This sample chapter introduces the SAP S/4HANA deployment options—on-premise, public cloud, and private cloud—and outlines their strengths and weaknesses to help you choose the right deployment model and the right cloud/cloud service providers.

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This chapter introduces the SAP S/4HANA deployment options—on-premise, public cloud, private cloud—and outlines their relative merits and demerits to help you choose the right deployment model and the right cloud/cloud service providers.

8 Deployment Options

In Chapter 2, we briefly introduced the different versions of SAP S/4HANA. In this chapter, we’ll take a closer look at the different deployments options. As of the November 2015 SAP S/4HANA release, there are two main options:

- SAP S/4HANA, deployed on-premise (often called the on-premise edition)
- SAP S/4HANA Cloud

There are further variants of SAP S/4HANA Cloud, including those released in August 2016. For the on-premise version of SAP S/4HANA, there are various options to deploy the solution. This chapter discusses each of the deployment options available as of September 2016.

To choose the SAP S/4HANA version and deployment that is best for your organization, it’s important to know about these options so you can optimize the overall IT landscape, minimize the initial costs of the SAP S/4HANA deployment, and have a balanced cost structure throughout the lifecycle of the landscape.

Before we go deep into the options and highlight the advantages and disadvantages of each option, let’s take a quick look at the cloud concepts and why they are important today. This will help you interpret the different terms correctly when we discuss the deployment options for the cloud.

8.1 Cloud Concepts

We’ll refer to the Cloud Computing Reference Architecture (currently at CCRA 4.0) published by IBM to help us navigate through the common adoption patterns for cloud. Figure 8.1 gives the overview of this reference architecture.
Expanding on the concepts introduced in Chapter 1, Section 1.3.1, we find the following:

- **Infrastructure-as-a-service (IaaS)**
  IaaS is an offering by which IT landscapes can be hosted in the cloud using the computational resources such as servers as well as storage and networks owned by the service providers. The customers can get their requisite quantity of infrastructure provisioned very fast and on-demand. Typically, there are web-based user interfaces (UIs) where customers can put in their requirements and self-provision the infrastructure. API access to the infrastructure may also be offered as an option. Simply speaking, this service provides the place to run the customer’s applications. For example, many customers’ IT landscapes use IBM data centers.

- **Platform-as-a-service (PaaS)**
  PaaS includes a composable and integrated application development platform that allows you to model multilayer application infrastructure (middleware)

- **Software-as-a-service (SaaS)**
  SaaS is the software that is owned, delivered, and managed remotely by one or more providers. The software provider delivers standard software based on a set of common code and data definitions. This software has components that are configurable to suit customers’ requirements and typically will have some enhancement points and some APIs to connect with other solutions. The software is provisioned for the contracted customers at any time on a pay-for-use basis or as a subscription based on usage metrics. There are several SaaS solutions today, including SAP SuccessFactors, Concur, and the SAP S/4HANA Cloud, public option.

- **Business-process-as-a-service (BPaaS)**
  Gartner defines BPaaS as “the delivery of business process outsourcing (BPO) services that are sourced from the cloud and constructed for multitenancy.” These services are often automated and include human intervention, which is catered to by a shared pool of human resources. The pricing models are consumption-based or subscription-based commercial terms. As a cloud service, the BPaaS model is accessed via web-based interfaces.

After choosing to put their infrastructure on the cloud, customers need to choose whether they want a private cloud, a public cloud, or a hybrid option:

- **Private cloud**
  The cloud infrastructure provides options for scalability, flexibility, provisioning, automation, and monitoring but is dedicated for a particular customer. The cloud vendor provides the infrastructure dedicated to the customer either on client premises or in the cloud vendor’s data center, but it’s dedicated to the specific customer and behind the company’s firewall.

- **Public cloud**
  The cloud computing services are provided outside the organization via the Internet whereby the IT resources are available and accessible through the Internet in the public domain.
Hybrid cloud
This is a combination of some of the options, for example, private cloud and public cloud deployments or a public cloud and on-premise deployments linked together. There are several use cases for the hybrid cloud scenario. There are also variants in the IaaS space with different kinds of management services on top of the infrastructure. More details about the types of service are covered in Section 8.2.1 and Section 8.3 of this chapter.

8.2 SAP S/4HANA Versions
SAP S/4HANA Enterprise Management is available in two major flavors: on-premise and cloud. From a functionality perspective, there are some divisions in the different versions available for the cloud version, such as the SAP S/4HANA Marketing Cloud or the SAP S/4HANA Project Services Cloud, but we’ll be focusing on the SAP S/4HANA Enterprise Management Cloud in this section, which covers scenarios from logistics, financials, and project management.

Let’s now dive into the SAP S/4HANA, on-premise edition, before moving on to SAP S/4HANA Cloud and the hybrid of the two. In the following section, we’ll provide criteria for choosing between your different deployment options.

8.2.1 SAP S/4HANA, Deployed On-Premise
The SAP S/4HANA, on-premise edition, is the entire SAP ERP scope with simplifications in several core areas. This has already been covered in earlier chapters, including an overview in Chapter 2, and discussion of finance (FI) and logistics functionality in Chapter 3 and Chapter 4, respectively. For the on-premise edition, the release cycle for new functionality is on an annual basis and can be deployed on-premise or on cloud with the IaaS model.

The first decision for the client is to choose the right SAP S/4HANA product version: on-premise SAP S/4HANA or SAP S/4HANA Cloud. When making this decision, the client should consider the following primary aspects:

Licensing model
The SAP S/4HANA, on-premise edition, follows the traditional licensing model. For SAP S/4HANA Cloud, the pricing follows subscription-based licensing, per the SaaS model.

Range of functionality
So far, the on-premise version has the complete set of functions from SAP Business Suite/SAP ERP, although not all of them use simplified code or the SAP Fiori frontend. SAP S/4HANA Cloud covers specific business processes for marketing line of business (LoB) and the professional services industry, while SAP S/4HANA Enterprise Management covers scenarios for a digital core, including FI, Controlling (CO), Procurement, Sales and Distribution (SD), Manufacturing, Plant Maintenance (PM), Project System (PS), and SAP Project Lifecycle Management (PLM). The scope of functions for SAP S/4HANA Cloud will be enhanced on a quarterly basis.

Therefore, a customer who needs the full-blown SAP ERP functionality for its business beyond what is provided by SAP S/4HANA Cloud needs to opt for the on-premise version or wait for SAP S/4HANA Cloud to reach the state where it can cater to these functionalities.

Standardization versus flexibility
The on-premise version provides complete flexibility to do any customization to the standard solution, as is required by the customer’s business processes. SAP S/4HANA Cloud, on the other hand, provides limited ability for customization. Thus, this edition is suited to those organizations that have the strategy to adopt standardized processes. Thus, they can adhere to the functionalities provided by SAP S/4HANA Cloud.

IT strategy in terms of usage of SaaS
The IT strategy for some of the major organizations is to adopt a SaaS model for all their IT solutions, even their ERP solutions. This might potentially drive them to adopt SAP S/4HANA on-premise if the first premise in terms of functionality is met.

Infrastructure and operations
For the on-premise edition, the client has complete control of the infrastructure, deployment, and maintenance schedule. For SAP S/4HANA Cloud, SAP provides the system and any service-level agreements around the nonfunctional requirement. They also have to test the delta functions every quarter for a fixed number of days before the updates are applied. Thus, the customer has no control over accepting the versions upgrade. This has some advantage in terms of less maintenance, but companies need to plan for the resource and effort for this continuous testing every quarter.

Implementation approach and time lines
The implementation for SAP S/4HANA Cloud is much faster due to the
standardized process configurations, which include SAP Best Practices for implementation. Both new and existing SAP ERP customers need to only do data migration, which is aided by migration tools and templates for different data objects. Deep technical skills aren’t needed. For the on-premise implementation—both for the migration scenario and the new implementation scenario—the technical knowledge and skills are mandatory for the team because there will be customer-specific scenarios and considerable customization. The time lines for the SAP S/4HANA adoption are also longer.

Costs
Costs are affected by several factors, including the reduced implementation time lines. However, because SAP S/4HANA Cloud is a SaaS model, the product licensing costs and the infrastructure and operational costs decrease. Because SAP S/4HANA Cloud has fewer customization capabilities, it also has the advantage of less maintenance overhead. Apart from the licensing model, the infrastructure investment and maintenance overhead can also be tackled through an IaaS adopted for the on-premise edition.

There can be certain constraints as well in terms of SAP S/4HANA Cloud adoption. Following are the three main constraints:

- Regulatory compliance might compel the data to be on-premise, or the data might not be able to be taken outside the country, requiring in-country hosting of the data center.
- Organizations have security concerns about the data being in the cloud, in the public domain, beyond the organization’s firewall.
- The size of the database may be too large for the currently available cloud options for SAP HANA.

The second concern is gradually getting changed to certain precautionary steps the customer should take, and, of course, the cloud providers have to follow standard security processes to be certified for productive usage by customers. Apart from the standard security features related to user authorization and authentication, data security and privacy controls in SAP products are available irrespective of being on-premise or in the cloud. From a physical security perspective, SAP data centers comply with the latest telecommunications industry standards, such as ANSI/TIA/EIA-942 Tier III or higher.

The summary of what the SaaS, PaaS, and IaaS offerings mean for the customer is shown in Table 8.1.

### Table 8.1  SaaS, PaaS, and IaaS Options Summary

<table>
<thead>
<tr>
<th>IaaS</th>
<th>PaaS</th>
<th>SaaS</th>
<th>Service Model</th>
<th>Control over Cloud Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Applications</td>
<td>SaaS: Consumed by end user, delivered through internet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No control over underlying platform and infrastructure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Operating system and middleware runtime</td>
<td>PaaS: Application deployed on managed services</td>
</tr>
<tr>
<td>Server, storage, and network</td>
<td>Server, storage, and network</td>
<td>Server, storage, and network</td>
<td>IaaS: Computing resources available at lowest infrastructure component level</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control over application deployed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control over application-specific configuration on hosting environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No control over underlying infrastructure</td>
</tr>
</tbody>
</table>

After choosing the relevant product version, there are more decisions to be made. The on-premise version can be deployed on the cloud or on-premise with options for multiple deployment models (the terms were explained in greater detail in Chapter 6):

- **Multiple Components One System (MCOS)**
  In the same SAP HANA server, multiple SAP HANA databases along with the System ID (SID) can be configured (e.g., development and quality environments).

- **Multiple Components One Database (MCOD)**
  Multiple SAP components are running on the same SAP HANA database.

- **SAP HANA Multitenant Database Containers (MDC)**
  Multiple tenant databases are isolated in the same SAP HANA system.
**Virtualization using smaller virtual machines (VMs)**

Smaller VMs are used within the SAP HANA system, or logical partitioning (LPAR) is used.

Figure 8.2 shows the decision tree for choosing the SAP S/4HANA deployment.

![Diagram](image)

Figure 8.2 Decision Tree for SAP S/4HANA Deployment

There can even be a combination or a stacking option for these deployment models. Some options are provided by the specific hardware, including the processor. For example, IBM Power machines with its proprietary processors can provide an MDC on top of a VM (virtual machine).

The customer’s SAP HANA-related existing infrastructure setup, the database size requirements, and the nonfunctional requirements all affect the choice of deployment models for SAP S/4HANA. For example, your choice may be influenced by the following:

- If there are other applications that use the SAP HANA database, you might look at combining and sharing the infrastructure to minimize costs.
- If the database size is too large, then the resource sharing options won’t work out, at least for the productive environment. You might look at sharing the nonproductive environments, using one of the options (e.g., MDC/MCOD/ MCOS) and virtualization or a combination of these options. The restrictions for such deployment options must be adhered to, as explained in Chapter 6. For example, there are products that can be deployed as MCOD for production, as per the whitelist provided in SAP Note 1661202. These restrictions don’t apply if each application is deployed on its own tenant database, but they do apply to deployments inside a given tenant database (in a MDC scenario).

**Note**

There are additional SAP notes for the different deployment scenarios (e.g. SAP Notes 2096000, 1681092, 2248291) and the SAP HANA Master Guide should be referred to while deciding the right deployment option for a combination of applications (http://help.sap.com/hana/SAP_HANA_Master_Guide_en.pdf).

The deployment option can also be chosen based on SAP recommendations and considerations about the advantages and disadvantage of that option. For example, SAP recommends using MDC for all the MCOS scenarios where it fits and also for MCOD because MDC supports most of the MCOD scenarios. On the other hand, all the SAP HANA applications deployed using MDC will share the same SAP HANA database. As a result, any SAP HANA database upgrade will impact all the applications at the same time. In addition, the High Availability/Disaster Recovery (HA/DR) configuration will impact all the tenant databases because they are part of the same SAP HANA database.

Another example is that SAP supports multiple SAP HANA databases on the same system (the MCOS scenario), even for the production environment, but only for scale-up or single-host scenarios. For this option, sizing has to be done carefully, and proper volume testing is important before going live because contention for the system resources by the different components using the same system may lead to poor performance in production (see SAP Note 1681092). Your choice may also be influenced by the following:

- The underlying infrastructure from existing vendors and the scalability options for those hardware. Depending on their maximum available size, the workload can be virtualized so that proper resource sharing happens.
- Nonfunctional requirements (NFRs) play an important role on the choice of deployment model. Some examples are listed here:
  - Responsiveness: This may determine whether any cloud deployment is an option for the productive environment. For high responsiveness, on-premise is the preferred option.
HA/recovery time objective (RTO)/recovery point objective (RPO): Certain options are better from a HA requirement point of view. If cloud providers can’t cater to availability, say, more than 99.5%, or if such Service Level Agreements (SLAs) could have high cost impact, having the system on-premise might be the best choice. Another example of a cost-optimized HA option occurs when the system on which the secondary server is running can be shared with the nonproductive instances.

Disaster Recovery (DR): The option to have the DR set up in the cloud while the workload runs on-premise is a cost effective one. Alternatively, your cloud partner should be able to provide and maintain a DR solution, if the actual solution is also hosted on cloud.

For an organization that wants to use IaaS for the on-premise deployment of SAP S/4HANA, there are several options along with the management functions on top of these infrastructure services. The cloud vendors normally offer unmanaged IaaS, managed IaaS, or managed PaaS. The different type of services are shown in Figure 8.3.

8.2.2 SAP S/4HANA Cloud

This version of SAP S/4HANA is equivalent to a SaaS model and is maintained and operated by SAP in SAP’s infrastructure. SAP S/4HANA Cloud is again available in two flavors:

- Public version
- Private version

SAP S/4HANA Cloud, public option, has limited flexibility in terms of customization. It doesn’t allow modification of standard objects but allows limited extension. SAP S/4HANA Cloud, private option, allows a similar level of modification but more flexibility in terms of usage. For example, for the public version, the processes are only accessible through SAP Fiori apps. Thus, the challenge lies in the fact that functionalities available on simplified code without an SAP Fiori app won’t be available on the public cloud. However, for the private version of the same product, these other processes are accessible through SAP GUIs.

The snapshot of major processes available in SAP S/4HANA Cloud is covered in Chapter 2. Table 8.2 provides an overview for the different cloud editions; there are features and functions added an enhanced with each quarterly release. The 1608 version included line of business (LoB) solutions as part of SAP S/4HANA Enterprise Management Cloud.
Deployment Options

Note
More details regarding the features for each release can be found at http://help.sap.com/s4hana.

However, before we discuss the private and public cloud options in detail, let’s first take a look at some items you should consider before deciding if your landscape and your business are ready for SAP S/4HANA Cloud.

Initial Considerations
You may start by asking yourself the following questions:
- Are all types of workload cloud ready?
- How do we analyze the workload to check for cloud readiness?

There are methods to analyze the workload that cloud providers such as IBM or Microsoft can use to help organizations determine the feasibility. Some of the examples of the workload traits that determine their readiness for cloud adoption are shown in Table 8.3.

### Table 8.2 Overview of SAP S/4HANA Cloud Features (Cont.)

<table>
<thead>
<tr>
<th>Features (Cont.)</th>
<th>SAP S/4HANA Enterprise Management Cloud</th>
<th>SAP S/4HANA Professional Services Cloud</th>
<th>SAP S/4HANA Marketing Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries supported</td>
<td>17 supported country versions</td>
<td>US, DE, AU, CA, CN, UK, HU, NL, SG, BE</td>
<td>Country independent</td>
</tr>
<tr>
<td>Languages</td>
<td>EN, DE, FR, ES, RU, CN, JA, PT, NL, HU</td>
<td>EN, DE, FR, ES, RU, CN, JA, PT, NL, HU</td>
<td>Country independent</td>
</tr>
<tr>
<td>Integrations</td>
<td>SAP Ariba, SAP Hybris, SAP Hybris Cloud for Customer, and SAP SuccessFactors</td>
<td>SAP Ariba and SAP SuccessFactors</td>
<td>SAP Hybris, SAP Hybris Cloud for Customer</td>
</tr>
</tbody>
</table>

### Table 8.3 Workload Cloud Readiness Analysis Sample

<table>
<thead>
<tr>
<th>Not Ready for Cloud</th>
<th>Possibly Ready for Cloud</th>
<th>Ready for Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitive data</td>
<td>Information intensive</td>
<td>Analytics</td>
</tr>
<tr>
<td>High degree of customization</td>
<td>Isolated workloads</td>
<td>Infrastructure storage</td>
</tr>
<tr>
<td>Not virtualized software</td>
<td>Mature workloads</td>
<td>Industry applications</td>
</tr>
<tr>
<td>Complex processes and transactions</td>
<td>Non-production systems</td>
<td>Disaster recovery</td>
</tr>
<tr>
<td>Regulatory constraints</td>
<td>Batch processing</td>
<td>Development, test, and training environments</td>
</tr>
<tr>
<td>Complex software licensing</td>
<td></td>
<td>Infrastructure compute</td>
</tr>
<tr>
<td>Tight integration with other on-premise systems</td>
<td></td>
<td>Business processes (e.g., CRM, HR, etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industry vertical application</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web hosted apps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Office applications</td>
</tr>
</tbody>
</table>

What about cloud adoption for SAP ERP, which is, for many organizations, the core transactional system supporting mission-critical business processes? Enterprise software such as SAP ERP is often at the core of the organization’s business processes. Although these solutions don’t see the type of seasonal variability experienced by other solutions, such as e-commerce sites, there are still demands for periodic scalability (e.g., testing environment for a project duration). Many of the other business drivers also hold good for these ERP solutions. There are some additional factors as shown in Figure 8.4, which show how the standard non-differentiating processes can be moved to the cloud while differentiating solutions requiring heavy customization stays on-premise or in a private cloud. The other influencing factor is the regulatory compliance applicable for the organization, including country-specific rules.

The trend shows quite a move toward a hybrid adoption pattern for solutions such as SAP ERP. Before we discuss the hybrid model, however, we need to look at both the private and public cloud.
Private Cloud
The advantages of private cloud deployment are as follows:

- The same level of security is used as with on-premise because the environment is set up only for one customer and isn’t shared.
- While initial investment is required to build the infrastructure, the advantage is in the ability to effectively use that infrastructure (e.g., rapid provisioning, etc.) and reuse existing hardware.
- This is a good option especially for an IT landscape that has a large number of systems and requires high-volume transactions with close integration with other systems.
- A few partners, such as IBM and HP, offer services to build a private cloud environment.

From an SAP S/4HANA perspective, this is just different model, but the same rules apply as for on-premise. In addition, the private cloud needs to use SAP-supported hardware and supported virtualization techniques.

Public Cloud
The advantages of a public cloud deployment are as follows:

- Cost savings is one of the major advantages for the public cloud option. There’s no need to invest on infrastructure, and no upfront initial investment for capital expenditure (capex) is required; rather, it’s a pay-for-usage model.
- This is a good model for all customers (even startups or individuals) unless there are other concerns or constraints as mentioned earlier.
- Many public cloud offerings are available for SAP S/4HANA from SAP as well as partners such as IBM, Amazon Web Services (AWS), and Microsoft Azure.

From the SAP S/4HANA point of view, the cloud service needs to have official support status from SAP. From an overall perspective, however, the management requirement for the cloud infrastructure, the customer’s responsibility, and the cloud vendor’s responsibility should be clearly determined.

8.2.3 Hybrid Model
As mentioned earlier, all workloads aren’t the right fit for the cloud. More often than not, organizations have to take a middle path and choose a hybrid model to optimize the cost and time benefits versus other considerations. In addition, while an organization can have a road map to take all the applications to cloud, this can be a multiyear journey.

For SAP S/4HANA adoption for cloud, some organizations want to have the non-production on the cloud but the production on-premise. For some others, they want their SAP Business Warehouse (SAP BW) on the SAP HANA system in the cloud but want their SAP S/4HANA either on-premise or on a private cloud because critical business processes may have responsiveness requirements that need a data center in a physically closer location or may require a high-bandwidth connectivity. This will have a cost implication and may act as a deterrent to be on the cloud. Figure 8.5 shows examples of the different scenarios where the
environments of an SAP solution can be deployed all on-premise, on the cloud, or using a hybrid model.

There can be several other use cases for hybrid cloud scenarios. The following list is a representative set and not exhaustive:

- Integration of legacy and new landscape
- Have the systems of engagement on the cloud while the system of record remains on premise, for example, SAP Fiori or SAP Gateway on SAP HANA Cloud Platform, which connects to a backend SAP S/4HANA, on-premise
- Offload the variable load, for example, a testing server or an upgrade project requiring a parallel landscape to the cloud
- For a IT landscape with multiple SAP instances, the smaller instances (which should be closer to standard SAP solutions) can move to SAP S/4HANA Cloud, while larger ones with more customization can be on-premise. There can be several such combinations of the two-tier ERP landscape, including the possibility to combine SAP S/4HANA solutions and non-SAP HANA SAP ERP solutions.

## 8.3 Cloud Vendor

The IT division of an organization that is adopting SAP S/4HANA needs to have an overall understanding of the business requirements. This understanding will lead to choosing the type of cloud adoption (private, public, or hybrid with cloud and on-premise) and the SAP HANA-based products that need to be deployed together with SAP S/4HANA, now or in the near future. These decisions will give the IT department an idea of what to look for in the cloud vendor. A single service provider might offer a business-centric SLA that is flexible, simple, and cost effective, with an ability to respond to growth opportunities. Some of the major factors that must be kept in mind while choosing the cloud vendor are as follows:

- **Security, privacy, and compliance**
  Infrastructure should meet industry compliance like ISO 20000, 270001 and 9001, TIA Tire III, SOC1 (SSAE-16), and PCI DSS compliant. You should feel confident that you can trust the cloud provider with your data.

- **Global presence**
  Look for data centers and network points of presence (POP) of the cloud vendor across the globe for full control over data sovereignty and to minimise latency.

- **Scalability**
  A more scalable environment designed specifically for enterprise use with the ability to help better secure client customized images and instances. Robust portfolio of time-tested, enterprise-class solutions including software, hardware and services.

- **Reliability and high-availability**
  Infrastructure should have redundancy and reliability built in, meaning that you are protected from the most common causes of application outage.

- **Support and service**
  You should find out what support and services are before selecting a vendor. If you need extra support and services from vendors in order to make sure the enterprise technology solutions run well, this should be taken into consideration.

- **Cost effective**
  Cloud services as OPEX makes infrastructure costs more predictable and offers
organizations better cost control. Look for cost effective, always-on instances, with the flexibility to spin up more as and when need.

 Thought leadership
The cloud vendor should architect and provide offerings based on IT Infrastructure Library (ITIL) best practices and industry-leading migration services to facilitate client transformation to cloud. The vendor should have expertise and best practices managing and operating security-rich enterprise data centers around the world.

There are some additional aspects that can be considered as well. Accelerators will help provide the required instances faster. For example, SAP HANA Enterprise Cloud, SAP’s private cloud solution, has APIs and other integration adapters that help connect with on-premise SAP systems. SAP also has System Landscape Optimization (SLO) services for data migration to the cloud.

IBM has startup bundles/packages for SAP S/4HANA that enable clients to quickly get SAP HANA proof of concept (PoC) and test environments up and running in the IBM Cloud. Setting up the PoC instance can be done quickly, in as little as three days. SAP also provides PoC environments on their public cloud for an SAP S/4HANA trial or demo through the SAP Cloud Application Library (sap.cal.com).

8.4 Integration
The IT landscape with SAP HANA is typically a hybrid one, with some components on the cloud, possibly some cloud-based SaaS solutions, and some on-premise components. There might be different deployment options for the different environments as well. Business processes can run between the SAP S/4HANA core and other solutions such as the SaaS-based SAP SuccessFactors, SAP Hybris, SAP Hybris Cloud for Customer, and so on.

Thus, one of the challenges in this kind of environment is the integration aspect. Depending on the use case, multiple integration technology requirements might be in use. The different integration scenarios in a typical hybrid cloud landscape are shown in Figure 8.6.

For SAP S/4HANA Cloud, the required customer integration scenarios are deployed, configured, and activated in the cloud instances provisioned by SAP, or SAP provides self-configuration UIs so customers can configure the solution. The content is integrated with SAP cloud solutions such as SAP SuccessFactors Employee Central, SAP Ariba, SAP Hybris Marketing, SAP Jam, and SAP Financial Services Network, as well as third-party integration with Vertex for tax calculation. If there is a requirement to build new integration scenarios, SAP HANA Cloud Platform provides the extension platform for SAP S/4HANA where new capabilities of integration can be created using the whitelisted APIs.

SAP S/4HANA, on premise edition, hosted on-premise or on a cloud platform such as the SAP HANA Enterprise Cloud, can be integrated with SAP’s cloud solutions through standard integration content delivered by SAP either through SAP Process Orchestration (SAP PO) or SAP HANA Cloud Integration. SAP HANA Cloud Integration is SAP’s cloud integration middleware and is a SaaS product. Any other integration tool provided by a third party can also be used if they have the right kind of connectors for on-premise-to-cloud and cloud-to-cloud integration. For example, Dell Boomi can connect to several SaaS products like SAP SuccessFactors...
or Salesforce to SAP. Prior to SAP S/4HANA 1511, the integration components required for the S/4HANA system had to be installed as add-ons. SAP S/4HANA 1610 contains the integration components for many of the cloud solutions like SAP Ariba and Concur.

Web Services or OData services enabled through SAP Gateway can also be used for integration. Some of the integration can be using Rest API calls from S/4HANA to the cloud solutions like Concur so that both for getting data from that solution or into the solution, is initiated from S/4HANA. For data movements, SAP Data Services, SAP Landscape Transformation (SAP LT), or SAP HANA smart data integration (SDI) can be used.

8.5 Summary

In this chapter, we talked about the cloud imperatives and how they are applied to the SAP environment. We covered the various deployment options for the two different editions or flavors of the SAP S/4HANA product.

When deciding on the flavor of SAP S/4HANA, especially the cloud deployment, you must keep in mind how it relates to the greater scheme of the IT landscape and IT strategy, as well as how it relates to the other SAP HANA products already in the landscape or in the adoption road map. Migration services to facilitate client transformation to the cloud also need to be considered to migrate current landscapes seamlessly on the cloud space. There are many variables to consider when choosing the right deployment strategy, but this should ideally be looked at from a business perspective as well as an IT perspective to achieve immediate and long-term business goals.

In Chapter 9, we will take a look at the options for adopting SAP S/4HANA, from all-new implementations to migration approaches.
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