Solution Brief
Enabling SAP HANA
Scale-Out Infrastructures

KEY BENEFITS

**Scalability**
Maximize the benefits of a shared infrastructure with plug-and-play horizontal scalability that is virtually infinite.

**Simplicity**
Leverage a mature appliance architecture by using standard technologies and a building-block approach for ease of deployment.

**High Availability**
Minimize risk with nonstop operations even in the case of a storage controller failure.

**Disaster Tolerance**
Achieve continuous data availability and transparent failover with no data loss.

**Data Protection**
Back up, restore, and recover all data faster with storage-based NetApp® Snapshot™ copies and asynchronous replication.

**Instant Insight for Rapid Decision Making**
A new way to process data
To effectively respond to changing market conditions, businesses require the ability to capture, process, and analyze data to make immediate decisions. With the introduction of SAP® HANA software, the limitations of traditional database architectures have been removed. This software provides a flexible, cost-effective, real-time approach for managing large data volumes.

SAP HANA is an in-memory database that allows you to process vast amounts of transactional, analytical, and application data by using the main memory of a computer. Business applications can now be developed to support real-time analytics, with the flexibility and performance required to rapidly adapt and act upon change as needed.

**Immediate access to data is critical**
SAP in-memory computing revolutionizes the way information is processed, enabling organizations to make critical business decisions in a timely fashion. However, with the growing number of SAP HANA workloads, organizations require a data foundation that allows all SAP HANA instances to access a shared storage platform across a distributed infrastructure. Successful deployments require:

- Flexible scaling to accommodate data growth
- High availability for ready access to data when needed
- Performance to support big data workloads

**NetApp and SAP HANA Building Blocks**
With its almost infinite modular scalability, high availability, and overall ease of deployment, NetApp storage has delivered powerful shared-access solutions to “classic” SAP and SAP Business Warehouse Accelerator customers for many years. Now SAP HANA customers can benefit from the same NetApp capabilities for in-memory computing.

**Scalability to meet demand**
NetApp scale-out solutions for SAP HANA enable organizations to start with the storage infrastructure they need today and easily scale by adding storage blocks as demand rises. The system simply, quickly, and cost-effectively presents more storage to SAP...
HANA applications as requirements change, as shown in Figure 1.

**Simplicity and performance**
NetApp delivers the simplicity and performance needed to help SAP HANA customers maximize their investment. With a shared storage platform, organizations can accelerate and improve the decision-making process through real-time correlation of data from SAP HANA systems with external data from other sources. The SAP HANA on NetApp architecture delivers increased flexibility and virtually infinite scale-out capabilities through a building-block concept.

**High availability to keep applications and services running**
The built-in high-availability features provide transparent failover for compute nodes and storage controllers so that information is readily available. The capability to distribute data processing across a clustered environment enables systems to scale beyond a single server and removes a single point of failure.

**Disaster tolerance that delivers continuous data availability**
With the integration of NetApp MetroCluster™ software, a rack is placed in two locations to create a single, geographically distributed cluster that writes data synchronously to both units. Because the storage is located in both locations, if one site becomes unavailable, the other takes over seamlessly. This provides both disaster recovery and continuous availability with zero data loss, keeping SAP HANA running in the event of unplanned outages from operator error, site failures, network outages, and natural disasters. In addition, the cluster enables nondisruptive upgrades so that data analysis can continue 24/7 with no need for planned downtime.

**Integrated data protection for faster backups, restores, and recovery**
NetApp Snap Creator™ plug-ins integrate NetApp data protection capabilities within SAP HANA environments. These capabilities include asynchronous storage replication and Snapshot based backups, restores, and recovery within the HANA studio for SAP HANA. With the integration of Snap Creator, backups, restores, and recovery can be done in minutes instead of hours for SAP HANA. In fact, NetApp is the only vendor to implement this capability within the HANA studio for SAP HANA.

**Choice of Platform**
SAP HANA solutions are developed and optimized on proven hardware and delivered by leading SAP hardware partners. Customers have two models to choose from for their SAP HANA solution: the appliance or the tailored data center integration (TDI) model. NetApp has established long-term global partnerships with both Cisco and Fujitsu, with which we have delivered value-added solutions to SAP customers around the world.

Both partners have SAP certified HANA appliance solutions that have been validated with NetApp storage. The appliance solution is a fixed model that includes servers from Cisco or Fujitsu and storage from NetApp. The Cisco appliance is called Cisco UCS with NetApp Storage for SAP HANA and is sold through a value-added reseller. Since Fujitsu resells NetApp storage in their appliance, it is sold directly through the server vendor.

The tailored data center integration (TDI) model offers customers more flexibility in terms of server and storage combinations. Well-established IT operation processes in existing environments can be leveraged as well as combined with SAP landscapes of traditional and SAP HANA databases. The storage capacities and the throughput requirements can be easily adapted as well. Thus, NetApp customers are free to leverage their existing storage with their preferred server provider. With this model, customers can buy each component directly from the certified vendors.

The appliance model has been certified only with NetApp FAS3250 storage,

but the tailored data center integration (TDI) model gives customers the choice of NetApp FAS or E-Series storage solutions. Both models allow customers to benefit from market-leading SAP HANA solutions combined with technical expertise and support from NetApp and its partners.

**The NetApp Advantage for SAP HANA**
NetApp storage solutions provide the foundation that enables SAP HANA scale-out infrastructures with one store that can be used for both data and analytics. Our unified scale-out platform delivers maximum scalability and performance to support the most demanding SAP HANA workloads. With NetApp, customers can rely on:

- A shared storage infrastructure that delivers integrated data protection for faster backups, restores, and recovery
- The high performance, massive bandwidth, and scale-out capability required for SAP HANA deployments
- Proven partnerships with server vendors and standards-based technologies

**About NetApp**
NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Discover our passion for helping companies around the world go further, faster at www.netapp.com.

Go further, faster®