Bring Your Own License
About bring your own license (BYOL)

Bring your own License, or BYOL, is the process of bringing previously purchased on-premises licenses to public cloud (AWS/Azure etc.), to leverage existing software license investments.

According to Gartner, “By 2020, more than 90 percent of organizations worldwide would have adopted hybrid infrastructure management capabilities.” As organizations move to hybrid cloud and pure cloud environments, their existing software investments can be leveraged through BYOL models. If used effectively, this can lead to better software license optimization within organizations.

Moving workloads to the cloud improves business agility and resilience in the face of uncertainty, it also leads to rapid innovations and hyper-scale growth. We can observe that organizations are adopting cloud and a hybrid or multi-cloud approach in a very rapid manner.

In the wake of a meteoric rise in world-wide cloud adoption, organizations face challenges while managing their software assets. These challenges include the following:

- Discovering the license types of software assets placed in the cloud
- Understanding the license compliance of major software products after moving to the cloud (in hybrid and multi-cloud deployment models)
- Understanding the license compliance of major software products after moving them to dedicated hosts service models provided by different cloud providers
- Taking Remediation Actions to become compliant, after non-compliance is determined

ServiceNow offers a single platform to automatically discover software license types across cloud providers, determine overall compliance across hybrid and multi-cloud deployment models, and take remediation action to maintain compliance.

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Bring your own license overview

Moving licenses from on-premises to the cloud

This whitepaper explores the various features provided by ServiceNow to help organizations discover software assets and determine compliance, as they “Bring Your Own License” to different cloud providers like AWS and Microsoft Azure.

Bring Your Own License Challenges

Bring Your Own License Compliance Management when performed conventionally, has a lot of challenges that SAM managers have to deal with, challenges that include:

- Manual determination of cloud resources and their license types
- Manual determination of license compliance across hybrid Infrastructure (on-prem and cloud)
- Lack of process workflow to be compliant
- Lack of automation to determine potential savings, if a customer plans to shift licenses to the cloud (BYOL)

ServiceNow Software Asset Management aims to solve the challenges related to accurately determining license compliance and thereby taking remediation actions through a workflow, all steps are performed automatically on one system of record.

You will need rigorous processes in place to ensure compliance — on-prem datacenter compliance is challenging in itself and you’re adding another layer of complexity by using your own licenses in the cloud.

— The ITAM Review 2
BYOL overview with ServiceNow SAM

ServiceNow SAM, in its latest release (Quebec), provides the following capabilities:

**Automated discovery of software license types hosted on the cloud**
License Types such as License Included (Pay as you Go, SPOT, on Demand) or BYOL are automatically discovered for cloud resources. Azure Hybrid Benefit is a BYOL benefit provided by Azure and ServiceNow supports discovery of the same.

**Cloud compliance determination for hybrid infrastructure and environments**
Publishers like Microsoft have different licensing rules for their software products such as Microsoft Windows Server or Microsoft SQL Server, when deployed on different cloud providers, such as AWS and Azure, for both shared and dedicated hosts. These rules need to be combined with the already applicable on-premises rules, so that a complete consolidated license compliance position can be determined for each software product across the hybrid environment.

ServiceNow automatically reconciles all these rules and provides an accurate license position across the hybrid environment to the SAM manager.

**Automated application of license optimization**
Publishers like Microsoft offer special rights for Microsoft products such as Windows Server and SQL Server as they are deployed on Azure vs. AWS. Some of these privileges include dual use rights, edition flexibility, and unlimited virtualization.

ServiceNow automatically applies these special privileges to software deployed on cloud, so that SAM Managers can best optimize their license compliance and gain the cost savings.

**Compliance workflow remediation actions**
If a software product is determined to be non-compliant, ServiceNow provides a remediation workflow to be taken by SAM Manager. These compliance actions include removing unlicensed installs or the ability to purchase more license rights.

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“Azure Hybrid Benefit is a cost-savings benefit that lets you bring your existing on-premises Windows Server and SQL Server licenses with active Software Assurance or subscriptions to Azure.”

– Microsoft ³
Functional architecture

ServiceNow employs new discovery patterns from ServiceNow Discovery to determine the license types of software deployed on the cloud. In addition, ServiceNow discovery is also able to discover the host type (dedicated/shared) and the virtual machines deployed on the dedicated/shared hosts.

For certain cloud providers, due to non-availability of public APIs, ServiceNow uses Cloud Insights (a ServiceNow store product) to determine the license type automatically.

Cloud Insights uses billing information from the cloud providers to determine if a software was purchased from the cloud provider directly or is a BYOL resource.

Once the license types and host types are discovered, ServiceNow SAM reconciles the entitlements with different licensing rules as specified by the different software vendors and determines the correct license compliance position.

The license compliance information is combined across the entire hybrid infrastructure (on-premises and cloud) and is available on ServiceNow SAM management dashboards. License compliance is determined by reconciling different rules across on-prem and cloud environments in an optimized manner.

Lastly, for remediating non-compliance, ServiceNow SAM auto generates remediation candidates and compliance actions for the SAM manager to drive through workflows on the Now Platform.

License Mobility through Microsoft Software Assurance gives Microsoft Volume Licensing customers the flexibility to deploy certain server applications with active Software Assurance on-premises or in the cloud, without having to buy additional licenses.

— Microsoft

Discovery of cloud resources and their attributes

Cloud providers like Azure and AWS allow organizations to either purchase software with license included or bring their own license to the cloud. In the case of license included, there are many options that the organization can take, such as pay-as-you-go (PAYG), SPOT, on-demand, etc. License included licenses are managed by the cloud providers.

Organizations need to manage the licenses brought to the cloud (or BYOL). Currently, there hasn’t been an automated mechanism to determine the license types of resources purchased directly from the cloud vs. brought to the cloud. Instead, people often use “manual” tags on the cloud to segregate these license types. The manual tags added by organizations are an inefficient mechanism to manage license types.

ServiceNow has introduced automated discovery of license types of Microsoft Products—Windows Server and SQL Server on AWS and Azure. These license types are automatically discovered without any reliance on manual tags, through a combination of APIs and billing information from the cloud providers.

New patterns are regularly published on the ServiceNow Store outside major product releases. Customers of Discovery and Service Mapping can use updated or modified patterns without having to wait for the next major release.

– ServiceNow

Automated determination of license type across cloud resources

The SAM manager can easily determine the automated tags added to the virtual machine discovered. These automated tags signify whether the license type is either license included or BYOL.

There are certain cases where the cloud providers don’t provide any APIs to determine the license type. In these cases, ServiceNow uses Cloud Insights to infer the license type automatically through billing data downloaded from the cloud provider.
Cloud providers like Azure and AWS provide dedicated hosts wherein the organization can deploy their virtual machines. These dedicated hosts provide physical servers that host one or more virtual machines. These servers that are dedicated to the organization and its workloads are not shared with other customers. This host-level isolation helps address compliance requirements.

As Microsoft and other publishers have different licensing rules for software deployed on these dedicated hosts, it’s imperative that the product discover dedicated hosts, virtual machines, and software deployed on them.

Amazon EC2 Dedicated Hosts allow you to use your eligible software licenses from vendors such as Microsoft and Oracle on Amazon EC2, so that you get the flexibility and cost effectiveness of using your own licenses, but with the resiliency, simplicity and elasticity of AWS.

– AWS

Automated determination of dedicated hosts as cloud hosts and virtual machines deployed on it

The dependency view showcases a dedicated host and virtual machines having Windows Server /SQL Server installed on them, which is made possible through ServiceNow Discovery, which automatically discovers the dedicated hosts and their relationships with virtual machines and software installed on them.

AWS Dedicated Hosts: https://aws.amazon.com/ec2/dedicated-hosts
License compliance determination of cloud resources

Licensing rules of software deployed on Azure and AWS are different. In addition, the licensing rules differ if the software is deployed on a shared host vs. a dedicated host.

The following diagram shows an overview of these compliance rules for Microsoft Windows Server when deployed on Azure and AWS:

<table>
<thead>
<tr>
<th>Software Product and Entitlement</th>
<th>AWS, Google Cloud etc.</th>
<th>Azure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shared Host</td>
<td>Dedicated Host</td>
</tr>
<tr>
<td>Windows Server with Software Assurance</td>
<td>BYOL is not allowed (this product does not have license mobility)</td>
<td>BYOL is not allowed on purchases made after 1 Oct 2019 or software released after 1 Oct 2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BYOL is allowed via Azure Hybrid Benefits (Cloud Special Rights can be applied)</td>
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</tr>
</tbody>
</table>

License compliance rules for Windows Server across Azure and AWS

Similarly, there are license compliance rules defined for SQL Server and other software.

Notice, that the licensing rules are dependent on various factors like software assurance, the purchase date of the licenses, and whether the software is deployed on shared or dedicated hosts.

In addition, there are some special privileges (cloud special rights) that are provided by Azure for both Windows and SQL Server.

ServiceNow SAM reconciles the licensing rules of different software on the cloud and on-premises, to arrive at the correct license compliance across the hybrid infrastructure.

“Beginning October 1 2019 on-premises licenses purchased without Software Assurance and mobility rights cannot be deployed with dedicated hosted cloud services offered by the following public cloud providers: Microsoft, Alibaba, Amazon (including VMware Cloud on AWS), and Google. They will be referred to as 'Listed Providers'

– Microsoft 6

ServiceNow SAM helps the SAM manager accurately determine the licensed and unlicensed installs on the cloud.

In addition, the SAM manager can easily know the license type of the cloud resource, host type, and the discovery source contributing.

**Determining the installs and their host type and license type on the cloud**

For additional context to the SAM Manager, ServiceNow SAM showcases how the rights were used. If a resource was provided “cloud special rights” they are also shown to give more context to the SAM manager.

SAM manager can easily see in the rights used by section how many rights were used for a particular resource and if any special rights like dual use rights or edition flexibility were applied.

In the above example, edition flexibility special rights were applied for a SQL Server deployed on Azure shared environment. Edition flexibility allows one SQL Server Enterprise core license on the cloud to license four SQL Server Standard licenses on Azure, hence the organization saves more and can license more SQL Server virtual machines on the cloud with fewer core licenses.

In addition to edition flexibility, ServiceNow SAM also supports another cloud special right—dual use rights for Windows Server deployed on Azure.

ServiceNow SAM reconciles licenses with the best possible optimization, so that the organization gets the maximum cost benefits as per the license compliance rules. These optimization benefits allow the organization to make the best possible use of their license investments made on-premises. License optimizations taken by ServiceNow SAM include:

- Licensing all cores on dedicated hosts to achieve unlimited virtualization, allowing unlimited number of VMs to be run on the host and save license costs
- Determine if it is cheaper to license all cores on the dedicated host or license by VMs, thereby applying licensing rules as per the cheapest option
- Licensing Azure first vs. licensing AWS, in case the organization has a multi-cloud deployment, which helps in saving costs because most Microsoft products have special rights on Azure

**Taking remediation actions through workflow**

ServiceNow SAM automatically generates remediation options if the license rules applied lead to non-compliance. Remediation options generate reclamation candidate workflows on the NOW platform, which help the SAM Manager to take action to be compliant again. For example, remove unlicensed cloud installs in a remediation option provided to the SAM manager, which if taken, helps to resolve non-compliance.

![SQL Server 2016 Enterprise core](image)

**Remediation options for unlicensed cloud installs**
Notice the description on each reclamation candidate workflow has context for the specific software and license condition.

Workflows are the inherent strength of the Now Platform, which is leveraged effectively here.

Our approach to workflow removes bottlenecks and integrates processes and activities between people and systems

“…”

Reclamation candidate workflow for unlicensed cloud resource
Conclusion

ServiceNow provides advanced support to determine the license compliance of Microsoft Windows Server and SQL Server deployed on Azure and AWS. These Microsoft products are among the most virtualized software deployed on the cloud and many organizations are asking for help in determining their license compliance position accurately and optimally.

ServiceNow recommends using ServiceNow Discovery and Cloud Insights to automate the entire end-to-end license compliance discovery and determination. However, organization can use the software asset connection feature introduced in the ServiceNow Paris release to integrate other third-party discovery sources to make use of this feature.

As ServiceNow matures, its BYOL capabilities will continue to grow as we introduce support for other software that is often run on-prem and in the cloud on Azure, AWS, and other cloud providers.

Management dashboard showcasing Microsoft products and license type across cloud providers
FAQs

1. **What does ServiceNow SAM provide support for with respect to BYOL?**
   
   **Answer:** ServiceNow SAM provides the following support with respect to BYOL:
   
   - Calculating compliance of Microsoft Product namely Windows Server and SQL Server across hybrid environment (on-premises, AWS, and Azure)
   - Showcase dashboards related to license type for Windows Server and SQL Server
   - Provide remediation options to be compliance mitigation

2. **Does the customer need to configure tags on AWS and Azure to support license type determination?**
   
   **Answer:** No, the license type will be auto-determined by ServiceNow Discovery. However, there are few additional details you should know:
   
   - If you only using ServiceNow Discovery, then your license type (BYOL or license included) will be automatically gathered by ServiceNow for Windows Server and SQL Server for Azure. However, for AWS, ServiceNow can automatically determine the license type only for Windows Server; for SQL Server, you would need to rely on manual tags
   - If you have both ServiceNow Discovery and Cloud Insights, then all details related to license type for Windows Server and SQL Server are automatically determined by ServiceNow

3. **Which ServiceNow store apps are needed to make these features work?**
   
   **Answer:** Customers should install the latest apps of CMDB CI Class Model App and Discovery service mapping patterns. Both apps are available free on the ServiceNow Store. Customers should also activate Cloud Insights in the ServiceNow Store to support fully automated BYOL use cases.

4. **What is the scope of support for BYOL?**
   
   **Answer:** Microsoft Windows Server and SQL Server deployed in Azure and AWS. Additional publisher and cloud use cases are on the ServiceNow SAM roadmap.

5. **Which release of ServiceNow SAM introduces the Bring Your Own License feature?**
   
   **Answer:** Quebec