Hewlett Packard Enterprise

Cloud Service Brokerage
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HCM Cloud Service Brokerage

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Introduction

Hybrid Cloud Management (HCM) suite is a platform to automate your IT infrastructure/platform provisioning steps and complete applications stack deployment requirements. HCM offers multiple capabilities such as infrastructure management across different private & public cloud vendors, reporting, analytics, workload placement, application release pipeline automation, cloud service brokerage, workload discovery and compliance. This whitepaper explains HCM's Cloud Service Brokerage module capability. It mainly depicts how a service provider (SP) or a service integrator (SI) who can use this capability to swiftly create offerings for multiple SMB's and enterprises or an internal service broker for their Lines of business (LOB).

What is Cloud Service Brokerage (CSB)?

A Cloud Service Brokerage is a business model exercised by service providers or service integrators and also customers who let their ITOps act as internal cloud service broker too. SP/SI are majorly resellers of cloud providers but provides value-added services on top of the cloud services which will help them gain profit out of those services. The internal CSB may not be resellers but they do provide value added services for their LOBs. A CSB solution should primarily offer aggregation, integration, and customization.

Aggregation is nothing but consolidating multiple cloud services from different other cloud vendors and help the business-user and end-user to view those services in a single pane of glass. This service helps the business user to offer the services which should rightfully fit for the business and budget needs of the end-customer. For the end-customer who are nothing but LOBs, the aggregated offering list should help them identify the set of services which meets their application deployment needs without any complex process.

Integrations helps the SP/SI integrate with cloud vendors and services like network, storage, application, compliance management, and security, governance, cost and reporting tools.

Customization helps them provide value-added services and allows them tailor the services offered by multiple cloud and at the same time masking the complexity involved in managing multiple cloud vendor services.

The value-added service may include single API to connect multiple cloud vendors, security, governance, DR, backup, show-back etc.

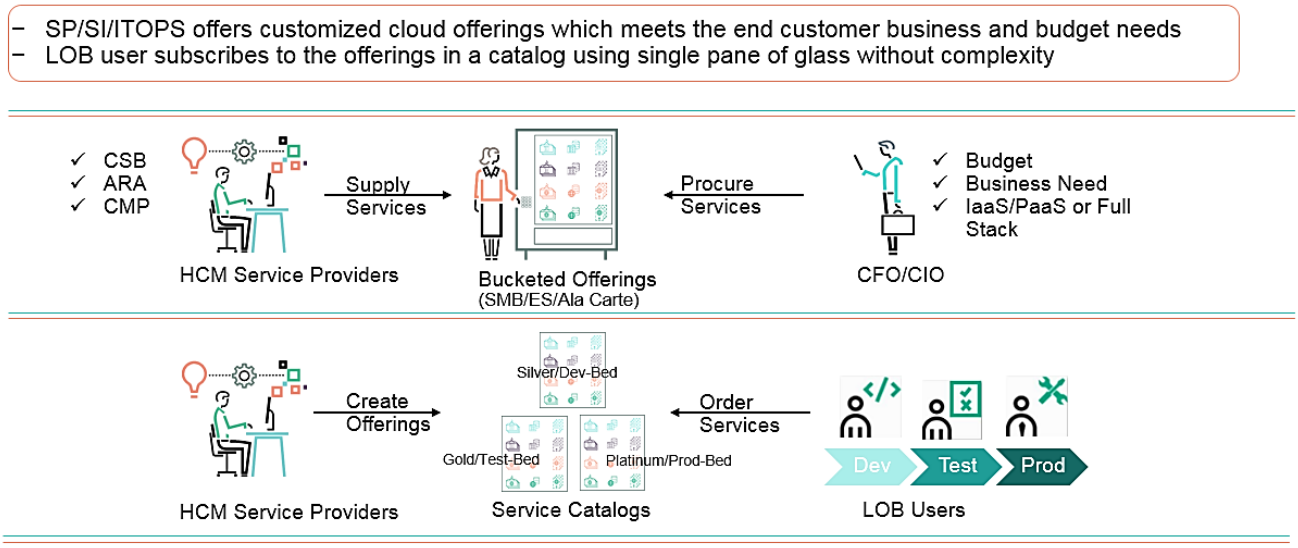


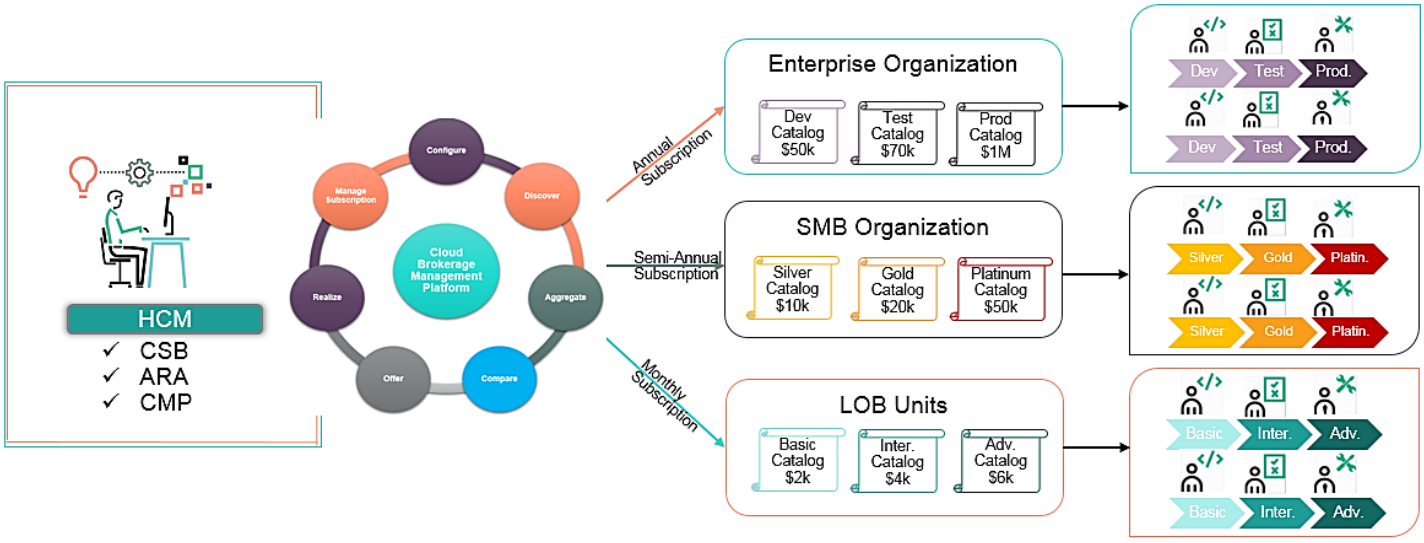
Fig1: CSB Business Model

What is Dynamic CSB?

An uninterrupted, scalable, governance-based secure cloud service brokerage offered by (who are the HCM buyers):

- **Service Providers to their end Customers (LOB's/ITOPS)**
- **Central IT to their Org units (LOBs)**
- **Lines of Business to their Teams (LOBs)**

HCM CSB offers aggregated service list for SP/SI based on which they will create aggregated offerings and publish into different catalog based on the end customer's subscription



How does HCM CSB service meets LOB's needs?

The primary service of CSB is to provide compute services which will offer infrastructure and optionally software on top of the infrastructure for the customer's LOB who may want to deploy application across different lifecycle stages like development, testing, preproduction and production. In order to help these LOBs, HCM CSB provides multiple offerings for them to select and configure required infrastructure or a platform for any of the defined lifecycle stages. The offerings may differ from stage to stage based on the requirement of development team, testing team and operation team.

LOB Infrastructure/Platform Requirements

A **developer** or dev team may need an infrastructure with platform software installed on it so that they can quickly deploy and test their new code change which may require to fix an issue or implement new product features. The application deployment steps may differ from team to team and the deployment of application must be automated. In HCM, the application deployment and release process are automated using Codar module which in turn utilizes the Operation Orchestration module intelligence. A dev team may need a simple VM with a software where the configuration does not necessarily match with other teams like testing or operation team requirements.

A **tester** or testing team may need infrastructure with platform software to verify and validated the application functionality by executing the sanity, regression test suite. Further, they may need to execute load and performance testing in order to test the scalability and robustness of the deployed application. A testing team may need different set of infrastructure to run the sanity or regression, load test, and performance test.

An **operation team** may need different set of services to initially roll out an application on the pre-production and then the production environment. A pre-production may be a replica of production environment wherein they may perform acceptance testing but may not be performance testing. Once the application is rolled out into production and when the situation occurs to scale out and scale in, the operations team may need numerous infrastructure to support multiple requests. Also the application may run behind a load balancer and a web server to handle multiple traffics created by different request across different regions.

HCM CSB Capabilities

An SP/SI may not create cloud services offerings which are generic in nature for all subscribed organizations but will look for LOB needs and create customized offering which should match that organization's application and operation team's deployment needs.

HCM CSB offers a capability to help the CSB to create such offerings based on the features described in detail below.

Aggregation of Multi-Cloud Services

Aggregation in a CSB context is not only meant for the end-users who can select offerings from prescribed catalog which list in an aggregated fashion but the terminology aggregation or the feature aggregation should be also for the SP/SI as well. An SP/SI may hold different cloud accounts like AWS, Azure, GCP and private cloud. The first and foremost job of these SP/SI is to identify the set of services from these cloud vendors which should meet their own business cost that brings ROI. This is first level filter where the offerings are created in controlled fashion with the cautious decision to choose based price, region, compliance and support.

In order to help them select the right set of services, the SP/SI is provided with aggregated multi-cloud services from different configured cloud vendors. They should be able to filter and narrow down their search to pick and choose from the filtered compute services. The filter may be based on region, instance type, operating system, platform type, version and additionally the price information.

By this feature, the SP/SI should be able to locate the services, select the services and create the offering swiftly by avoiding any further steps and finally publish those offering to an organization catalog.

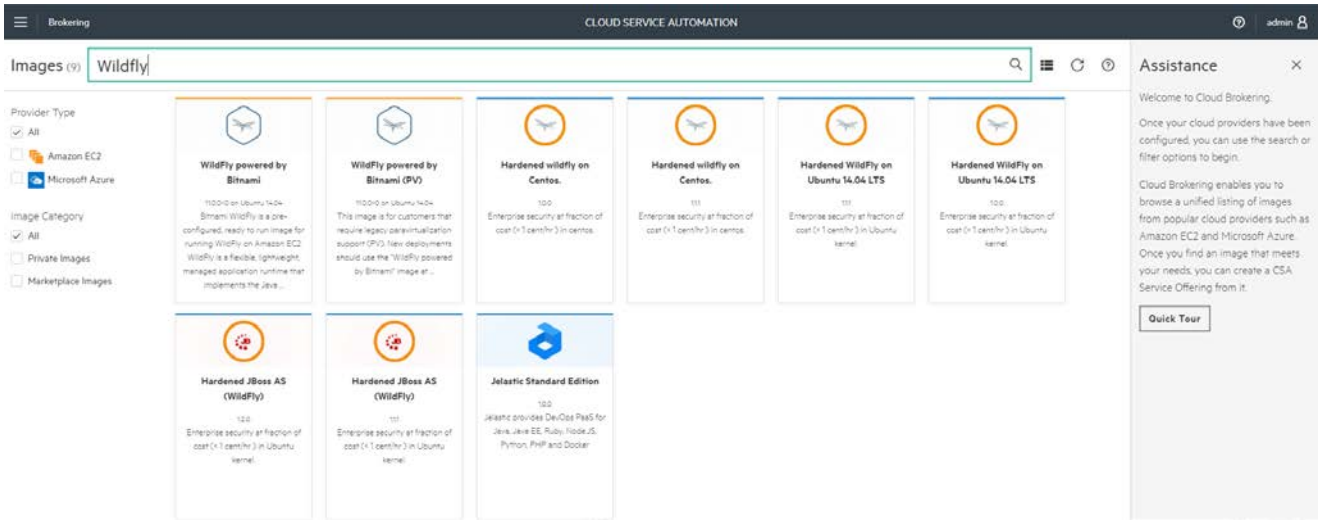
Provision to Create Offering

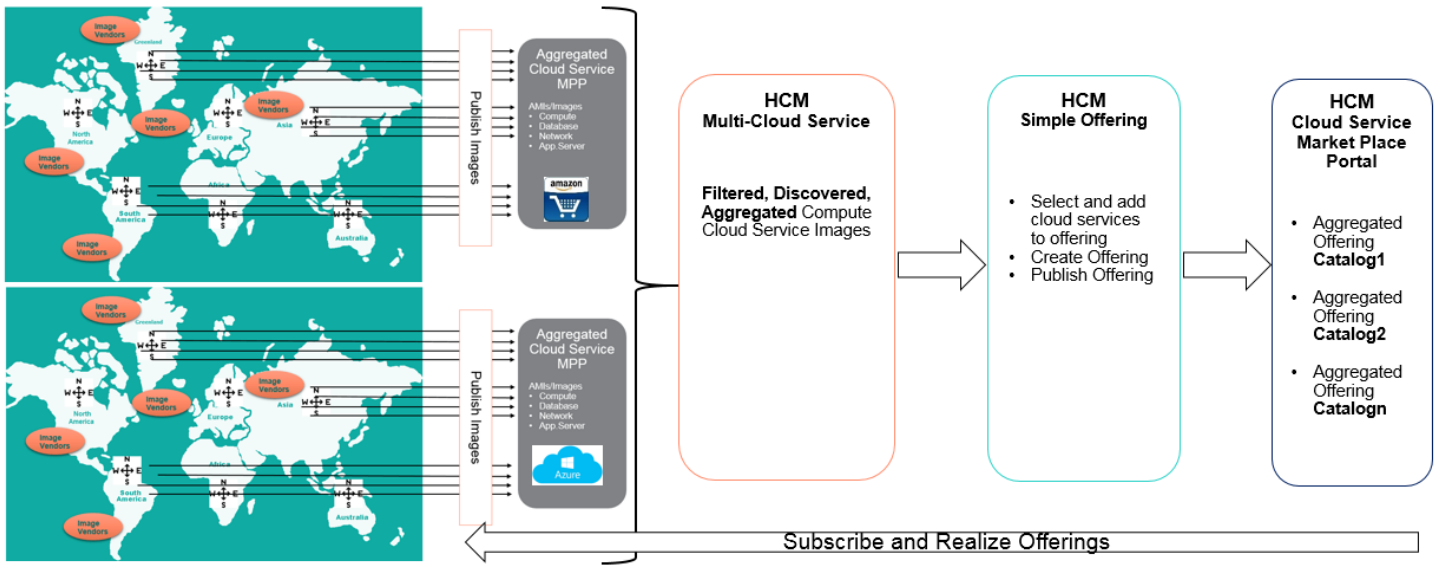
HCM offers rich set of features around creating offerings which will help the SP/SI to create simple and quick way to create cloud compute services and at the same time help them to automate and orchestrate complex offering set. A simple infrastructure set with required software on top of it may be required for development and testing team for their crash and burn needs but for an operation team, they may need a complex infrastructure set which will involve infrastructure provisioning, install/configure software, multi-tier endpoint connected, load balancer, scalable workloads, web server, etc. for their production application deployment. As a simple software analogy, you can compare basic offering with agentless monitoring and advance offering with agent based monitoring.

Basic Offering for Simple Services

- HCM helps the SI/SP to **select** a set of **services from discovered and aggregated list** from **different cloud vendors** and allow them to directly add multiple cloud services to the offering.
- While creating an offering the SI/SP can attach a price tag and **configure** other **infrastructure requirements** which includes image id, geo location etc. Other properties like security group, key pair, and subnet can be provided as input by end user.

This way, the SP/SI can provide **uninterrupted service** and allow them to create **offerings** dynamically for their customers **without** going through any **design/blueprint** creation process which are required for customized offerings.





Customized Offering for Advanced Services

- As explained above, a **customized offering** will be necessary if the IT team should provide value added services on top of selected offering from different cloud service providers. Also **for production application deployment** purpose which may involve software or application, load balancer components and other additional network/volume components.
- A blueprint **designer** is required to add **multiple components** and **orchestrate** the execution of the components. HCM Blueprint designer provides customizable lifecycle actions for various components which may execute different set of operations through HCM OO flows.
- A resource offering can be created based on resource provider and one or more resource offerings which can be configured for any component in a flexible way within a service blue print to provide **customization** and **flexibility**.
- This service blueprint can help end-user to create patterns which can significantly help them to **visualize** their complete **infrastructure/platform stack or an applications stack**.

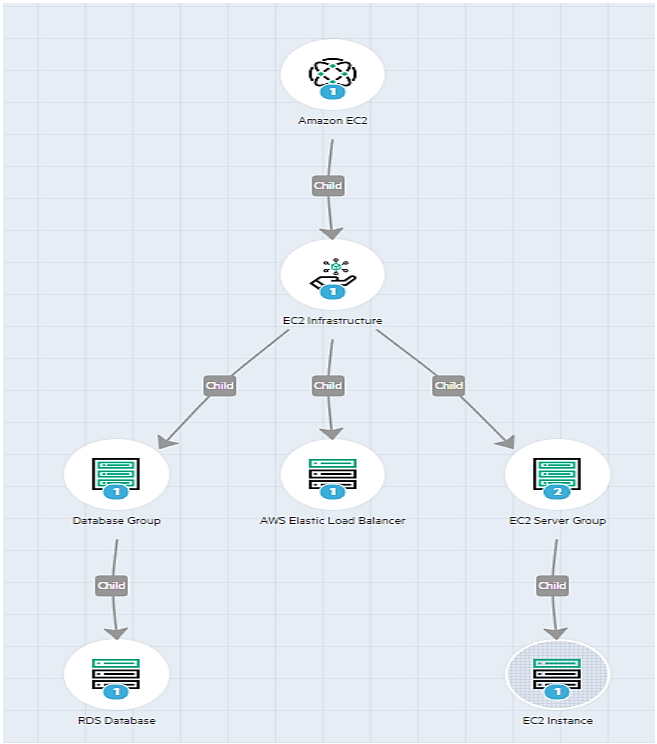


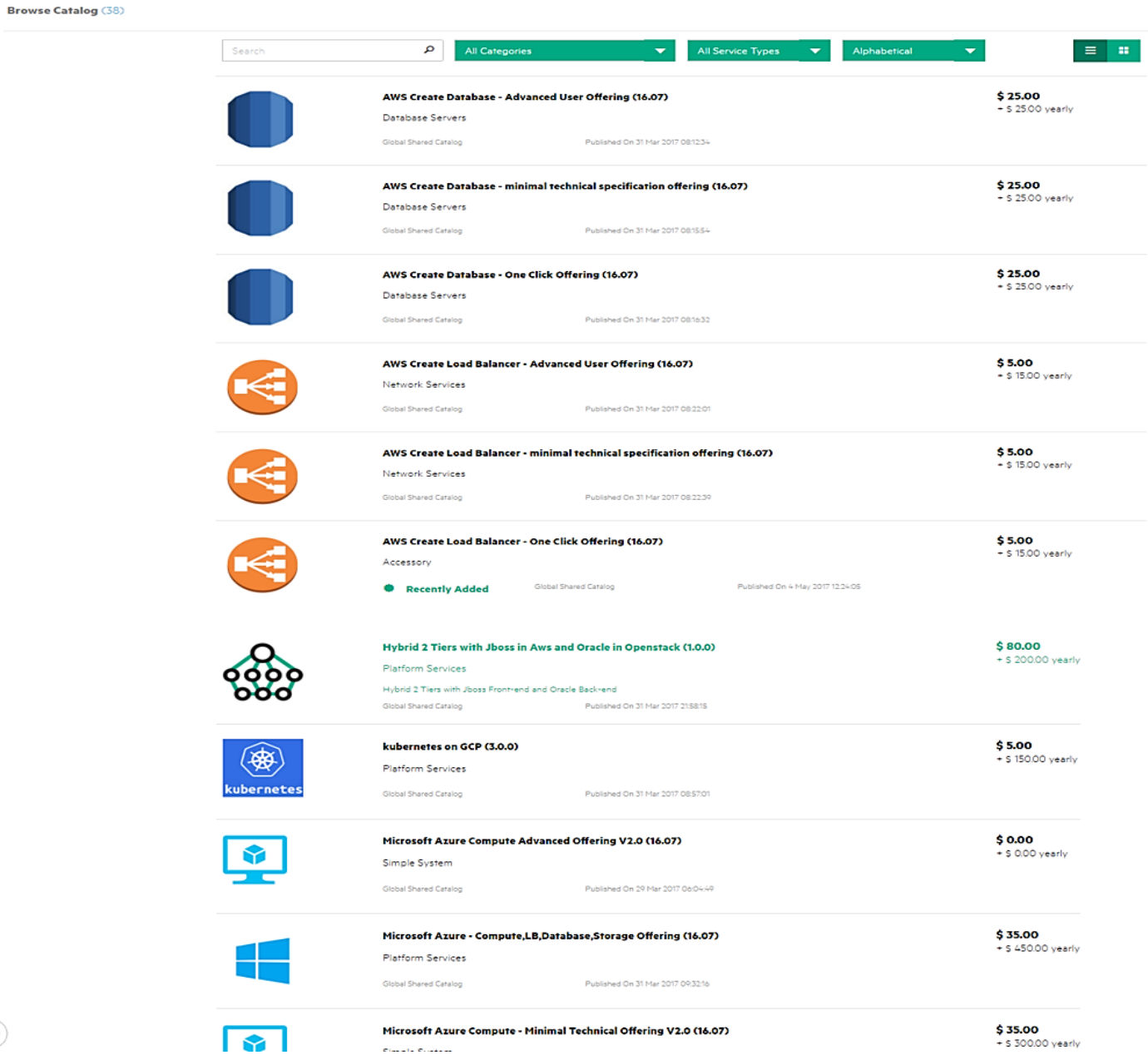
Fig 2: HCM CSB Module offers services to end customers who have subscribed for different flavors of catalogs

Aggregated Offering in a Catalog

The end users who are the LOB teams will have prescribed catalog where they can see the aggregated offerings which may have services from different cloud vendors. From the aggregated offering, the user should be able to subscribe to a service which may provide a VM, or set of VMs or VM/VMs with software installed on it. The aggregated offering will have a price tag attached with additional options which are created to customize the services offered as part of the offering. The end-users from various org or sub org can subscribe to one or more offerings and once the subscription is created, the user can perform any public actions on the realized services. The public actions may include start, stop, restart, take snapshot shot or revert snapshot etc.

These offerings can also be configured within the release gate actions provided by the application release automation module in HCM. The release admin may associate or map an offering or set of offering to different lifecycle stage where a developer, tester and the operations team engineer can provision the infrastructure or a platform using these offering. Further they can extract the information about the provisioned infrastructure or platform and using their automated steps they can deploy the application or the newly modified code.

These offerings can also be pulled by a market place portal where it may contain cloud and non-cloud based offerings.



Conclusion

Using the HCM Cloud Service Brokerage module, a Service Provider or Service Integrator can create aggregated offerings using the provided aggregated service list from various cloud providers. On top of it, they can offer a software which can act as a platform for LOB teams to deploy their applications. The offering set need not be static but the SP/SI can on the fly create any offering and attach to the catalog dynamically based on the end-users' business requirements which changes often.

Benefits for Service Provider or Service Integrators

- Provides aggregated view of cloud services from different cloud vendors & abstract the complexity behind it.
- Dynamic and robust value-added services to support end-customers' business agility.

Benefits for Service Consumer (end user)

- Provides aggregated offering view as part of catalog.
- Saves time & effort by finding services across multiple provider which meets business needs including budget.
- Helps to reduce TTM, accelerate the IT process and enable them to stay ahead in their business.
- Reduces CapEx and normalize OpEx based on the business needs.

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