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Application Migration & Management

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Cloud computing is here to stay. According to recent Gartner, Inc. research¹, from 2011 to 2014 the global number of virtual machines (VMs) hosted in public cloud infrastructure as a service (IaaS) grew from 3 percent to 20 percent of total global VMs deployed. This rapid growth is driven by the compelling advantages of moving applications to the cloud, which include ready scalability, wide accessibility and pay-as-you-go pricing.

As enterprises move applications to the cloud, however, they are quickly discovering that it is by no means a trivial undertaking. Enterprise applications are often more than three tiers, and tend to be locked into the environment they are deployed into.

CliQr CloudCenter streamlines and simplifies the application migration process. You can easily model, securely deploy and then manage applications in any datacenter, private cloud or public cloud environment — *without modifying the application and while maintaining application portability*.

Applications on the Move

Enterprises are migrating their applications to, from and between environments in a variety of ways and for a variety of reasons:

- **Datacenter to cloud** – Enterprises are moving workloads to the cloud in order to avoid building and managing infrastructure, to build capacity for steady-state workloads while “renting” resources for peak or transient workloads, and to replace capital expenditure with a pay-per-use expense model.
- **Cloud to cloud** – Increasingly, IT is managing a portfolio of cloud services that are a best fit for a range business requirements. As enterprises gain expertise and experience with cloud, IT might opt to migrate different types of workloads to different cloud offerings to achieve best fit.
- **Cloud to datacenter** – Many IT organizations are seeing cloud as an ideal fit for variable or transitory workloads but may find that the public cloud is not the optimal home for steady-state, long-running applications. As IT gains experience with the cloud, they may move some workloads back to the datacenter to reduce costs.

¹ *Internal Private Cloud is Not for Most Mainstream Enterprises*, Gartner, Inc., 2015

- **Datacenter to datacenter** – Consolidating and modernizing datacenters typically requires the migration of a large number of currently deployed applications from one physical datacenter to another. The reasons for the move include accommodating mergers and acquisitions, reducing costs, improving operating efficiency, standardizing IT service offerings and responding to a new CIO’s mandate for change.

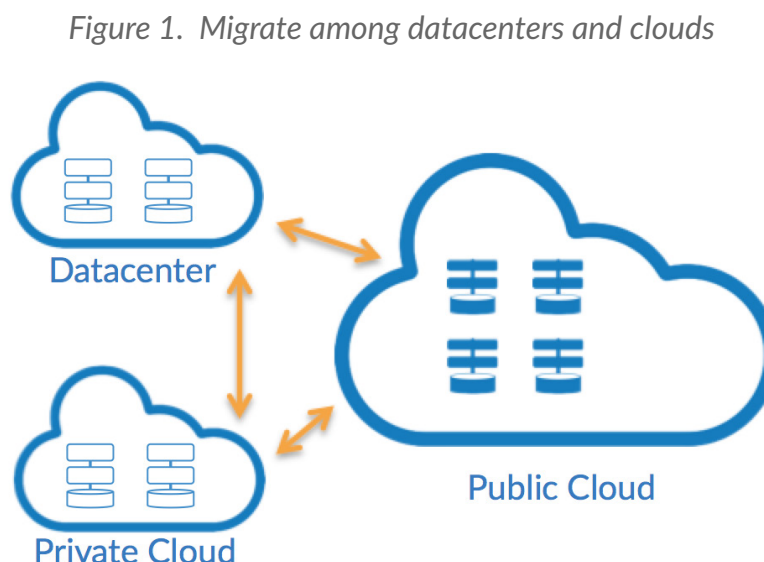
Consequently, to take full advantage of cloud computing, IT must have broad flexibility when migrating applications among environments. When business objectives indicate a need to move applications to, from or between clouds, IT needs to be able to respond, “We have the operational processes and tools in place to do it efficiently and securely.”

Any Application. Any Cloud. One Platform.

CloudCenter is an application-centric cloud management solution that offers wide flexibility in migrating applications among various cloud and datacenter environments.

With CloudCenter, it’s easy to model any application, then either deploy it once in a migration scenario, or deploy it on demand as the foundation for a hybrid IT-as-a-service solution.

As Figure 1 illustrates, you can migrate applications to, from or among datacenters and clouds. CloudCenter supports more than 19 datacenter, private cloud and public cloud environments. It works in simple and complex scenarios, and can simplify the migration of one application to one cloud, or meet the needs of the most demanding datacenter consolidation or multi-cloud migration project.



CloudCenter supports any starting point, including new applications as well as legacy applications that need to be migrated in bulk.

Migrate *and* Manage

There's more to migration than just lifting and shifting a machine image from one location and dropping it in another. You need a means of effectively manage and govern applications after migration. To do that, you need more than a simple migration tool. You need a more comprehensive solution that enables you to migrate *and* manage applications.

Achieving fast, efficient migration with ongoing management requires three capabilities:

- **Day 2 management** – IT organizations need immediate manageability of workloads once they are moved. Therefore, a migration solution should provide a management capability that supports: horizontal auto scaling and load balancing; ongoing maintenance and upgrade of application code as well as underlying middleware; and automated deprovisioning at prespecified times to keep costs in check.
- **Application portability** – Avoiding lock-in to single execution venue is paramount. Plans change and you shouldn't have to pay an exit tax each time you change an execution environment. Consequently, a migration solution should not limit an application to running in only one environment but instead enable application portability.
- **Built-in governance** – Migration often impacts multiple business units and IT teams. So a migration solution should include governance controls that help IT manage the transition with complete visibility and control that span the boundaries of applications, clouds and users.

CloudCenter meets all three requirements. Many migration solutions don't offer management capabilities after migration. CloudCenter, on the other hand, provides a common management fabric that works across multiple environments.

What's Unique about CloudCenter?

CloudCenter offers a unique and compelling value proposition for IT professionals looking to migrate applications.

- **Integrated management and governance** – CloudCenter includes extensive administrative and governance features. Tag-based deployment and run-time automation, as well as role-based access control, and detailed usage reporting give IT visibility and control across cloud environments.
- **Portability** – CloudCenter's unique model, deploy and manage approach to migration enables secondary and tertiary moves. The solution's portable, cloud-agnostic application profile can be deployed to any datacenter, private cloud or public cloud *without changing the profile*. This portability provides a strategic "insurance policy" as your cloud strategy evolves.

- **Single platform** – In many enterprises, migration is part of a service delivery portfolio that includes multiple datacenter and cloud environments. CloudCenter offers single-pane-of-glass visibility and control across all environments.
- **Cloud abstraction** – CloudCenter abstracts the application from the unique services and specific application programming interfaces (APIs) of each execution environment, simplifying migration. So you can migrate without having deep knowledge of the target cloud API and unique cloud services.
- **Cost control** – With CloudCenter’s comprehensive management and governance capabilities, you can avoid cloud sprawl and eliminate cost overruns that jeopardize the business value of your migration strategy.

Advanced Features

CloudCenter’s advanced features enable you to migrate existing applications to, from or between any datacenter, private cloud or public cloud, and manage them on an ongoing basis after migration.

Unique Application Profile/Orchestrator Combination

CloudCenter employs a patented application profile and orchestrator combination that create an effective solution for any migration and management scenario. The application profile is a cloud-agnostic, ready-to-deploy blueprint that enables application and infrastructure automation.

The orchestrator is a cloud-specific, multitenant orchestration tier that is installed in each supported datacenter, private cloud or public cloud environment and is transparent to users. It securely deploys both the infrastructure and the application, manages the deployment including runtime policies, and aggregates usage and cost information.

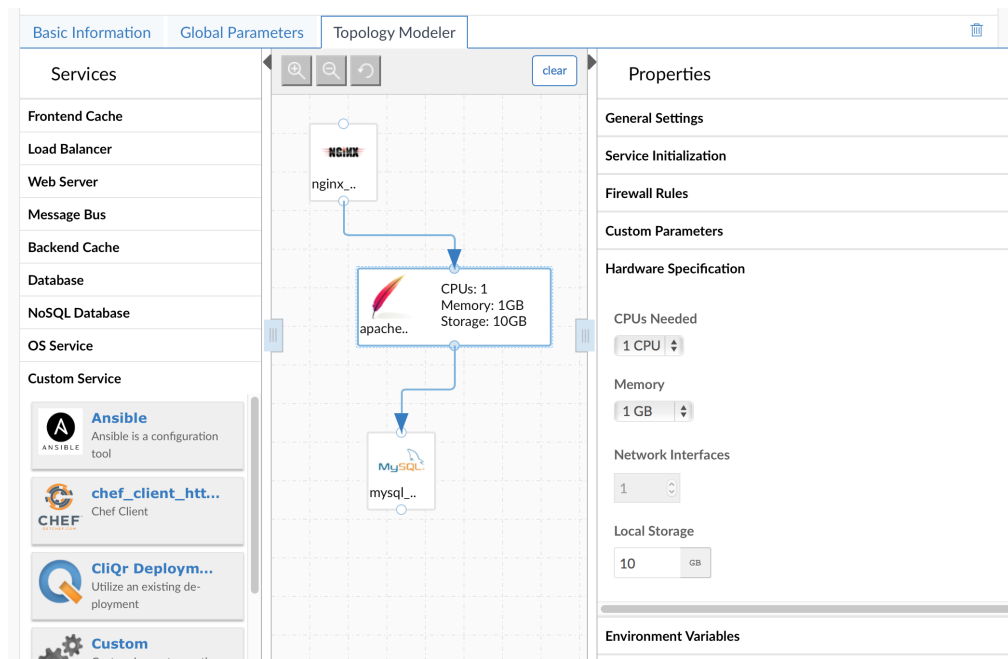
The unique profile/orchestrator combination simplifies migration by deploying the profile wherever you want it to run, regardless of starting point or how much you know about workload details. It automatically and natively installs the necessary infrastructure resources and application components.

Model or Import

You can create an application profile in either of two ways:

1. Use the CloudCenter templates and topology modeler. The modeler, shown in Figure 2, is a graphical drag-and-drop interface where an engineer or architect models the application stack and related dependencies. The model approach is best for users who have detailed knowledge of the application to be migrated.

Figure 2. CloudCenter Topology Modeler and Services Library



2. Import an existing application description in another compatible format. The import approach is best for users who don't have detailed knowledge of the application and related components.

Benchmark

CloudCenter simplifies the task of determining the actual monthly cost of a migrated application. CloudCenter benchmarking feature deploys the application profile to each candidate cloud and returns price and performance information to help you make informed placement decisions. Benchmarking can also help you optimize instance sizing by deploying an application profile with multiple different instance combinations to find the optimal price performance configuration.

Deployment Environments

CloudCenter includes logical construct call Deployment Environment that simplifies management of multiple users accessing a single cloud billing account for multiple purposes. Admins can create a deployment environment with shared access to one or more cloud regions, linked to a single cloud account, that is reserved for a specific use such as development or production. With deployment environments, it is easy for the migration team to identify the appropriate target environment for each application, and maintain cost and usage accounting after the move.

Tag-based Governance

CloudCenter utilizes rules-based automation that can guide placement decisions, deployment decisions and run-time decisions for each application migration. An administrator can create system tags for various entities such as development, production, HIPPA or any other easily recognized label. The admin then specifies the rules to be associated with each tag, such as firewall rules, aging policies and the selection of appropriate deployment environment. When you deploy an application profile, you simply add the required tags as specified by the admin instructions. CloudCenter automatically deploys all rules associated with the tags you include.

Cost Controls

CloudCenter supports cost- or usage-based plans and bundles to help ensure that migration does not result in cost overruns that undermine the strategic value of migration. These plans and bundles give you control over the move from datacenter to cloud (CapEx to OpEx funding), eliminating the risk of cloud sprawl.

Real World Examples

CliQr customers have leveraged the power of the CloudCenter platform in a range of migration and management scenarios.

Large Mobile Provider

To accommodate a corporate spinoff, the IT staff migrated a business-critical, custom, user-portal application, one that includes 70 virtual machines, from datacenter to public cloud. IT then migrated the application to a different cloud when the spinoff was acquired by another company. A subsequent ownership change resulted in yet another migration to a cloud in China. IT accomplished all these substantial moves without changing the application code or the application profile.

Municipal Government

City officials wanted to offer standard cloud services to a range of departments based on the IT-as-a-Service delivery model. They also wanted to convert from a fixed-fee payment for service to a pay-as-you-go model. CloudCenter helped IT accomplish these objectives by migrating applications from the datacenter to the public cloud.

Media Content Delivery Provider

This provider rationalized its application portfolio and set up a hybrid cloud strategy that includes five cloud providers and 24 availability zones globally. The IT staff employed CloudCenter to migrate a wide range of applications, and continues to use CloudCenter as a critical part of ongoing IT as a Service hybrid IT strategy.



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