

SAP FAQs

# SAP FAQs

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# 1 FAQs

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## 1.1 Basic Concepts

### 1.1.1 What Is Huawei SAP on Cloud Solution?

SAP on Cloud allows you to deploy SAP products on HUAWEI CLOUD, providing full access to its lifecycle management services, large capacity, strong security, and high performance. SAP on Cloud simplifies enterprise management, reduces costs, optimizes operations, and facilitates digital transformation.

For details, see the [HUAWEI CLOUD SAP on Cloud](#) website.

### 1.1.2 What Is SAP HANA?

SAP High-Performance Analytic Appliance (HANA) is a high-performance real-time data computing platform launched by SAP in June 2011. The platform leverages the memory computing technology, which enables users to directly query and analyze a large quantity of real-time business data.

For details, see [Introduction to SAP HANA](#).

### 1.1.3 What Is Scale Up and Scale Out?

SAP HANA nodes can be expanded in the scale-up or scale-out mode.

- **Scale-up mode:** Also called single-node system mode, in which an SAP HANA system contains only one valid node. If high availability (HA) is required, construct such an architecture using two single nodes through System Replication. In the scale-up mode, when the system requires expansion, add CPUs, memory capacity, and hard disks to the node.

HUAWEI CLOUD does not support scale-up expansion for a node on which SAP HANA is running.

- Scale-out mode: Also called cluster system mode, in which an SAP HANA system contains multiple nodes. In the scale-out mode, when the system requires expansion, add more nodes to the system.

## 1.1.4 What Are Business One, SoH, and BWoH? What Are Their Differences?

- SAP Business One is a service management software that grows with the development of enterprises. It helps enterprises improve management efficiency, reduce operations cost, obtain comprehensive overviews by analyzing businesses, and simplify key processes such as accounting, customer relationship management (CRM), supply chain management, and procurement. Both SAAS and On-Promise versions use HANA databases.
  - Supports scaling out to multiple nodes in SAP OLAP scenarios.
  - Supports scaling up to 4 TB of memory for a single node in SAP OLTP scenarios.
- SAP Business Suite on HANA (SoH) is a series of comprehensive integrated applications that help enterprises build excellent processes, reduce operations cost, and capture business opportunities. These applications support industry-specific extensive business processes. SAP Business Suite applications provide solid support for finance, human resources, production, procurement, product development, marketing, sales, service, supply chain management, and IT management processes. With more than 35 years of experience in cooperation with enterprises, SAP Business Suite serves the organizations that:
  - Require highly integrated business process across organizations, departments, and regions.
  - Want to expand the existing business processes or add new business processes as soon as possible.
  - Need to reduce costs by integrating enterprise software or achieve more efficient growth by adjusting operations.
- SAP Business Warehouse on HANA (BWoH) is an integrated component of SAP Business Intelligence (BI). It provides an integrated and business-oriented platform for collecting, storing, analyzing, and managing SAP data and non-SAP data. It can intelligently manage the massive data of the entire enterprise information management system and dig valuable information to provide decision-making support for enterprise managers. In this way, enterprises can respond to the market flexibly, improving competitiveness.

HUAWEI CLOUD provides abundant resources for deploying SAP BW, reducing the deployment workload and duration. Both single-node and cluster deployment modes are allowed.

## 1.1.5 What Is SAPS?

The SAP Application Performance Standard (SAPS) is a hardware-independent measurement unit describing the performance of a system configuration in the SAP environment. Holding CPUs and memory size constant, a higher SAPS value indicates better performance. In the SD 2-tier Benchmark test, 100 SAPS is defined as 2000 fully business processed order line items per hour. In technical terms, this throughput is achieved by processing 6000 dialog steps (screen changes), 2000 postings per hour in the SD Benchmark, or 2400 SAP transactions.

## 1.1.6 What Is HA and Why Is HA Required?

HA refers to high availability. The SAP system architecture consists of three layers: application server, message server, and database. SAP best practices recommend distributed deployment, which enables high availability of different servers.

- **Application server HA:** In active-active mode, if one application server breaks down, the other server still works normally, ensuring no service interruption. SAP application servers are usually deployed in a cluster. In addition to HA, this deployment mode also balances workloads.
- **Message server HA:** In active-standby mode, the message server distributes user requests to application servers. The HA software of the operating system is required to support the switchover of shared resources.
- **Database HA:** In active-standby mode, if the active database breaks down, upper-layer applications automatically connect to the standby database, ensuring no service interruption.

For small- and medium-sized enterprises, select two application servers to both deploy message server components. Adopt the HA architecture to your SAP production system.

## 1.1.7 What Are SAP PAS, AAS, and ASCS?

PAS stands for the primary application server.

AAS stands for the additional application server.

ABAP Central Services (ASCS) is the core SAP application service. It consists of following servers:

- **Message Server:** works as a load balancer. All user requests are first processed by the message server and then distributed to each SAP application server.
- **Enqueue Server:** manages lock table. To prevent different operations from modifying a record at the same time, the table is locked to ensure data consistency.

The differences between the PAS and a AAS: The PAS contains the ASCS, but an AAS does not. In a system, there is only one PAS, but there can be multiple AASs. The number depends on the service requirements.

If any problem occurs in the ASCS, the entire SAP system breaks down. Therefore, adopt the HA architecture for the ASCS.

## 1.1.8 What Are OLAP and OLTP?

There are two data processing methods: online analytical processing (OLAP) and online transaction processing (OLTP).

- **OLAP** is an approach to answer multi-dimensional analytical (MDA) queries swiftly in computing. The source data of OLAP is usually stored in the data warehouse (DWH) of a relational database. OLAP is a main application in DWH systems. It supports complex analysis, focuses on decision support, and provides query results that are easy to understand.
- **OLTP** is a transaction-oriented processing system, which immediately sends original user data to the computing center for processing and provides the



processing result within a short period of time. OLTP is a main application of traditional relational databases. It processes basic and routine transactions, such as banking transactions.

## 1.2 Purchase

### 1.2.1 Why Do I Deploy SAP System on the Cloud?

#### **Challenges met by enterprises in SAP applications and industry solutions:**

- **High costs:** The investment in SAP application servers and HANA servers is too high. Costs for equipment room, electricity, and O&M increase year by year. For enterprises, both initial and future investments are too high.
- **Complex O&M:** O&M of SAP systems and hardware needs to be performed by a professional O&M team to analyze and resolve problems in real time. For many enterprises, costs for maintaining a dedicated team are too high and the input/output ratio is too low.
- **Low resource utilization and total cost of ownership (TCO):** Enterprises have a large number of SAP development, test, and training systems, leading to scattered resources, low utilization, and repeated investment. In addition, enterprises purchase traditional servers based on the data volume in the next three years. However, the resource utilization is low (about 20%), causing serious resource waste and increasing TCO.
- **Slow capacity expansion:** When enterprises find that the server resources cannot meet their requirements, they need to purchase additional hardware, plan the system shutdown window, and stop the production system. Data migration between servers is required for capacity expansion, which adversely affects enterprise services.
- **Long delivery period:** It usually takes one to two months from order placing to goods arrival for purchasing traditional hardware, which greatly prolongs the entire SAP project delivery period.
- **Poor flexibility:** In daily use of SAP systems, business departments often need to test the data of the production system. Traditionally server procurement, system installation, and data copy often take weeks or even months, prolonging the progress.
- **Low data center security:** In traditional equipment rooms, security policies, access control, power protection, temperature and humidity control, water supply and drainage, ESD prevention, and security zone division cannot be fully perfected. In addition, enterprises cannot have a dedicated security team to ensure the security of the entire system and data.
- **Weak service continuity mechanisms and data security:** The uninterruptible running of application systems is intensely demanded because more and more work relies on the assistance of IT systems. Hardware and software failures, single points of failure (SPOFs), natural disasters, or even system downtime for planned maintenance, may adversely affect service running and data security. How to ensure service continuity and data security is a big challenge faced by IT systems.

#### **Advantages of migrating enterprise systems to the cloud:**

- On-demand use and lower costs: Enterprises do not need to invest too much at a time for future use and can buy resources required in recent months, ensuring the maximum resource utilization and achieving the lowest TCO.
- Simple capacity expansion: Capacity expansion on the cloud is much easier. Deploying SAP systems on the cloud can fully use unlimited resources on the cloud and expand capacity with the increase of data volume without adversely affecting the running key enterprise services.
- Flexibility: Cloud computing provides enterprises with more flexibility. Enterprises can determine whether services need to be added based on their requirements and scale up or down services as required conveniently, maximizing service utilization. In addition, for temporary service test requirements, SAP systems on the cloud can be purchased on demand for quick deployment to adapt to the changing enterprise business requirements.
- Professional O&M: All hardware and equipment room O&M are performed by the professional O&M team of cloud vendors. Enterprises can focus on enterprise service innovation and IT digital transformation.
- Shortened project period: One-click environment provisioning can be implemented on the cloud. Enterprises do not need to wait for a long period for hardware procurement, which greatly shortens the overall SAP project period.
- Security: Cloud vendors have security O&M teams dedicated to data center security policies, access control, power protection, temperature and humidity control, water supply and drainage, ESD prevention, and security zone division, meeting national security standards and ensuring the security of the overall system and data.

## 1.2.2 What Are the Advantages of Huawei SAP on Cloud Solution?

As a cloud service provider in the market, Huawei is also a hardware vendor. With its years of technical accumulation in the hardware field, Huawei SAP on Cloud has the following advantages:

- **SAP on cloud platform with high performance:** The I/O performance of SAP systems on HUAWEI CLOUD is **four to five times** that required by SAP certification and **two to three times** that of other cloud vendors.
- **Large specifications:** Currently, HUAWEI CLOUD provisions a BMS for SAP HANA with up to 4 TB of memory and a BMS cluster with up to 30 TB of memory (up coming).
- **Servitization:** HUAWEI CLOUD allows the automatic deployment of HANA databases, facilitating quick and automatic provisioning of enterprise systems.
- **High reliability:** HUAWEI CLOUD allows the DR systems of SAP systems and databases deployed both on and off the cloud or in two AZs on the cloud. HUAWEI CLOUD provides highly reliable architecture for applications and databases. To facilitate the deployment of the complex HA architecture, Huawei develops a series of automatic deployment scripts.

## 1.2.3 What SAP Products Does Huawei SAP on Cloud Solution Support?

SAP products supported by Huawei SAP on Cloud solution:

- Database: SAP HANA, SAP HANA (express edition), and SAP Adaptive Server Enterprise (ASE)
- Middleware: SAP NetWeaver
- Application: SAP S/4HANA, SAP BW/4HANA, SAP Business Suite, SAP Business One, SAP Business Warehouse, SAP Hybris, and SAP Business Object

## 1.2.4 Can I Migrate Local SAP Resources Directly to the Cloud?

Yes. Huawei and SAP partners provide end-to-end services for customers, including off-to-on-cloud migration services, system upgrade services, upgrade from ECC to S/4HANA, database replacement services (from Oracle or Db2 to HANA), O&M services, and experience services during system implementation.

## 1.2.5 Which Billing Mode Should I Choose When Buying SAP Systems on HUAWEI CLOUD?

HUAWEI CLOUD supports the pay-per-use and monthly/yearly subscription billing modes. For SAP development, test, and production systems that always need to be used, you are recommended to choose the monthly/yearly subscription mode. For SAP training systems and temporary test systems, you are recommended to choose the pay-per-use billing mode, that is, the resources you use are charged by hour.

## 1.2.6 Is SAP Hybris Supported?

Yes. Huawei SAP Hybris is a solution jointly developed by Huawei and SAP in 2017. Compared with offline deployment, Huawei SAP Hybris implements dynamic and static resource separation, centralized session management, read and write analysis, automatic capacity expansion based on user access traffic, and one-click automatic deployment, bringing Hybris into full play.

## 1.2.7 How Do I Ensure the Security of SAP Systems Deployed on HUAWEI CLOUD?

Huawei is one of the first enterprises that got all security certifications from the Ministry of Industry and Information Technology (MIIT). All Huawei data centers meet the requirements of Tier 3+. The security of SAP products deployed on HUAWEI CLOUD is ensured in terms of border security protection, comprehensive host and application security protection, all-round network isolation and access control, and professional database security.

For details, see [SAP Security White Paper](#).

## 1.2.8 What Are the Advantages of Deploying SAP HANA on HUAWEI CLOUD?

Deploying SAP HANA on HUAWEI CLOUD makes full use of cloud service advantages and brings you the following benefits:

- Lowered purchase cost: You can purchase the SAP HANA system on demand for the specific development (DEV), testing (TST), or training (TRN) scenario. You will only be charged when the system is being used, reducing the purchase cost.

- Improved deployment efficiency: Purchasing the SAP HANA system on HUAWEI CLOUD shortens the deployment duration from days to hours, saving time and manpower.
- Flexible expansion: You can easily expand a single node to a cluster or a larger scale on HUAWEI CLOUD.
- Flexible usability: If an SAP HANA system is used in DEV, TST, and TRN scenarios at different time, you can purchase the SAP HANA system in the required deployment mode.

## 1.2.9 What Are the Scenarios Supported by Huawei SAP on Cloud Solution?

Currently, the following scenarios are supported:

- Entire SAP system on cloud: SAP development, test, and production systems are all deployed on the cloud.
- SAP development and test systems on cloud: Production systems are deployed in local data centers while development and test systems are deployed on HUAWEI CLOUD. VPN or Direct Connect connections are used for communication between them.
- DR system on cloud: The cost of deploying SAP DR system on the cloud is only 10% of deploying it in a local data center.

## 1.2.10 Does HUAWEI CLOUD Sell SAP Software Licenses?

No, HUAWEI CLOUD does not sell SAP software licenses.

## 1.2.11 How Do I Use SAP Software Licenses on HUAWEI CLOUD?

You can bring your own SAP software licenses (BYOL) to HUAWEI CLOUD. You need to log in to the [technical support website](#) of SAP company to apply for SAP software licenses.

## 1.2.12 What Are the Application Scenarios of SAP HANA?

SAP HANA applies to following scenarios:

- Accelerator for other databases
- Data source for report analysis
- OLAP DWH
- OLTP database
- Unified SAP database platform

## 1.2.13 What OSs Can Be Used by SAP Products on HUAWEI CLOUD?

HUAWEI CLOUD provides the SAP on Cloud solution with dedicated OSs, for example, SUSE Linux Enterprise Server (SLES) 12 SP1 for SAP or later.

## 1.2.14 Can I Deploy SAP Software on HUAWEI CLOUD Immediately Just After Buying It?

Yes. Compared off-cloud deployment, the initial investment in deploying SAP systems on the cloud is low. Users can choose cloud servers as required, which can be provisioned on the current day, allowing project implementation immediately.

## 1.2.15 Can I Migrate SAP Systems on Other Clouds to HUAWEI CLOUD?

Many SAP systems on third-party clouds were migrated to HUAWEI CLOUD. Use the Huawei Server Migration Tool (SMT) to package the system configuration and data of VMs on a third-party cloud into an image file for transmission, ensuring that the running ECS is consistent with the applications and data of the original instance or VM.

HUAWEI CLOUD SAP technical support team provides a migration solution (including hourly details) based on your requirements. In normal cases, the downtime caused by the migration will not exceed two days.

## 1.3 Products

### 1.3.1 What SAP HANA Products Does HUAWEI CLOUD Provide?

Product	Software License	Supported System	Applicable Scenario
SAP HANA	BYOL	Production and non-production	<ul style="list-style-type: none"><li>• Pure SAP HANA application</li><li>• BW/4 HANA</li><li>• S/4HANA Business Suite on HANA</li><li>• ECC on HANA</li><li>• BW &amp; BPC on HANA</li><li>• Business One on HANA</li><li>• Hybris on HANA</li></ul>
SAP HANA (express edition)	SAP provides free HANA development software licenses.	Development, test, and production	<ul style="list-style-type: none"><li>• Pure SAP HANA application</li><li>• Data mart</li><li>• Data analysis</li><li>• Big data</li></ul>

Product	Software License	Supported System	Applicable Scenario
SAP HANA trial system	SAP provides free trial licenses. Customers only need to pay for the HUAWEI CLOUD infrastructure used during the trial period.	Non-production	<ul style="list-style-type: none"><li>• Native SAP HANA application program</li><li>• Data mart and analysis</li></ul>

### 1.3.2 What HANA ECSs Does HUAWEI CLOUD Provide?

HUAWEI CLOUD provides HANA ECSs of various specifications to meet your requirements in different scenarios. For details, see [Recommended ECS specifications for SAP HANA](#).

### 1.3.3 What SAP NetWeaver ECSs Does HUAWEI CLOUD Provide?

High-performance ECSs of various specifications are available. For details, see [ECS Flavors](#).

### 1.3.4 How Do I Deploy SAP NetWeaver on HUAWEI CLOUD?

You can log in to the public cloud management console to apply for required cloud servers based on your deployment scheme and then install and configure SAP NetWeaver. For details, see [SAP NetWeaver User Guide](#).

### 1.3.5 How Do I Deploy SAP HANA on HUAWEI CLOUD?

On HUAWEI CLOUD, you can deploy SAP HANA on Elastic Cloud Servers (ECSs) in the single-node deployment mode. You can log in to the public cloud management console to apply for required cloud servers based on your deployment scheme and then install and configure SAP HANA.

- For details about how to deploy SAP HANA on ECSs in the single-node deployment mode, visit [https://support.huaweicloud.com/intl/en-us/ugs-saphana/saphana\\_02\\_0004.html](https://support.huaweicloud.com/intl/en-us/ugs-saphana/saphana_02_0004.html).

### 1.3.6 How Do I Back Up and Restore SAP HANA?

Create a HA and disaster recovery system so that it can be used to restore SAP HANA quickly if an error occurs, thereby ensuring SAP HANA reliability. For details about operation requirements and notes, see [SAP HANA Database Backup and Recovery](#) released by SAP. You can also refer to the [SAP HA and DR Guide](#).

### 1.3.7 How Do I Deploy HA and DR Systems?

Compared with traditional HA, cloud-based HA has the following advantages:

- **Agility:** HA systems can be deployed on the cloud quickly and effectively. However, to realize traditional HA, you need to purchase servers and hardware, complete hardware planning, and require skilled engineers for construction.
- **Flexible expansion:** HA systems on the cloud can be dynamically expanded as required to meet system performance requirements. However, the traditional HA architecture is fixed and not easy to be dynamically expanded.
- **O&M:** You do not need to maintain the cloud-based HA that maintained the cloud service providers. However, traditional HA requires local O&M teams for maintenance.
- **Reliability:** HA on the cloud can be deployed in different regions based on your requirements to achieve cross-region HA and ensure system security.
- **Costs:** Compared with traditional HA, cloud-based HA is cost-effective.

HUAWEI CLOUD provides comprehensive HA and DR schemes for SAP HANA. For details, see [SAP HA and DR Guide](#).

### 1.3.8 How Can I Migrate an Existing SAP System to HUAWEI CLOUD?

HUAWEI CLOUD takes advantages of SAP DMO to migrate on-premises SAP systems to the cloud and uses the SUM tool to migrate on-premises databases to the cloud.

### 1.3.9 How Can I Do Sizing?

Before sizing, determine the SAP system indicators, including memory, CPU, disk capacity, and I/O performance. You are advised to use the SAP Quick Sizer tool to perform the sizing. Cloud servers support Auto Scaling (AS). You can select a proper cloud server on HUAWEI CLOUD based on the sizing result and SAP consultants' opinions to deploy your SAP system.

For additional information about the SAP sizing, log in at <https://www.sap.com/about/benchmark/sizing.html>.

### 1.3.10 What Modules Does a Typical SAP System Contain?

A typical SAP system contains application servers and SAP HANA databases.

- Application servers are classified as production, development, and test servers for ERP and CRM production, development, and test. Generally, production applications are deployed on physical servers, and development and test applications are deployed on VMs. If VMs are used, shared storage is required.
- HANA databases are also classified as production, development, and test databases for ERP and CRM production, development, and test. Two nodes are usually used for HANA databases to achieve HA.

### 1.3.11 How Many SAP Systems are Required to Support Services?

According to SAP best practices, there are at least three systems: development system, testing system, and production system. For some large enterprises, each set of SAP software has 5 to 6 systems, including the sandbox system and pre-production system. This is to keep responsibilities clear. The development system is available to only developers. After all the workloads are transferred to the testing system, only the test personnel has accesses to them. Upon test completion, applications and data are transferred to the production system where no modification can be made. Any modifications, such as patch upgrade and new function development, are achieved after the services are rolled back to the development system.

All development, testing, and production systems run 24 hours a day. Therefore, customers are usually billed for the SAP systems yearly or monthly.

### 1.3.12 How Do I Back Up SAP Systems and the HANA Database on HUAWEI CLOUD?

Compared with offline backup, cloud backup is more convenient.

- SAP application system: HUAWEI CLOUD Volume Backup Service (VBS) supports full backup, incremental backup, manual backup, and periodic automatic backup.
- SAP HANA system: HUAWEI CLOUD Scalable File Service (SFS) provides a fully hosted shared file storage for your ECSs. The service complies with the network file system (NFS) protocol and can be scaled up to a PB level. Its high scalability supports a massive amount of data and high-bandwidth applications.

You can mount the SFS shared storage to the HANA ECS and use the SAP HANA Studio (provided by the HANA software) to store backup files to the SFS shared storage. HUAWEI CLOUD provides automatic archiving scripts to help you automatically archive SFS HANA backups to HUAWEI CLOUD OBS.

### 1.3.13 How Do I Connect to the SAP System on HUAWEI CLOUD?

You can use IPsec VPN tunnels or Direct Connect. You will be billed for the IPsec VPN based on the bandwidth. For Direct Connect, you will be billed by the telecom operator, and Huawei charges you only for the port use. After the network connections are established, you can log in to the SAP system on the cloud using the SAP GUI or a web browser, which is the same as accessing the system offline.

For personnel on business trips, you can connect to the enterprise intranet through the VPN and then to the SAP system on HUAWEI CLOUD. Alternatively, you can purchase an SSL VPN from HUAWEI CLOUD Marketplace, and dial up to connect to the public network and the VPN to access the system. For security purposes, do not assign a public IP address to any SAP application and database.



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# A Change History

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Description	Released On
This issue is the first official release.	2018-09-18