database environment, such as hot swappable components and software tools to enable proactive monitoring and predictive failure analysis.

An Interruption-Free Future

One of the proprietary technologies included with SGI UV for SAP HANA is SGI Memlog, a fully automated functionality that, combined with SGI's remote monitoring and support, aids seamless operations.

While errors in memory are a foregone conclusion, allowing them to disrupt operations doesn't have to be. Addressing the resilience of a known architecture failure is the SGI Memlog differentiator. In the case of a single-bit or other minor error, those are immediately corrected. What sets apart SGI Memlog, however, is how it can identify at a granular level the specific error occurrence. The system then migrates all of that block's data to a new block and permanently retires it, with the system fully up and running. This is seamless to the application and prevents double-bit memory errors that are uncorrectable and can lead to system failures. In addition, memlog events are tracked by SGI's remote monitoring and support software to deliver predictive analysis.

Through this and other embedded tools, the mean time to failure in the SGI single-node architecture has been improved by more than three and a half times over the past few years. This was important functionality to carry over for SGI UV for SAP HANA, where uptime becomes much more critical.

Unlimited Potential

The prospect of unlimited potential was one of the primary considerations that led SGI to move into the SAP ecosystem. While SAP is a new partnership for SGI — we delivered our first SAP-certified system about six months ago[1] — SGI is no stranger to large-scale in-memory systems, having delivered seven generations of single-node scale-up systems to hundreds of customers in industries spanning manufacturing to life sciences.

When SAP HANA became generally available about four years ago, the symbiotic relationship between the technology and how it played to our core competency became apparent rather quickly, and we were presented with the opportunity to expand our footprint beyond the traditional technical computing space in which we'd been operating. As more and more companies adopt SAP HANA and SAP S/4HANA, and as working with live data becomes the norm, the need for enhanced RAS and seamless growth seems inevitable. While we expect there will come a time when a 16-socket, 12-terabyte system will be mainstream, SGI RAS and scalability features are native to every SGI appliance from our four-socket entry-level solutions to the certification-pending 32-socket appliance.

Learn more about SGI UV for SAP HANA at **www.sgi.com/saphana**. For more information about the SGI UV for SAP HANA Try and Buy program, please contact **christineb@sgi.com**. ■

As more and more companies adopt SAP HANA and SAP S/4HANA, and as working with live data becomes the norm, the need for enhanced RAS and seamless growth seems inevitable.

[1] See www.sgi.com/company_info/newsroom/press_releases/2014/october/sap_hana.html.

20042015 4546 17042015