



CSP Technical Overview for Partners

A general and introductory technical overview of CSP's architecture, entities, workflows and tools.

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1. Introduction

This guidance document has been created for Microsoft cloud partners that require a deeper, technical introduction and overview to working with the Cloud Solution Provider (CSP) program. The aim of this document is to provide a primarily technical understanding of the basic platforms, components and workflows that enable the CSP program.

2. Brief overview of CSP¹

The CSP program is designed to enable Microsoft partners to resell Microsoft cloud services. It is optimized for flexibility to deliver compelling customer experiences, meet customer needs and enable partners to focus on their strengths and quickly target business opportunities in the marketplace.

The CSP program is unique in that it provides mechanisms and programmatic tools to scale to thousands of partners over time. The strategic focus of CSP is building an integrated reseller model to provide Microsoft cloud services to Small and Medium Business (SMB) and Corporate Account (CA)/Corporate Territory Managed (CTM) segments².

Why CSP?¹

Microsoft has an established model for enabling partners to add value to technology and create unique and compelling experiences. From a strategic perspective, the key investments of this model to empower partners are:

- Enable partners to own the sales, billing and support relationship with customers for the services sold by the partner
- Create a scalable, efficient, self-service model for partner and customer onboarding, support and sales enablement
- Build partner capabilities “in-service” to support consolidated customer and subscription management experiences
- Provide deep visibility into usage and service support mechanisms for Microsoft’s cloud services.
- Provide flexibility and choice to the partner channel and their customers (what to sell, who to sell to) by enabling multi-channel and multi-partner sales capabilities
- Design the partner platform to support “One Microsoft” across all cloud services and functions
- Provide flexibility and choice to partners in how they want to integrate and invest in Microsoft’s partner platform (using the Partner Center portal and/or APIs as well as support for Indirect resellers for qualified partners)

Partner responsibilities

All CSP partners are responsible for their customers’ success in using Microsoft services. **Partners own the customer relationship—from sales and billing to provisioning and managing customer subscriptions to technical support.** Some partners have the resources and infrastructure to handle

¹ Vandenberg, C. (n.d.). Syndication to CSP Transition Guide v1.6 (Tech.). Microsoft. Retrieved October 5, 2016, from <https://microsoft.sharepoint.com/sites/obcs/Shared Documents/Syndication to CSP Transition Guide Version1-6.pdf>.

² SMB is defined as 1-249 seats per customer; CA/CTM is defined as 250-2399 seats per customer

these responsibilities themselves, other partners will seek outside assistance to cover the complete lifecycle.³

CSP business models

Partners can select which CSP model – Direct or Indirect – that fits their business practices the best. “Direct Partners manage all aspects of the customer relationship on their own and place orders directly with Microsoft. With the Indirect model, authorized Indirect Providers recruit and support Indirect Resellers, which in turn sell, provision and support customers. Indirect Providers place orders with Microsoft and handle billing through their Indirect Resellers. In many cases, Indirect Providers will provide additional services to their Indirect Resellers such as marketing, systems integration or customer help desk support.”³

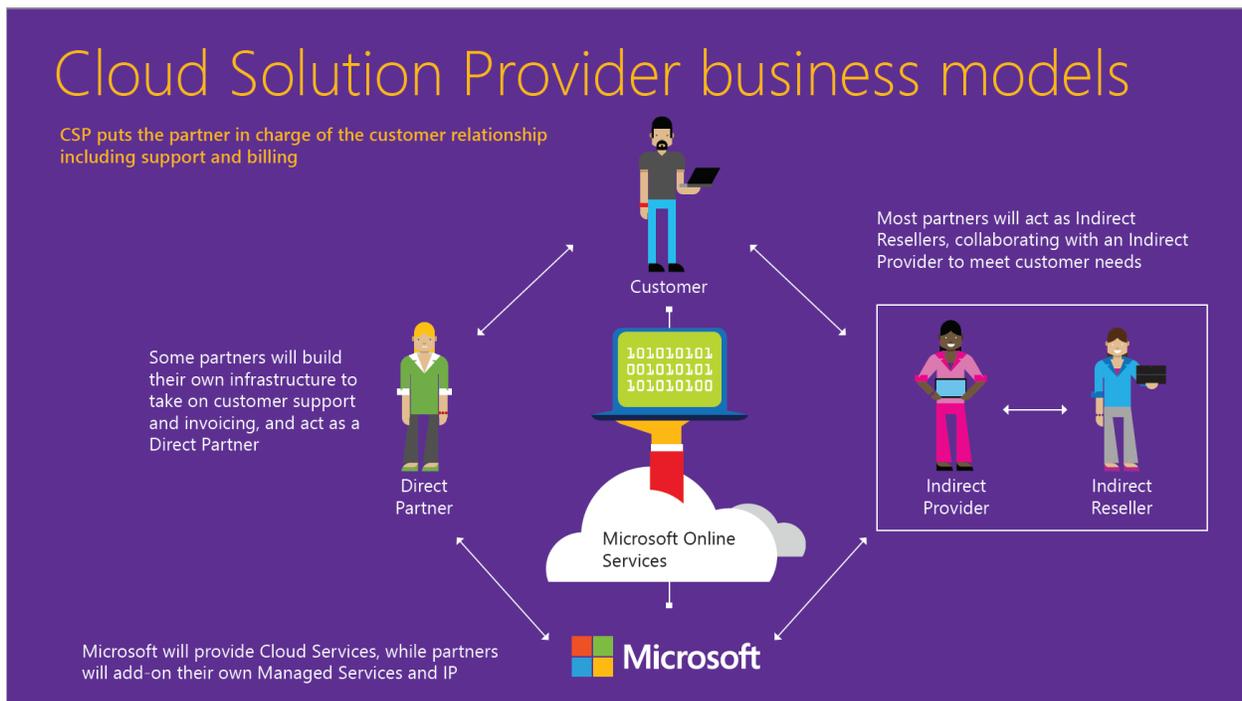


Figure 1: CSP model infographic⁴

Figure 1 above, depicts the two available business models. Additional business-related information including the opportunity for partners through CSP, requirements for acceptance into CSP, scenarios covered by CSP, etc. is available online at <http://aka.ms/csp>.

³ CSP FY17 Field Playbook [PDF]. (n.d.). Microsoft.

⁴ Microsoft Cloud Solution Provider Overview. (n.d.). Retrieved October 5, 2016, from <https://partner.microsoft.com/cloud-solution-provider>

3. Partner onboarding

Both Direct and Indirect CSP partners must be onboarded to (or set up on) Microsoft systems before they can start reselling Microsoft cloud services to customers. More specifically, each CSP partner must be granted an account that allows them to access the [CSP Partner Center portal](#) and by using the Partner Center portal or the Partner Center SDK/APIs, create/manage their customers, sell (provision) Microsoft cloud services for those customers, access support for their customers, monitor service health of the various Microsoft cloud services, etc.

The onboarding process for CSP partners is depicted below in Figure 2 and described further below.

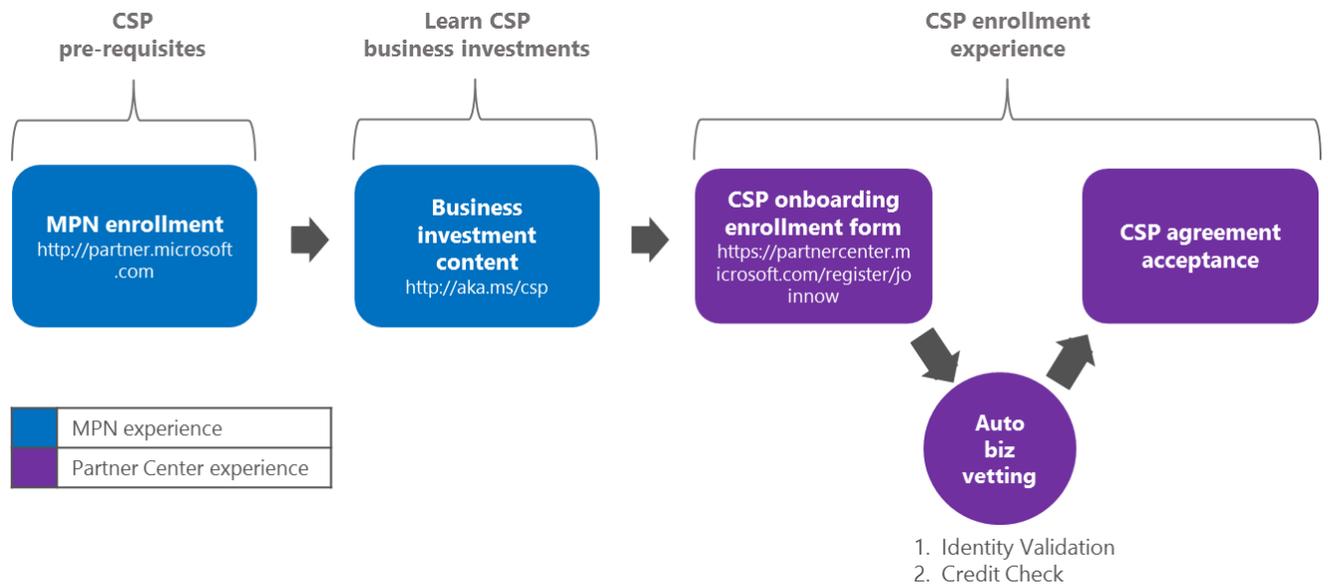


Figure 2: CSP partner onboarding

CSP pre-requisites

Microsoft Partner Network (MPN) enrollment

All CSP partners are required to at first ensure they are enrolled in the Microsoft Partner Network (MPN). Enrolling in MPN enables the partner to grow their business alongside Microsoft and provides a partner several benefits including⁵:

- **Sell:** Earn eligibility for sales incentives, promotions, and special offers to help drive revenue.
- **Market:** Win new customers and retain existing ones. Use customizable marketing materials and services to promote your solutions.
- **Deploy:** Grow and develop your practice with design, project, planning, and architecture guidance.
- **Support:** Grow and develop your practice with design, project, planning, and architecture guides. Leverage competitive sales support, one-on-one advisory sessions, and learn how to save time and money.

⁵ MPN core benefits and requirements. (n.d.). Retrieved November 16, 2016, from <https://partner.microsoft.com/membership/core-benefits>

- Plan and enable: Deploy and manage your business in the Microsoft cloud. Use what you sell and access training to become a recognized expert.

Before enrolling in MPN the partner will first need to ensure that they have a Microsoft Account. A Microsoft Account is simply a set of credentials (e-mail address + password) that is “registered” with Microsoft and is uniquely associated with an individual. Services such as outlook.com, XBOX Live, MSN, etc. are all accessed by using a Microsoft Account. If the partner does not have a Microsoft Account, one can be created at <http://www.microsoft.com/account>.

Upon enrollment in MPN, the partner is issued an MPN ID. This MPN ID is used in the CSP enrollment process so having this step completed first is very important. Enrollment is performed on the MPN site, can be completed at <https://mspartner.microsoft.com/en/us/Pages/Membership/enroll.aspx> and involves the following steps⁶:

- Submission of the organization's contact information
- Completion of the individual profile
- Acceptance of the Microsoft Partner Network legal agreement

If a partner has previously enrolled in MPN, then reusing their MPN ID during CSP enrollment is completely acceptable. Partners should also note that MPN membership must be renewed annually and can be renewed up to 90 days prior to membership expiration.

Learn CSP business investments

Partners should initially educate themselves about the CSP program, business model, applicability to their own capabilities and which flavor of the two CSP models, Direct or Indirect, they are most suited for. Educational content to guide the partner through this is available at <http://aka.ms/csp>.

CSP enrollment experience

Pre-requisite: Microsoft cloud services account (Azure AD tenant)

A critical pre-requisite to enrolling in CSP however is the need for the partner to have an Azure AD tenant and a global administrator account within that tenant. This account is also referred to as a *Work or School Account* or *Company Account*. Note that this set of credentials is different than the Microsoft Account described in the above [section](#). An Azure AD account is created when you create an Office 365, Microsoft Azure, or Microsoft Dynamics CRM cloud service. These services leverage Azure AD tenants as the directory store for all users and applications in those services. If the partner does not have such an existing Microsoft cloud services account, they will need to create one at <https://partnercenter.microsoft.com/register/ResellerTenantInfo>.

The term *tenant* is defined in more detail [below](#).

Primary domain name

If the partner does need to create a Microsoft cloud services account prior to enrolling in CSP, it is very important that they take care when entering the Primary domain name field. Each partner account (or tenant) is created with an onmicrosoft.com subdomain (e.g. *csp_partner.onmicrosoft.com*) that cannot

⁶ Enrolling in Microsoft Partner Network (n.d.). Retrieved November 8, 2016, from: <https://www.microsoft.com/oem/en/community/mpn/Pages/enroll.aspx#fbid=vdMhQdELPoGhttps://www.microsoft.com/oem/en/community/mpn/Pages/enroll.aspx>.

be changed once created. It is therefore very important that the partner select an onmicrosoft.com subdomain that reflects their brand/s and naming conventions. Furthermore, subdomains are globally unique and therefore the first choice may not be available. For example, if the partner's name is *Small Business Wizards*, they may decide to use *smallbizwiz.onmicrosoft.com* as their primary domain name.

After signing up, partners can optionally register a customer domain as the primary domain name for their tenant. The original *onmicrosoft.com* domain will exist on the tenant, but the default domain can be changed to the custom domain.

Enrollment process

The actual first step of enrolling for CSP as a partner is accomplished by submitting a request form at <https://partnercenter.microsoft.com/register/joinnow>⁷. Partners onboarding to CSP can also choose which day of the month they wish to be billed by Microsoft i.e. their monthly billing date. **It is very important to note that once selected, the billing date cannot be changed.**

This can be an issue with partners who have multiple partner accounts such as those in different regions. Each partner account can have different monthly billing dates which can present challenges in the partner's billing reconciliation process with their customers especially as it cannot be changed once selected.

The CSP request form, once submitted, will be evaluated by Microsoft. If the evaluation is successful, the partner will be notified by e-mail with information regarding the signing of the CSP agreement and once the partner has electronically signed the agreement they are granted access to the CSP Partner Center portal at <https://partnercenter.microsoft.com>.

Note that resellers of Indirect partners (also called value-added resellers or VARs) can now also enroll through Partner Center and can associate themselves with their Indirect partner.

⁷ The online enrollment process is documented at https://assets.microsoft.com/CSP-Onboarding-for-Partners_Partner-Center.pptx.

4. CSP platform architecture

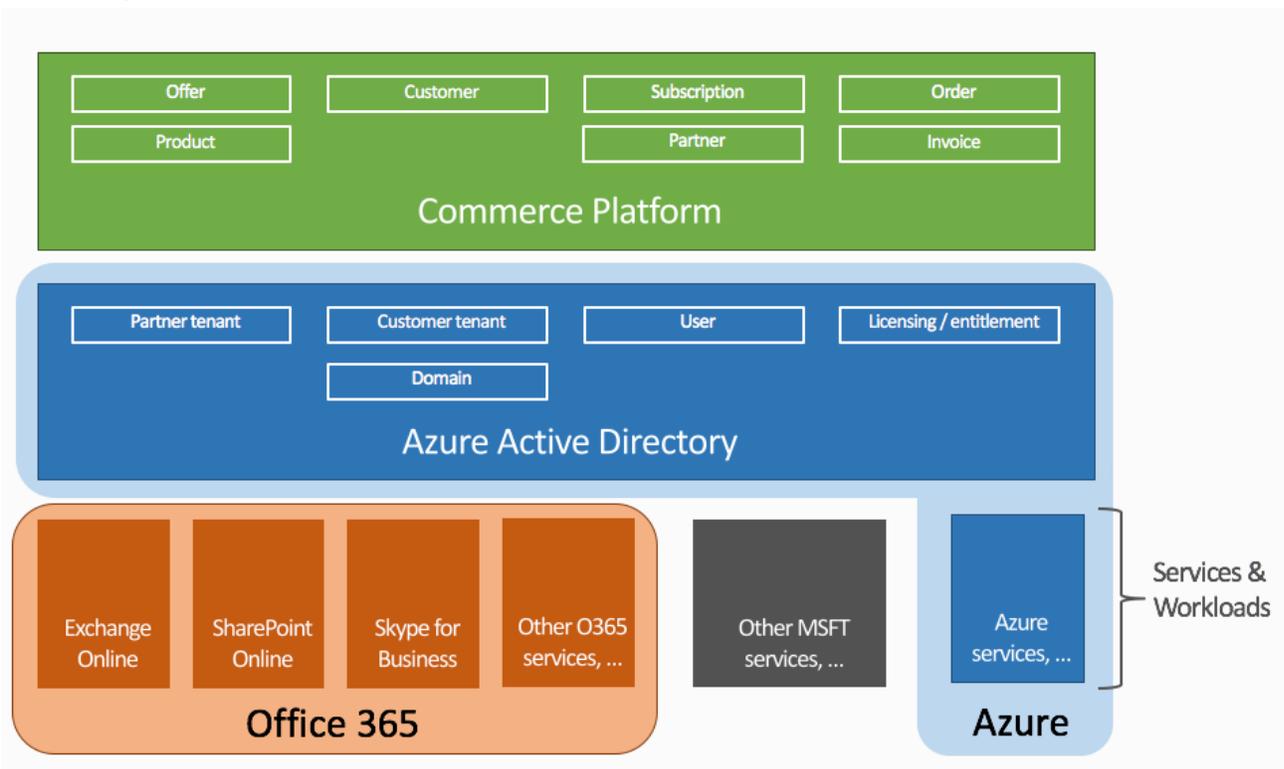


Figure 3: CSP system architecture

Overview

The Microsoft platforms that support the CSP (and other) programs are depicted at a high-level in Figure 3 above. Each layer of the platform stack provides distinct functionality that when integrated together deliver rich, end-to-end partner and customer scenarios. Each layer is described further in the sections below.

You can also learn more about CSP system concepts from the CSP SDK Developer course, specifically module 1: <https://channel9.msdn.com/Series/cspdev/Module-1-Introductory-System-Concepts-and-Getting-Started-with-the-Partner-Center-SDK>.

Commerce Platform (CP)

The Microsoft Commerce Platform is responsible for providing all partner and customer commerce functionality. It is the central point for all CSP partners, serving the role of a control plane for creating and managing a partner's customers, accessing offers available for sale to customers, provisioning and managing subscription to Microsoft's cloud services. The Commerce Platform is also the place where partners will access and manage all financial relationships between Microsoft and the partner as well as between the partner and their customers.

The Microsoft Commerce Platform does not offer any services, rather it facilitates provisioning other Microsoft cloud services such as those offered by Microsoft Azure and Office 365. Microsoft's cloud services all rely on Azure Active Directory to store and secure users and applications. When a customer is created in the Microsoft Commerce Platform, a new Azure Active Directory tenant is created for the

customer. This Azure Active Directory tenant does not require an Azure subscription and there are no costs associated with it.

Azure Active Directory (Azure AD)

“Azure Active Directory (Azure AD) is Microsoft’s multi-tenant cloud based directory and identity management service. Azure AD also includes a full suite of identity management capabilities including multi-factor authentication, device registration, self-service password management, self-service group management, privileged account management, role based access control, application usage monitoring, rich auditing and security monitoring and alerting.”⁸ Azure AD provides authentication (AuthN) and authorization (AuthZ) functions for Microsoft cloud services in addition to housing partner and customer [tenants](#), [domains](#), [users](#), [entitlements](#), etc.

Cloud services / workloads

At the core and the reason why customers purchase from Microsoft are the Microsoft cloud services (or workloads) that customers and/or partners use. Some common workloads include Exchange Online, SharePoint Online, Skype for Business from Office 365; Azure Storage, Azure Compute from Microsoft Azure and Microsoft Dynamics 365. All these cloud services depend on the Azure AD layer as it is *the* directory service component for all of them.

Administration and management options

The Microsoft Commerce Platform, Microsoft Azure, Azure Active Directory and Office 365 all have multiple administration and management experiences for different scenarios.

⁸ What is Azure Active Directory? (n.d.). Retrieved October 19, 2016, from <https://azure.microsoft.com/documentation/articles/active-directory-what-is/>

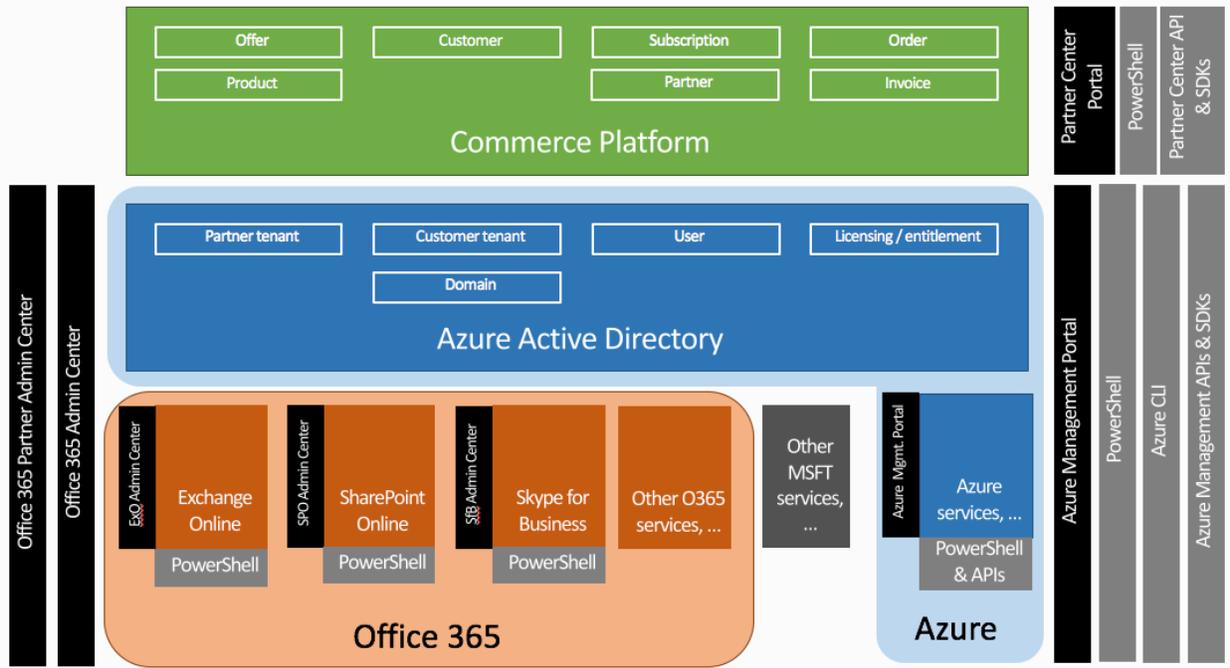


Figure 4: CSP system administration options

The various administration and management interfaces for the CSP system are shown in Figure 4 above as the black and gray boxes. These administration options are provided as web interfaces, command line interfaces (CLIs), PowerShell cmdlets, REST APIs and SDKs. Some cloud services provide these options while others offer a subset. Sometimes the same tasks can be achieved with different APIs. In addition, some of these administrative interfaces are available for both partners and their customers alike while others are only available to the partners.

The following sections provide an overview on the Commerce Platform and the different cloud services.

Partner Center

Microsoft's Partner Center (PC) provides multiple options for partners to manage their accounts as well as those of their customers. These options include a web-based portal and multiple options for developers to automate various tasks such as PowerShell cmdlets, REST APIs and software development kits (SDKs).

Partner Center (PC) portal¹

The Partner Center portal is available only to partners (at <https://partnercenter.microsoft.com>) and is the central, web-based access point for all partner-relevant actions and information. Some of the capabilities provided by the PC are listed below:

- Create customers, update customer information.
- Assign subscriptions to customers. Customers can have one or multiple subscriptions for different services to accommodate a broad spectrum of customer needs.
- Add users and assign licenses (individually or by grouping), manage permissions and roles for users either individually or in groups

- Search for a specific customer by name, primary domain or customer ID.
- Manage and assign role permissions to enable management of the partner tenant by adding users and defining different roles for them.
- Access the online invoice and reconciliation monthly report.
- Access the current version of the Offer and Price List for CSP.
- Send a reseller request to a customer. Once the reseller request is accepted by a customer admin, it grants [admin-on-behalf-of \(AOBO\)](#) privileges to the partner over the customer tenant.
- Enables a CSP partner admin to administer a specific customer's services by providing access to the customer's workload admin centers under AOBO as relevant i.e. Office 365 Admin Center, Exchange Admin Center, Azure Management Portal, etc.
- View customer licensing and service usage analytics and reports for Office 365 services.
- Set and view Azure spending limits and usage per customer.

The Partner Center is also the central customer and subscription management tool for self-serve mechanisms for API access and configuration as well as TIP (Test in Production) sandbox provisioning.

Partner Center API and SDKs¹

The first API that partners should evaluate is the Partner Center (PC) API and associated SDKs. The PC API is implemented as a set of RESTful endpoints that enable partners to create customers in the Microsoft platform, then place orders which can include one or more subscriptions for Microsoft cloud services. The PC API provides an API option for partners to automate any actions they could also perform in the Partner Center portal web site.

Once orders are completed and services are provisioned, the resulting subscriptions are assigned automatically to the desired customer. Partners can make calls to the PC API to change subscription seat count, purchase add on subscriptions, suspend an existing subscription, read information about all subscriptions assigned to a customer, etc.

The PC API provides several benefits including:

- Industry-standard RESTful endpoints with GET, PUT, PATCH, DELETE verbs.
- Token-based authentication and authorization via Azure Active Directory.
- The ability to “batch” multiple transactions together in a single request.
- Manage Indirect resellers.
- Query offer IDs specific to the CSP channel. Today a wide range of offers for Office 365, Azure, Enterprise Mobility Service (EMS) and CRM Online are supported and available for ordering through both the Partner Center portal and the PC APIs.

The complete list of supported PC API functionality is maintained at

<https://partnercenter.microsoft.com/partner/developer>.

Microsoft also provides two SDKs that abstract away the details of the PC REST API. Instead of calling the PC REST API, partners can use either the .NET SDK or the Java SDK. These two SDKs call the PC REST API

simplifying many of the low-level tasks in working with REST APIs. However, partners who are not using the .NET Framework or Java can leverage the PC REST API directly to achieve the same tasks.

Office 365

Microsoft's productivity cloud service Office 365 provides partners multiple ways to provision and manage customer subscriptions. Office 365 is made up of multiple distinct services, or workloads, such as Exchange Online, SharePoint Online, Skype for Business and Yammer among others. Each of these workloads offer different administration interfaces. All of them offer web-based administration portals called "*Admin Centers*" and PowerShell cmdlets.

Different workloads can also be managed by REST APIs either as workload-specific endpoints or via the Microsoft Graph REST API and related SDKs. Refer to each workload for the different API management options available.

Office 365 Partner Admin Center (PAC)

Available at <https://portal.office.com/partner/default.aspx>, the Office 365 Partner Admin Center (PAC) allows the CSP partner to individually administer all their customers' Office 365 services. In addition the PAC can also be used to administer discrete customers' domains, users and license assignments. The partner can also view service health for their entire customer base as well as submit service requests to Microsoft on behalf of customer issues/concerns. The CSP partner also has access to their customers' Office 365 Admin Center (OAC) from PAC.

Office 365 Admin Center (OAC)

Each customer with an Office 365 subscription has access to the Office 365 Admin Center (OAC). Typically used by customer admins, the OAC allows management of a single customer's users, domains, license assignments, etc. Additionally, the customer's service health, subscriptions, usage and compliance reports, etc. can be accessed from the OAC.

Workload Admin Centers

Each constituent workload has an equivalent admin center. These admin centers provide deep administrative capabilities that are specific to the given workload. For example, the Exchange Admin Center (EAC) gives a partner or customer admin the ability to configure the customer's mailbox rules (transport, journal, etc.), compliance rules, public folder configuration and so on. Each workload admin center for a given customer is accessible from the PAC by a CSP partner admin or directly from a customer's OAC for a customer admin. Key admin centers are listed below:

- Office 365 Admin Center (OAC): <http://portal.office.com/admin/default.aspx>
- Constituent Office 365 workload admin centers are available from the OAC's left navigation bar under the *Admin centers* section. A representative list is below:
 - Exchange Online Admin Center
 - SharePoint Online Admin Center
 - Skype for Business Admin Center
 - Yammer
 - Azure AD

Microsoft Azure

Microsoft Azure is Microsoft's public cloud service offering infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) services to customers. These can be used to host applications or implement custom applications either consumed or sold by the partner's customers. Like Office 365, Microsoft Azure includes a web-based administration interface as well as various command line and programmatic API management options for partners to automate various management tasks.

Azure Management Portal (AMP)

All Azure services can be administered through the Azure Portal available at <http://portal.azure.com>. Partner and customer admins can "build, manage, and monitor everything from simple web apps to complex cloud applications in a single, unified console."⁹

Command line Management via PowerShell and CLI

CSP partners can automate many administration tasks in Microsoft Azure using one of two command line options. PowerShell cmdlets provide a familiar Windows command-line management option for customers while the equivalent Azure CLI provides a cross-platform option that works on Windows, MacOS or Linux operating systems. These command line options enable partners to script repetitive tasks instead of relying on the web-based Azure Management Portal or REST APIs.

See <https://docs.microsoft.com/powershell/> for more information about Azure Power cmdlets.

Azure Management Service API

In addition to the command line options, Microsoft Azure offers a robust list of REST APIs referred to as the Azure Management Service API. These RESTful APIs enable partners to automate actions in Microsoft Azure from their backend systems. These tasks could include things like provisioning virtual machines, managing users and storage accounts numerous other things offered by the many services Azure offers.

Many of the Azure Management Service REST APIs are also provided as in a .NET Managed SDK wrapper. Like the PC SDKs previously mentioned, these abstract away the details of interacting with the REST APIs for partners who are building solutions with the .NET Framework.

For a complete Azure Management Service REST API reference, see:

<https://msdn.microsoft.com/library/azure/mt420159.aspx>.

Azure AD Graph API¹

The Azure AD Graph API is one of the Azure Service Management API endpoints and is used to create and manage Azure AD tenants including their contents. It enables partners to create and manage customers. Partners can also use the Azure AD Graph API to manage subscriptions and provide rich user and license management, group and role management and domain management.

It is implemented as a set of RESTful endpoints that are accessed across a secure HTTPS connection using token-based authentication and authorization.

⁹ Microsoft Azure Portal | Microsoft Azure. (n.d.). Retrieved November 16, 2016, from <https://azure.microsoft.com/features/azure-portal/>

The Azure AD Graph API is documented at <https://msdn.microsoft.com/library/azure/hh974476.aspx> and the engineering team responsible for it uses their blog at <http://blogs.msdn.com/b/aadgraphteam/> to communicate version updates and feature enhancements.

Typical activities enabled through the Azure AD Graph API

- Read a list of all users in a customer and the licenses that are assigned to each user. For programming efficiency, this request supports a “Differential Query” mechanism that enables partners to receive only the changes from the last such query. Rather than continually retrieving the complete list of all users for all customers, differential queries for the list of users only returns information on users that have been added or removed since the last query.
- Read a list of all tenant IDs that represent all customers that the CSP partner has sold services to.
- GET the tenant information in Azure Active Directory. The company tenant details include address, assigned plans, Directory Synchronization status and DNS verified domains.
- Add/Remove/Update Users, Contacts, Groups.
- Get the list of all “Subscribed SKUs” for a customer.
- Get information on any service provisioning errors.
- Get Device information about the OS Type, Version, last sync time, last logon time.
- Manage a customer’s custom domains.

The complete reference for all entities accessible through the Azure AD Graph API can be found at <https://msdn.microsoft.com/library/azure/ad/graph/api/api-catalog>.

Note that Microsoft has multiple API endpoints with the name “Graph” in them so it is easy to get these confused, such as:

- **Azure AD Graph API:** <https://msdn.microsoft.com/library/azure/ad/graph/api/api-catalog>
 - Endpoint for Azure AD.
- **Microsoft Graph API:** <https://graph.microsoft.io>
 - Proxy endpoint to multiple Office 365 related APIs.
 - Includes a subset of what is available in the Azure AD Graph API.
- **Office Graph API:** <https://dev.office.com/officegraph>
 - Provides analytics and insights data from across the Office 365 suite from email, social, conversations, meetings and documents in SharePoint and OneDrive.

Azure AD provides an additional feature for partners referred to as delegated admin privileges (DAP) which is explained in more detail [later in this document](#). Partners should be familiar with this concept, how to implement and leverage it in the management of their customer tenants and their subscriptions.

PowerShell

“PowerShell (also known as Windows PowerShell) is a command-line environment that's designed specifically for system administration. PowerShell helps IT professionals and power users control and

automate the administration of the Windows operating system and applications, such as Office 365.”¹⁰
 In the context of CSP, PowerShell cmdlets exist for access to most Microsoft cloud services.

Management capabilities for Office 365, Exchange Online, SharePoint Online, Skype for Business, Azure, etc. are enabled through PowerShell modules or libraries specific to the workload in question. Links to helpful online articles with additional guidance and information are provided below:

- Manage Office 365 tenants with Windows PowerShell for Delegated Access Permissions (DAP) partners: <https://technet.microsoft.com/library/dn705745.aspx>
- PowerShell for Office 365: <http://powershell.office.com/>
- Azure Active Directory PowerShell Module: [https://msdn.microsoft.com/library/azure/jj151815\(v=azure.98\).aspx](https://msdn.microsoft.com/library/azure/jj151815(v=azure.98).aspx)
- Azure PowerShell: <https://azure.microsoft.com/documentation/articles/powershell-install-configure/>

API selection

Since Microsoft offers several APIs, the question is often raised as to what APIs are most applicable for which scenarios. The following table outlines some representative scenarios and the associated available APIs partners can choose to use:

Scenario	Partner Center API	Azure AD Graph API	PowerShell	Workload-specific APIs	Notes
Customer creation and management	x				
Subscription ordering and management; incrementing or decrementing seat/license counts, etc.	x				
User management	x	x	x		PowerShell: MSOnline library
Domain management		x	x		For PowerShell use the MS Online library
Azure services management			x		Use Azure PowerShell to manage Azure services
Exchange Online			x	x	ExO PowerShell module and Exchange Web Service (EWS) API
SharePoint Online			x		SPO PowerShell module
Skype for Business			x		SfB PowerShell module

¹⁰ PowerShell for Office 365 (n.d.). Retrieved November 8, 2016, from <http://powershell.office.com>.

Keep in mind that PowerShell scripts can be written to call REST API endpoints. In the table above the PowerShell interfaces address specific PowerShell modules that partners can acquire and use to perform various tasks. A PowerShell module is the packaging vehicle for PowerShell cmdlets. PowerShell cmdlets are reusable bits of functionality that simplify common tasks by abstracting the logic away from the user and offering it as a function with a name and required and/or optional parameters.

5. Data entities

When a CSP partner engages with Microsoft cloud services they necessarily will create and manage data in Microsoft's cloud platforms and systems. In the previous section, we described the platform layers and components that make up the CSP platform. This section covers the data entities that CSP partners will interact with through various user-interface tools and APIs e.g. Partner Center portal, Partner Center API, PowerShell, etc.

Tenants

A tenant is the Azure AD instantiation of a partner or customer. Simply put, it is a dedicated instance of Azure AD that [an] organization receives and owns when it signs up for a Microsoft cloud service such as Azure or Office 365.¹¹ Each CSP partner is *typically* represented by a single partner tenant. Each customer is also represented by a single customer tenant whether created (provisioned) by a partner or directly by Microsoft.

CSP customer tenants can assign administrative rights to their users and also approve Delegated Administrative Permission requests (DAP), described [below](#), from other partners that they wish to purchase services and receive support from.¹

Delegated Admin Privileges (DAP) and Admin-On-Behalf-Of (AOBO)

Delegated administration refers to the *ability* for a CSP partner to administer a customer of theirs on behalf of the customer. CSP partners are granted DAP for any customer they create (provision). Customer tenants contain the details on which partner(s) can administer the customer tenant and cloud service subscriptions. Admin-on-behalf-of (AOBO) is essentially the functional execution of the delegated admin privilege.

Delegated admin may also refer to the capability whereby a CSP partner may be granted permissions by a customer to sell to and administer a customer even if the customer was originally created (provisioned) by another CSP partner or directly by Microsoft. For this secondary DAP to be granted the CSP partner must send the customer a reseller request¹². On acceptance of the reseller request by the customer admin, DAP is granted to the CSP partner.

A custom application created by the partner to manage customer tenants and subscriptions must be marked for *pre-consent*. Once an application is marked for pre-consent, it can manage existing customer tenants as well as customers created (provisioned) by the tenant. Enabling pre-consent on an application is done by registering the application in the Partner Center portal. In the past enabling pre-

¹¹ What is an Azure AD directory? – msdn.microsoft.com. (n.d.). Retrieved October 19, 2016, from <https://msdn.microsoft.com/library/azure/jj573650.aspx>

¹² For additional information regarding reseller requests review this article: <https://msdn.microsoft.com/library/partnercenter/mt750320.aspx>

consent on an application was done using the Azure Graph AD REST API and/or using PowerShell. Registering the application in the Partner Center portal is the preferred approach.

When an application is enabled for pre-consent, Azure AD will permit it to authenticate and obtain an OAuth access token from a customer's Azure AD tenant even though the application is registered and configured within the partner's Azure AD tenant. The significance of this detail is that access tokens are scoped to the Azure AD tenant in which they were created and thus, an access token obtained from a partner's Azure AD tenant is not valid within a customer's Azure AD tenant.

Regional authorizations¹

For CSP partners that do business in multiple countries there are a few considerations when planning their onboarding strategy:

- In the European Union, Latin America, Asia Pacific, Africa and the Middle East/Central Europe a single CSP partner tenant is authorized to sell in all countries that are a part of that region. Partners however may choose to onboard separate CSP partner tenants per country. Partners should carefully consider the most appropriate onboarding strategy based on their country locations and cross-region sales strategy to determine whether a single regional CSP is most appropriate or whether a separate CSP partner tenant for each country would better serve their needs. While multiple CSP partner tenants may provide more per-country flexibility, this flexibility will come with additional administrative overhead.
 - As an example, a CSP partner that has operations in the US, Canada, Argentina, Bolivia and India, will need to go through the onboarding process and then could choose to have individual CSP partner tenants created for the US, Canada and India, but only a single CSP partner tenant in Latin America (Latam) for their Argentina and Bolivia operations as it is a defined CSP region. Note that every individual CSP partner tenant will have a distinct set of partner admin credentials i.e. admin@partner-subdomain.onmicrosoft.com + password.
- Global/regional CSP partners should also consider the impact of billing currency and/or the convenience of customer management, administration and support when determining their partner tenant strategy.
 - To clarify further the implication of billing currency on a regional partner tenant, consider an example where a partner transacts anywhere in EMEA from the UK. In this case, the partner will be billed in GBP (£) although they will bill their EMEA customers in Euros (€).
- The current list of region authorizations is maintained at <https://msdn.microsoft.com/library/partnercenter/mt762922.aspx>.

Domains

onmicrosoft.com subdomains

As indicated above all tenants are provisioned with an initial domain of the form *subdomain.onmicrosoft.com*. The partner or customer may choose the specific value used for *subdomain* but **once the tenant is provisioned, it cannot be changed**. Partners and customers should therefore think carefully before choosing their onmicrosoft.com subdomain name.

Upon provisioning of a new tenant, a *global admin user* of that tenant with a user principal name (UPN) of admin@subdomain.onmicrosoft.com is also automatically created.

Custom domains

Partners and customers also have the option to use *custom* domains in addition to the initial onmicrosoft.com subdomain. This is the most likely option for customers as having their brand reflected in their users' e-mail addresses and sites is usually desirable. Once a customer's tenant has been created and an initial onmicrosoft.com subdomain has been assigned, it is typical for the partner or customer to first associate a custom domain with the tenant before starting to create users with UPNs or aliases with that custom domain.

Refer to the Azure AD documentation on adding a custom domain to a tenant:

<https://docs.microsoft.com/azure/active-directory/active-directory-add-domain> and the Office 365 Admin Center documentation for the same (partners will first need to AOBO into the customer's [QAC](#) from [PAC](#) to follow these instructions): <https://support.office.com/article/6383f56d-3d09-4dcb-9b41-b5f5a5efd611>.

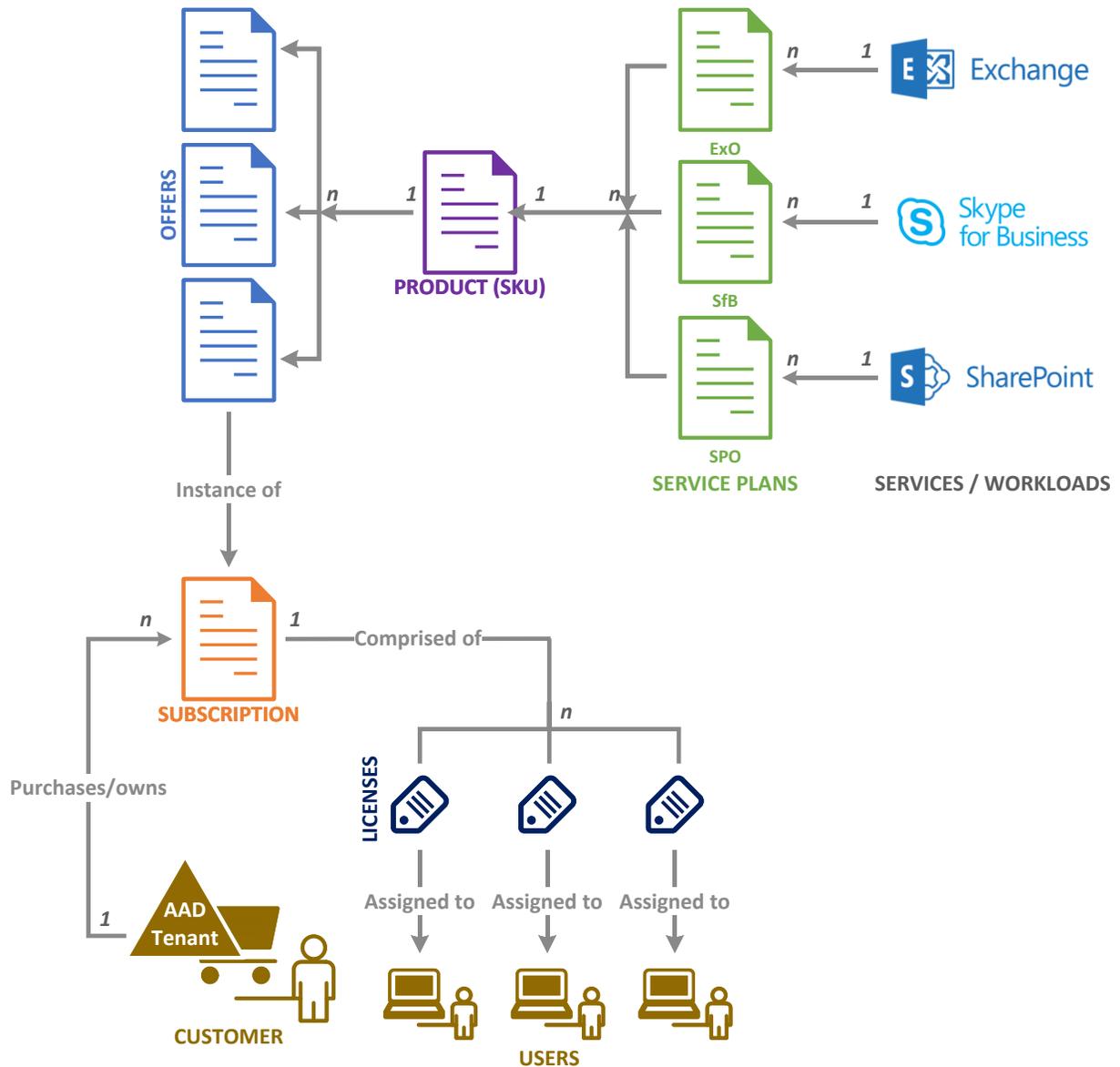


Figure 5: Data entities, relationships and cardinality

Offer catalog and relationships

It is important for partners to understand how offers are modeled in Microsoft’s commerce offer catalog. Figure 5 above depicts the various data entities within the offer catalog, their relationships and cardinality. They are described further in below sections.

Services/workloads¹³

At the core of the CSP program are the Microsoft cloud services that customers’ and partners’ users use. Some common workloads include Exchange Online, SharePoint Online, Skype for Business, etc. from Office 365, Azure Storage, Azure Compute, etc. from Microsoft Azure and Microsoft Dynamics 365.

¹³ The terms ‘services’ and ‘workloads’ are used interchangeably throughout this document.

Service plans

Each workload or service is manifested in an entity called a service plan. Stated differently, a service plan comprises a specific configuration of a given workload or service. In Office 365 for example, the EXCHANGE_S_ENTERPRISE service plan includes a 50 GB Exchange Online mailbox among other features. Each Service Plan is uniquely identified by a GUID value.

Products (SKUs)

A Product or SKU then is a defined collection of service plans that together determine the specific capabilities that will be offered to customers' and partners' users. For example, the ENTERPRISEPACK product contains several service plans that enable Exchange Online (EXCHANGE_S_ENTERPRISE), SharePoint Online (SHAREPOINTENTERPRISE), Skype for Business (MCOSTANDARD), OneDrive for Business (SHAREPOINTWAC), and other capabilities. Each Product is uniquely identified by a GUID value called the ProductID or SkuID.

Offers

An offer is an entity that incorporates further specialization of a Product by the addition of distinct and distinguishing metadata such as channel, market, pricing, etc. The *Office 365 Plan E3 for Commercial Buy_MSP* offer for example is the incorporation of the ENTERPRISEPACK product for the CSP channel whereas the *Office 365 (Plan E3) Buy_Reseller* offer is the incorporation of the ENTERPRISEPACK product for the Syndication channel. While both offers provide the same core functionality they are only available for ordering in the CSP and Syndication channels respectively. Each Offer is uniquely identified by a GUID value, the OfferID.

Microsoft's cloud services are offered differently depending on the service. For instance, Microsoft Azure is sold as a single subscription that includes all *resources* included in Azure including web applications, databases, storage accounts and virtual machines. Each of these Azure resource offerings have their own pricing and usage details. The costs associated with these Azure resources are pooled together into the single Azure subscription. Therefore, the Azure subscription does not have a cost associated with it, rather it is simply the billing vehicle for the Azure resources within the subscription.

Office 365, another Microsoft cloud service, is primarily sold using a per-user license model. Partners sell one or more licenses for a specific Product to a customer and then allocate those licenses to specific users. However, some offers in Office 365 are not user based, such as additional storage which can be purchased for SharePoint Online, Exchange Online or OneDrive for Business. These types of offers are called *AddOns*.

You can learn more about Offers, AddOns, Subscriptions and Orders in the CSP SDK Developer course, specifically module 7: <https://channel9.msdn.com/Series/cspdev/Module-7-Office-365--Offers-AddOns-Subscriptions--Orders>.

Office 365 Subscriptions

A subscription is an instantiation of an offer for a specific CSP partner or customer for a specific number of licenses or seats. For example, a CSP partner could sell (provision) 5 licenses (or seats) of an *Office 365 Business Premium* subscription to a particular customer. Once the purchase and associated provisioning is completed, the customer is eligible to use up to 5 licenses of Business Premium. Each Subscription is uniquely identified by a GUID value, the SubscriptionID.

Subscriptions are also subject to a validity period (typically 1 year) after which they must be renewed. In CSP all subscriptions are set to automatically renew annually unless explicitly canceled. Subscriptions also follow a specific lifecycle as described in the section below.

Subscription lifecycle¹

Every subscription has a lifecycle that it can go through as depicted in Figure 6 below:

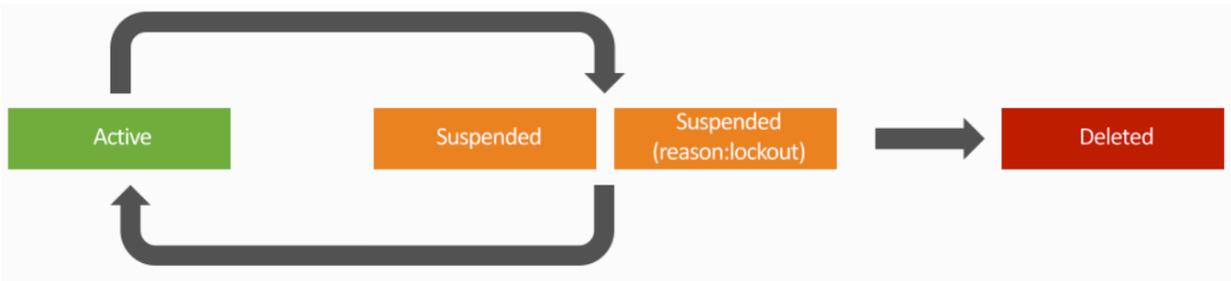


Figure 6: Subscription lifecycle

Subscription state change: suspend subscription

Moving a subscription from Active to Suspended is typically performed when a customer either does not pay their bill with the partner, the partner has added and activated a different subscription for the customer and wishes to suspend the current subscription or the customer wishes to cancel their service. Subscriptions in the suspended state can be accessed by the customer admin but cannot be accessed by the customers' users.

Subscriptions can only be suspended by a CSP partner using reason code *CustomerCancellation*.

A second reason code under the *Suspended* state called *Lockout* adds an additional 30 days (for Office 365 subscriptions) to the subscription while it is in the *Suspended* state.

Subscription state change: reactivate subscription

Subscriptions that are in the *Suspended* state with reason code *CustomerCancellation* can be reactivated (i.e. moved back to the Active state) within the *Suspended* state duration, which varies from service to service. For Office 365 subscriptions this period is 90 days. Once an Office 365 subscription moves from *Suspended* to *Deleted* it is completely removed from Microsoft's cloud platforms and all service data is deleted.

All subscriptions that have been assigned to a customer can be viewed through the Partner Center API and portal, including subscriptions that have moved to *Deleted*. Subscriptions can also be transitioned from one offer to another through the Partner Center API or portal.

For each service type, there is a timeframe when the subscription can be reactivated and as long as this action is performed within that specified timeframe, the customer will see no data loss.

Subscription state change: delete subscription

If a subscription is not re-activated by the partner within the specified retention period (90 days suspended + 30 days suspended:lockout for Office 365 subscriptions), the subscription will move to the *Deleted* state. CSP partners can read subscription data by performing a GET on the *Subscriptions* resource through the PC API to determine when subscriptions have been moved to *Deleted*. If the

customer wishes to re-purchase a subscription, the partner can create a new subscription at any time. When a subscription moves to deleted, all associated service data such as e-mail, SharePoint data and service settings are removed from the Microsoft platform.

Data retention and access by subscription lifecycle states

	ACTIVE state	SUSPENDED state	SUSPENDED state (reason code: lockout)	DELETED state
Duration		90 days	30 days	
Data access	Data accessible to all	Data accessible to admin only	Data not accessible	Data deleted. Azure AD tenant is removed if not in use by other services (~200 days after last subscription is suspended)
User access	Users have normal access to Office 365 data & office apps	Users can't access Office 365, files or apps	Users can't access Office 365, files or apps	Users can't access Office 365, files or apps
Admin access	Admins have normal access to Office 365 data & office apps	Admins can access the Office 365 Admin Center but can't assign licenses to users.	Admins can access the Office 365 Admin Center but can't assign licenses to users.	Admins can access the Office 365 Admin Center to manage other services
Reactivation		Partner can reactivate the subscription	Microsoft support can reactivate the subscription	
Billing	Subscription billed to the partner	Subscription not billed to the partner	Subscription not billed to the partner	Subscription not billed to the partner

Users

Users in Azure AD are the system's representation of actual users. Users are uniquely identified by their user principal names (UPNs) which are in the form of an e-mail address following [RFC 5321](#). Users have subscriptions' licenses (seats) assigned to them enabling them to use the functionality provided by a particular subscription.

Office 365 license entitlements / assignments

As stated above once the provisioning of a subscription for a customer is completed, the customer is eligible to use the relevant number of licenses of that subscription. The customer admin (or the partner admin under AOBO) can assign a license from that subscription to each user of that customer tenant. Once license assignment is completed in this manner, each licensed user can avail of the functionality provided by the subscription. For example, if a customer has purchased an *Office 365 Business Premium* subscription the customer admin can assign a Business Premium license to each user in the customer

tenant. Each user so licensed can then use all the functionality offered in Business Premium i.e. the latest desktop versions of Office, an Exchange Online mailbox, OneDrive for Business storage, Skype for Business, etc.

License pooling

One associated implication of user-based licensing is that licenses are pooled and are not explicitly associated with their source subscription. This is better understood using an example. If a user has a Business Premium license assigned that is from a subscription purchased from a CSP partner and another user in the same customer tenant has a license assigned that is from a Business Premium subscription purchased directly from Microsoft, the two licenses are pooled. This means that the customer may choose to commensurately increase the number of licenses on the partner subscription and then cancel the direct Microsoft subscription and as long as sufficient Business Premium licenses are available, the user will see no change in service behavior nor will the customer (or partner) admin need to re-assign licenses for that user. Similarly, if a partner has sold 2 subscriptions of Office 365 Enterprise E3 with license/seat counts of 2 and 4 respectively to a customer, the customer can choose to assign those 6 total licenses to 6 different users. They can then increase the license count of the first subscription by 4 and cancel the second subscription but will not need to perform any license re-assignment for their 6 users.

Tenant lifecycle

In general, if all license entitlements and custom domains are removed from a customer tenant and all subscriptions are canceled, at some point the customer tenant itself is deleted and the initial domain (i.e. the onmicrosoft.com subdomain) is made available for re-use. Each canceled subscription however needs to be fully deleted before the customer tenant deletion process starts. The tenant deletion process and associated release of the initial onmicrosoft.com domain is, at a minimum, 80 days after the last subscription has been deleted.

6. Developing for CSP

Testing strategy¹

Each CSP partner has the ability to use the Partner Center self-service mechanisms to configure access to the Partner Center API as well as create a Test in Production (TIP) sandbox CSP partner tenant for development and testing purposes.

Test in Production (TIP) partner tenant

It is important to note that the CSP Test in Production (TIP) partner tenant essentially uses the same Production environment as the production CSP partner tenant. While there are a few differences (described below) in Commerce capabilities, there are no differences in the Azure AD or workloads/services layers for the TIP tenant.

TIP restrictions

No billing

Since the TIP tenant is intended for development and testing purposes only, the partner will not be billed for any subscriptions.

Throttling limits

Throttling limits for number of customers, subscriptions per customer and users per customer are in place for each TIP sandbox partner tenant. These restrictions are set to 75 test customers, 5 test subscriptions per customer, 5 users per subscription.

When using TIP to test Azure usage based subscription services, partners can allocate up to \$200 spend per month before throttling will prevent additional Azure subscriptions from being created.

Partners must adhere to the license terms and requirements for using the TIP sandbox and ensure that no live customers or data are provisioned in TIP. Note that if partners exceed their TIP quota allocation any subsequent API calls to create new subscriptions or increase existing subscriptions will return HTTP 403 Unauthorized with the reason SubscriptionQuotaExceeded.

Partners can delete subscriptions and customers from the TIP sandbox partner tenant in order to test different scenarios if they reach any of the limits mentioned above.

Multi-channel/multi-partner restrictions

Additionally, since any TIP partner tenant is intended for the use of a single CSP partner, complex scenarios such as multi-channel and multi-partner (described [later](#) in this document) are not enabled.

7. CSP provisioning and reconciliation flow

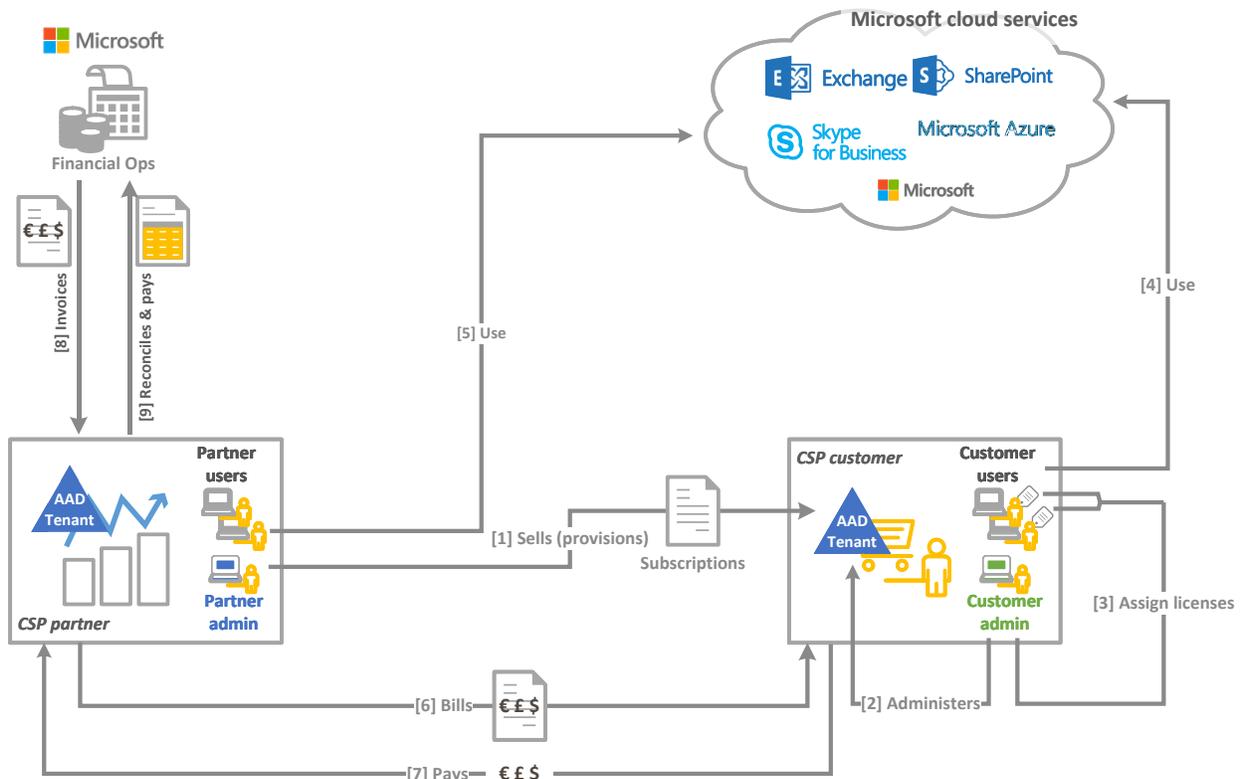


Figure 7: CSP provisioning, reconciliation flow

Figure 7 above displays the overall flow of how CSP partners “sell” or provision Microsoft cloud services through CSP and complete the order-to-cash flow. CSP partners sell (or provision) subscriptions of specific offers to their customers [1]. The CSP customer tenant and associated subscriptions are administered by the customer admin [2] including the assigning of licenses to the customer’s users [3]. These customers’ users use the Microsoft cloud services that are available to them once they have purchased a Microsoft cloud service subscription of some kind, say Office 365, Azure or Dynamics 365 [4]. Note that a CSP partner can also purchase Microsoft cloud subscriptions directly from Microsoft and can have their users use those services as well [5].

Per the CSP agreement, CSP partners are responsible for billing their customers [6] and for collections [7] from their customers. In turn, Microsoft will, on the partner-specified billing date, invoice the partner for subscriptions they have sold to their customers [8]. In turn, the partner will reconcile and pay Microsoft [9].

8. Complex scenarios

Multi-channel

Multi-channel was implemented in CSP based on feedback gathered from other Microsoft cloud partner channels where customers were restricted from purchasing from the entire available offer catalog.

Multi-channel therefore quite simply refers to the ability for a customer to purchase subscriptions from multiple business channels whether partner channels or from Microsoft. The practical application of multi-channel today is that a customer can purchase from Microsoft and from a CSP partner concurrently maintaining independent billing relationships with both Microsoft and their CSP partner.

For example, a customer may have purchased one or more [MSDN subscriptions](#) for their developers. Depending on the MSDN subscription purchased, it may include Azure subscription credits or Office 365 licenses. In this scenario, the customer has a direct billing relationship with Microsoft. However, the customer may also purchase Office 365 subscriptions from a CSP partner. In this scenario, the customer has a direct billing relationship with the CSP partner, not with Microsoft.

Multi-partner

Multi-partner on the other hand refers to the ability of a customer to purchase from more than one CSP partner. In other words, the customer may maintain more than one CSP partner relationship at the same time. CSP partners often specialize in the Microsoft cloud services they sell, manage and support. It is therefore critical for example for a customer to be able to purchase their Office 365 subscriptions from one CSP partner, Azure subscriptions from another CSP partner and Dynamics 365 subscriptions from a third CSP partner.

9. Support

CSP support mechanisms are designed to provide the widest possible choice based on partner capabilities, business strategy, customer market focus (SMB or Corporate Accounts) and organizational requirements. CSP partners have a range of options for support ranging from Self-serve tools, training and information all the way through premium paid support.

Partner support options and capabilities

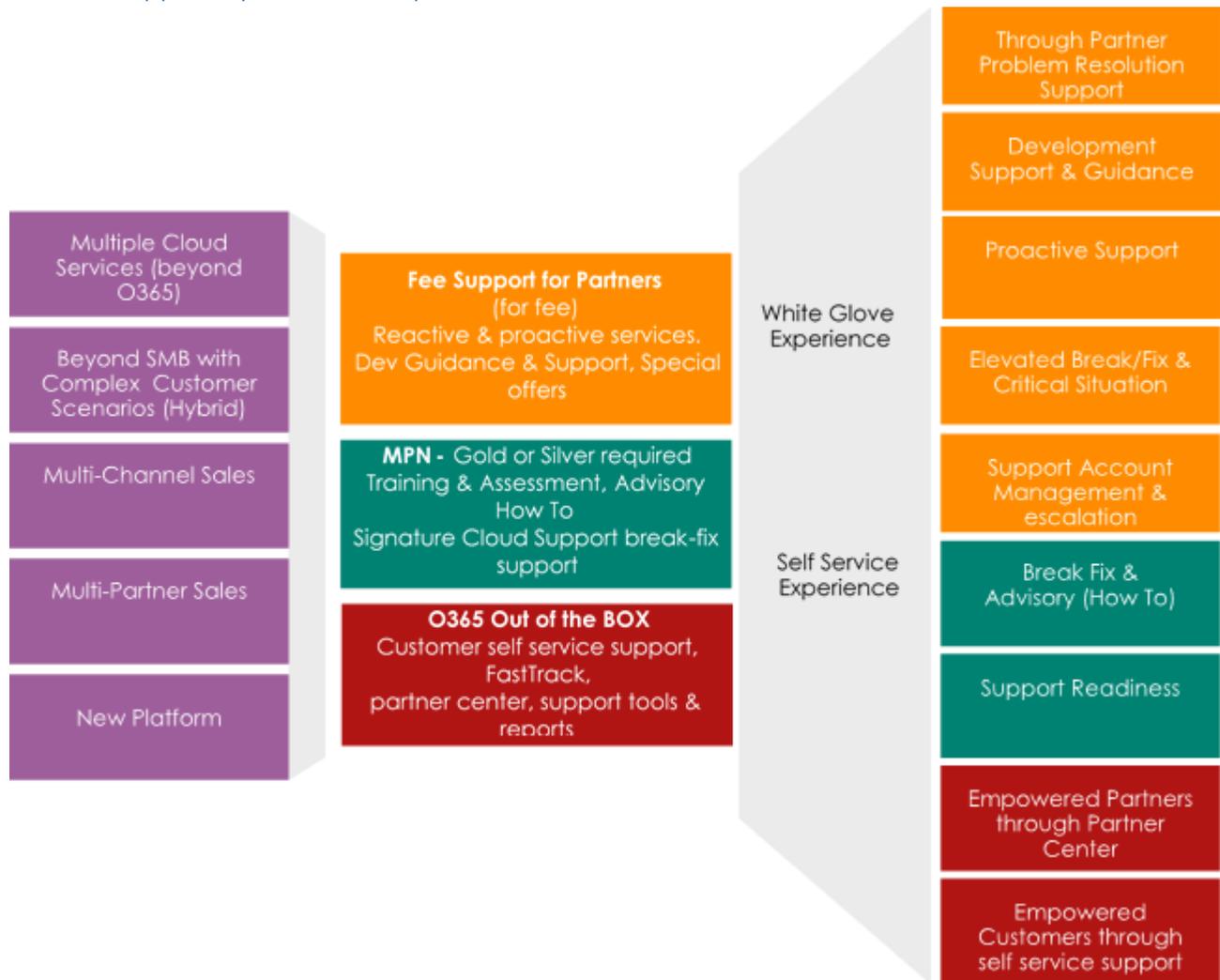


Figure 8: CSP support options

Figure 8 above describes the 3 distinct support options provided to CSP partners.

Office 365 self-service tools

Microsoft continues to make engineering investments to enable customers to be notified of configuration problems, client version issues or other factors which may impact the ability to use the services. In addition to notifying the customer in the message center, customers are also provided remediation mechanisms, tools for assessing proper configuration and reports for determining client readiness for their users accessing the service.

Partners have a range of self-service mechanisms available in the Office 365 Partner Admin Center (PAC) including support guidance, access to admin-on-behalf-of (AOBO) capabilities for each of their customers, access to aggregated service health across their customer base and the ability to view all support tickets across all customers.

As Partners investigate issues raised by their customers, partners have access to the context-based self-help mechanisms provided as part of the Service Request entry experience. Partners can look at the suggested remediation approaches and determine if it's possible to address the issue immediately.

MPN support benefits

For CSP Partners with Gold or Silver MPN Status, an additional level of support capabilities provided include Training and Assessment, Advisory "How To" support for specific scenarios related to deployment or configuration as well as access to Signature Cloud Support (SCS) "break/fix" capabilities. Partners in the Gold or Silver category have access to the Partner Learning Center, the Partner Newsletter, a number of seats (depending on level) for Internal Use Rights, a number of Partner Advisory Hours, Unlimited Support for cloud performance competencies and a number of incidents for hybrid competencies.

Signature Cloud Support benefits for CSP partners are documented further at <http://support.microsoft.com/kb/2996739>.

Advanced Support for Partners (ASfP)

For partners that need more proactive engagement at an affordable price point, the Advanced Support for Partners (ASfP) offer was launched in December of 2015. The offer is designed to provide access to shared Service Account Management resources as well as 1-hour response time for any Sev A issues that are opened with Microsoft. ASfP partners also have access support experts for Office 365, Azure and Dynamics 365 along with the ability to pay on a monthly basis to minimize upfront investment.

ASfP is designed to provide a broader set of services with direct engagement by MS support personnel and shorter response time than standard MPN Gold or Silver benefits at a compelling price point. ASfP is appropriate for those partners who may not require deep technical account management, access to Premier developer support or extensive proactive services. More information can be found at <https://mspartner.microsoft.com/en/us/pages/support/advanced-cloud-support.aspx>.

Premier Support for Partners (PSfP)

For CSP partners who feel they need more proactive engagement and a specific Microsoft representation for assistance, the Premier Support for Partners (PSfP) offering provides a range of capabilities and access to strategic technical account management, delivery management, support readiness, developer support for API integration and elevated priority critical situation (CritSit) escalation management.

Partners can determine the most appropriate level of PSfP based on their needs and organizational capabilities to ensure that they have full access to the right resources and subject matter experts at the right time.

Because PSfP is a Premier Support offering, the offer is paid annually and includes a pre-defined allocation of support personnel hours across reactive and proactive services. PSfP provides the shortest SLA for issue response as well as “1st in line” prioritization for critical issues.

10. Additional information

In addition to the various support offerings above, Microsoft also offers different communities where developers can ask questions, research and get updates related to the CSP program.

CSP Community Yammer Group

The CSP Community Yammer group is an invite-only Yammer network where partners can ask questions and get announcements from Microsoft about new features, CSP news, webinars and API updates. You can access the CSP Community Yammer group here:

<https://www.yammer.com/cloudpartnercommunity>.

Microsoft Partner Center API MSDN Forum

In addition to the CSP Community Yammer group, developers can also access the CSP API forum on MSDN to ask questions and get resolution to issues they may be running into:

<https://social.msdn.microsoft.com/Forums/en-US/home?category=microsoftpartnercenter>.

Partner Center Samples on GitHub

The Microsoft CSP team maintains an organization on GitHub that contains numerous code resources and sample applications demonstrating how to use the Partner Center REST API, .NET Managed SDK and Java SDK. This is available at: <https://github.com/PartnerCenterSamples>.

Partner Center SDK Developer Course

The **Partner Center SDK Developer** Course can be found within the Partner Center Samples GitHub organization: <https://github.com/PartnerCenterSamples/training-course>.

This is a self-paced course consisting of 15 modules complete with slides and demos that developers for CSP partners can use to get up to speed and learn how the different parts of CSP works. Each of the module in the course has been recorded and is available on-demand from MSDN's Channel9:

<https://channel9.msdn.com/Series/cspdev>.

The course contains the following modules:

1. Introductory System Concepts and Getting Started with the Partner Center SDK
2. Authentication for Partner Center SDK
3. Understanding how Partner Center SDK works with CREST API
4. REST and JSON Primer and Debugging API Calls
5. Getting Started with the Sample Code
6. Managing Customers
7. Office 365 Subscriptions
8. Managing Invoices
9. Microsoft Azure – Managing Users and Resources with Azure Resource Manager
10. Managing Support Tickets
11. Admin on Behalf Of (AOBO)
12. Office Subscription Transitions
13. Reviewing Azure Usage Information
14. Azure Resource Pricing with the Azure Billing REST API
15. Azure Usage Details with the Azure Billing REST API

The course also includes self-paced hands-on labs on the following topics:

1. Introduction to the Partner Center SDK
2. Using the Partner Center SDK with an existing CREST API based Application
3. Implementing Parameter Validation for Managing Customers
4. Avoiding Common Order Submission Issues
5. Adding Resources to a new Azure Subscription

End of document
