



Bring Cloud to Where Your Data Is



Hosting Controller  
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## Data is important

*But not all can be moved to Public Clouds!*

As the economist magazine quoted “The world’s most valuable resource is no longer oil, but data”. However more than 50% of all organizations will never be able to make their move into the public cloud.

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**Worldwide Contacts (Sales Queries)**

Canada: +1 (647) 799-1000 | USA: +1 (213) 341-8140 | Australia: +61 (3) 6364 3907 | UK: +44 (0) 207 0961387

Public clouds like Amazon AWS, Microsoft Azure and Office 365, Google Cloud Platform and others provide a lucrative offer to simplify computing needs. All the applications are already configured. Administration and self-care dashboards are available. Redundant hardware and networks are all there. But it comes with a big caveat.

***“They require organizations to move their data into their public cloud”.***



***Moving in to the Public Cloud***

## Types of Data

### Emails and related data like Schedules, Calendars etc.

If you choose to move to Microsoft Office 365, the key data that needs to move is the Email data from the MS Exchange server in your data center to their public cloud.

A typical mailbox now is between 10GB to 100GB and the MS Exchange application is typically integrated with many other applications.

### Documents and Content

Documents are now the 'Knowledge Base' of the organization. Documents are organized in Document Management and Content Management systems. Most typical of them is the Microsoft SharePoint. They are already in folders, SharePoint sites and other repositories. Access rights have been created and granted and access activity is usually logged.

### Application Data

Applications maintain their data in database servers. MS SQL Server, Oracle, MySQL, PostgreSQL and others are most common. Every application running in the system has access to such databases.

Large organizations may have clusters of such databases which are shared by multiple applications. Dedicated DB Administrators are looking after them.

As some of these applications move to public clouds, the integrations needs to move as well.

### Communications Data

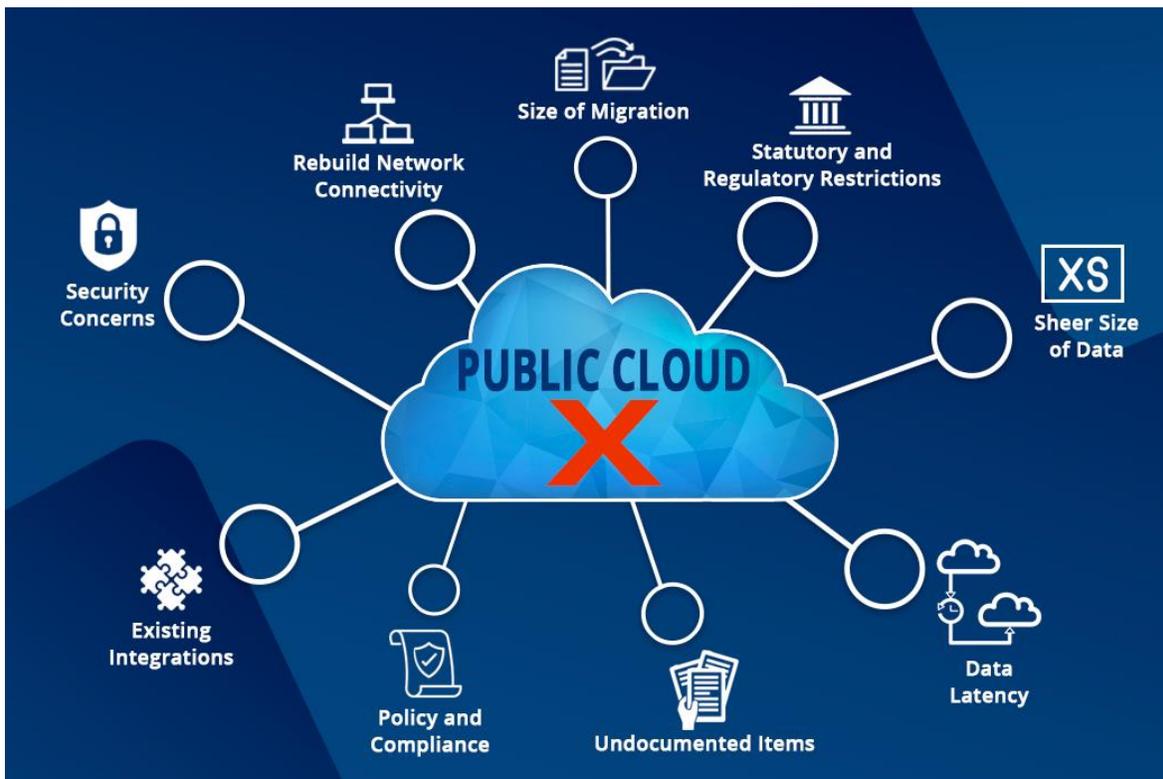
These are logs of all phone conversations, conference video calls, chat logs and all other types of data which is tightly integrated with the communications applications. Any migration to the cloud requires a careful strategy how to plug in this data.

### Miscellaneous Data

There is so much more data than standard categories can handle. There are reporting and analytics running on all raw data creating even more data. We will call all this as secondary data. Secondary data is at times more important than primary data and a careful strategy needs to be designed if some or all of it was to be move to the public cloud.

## Problems in moving data to Public Cloud

More than 50% of all organizations will never be able to make their move into the public cloud. Some of the main reasons are:



*Difficulties in Moving to the Public Cloud*

### Statutory and Regulatory Restrictions

Many organizations mostly government organizations in other countries have strict regulations on the physical location of where state owned data is to reside. Such statutes also exist in many other

organizations which have any 'sensitivity' related to the data. Public clouds are mitigating these concerns by opening data centers in many countries of the world, but this is still far from being everywhere.

## Policy and Compliance

These are in addition to the secrecy reasons. Health records, financial records, criminal records and most other records need to be kept under a long list of "restrictions". Some of them are physical locations. Others are about access keys, algorithms and applications which are required and so on.

## Data Latency

The way most applications access data is to query large databases. When multiple applications access the data, it is on very high speed locally attached network connections. It is typical to offer 10gbps to 100gbps links between machines and databases.

A simple procedure may require multiple hops of data back and forth between the application and the database each hop transferring a large amount of data.

As data moves into the public clouds, the applications which were very close to it originally move away. Latency which is kept in microseconds in data centers, moves to few milliseconds for each hop. Bandwidth between applications and database which is typically free within the data center cabinets becomes a paid resource and one which is heavily charged.

## Sheer Size of Data

It is typical to see databases in Terabyte sizes and not unusual to see organization's data going into Petabytes. Within your own data center, it is usually a matter of increasing disk space in the network attached storage. In the cloud, it is charged in small chunks usually in GB which is tens of times more expensive.

## Existing Integrations

All enterprises have invested heavily in their IT automation systems. Almost always this means an integration with the applications and the data where it resides. Multiple applications are tightly integrated with one another where events occurring in one cause other actions to be performed automatically.

Any move into the cloud requires all these integrations to be moved to the public cloud as well. APIs change to what are offered by cloud providers. There is downtime involved and rigorous testing.

## Size of Migration

The sheer size of all data is also a concern. A typical email box is now 10GB to 100GB. With a few hundred or thousand employees to be moved to the public cloud it quickly becomes Petabytes of data. On the fastest possible systems and tools, it is still a job of days or weeks or even months. Systems like Emails cannot have a downtime of minutes or hours. This remains one of the prohibitive items on the list of moving to public clouds. Most tools like MS Exchange do offer some co-existing solutions but require higher level expertise and tools to complete the migration.

## Security Concerns

All aspects of security are already working in an existing system. This includes physical security, access control, key management, SOC integrations, Log analysis and audits and everything in between. Moving to public cloud requires a redoing of all these aspects of security.

## Rebuild Network Connectivity

Many of the existing systems are behind firewalls and work strictly on private IP address unreachable from the external world. The VLANs and cabling has been done over the years to achieve configurations. Some systems are just secure because they are not reachable from any other machines physically.

When it comes to public clouds all this breaks down. Most IP addresses are public. You can create NAT IP addresses but require careful configurations. There is no such thing as 'physical isolation' which was the last safety resort of the CIO.

## Undocumented Items

The reality is that as systems evolve, many things just work, and it is not 100% document how are they working. People who designed them have moved on and as it is not broken, there isn't any need to fix it. But moving to public cloud will rupture all this harmony. Will require someone to understand the undocumented and then rebuild it.

## The Solution; A Private Cloud Platform

All these hurdles shouldn't stop organizations to reap and see the benefits of a cloud based working environment. Public cloud offers 'Everything as a Service'. And this is exciting for end-users. If they achieve this at the end of the hassle, the benefits are worth the costs.

But now there are alternates available. A Private Cloud provides the cloud experience in your own data center; where all your applications and data already exist. An ideal solution just plugs into the existing applications and lets all data and integrations stay where they are. In addition, it offers the same 'Everything as a Service' experience boasted by the Public Cloud.

Infrastructure is provisioned and resized on the click of a button just as it would in a public cloud; except that it is in the convenience of your own data center.

Software applications are managed as SaaS. Every user gets its self-care portal to manage its affairs on its own.

The putting of private cloud is 'non-invasive' and 'non-intrusive'. It just sits 'on top of the existing system' and an onboarding exercise plugs in the existing applications and data into the cloud platform.

Look at Hosting Controller to know more about how you can have the benefits of a cloud platform in your private cloud.