Dell Validated Systems for SAP HANA™

Gaining real-time insight into your business

SAP HANA is at the forefront of in-memory computing technology for business analytics and business processing. Dell and SAP continue their partnership to deliver an SAP HANA platform portfolio that provides a multipurpose, data source-agnostic, in-memory data engine, optimally configured on Dell PowerEdge server hardware.

> Achieve more, deliver rapid results, and maximize efficiency with SAP HANA solutions the fully leverage Dell's expertise in services, systems, analytics and integration.

In today's highly competitive business climate, immediate access to and analysis of all operational data ultimately determines the success of an organization.

Organizations require proactive insight into business operations as they happen in order to preemptively respond to changing market conditions. However, the volume of operational data available for proactive business insight often exceeds the amount of data that traditional disk-based analytics systems can process within a reasonable time.

Organizations are not able to provide immediate access to the detailed data needed to gain true competitive advantage. Rather, they are forced to reduce or summarize the data from operational applications and external sources in order to feed their analytic models. The result is inadequate access to the full spectrum of information needed, and unacceptable delays between gathering data

and meaningful insight into that data.

Real-time analytics and insights can change the way a business operates:

A retail organization would have the power to analyze purchase orders as they are placed to more accurately manage production demand, and avoid problems such as overstock.

An apparel manufacturer would know which suppliers would provide the highest quality, lowest- cost raw materials on-time at the very moment a store-level reorder point triggers.

A utility company could combine internal capacity generation metrics with real time consumption patterns from smart meters, integrate that data with key weather data, and ensure business and residential service and rates are continuously optimized.

SAP HANA forms the future technology foundation for new, innovative applications based on in-memory technology. It enables better performing business strategies, including planning, forecasting, operational performance and simulation.

> "The reliability and fast time to data access [of the Dell SAP HANA solution] were unmatched by any competitor solutions we evaluated."
>
> **Franklin Caraballo**
> **Manager of IT, Grupo Estrella**

SAP HANA - an inflection point

With the introduction of the SAP HANA™ appliance software, what was once just a vision now becomes a reality. This next generation of SAP HANA technology gives organizations the power of instant insight into business operations and external forces and enables them to anticipate changing business conditions. SAP HANA lets business users immediately access, model and analyze transactional and analytical data in real time – from virtually any data source – and in a single environment, without affecting existing applications or systems.

SAP HANA forms the future technology foundation for new, innovative applications based on in-memory technology. It enables better performing business strategies, including planning, forecasting, operational performance and simulation, and provides dramatic benefits, such as high-performance and real-time access to large volumes of transactional information. Recent added capability from SAP also makes in-memory technology available for SAP Business Suite applications (ERP, SCM, CRM, etc.), providing application acceleration for traditional transactional processing systems.

Innovation through partnership

Dell and SAP have teamed up to offer optimally configured SAP HANA solutions that include a hardware appliance, pre-loaded software and a full range of services. Pairing Dell's enterprise class products and expert services with SAP HANA allows users to execute business analytics, performance management, and operations in a single system. This end-to-end solution gives enterprise customers cost-effective, optimized in-memory computing capabilities that increase availability and reduce risk.

Dell's solution for SAP HANA is just one example of how SAP's unique partnership with Dell – industry-focused and community-powered – delivers orchestrated innovation, increased return on investment, and breakthrough results for our joint customers.

Dell's Validated Systems for SAP HANA include:

A high performance in-memory computing database and a powerful data calculation engine

Real-time replication service to access and replicate data from SAP applications

Data integration services to access and index information from virtually any data source

A data repository to persist views of business information

Highly-tuned integration with SAP BusinessObjects BI solutions for insight and analytics

SQL and MDX interfaces for third- party application access

A unified information modeling and design environment

Support for OLTP database applications, enabling the deployment of SAP Business Suite applications such as ERP, SCM, and CRM

Options for deployment that address virtually any datacenter need, including Tailored Datacenter Integration (TDI) and Dell's Validated System for SAP HANA, Edge Edition

DELL

Dell's end-to-end SAP HANA Solution

With Dell's SAP HANA appliance and implementation and solution consulting services companies can set themselves apart by delivering complex analytic solutions before their competition. The Dell solution offers:

Powerful technology	Every appliance configuration is based on the Dell PowerEdge R930 server platform, providing a consistent experience and a solid base for future expansion, without forcing "rip and replace" as system needs evolve. Dell's PowerEdge R930 incorporates Intel E7v3 technology, and is certified for SAP HANA and includes everything needed to support your SAP HANA solution.
Virtualization for development	Dell offers single server configurations up to 4TB, virtualized with VMware vSphere, for production and non-production environments, allowing multiple VMs for testing. Virtualization is also available for production environments as well, allowing a single VM of ~4TB to virtualize the HANA environment.
Enterprise Class Availability	Utilizing both fibre channel SAN technology and a highly available multi-node design, Dell scale out solutions for SAP HANA are engineered to provide resiliency and easy expandability from 1TB up to 32TB and beyond. (Scale out certification for PowerEdge R930 with Intel Xeon E7v4 processors is underway)
High Performance	Automated tiering of data with Dell Compellent storage software provides the quickest access to the data sets most needed for analysis, keeping your "hottest" data closest to the processors.
Disaster recovery	Dell solutions for SAP HANA are all thoroughly tested and able to provide remote disaster recovery through system replication. Scale out solutions also offer storage replication, leveraging the unique features found in Dell Compellent SAN storage.
Modular growth	The Dell scale out solution is designed to grow modularly using incremental building blocks, and do it without disruption to the existing system, preserving your investment as your system changes.
SAP applications in-memory	Application deployment is now supported on Dell solutions for SAP HANA, enabling production business applications and business applications to both enjoy the speed and performance of in-memory computers, without the need for multiple compute environments.
Multiple O/S support	SAP HANA is now supported on both SUSE Linux Enterprise Server (SLES) and Red Hat Enterprise Linux (RHEL) for all standalone and scale-out configurations.
Tailored Integration	Dell supports SAP's Tailored Datacenter Integration (TDI) program, which allows you to deploy SAP HANA without having to purchase a single source appliance. This programs lets you mix servers, storage and networking from a list of vendor certified platforms approved by SAP, Including systems using the Intel Xeon E5 processor family,
Single point of contact	Dell is your one source for all solution components – including SAP HANA software licenses - and engineering, and Dell Services provides end-to-end solution support and consulting expertise.
Comprehensive services	Dell's portfolio of SAP full lifecycle services leverage industry best practices to deliver better business outcomes for SAP clients. We offer workshops, readiness assessments and industry-specific solutions. Our HANA Quick-Start Service includes installation, configuration and validation of the hardware and software, and also provides you with post-installation documentation.
World-class support	Dell's ProSupport ™and Mission Critical Services keep your SAP HANA solution running smoothly. For more thorough support, our HANA Managed Services provide comprehensive management and support for your SAP HANA landscape, including 24 x 7 monitoring, ongoing remote health checks, firmware and software upgrades, including application patching, as well as assistance with problem tracking and resolution.

Dell SAP HANA Configurations

Dell offers a complete range of SAP HANA appliances, all based on the Dell PowerEdge R930 server platform. The Dell™ PowerEdge™ R930 is a high-performance 4-socket 4U rack server designed for reliability and scalability for mission-critical applications. The SAP HANA solution is offered in sizes that are pre-specified and certified by SAP, and engineered by Dell, to meet individual customer analytics needs. Single server configurations start at 128GB of RAM, scaling up to 2TB of in-memory data analytics power, and up to 4TB of RAM for SAP Business Suite (SoH) application support. For SoH instances larger than 4TB, Dell partners with SGI to provide the UV300H multi-processor system, with up to 32 processors and 24TB of RAM for SoH.

Single server configurations can be used for business analytics in production and in pre-production environments. In addition, customers have the option of deploying the VMware vSphere virtualization environment to support the virtualization of SAP HANA in both non-production and production applications. This gives users the ability to consolidate SAP HANA instances on a

single server, and that means better TCO. It also enables fast deployment of new instances for development projects, and that can lead to a very attractive ROI on new applications.

SAP offers support for their SAP Business Suite on SAP HANA, using the SAP HANA in-memory database as the foundation for customers' ERP, SCM, and CRM applications. This represents a substantial performance improvement for these OLTP (online transaction processing) applications, offering the acceleration of in-memory technology to an application base that has been traditionally bottlenecked by disk storage subsystems.

SAP now offers full certification for both SUSE Linux Enterprise Server (SLES) and Red Hat Enterprise Linux (RHEL) as approved operating systems for SAP HANA infrastructure implementations. This flexibility allows you to incorporate the power of SAP HANA into your environment, while maintaining your own standards for datacenter operating system support. Both OS platforms are fully supported across all Dell configurations, single-server and scale-out alike.

As your SAP HANA infrastructure needs grow, the linear scalability of our SAP HANA software platform makes scaling to meet larger workload demands a very straightforward and non-disruptive process. Using the same R930 servers as our single server configurations, Dell combines the superior scalability and RAS features of this platform into a multi-node configuration, utilizing 10GbE networking, and sharing data across Dell Compellent SAN Storage.

Using modular scalability as a primary design construct creates a system that grows seamlessly, without requiring a hardware change when expansion is needed, and without disrupting the existing system. That can yield a much better total cost of ownership as application use evolves over the life of the system.

Dell Compellent SAN Storage complements the power, performance, and manageability of the Dell PowerEdge servers. It offers the additional benefit of the Fluid Data storage system – a virtualized environment that provides tremendous flexibility in storage management. Automated tiering of data - standard with Dell Compellent storage software - manages persistent storage to provide the quickest access to the data sets most needed for analysis, and high availability features that simplify backups, expansion, and data migration provide tangible enhancements to the SAP HANA analytics engine.

Utilizing both fibre channel SAN technology and a highly available multi-node design, the Dell scale-out solutions for SAP HANA are engineered to provide resiliency and easy expandability. This modular scalability is an important feature for IT departments deploying a mission critical solution for their business. As new use cases arise, your SAP HANA environment should be designed to grow painlessly. The Dell solution lets you start with high availability at 2TB, and grow your system as your data processing needs change, up to 2TB at a time, without disruption to the operation of the system.

Above all, there is no requirement to change architectures or remove existing system components to facilitate expansion. As always, Dell engineers each of these components, end-to-end, to provide a completely integrated and fully supported ecosystem for high performance data analytics. And, the Dell scalable solution for SAP HANA is designed to support additional applications as they are released by SAP, providing even more investment protection over the life of the SAP HANA implementation.

Tailored Datacenter Integration

Although deploying SAP HANA infrastructure as an appliance has many benefits – speed of implementation, seamless support, consistency of deployment, etc. – many customers need more flexibility in design. In response, SAP created the Tailored Datacenter Integration (TDI) certification. TDI allows vendors to separately qualify server, storage and networking components, offering you an SAP approved list of systems to choose from to "build your own" SAP HANA deployment. Each component is supported separately by the individual vendors for interoperability and compatibility with SAP standards. TDI allows you to leverage existing, standardized platforms to deploy a fully supported SAP HANA infrastructure for production or development.

In addition, TDI also opens the door for vendors to qualify servers that run the Intel Xeon E5v4 processors, rather than limiting HANA to only Intel Xeon E7. Though limited to single server configurations, these 2 processor systems provide a cost effective, yet powerful entry point for proofs of concept, test and development, or for smaller production environments. Dell offers configurations based on our industry leading PowerEdge servers based on the E5v4 chipset: PowerEdge R630, R730 and R730xd rack servers; PowerEdge T630 tower server; PowerEdge M630 blade servers, and PowerEdge F630 converged systems. Each platform offers unique capabilities to integrate specifically with your datacenter standards, and to address your SAP HANA implementation requirements. And, like our engineered appliances, each of our entry level platforms supports both SLES and RHEL operating systems.

Dell Validated Systems for SAP HANA
offer support for either
SUSE Linux Enterprise Server (SLES)
or
Red Hat Enterprise Linux (RHEL)
as the operating system, offering the flexibility to adhere to most datacenter infrastructure standards

World class services for SAP HANA

Dell is an expert in SAP HANA system support. Internally, we have over 65 instances of SAP with over 22,000 users. In addition, Dell has more than 1,800 ITIL-certified professionals. The result is a strong systems management and support practice and an in depth understanding of SAP hardware and software solutions.

Customers are provided a responsive service and support experience with collaborative support for SAP HANA by Dell, SAP, and our Linux partners (SUSE and Red Hat) based on standard and enterprise support agreements. Dell HANA Services coupled with Dell HANA Scale-Out Solutions provides the optimum in HANA capabilities, delivery, and support.

Implementation and Management Services

Dell offers end-to-end solutions to support SAP HANA applications — helping you reduce IT costs and transform your business. Dell SAP HANA appliance is delivered fully installed and configured with all the required software for Dell SAP Service engineers to connect it to customer source system(s). Dell provides the following HANA services:

- HANA Quick-Start Service that enables installation, configuration and validation of the hardware, software and post-install documentation.

- HANA Managed Service providing ongoing management and support for SAP HANA landscape. This service includes 24x7 monitoring, ongoing remote health-checks, firmware and software upgrades, including application patching, as well as assistance with problem tracking and resolution.

- Rapid Deployment Solutions for BW to HANA Migration providing rapid database migration of SAP Netweaver BW 7.3 to SAP HANA using SAP tools & best practices.

Support Services

Dell's SAP HANA appliance comes with 3 years of Dell's award winning ProSupport Mission Critical services and a 3-year extended hardware warranty. Customers receive 24x7x365 phone support, escalation management and collaborative support leveraging Dell's global ProSupport infrastructure of more than 30,000 technicians supporting more than 100 countries in 55 languages. Dell's ProSupport Mission Critical services accelerate rapid resolution by providing quick delivery of onsite parts and or labor and providing access to Dell's proven and reliable Critical Situation Process.

Key support features:

- Onsite Response – 2-Hour onsite service with 6-hour hardware repair available 24x7, including holidays.

- CritSit Procedures – Severity level 1 issues are reviewed by Dell and may be nominated for CritSit incident coverage through Dell Global Command Centers. During a CritSit incident, expert resource teams are mobilized to get organizations back up and running fast.

- Emergency dispatch – Onsite service technicians are dispatched in parallel with phone-based troubleshooting during a Severity level 1 incident.

Dell and SAP - a long standing partnership

For more than a decade, Dell has collaborated with SAP to deliver hundreds of SAP solutions across many industries. Dell offers customers a complete portfolio of end-to-end solutions in support of SAP HANA applications that help reduce IT costs while helping organizations transform their business. Our innovative platforms dramatically increase the availability and speed of business information, leading to more insightful decision-making using SAP HANA.

Getting started with SAP HANA
SAP HANA will change the way your company does business by enabling real-time insight into business operations as they happen! Talk with us to discover how SAP HANA will allow your organization to run smarter, run simpler, and run bolder.

Learn more at http://www.dell.com/hana.