SAP HANA on VMware vSphere 6.0 for Production Environments

Q. What has been announced?

A. SAP now provides production support for SAP HANA scale-up deployments on VMware vSphere® 6.0, part of VMware vCloud Suite®.

Q. What is supported?

A. SAP and VMware supports SAP HANA systems in scale-up deployment, up to the maximum size of a virtual machine (VM) on vSphere 6.0, which is 128 vCPUs and 4 TB of memory. As an example, a 1 TB SAP HANA database is comprised of approximately 512 GB of compressed data; the remainder of the RAM is utilized for Linux OS, temporary tables, intermediate calculations, and other SAP HANA database structures. This is no different from the physical requirements when sizing SAP HANA on vSphere.

A single production-level SAP HANA virtual machine on a dedicated SAP HANA certified server is supported. Co-deployment of non-production-level SAP HANA or non-SAP HANA systems is allowed, as long as the production level SAP HANA VM gets configured with resource commitments. Two-, four- or eight-socket SAP HANA-certified Intel E7 v2 Ivy Bridge EX or Intel E7 v3 Haswell processor-based single-node configurations are supported. The correspondingly supported entry level systems are Intel Xeon E5 v2 and later based two-socket single node systems with a minimum of eight cores per CPU.

VMware vSphere vMotion® and VMware vSphere Distributed Resource Scheduler™ (DRS), as well as VMware vSphere High Availability (HA) capabilities can be used to achieve operational performance and availability.

Q. Are multiple hosts, or so-called scale-out SAP HANA configurations supported?

A. Not yet. While scale-out configurations are fully supported and can be deployed on VMware vSphere 5.5, support for vSphere 6.0 scale-out configurations is pending SAP support approval.

Q. Are multiple virtual machines on a single physical server supported in production environments?

A. Yes, multiple virtual machines may be deployed on a single server. With vSphere 5.5, the co-deployment of several production SAP HANA VMs is supported. With vSphere 6.0 co-deployment of one vSphere 6 production SAP HANA VM and several non-SAP HANA VMs or non-production level SAP HANA VMs is supported.

Q. What is SAP HANA?

A.
- SAP HANA is an in-memory database that massively improves performance of existing SAP applications, and enables business transformation via real-time analytics and transaction execution.
- SAP HANA is deployable in the cloud or as an on-premises appliance that is pre-installed and configured by certified partners, including Hewlett Packard Enterprise, IBM, Fujitsu, Hitachi Data Systems (HDS), Cisco, Dell, Huawei, NEC, and VCE.
- Organizations can run SAP HANA on existing certified enterprise class storage using the SAP HANA Tailored Datacenter Integration model.

Q. What are the benefits of SAP HANA on vCloud Suite?

A. **Lower Total Cost of Ownership**

- Reduce capital expenditures (CapEx) by 70 percent and operating expenditures (OpEx) by 56 percent.[1]
- Unify and manage SAP HANA with the rest of the virtualized data center (no specialized staff required).
- Better utilization of existing infrastructure.

Faster Time-to-Value

- Rapid and automated provisioning.
- Reduce deployment time to hours vs. days.[2]
- Ensure consistency across environments with template provisioning.

Higher Service Levels

- Live migrate SAP HANA across hosts in minutes with zero downtime with vSphere vMotion.
- Ensure out-of-the-box high availability of 99.9 percent.[3]
  - Automatically restarts SAP HANA virtual machines to maximize uptime.
  - Automatic failover to virtual HANA backup appliance with zero data loss.
  - Combined with SAP HANA Service Auto-Restart feature over 99.9% high availability is possible.
- Easily manage peak analytic workloads.

Q. How can I get SAP HANA on vCloud Suite?

A. Organizations can purchase virtual SAP HANA from their existing SAP HANA OEM appliance vendors or via installation of virtual SAP HANA on existing IT infrastructure via the SAP HANA Tailored Datacenter Integration model.

[1] Taneja Group Research 2014

[2] EMC IT internal analysis

[3] EMC IT, 02/14 EMC Perspective, H12853

Q. When is SAP HANA going to be available for production use on vCloud Suite?

A. SAP support for productive use of virtual SAP HANA on vSphere 6.0 is available today. SAP HANA hardware vendors will not need to re-certify their existing SAP HANA appliances. Support will also include Tailored Datacenter Integration deployment options. Further details can be found in Support Note 1995460.

Q. Where can I find pricing information?

A. See vCloud Suite Pricing, Packaging, and Licensing: www.vmware.com/products/vcloud-suite/pricing.html

Q. How will SAP HANA on vCloud Suite be supported?

A. SAP and VMware will jointly support virtual SAP HANA in production, adhering to the service-level agreements (SLAs) defined in the customer support contract. If a reported problem is a known SAP HANA issue with a validated fix, SAP Support will recommend the appropriate fix directly to the customer. For all other performance-related issues, the customer will be referred within SAP's OSS system to VMware staff for support. VMware will take ownership and work with the SAP HANA hardware/operating system partner, SAP, and the customer to identify the root cause and resolve the issue.

Q. How is SAP HANA sized for virtualized environments, and what is the maximum size SAP HANA databases can be virtualized?

A. SAP HANA databases are sized in an identical manner for physical and virtual environments; please follow the SAP HANA sizing guidelines for SoH or BWoH workloads or the specific T-Shirt sizings. VMware can virtualize and support up to a 4 TB SAP HANA appliance.

Q. Will all SAP HANA appliances include vCloud Suite?

A. You can choose to deploy vCloud Suite on any SAP HANA appliance, which comes either pre-installed from the appliance vendor for SAP HANA or can be installed and verified as documented in the SAP HANA TDI approach.

Q. What's the minimum size of an SAP HANA VM?

A. Given the intense use of parallelization inside SAP HANA, the smallest configuration SAP supports in production today is equal to at least one SAP HANA VM per NUMA socket. Smaller SAP HANA VM configurations, which share the resources of a NUMA node, are allowed in non-production environments.

Q. Is there a performance impact of running SAP HANA on vCloud Suite?

A. During recent performance analyses conducted jointly by SAP and VMware, the majority of the test cases stayed within the defined KPI of 12 percent performance degradation compared to bare metal.

Q. What migration, implementation, and deployment services are provided?

A. VMware PSO, together with SAP Consulting, provide assessment, budgeting, planning, and design implementation and optimization services. Also, certified hardware and implementation partners offer SAP HANA on vSphere implementation services.

Q. Can I run SAP HANA on commodity hardware in production?

A. SAP HANA is only supported on SAP HANA and VMware certified hardware.

Q. Is there a hardware compatibility list specially required to run SAP HANA on vSphere?

A. Yes, only certified SAP HANA appliance systems that a hardware vendor offers for SAP HANA and TDI-certified configurations are supported for SAP HANA on vSphere.

Q. What is the maximum size for the virtual SAP HANA appliance?

A. 4 TB is the maximum if all data must reside in RAM per SAP HANA virtual machine; using the SAP ABAP Based Sizing Tool (recommended by SAP), warm and cold data can reside on disk for virtualized SAP HANA VM greater than 4 TB.

Q. Where can I find more information?

A. Additional information is available on the VMware and SAP Virtualization web pages:

www.vmware.com/go/sap-hana

SAP HANA on VMware vSphere

Q. Is NUMA Node Sharing for SAP HANA VMs allowed?

A. As of today, only non-production SAP HANA instances are allowed to share resources of a NUMA node. The smallest supported SAP HANA VM size would be 10 vCPUs (CPU threads) with full memory reservations configured.

Q. Is it possible to operate and manage vSphere 5.5 and 6 hosts with single vCenter Server?

A. Yes, this is possible to manage vSphere 5.5 and 6.0 hosts with one vCenter Server 6 instance. Depending on the size of the vSphere environment more vCenter Server instances may be required (1000 hosts per vCenter Server instance).

Q. Which host sizes will be supported with vSphere 6?

A. With vSphere 6 up to 8 socket server systems with currently either 4 TB RAM (BWoH) or 6 TB of RAM (SoH) will be supported. Newer server generations may support larger RAM configurations. vSphere 5.5 can support host memory sizes up to 4 TB RAM and vSphere 6 supports host RAM sizes up to 12 TB of RAM. For the latest supported SAP HANA server system configurations please visit: https://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/appliances.html

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VMware, Inc. 3401 Hillview Avenue Palo Alto CA 94304 USA Tel 877-486-9273 Fax 650-427-5001 www.vmware.com