

An Intalio White Paper

Ismael Chang Ghalimi, CEO — June 2010

# Enabling Hybrid Clouds

While the debate on Public Clouds vs. Private Clouds carries on, most industry observers agree that the future belongs to hybrid clouds, which leverage the services offered by Public Clouds and Private Clouds alike. Intalio shares this vision. Here is how we implement it.

## **The Case for Hybrid Clouds**

While the benefits of Cloud Computing are quite obvious and the case for Private Clouds widely accepted, Hybrid Clouds are a bit more of a mystery. Initially, one might follow a line of reasoning going like this: if my organization wants Cloud Computing but cannot cope with the limitations of Public Clouds, therefore decides to deploy a Private Cloud, why would I ever consider bursting to the Public Cloud? As it turns out, the world of IT is not binary (Black OR White, Public OR Private), and there are many instances where Public Clouds can effectively complement Private Clouds, without invalidating the reasons that lead to the deployment of Private Cloud in the first place. Let us review some of them, and then discover how Intalio is enabling Hybrid Clouds.

## **Cloud Bursting**

The first use case for Hybrid Clouds is cloud bursting, which is the ability to leverage compute and storage resources offered by Public Clouds when the ones offered by Private Clouds are not sufficient, or when some form of pricing arbitrage can be exerted. Private Cloud users typically leverage cloud bursting for applications or data that have a lower degree of confidentiality and sensitivity, and do not require the highest Quality of Service levels. The ability to migrate applications and data back and forth between Public and Private Clouds should be one of the primary selection criteria for a new Cloud Computing platform.

## Content Syndication

Another popular use case for Hybrid Clouds is the ability to syndicate proprietary content from Public Clouds. While most business applications offered by Public Clouds have equivalent applications available for Private Cloud deployment, proprietary content such as business data, geographic maps, or social graphs are usually available from a single source. For example, a private version of Google Maps would be prohibitive to build and maintain. In such cases, Private Clouds must be able to leverage content offered by Public Clouds, and sometimes run related applications on a Public Cloud infrastructure as well.

## Data Backup

Public Clouds can also be used to provide backup for data managed by Private Clouds. Strong data encryption makes this use case a viable alternative even for confidential information, and this architecture offers many benefits. First, by using a totally separate infrastructure for primary data management and secondary data backup, it enables a strict separation of duty that ensures a high level of data integrity. Second, many online storage providers offer ultra low cost storage options that make it cost effective to backup data more frequently and in multiple locations at once, thereby increasing backup availability and integrity.

## Data Archival

While data backup can be done internally, data archival should always be done by a third-party in order to enable proper separation of duty. With Petabytes of storage available on demand from services such as Amazon S3, regular snapshots of all data managed by Private Clouds can be archived on Public Clouds at a very low cost. And while data transfer from Private to Public Clouds might have been an issue in the past, more and more online storage providers offer the option of uploading data to the Public Cloud by sending physical storage media such as hard drives.

## Disaster Recovery

A proper disaster recovery architecture mandates that the entire IT infrastructure be replicated in at least two separate locations, ideally connected to the Internet through different network service providers. While some mission critical applications such as banking transaction processing might justify the cost of this architecture, many other applications simply cannot support such a case. As a result, many Private Cloud operators use Public Clouds for disaster recovery purposes, at least for the range of applications and data that could accommodate less secure environments on a temporary basis.

## Quality of Service Optimization

Last but not least, Hybrid Clouds support an innovative concept we call Quality of Service Optimization. In a nutshell, the range of Private Cloud operators and Public Cloud providers collectively offer a full spectrum of Quality of Service that customers can tap into in order to fulfill their requirements. Typically, the most mission critical applications will be deployed on Private Clouds, while others will see their needs satisfied by Public Clouds. But even within the realm of such public alternatives, different service providers will offer different levels of Quality of Service, supported by different Service Level Agreements (SLA). For example, one Public Cloud provider might be PCI compliant, while another is not. One might offer 24/7 technical support, while another does not. As a result, the Hybrid Cloud model is not just about supporting the dichotomy between public and private. It's about giving customers a broad range of options for addressing their IT infrastructure requirements, with a wide spectrum of Quality of Service levels, offered at the right price.

## **Intalio | Cloud and Hybrid Clouds**

Intalio enables the deployment of Hybrid Clouds by allowing applications to be deployed on virtually any hypervisor technology (VMware vSphere, Microsoft Hyper-V, Linux KVM, Citrix XenServer), and to be migrated from one hypervisor to another automatically, with minimum downtime. This in turn allows applications to be migrated back and forth between Public and Private Clouds, without having to make any changes to the applications themselves. Furthermore, Intalio|Cloud Controller provides a fully integrated environment to manage multiple clouds at once, both public and private, across multiple data centers.



Intalio, Inc.  
World Headquarters  
644 Emerson Street, Suite 200  
Palo Alto, CA 94301  
United States

Worldwide Inquiries:  
Tel: +1 (650) 596-1800  
Fax: +1 (650) 596-1801  
info@intalio.com  
www.intalio.com



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