FUJITSU

White paper
Reaping Business Value from a Hybrid Cloud Strategy

How to embrace a hybrid cloud model to maximize the benefits of public and private cloud services while satisfying local data regulations, security and on-premise integration requirements.

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Reaping Business Value From a Hybrid Cloud Strategy

A hybrid cloud model gives organizations the flexibility to put their workloads and data where it makes most sense – leveraging the right blend of public and private cloud services, whilst addressing data security, governance, compliance and budgetary challenges.

Many organizations are now taking major steps towards cloud computing. Rather than maintaining their own capital-intensive IT infrastructure, companies are acquiring technology services as they are needed and paying only for the resources they consume.

For all the hype and hyperbole that has surrounded the cloud, unlike other passing technology trends, cloud computing is undoubtedly no fad. Significantly, it's a movement that is changing the way IT delivers value. To use a term coined by Clayton Christensen, cloud computing conforms to the model of disruptive innovation – it delivers technology services without the same level of investment in expertise or equipment that has traditionally been required.

Analysts concur that cloud adoption is gathering pace and expect growth to continue over the next decade. Forrester, for one, forecasts that the global market for cloud computing will grow from $40.7 billion in 2011 to more than $241 billion in 2020.[1]

The Cloud Opportunity:

- Deliver new levels of business agility and reduce time to market
- Lower IT costs – reduce capital expenditure and total cost of ownership
- Ensure scalability for future growth
- Meet seasonal demand and business peaks without the need for new technology investment
- Reduce the operational management workload

Reaping the benefits of the cloud is not without its challenges though – in particular, navigating the mass of cloud services now available – and making an informed choice on the best approach for your business. Organizations are commonly finding that public cloud and private cloud services have strengths but also weaknesses which can serve as barriers to adoption. The fact is, the best business solutions will often be built by integrating a combination of two or more applications running on private and public systems, for instance, integrating SalesForce.com with your legacy systems.

This white paper explores how Fujitsu can help overcome these barriers, by embracing a hybrid cloud approach. By taking advantage of the right mix of public and private cloud services, we explore how organizations can achieve the cost savings of public cloud consumption while meeting requirements for on-premise integration and data security.

[1]Source: Sizing the Cloud, April 21, 2011, Forrester

Overcoming the Cloud Barrier

Weighing up the cloud options

Whilst there are many different manifestations of cloud services, they can broadly be described as falling into two categories:

i) Public Cloud

According to Forrester, "The public cloud includes IT resources that are delivered as services via the public Internet in a standardized, self-service and pay-per-use way." Essentially, data and processing are both in the public cloud – and there is no on-premise integration. Users connect to the cloud using standard web security (https). Public cloud instances tend to be highly standardized to offer economies of scale. Whilst this approach offers the highest agility, scalability and competitive commodity pricing, organizations do not know where their data is being stored.

ii) Private Cloud

With the private cloud model, data resides in an organization's back office systems on-premise or a private cloud on-premise. Like the public cloud model, users are connected to the cloud using standard web security (https). Private clouds tend to prove more complex to set up – and require greater support and management. This said, it's an approach that provides the highest control over data and applications. Another manifestation of the private cloud model is the local or in-country cloud. Here data resides in-country on-premises or in a service provider's data center.

The cloud barrier

Both public cloud and private cloud have advantages, but also disadvantages, which can create barriers to adoption by organizations.

Common barriers include:

- Challenges around securely integrating cloud and on-premise application workloads
- Security and privacy concerns associated with public cloud deployments (For further details regarding security in the cloud, please refer to Fujitsu's White Book of Cloud Security)
- Compliance demands with regard to local data regulations, which may require data to reside locally in-country
- The perceived expense of private cloud deployments

There's 'no one size fits all' answer to these issues and instead, analysts agree that organizations will increasingly adopt a hybrid approach – combining the most appropriate mix of private and public cloud services that best meets their needs.

Analysts estimate that some 35% of clients will use hybrid clouds by 2015 – a trend that will long continue. The prediction is that over the next decade the most common use of cloud services will be a hybrid model combining on-premises and external cloud services.

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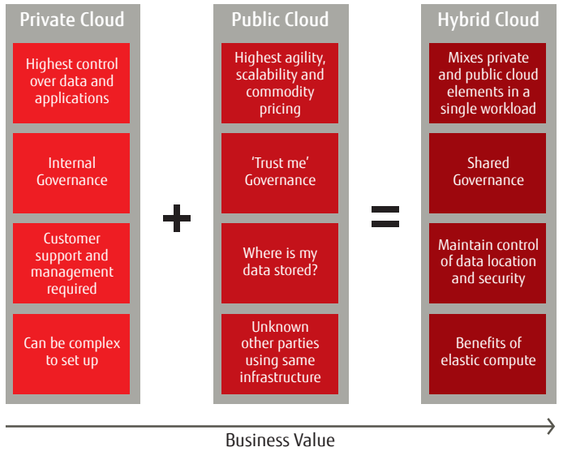
Driving cloud in the enterprise

Hybrid provides many of the benefits of Private Cloud but at a lower cost



Embracing a hybrid approach: the business drivers

There are three key business drivers leading organizations to embrace a hybrid approach:

The ability to benefit from the interoperability between cloud services and existing systems

Organizations require the flexibility to choose between different cloud services based on the best fit and price for each workload. Importantly, these workloads need to interoperate well with others – whether spread over a variety of legacy systems, private and public clouds. A hybrid approach seeks to ensure the seamless integration of services, mitigating operational risk and simplifying management.

The need to determine where sensitive data should reside and how and where it is processed

The geographic location of a public cloud computing user's data – which is referred to as 'data sovereignty' – has become the single biggest impediment to adoption of public cloud services outside of the U.S. Data location should not just be a physical, but legal consideration. Take the example of a Canadian firm wanting to use a cloud based healthcare application running on a US based cloud. Canadian regulations demand that their data resides in Canada, restricting the company's ability to leverage the public cloud where data will be stored outside of this jurisdiction. In addition, industry specific compliance requirements like HIPAA for healthcare and PCI for retail are also restricting certain organizations ability to embrace the public cloud. A hybrid approach can provide a compelling way to leverage the lower cost processing resources of the public cloud yet leverage the private cloud to maintain the sovereignty of data.

The opportunity to avoid vendor lock in by ensuring application portability

There has been a proliferation of vendors delivering cloud services. This has created a highly competitive marketplace which is favourable to organizations in some ways – for instance, keeping the pricing of cloud services in check, but also brings with it a degree of risk. Consolidation within the industry is inevitable – as some vendors will be acquired or go out of business. As a result, organizations need to ensure they have the flexibility to port applications between different providers. With the right hybrid model, portability should be a given.

The Journey to the Cloud

Planning your journey

Organizations should essentially view their move to the cloud as a journey. It's about classifying the enterprise workloads – and determining which workloads can effectively be transitioned, managed and provisioned to users over time, exploiting the most appropriate service delivery model.

Understanding the business environment you work in and what is core to your value chain will help to determine where your business workloads need to exist to maintain your competitive advantage.

From an IT perspective, this may mean leveraging resources from the classic IT environment, through public, private and hybrid clouds. Due consideration must also be given to how the enterprise meets its obligations and demonstrates that non-functional requirements, such as management and security are addressed.

Once the enterprise has determined what it values, it can assess the service options based on a risk assessment of the best way to deliver that service.

A simple check list:

- Risk profile: How close is the service to the organization's intellectual heart?
- Functional requirements: Quality of Service, security, latency
- Non-functional requirements: Regulatory and privacy needs
- Payload classification: What types of service and how does it map to different cloud offerings e.g. Infrastructure-as-a-Service, Platform-as-a-Service, Software-as-a-Service or Business Process-as-a-Service?
- Investment lifecycle: Where is the organization in its investment lifecycle – for instance, how close is it to a refresh?
- Roles and responsibilities: What's the impact on each function and headcount?
- Dependencies: What dependencies are there on other services – is there a cascade of change?

It's about determining which workloads can effectively be transitioned, managed and provisioned to users over time, exploiting the most appropriate service delivery model.

Organizations must take the time to assess the skill levels available to them internally. They need to explore whether they have the skills to handle the integration effort required with the adoption of a hybrid approach, with regards to integrating legacy and private clouds with a variety of Software-as-a-Service offerings. In the absence of in-house capabilities, working with right expert partner can pay dividends.

Getting off on the right track

To support your journey to the cloud, Fujitsu offers enterprise and government organizations a full set of advisory and assessment services.

The Fujitsu Consultancy Framework and Enablement Service supports you in clarifying your strategy, defining your workloads for cloud suitability. We do this using six lenses or perspectives that our research has shown mean the most to you and deliver the result you need. This gives you the confidence that your workloads have been classified correctly – and ensures that you fully understand the journey your organization must take to maximize the value of this new delivery paradigm.

A choice of cloud platforms

Fujitsu has established a set of proven reference architectures to ensure the effective design and deployment of cloud platforms. These services have been developed in a unique partnership with Microsoft which allows organizations to fully leverage the cost and flexibility benefits of the Windows Azure cloud platform, in combination with other cloud and on-premise systems. Specifically, it allows us to offer a range of options to best meet the needs of enterprise and government organizations, including any mix of:

- Public cloud services running on Microsoft Windows Azure in Microsoft's global data centers
- A hybrid solution – whereby one of the six Fujitsu Global Cloud Platform instances is connected via Windows Azure Connect to Windows Azure in Microsoft's global data centers
- A hybrid solution – whereby a Private Cloud, powered by Microsoft Hyper-V Cloud deployed in either a Fujitsu or client data center, is connected via Windows Azure Connect to Windows Azure in Microsoft's global data centers
- The Fujitsu Global Cloud appliance Platform powered by Windows Azure operating in Japan

Helping organizations maximize the value of the Cloud

Fujitsu is Microsoft's leading partner of Microsoft Azure. There are more applications in Microsoft data centers associated with Fujitsu on behalf of customers than any other partner.

We can support organizations in several ways:

i) Development of new applications running on the Azure platform
ii) Migration of applications to Azure
iii) Providing application managed services
iv) Integrating services for hybrid cloud solution
v) Delivering emerging cloud marketplace solutions

A Hybrid Approach in Practice

Fujitsu's hybrid cloud services enable organizations to run Azure applications fully leveraging the public cloud. Our services link Microsoft Windows Azure based components to Windows Server based components running either in a customer's premises or in one of our own worldwide data centers.

This component portability enables Fujitsu to run an enterprise or government application in Windows Azure using data generated in one or more customer locations and to hold that data securely in a location of the customer's choice. Importantly, this addresses the need for certain organizations to comply with national data regulations.

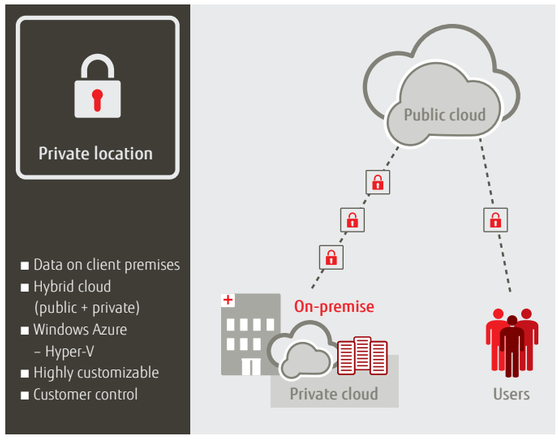
The private cloud to public cloud connectivity of Fujitsu Hybrid Cloud Services extends the value of private clouds. It allows organizations to burst to public cloud instances for peak or highly elastic workloads – offering significant cost benefits. In fact, by leveraging the proven Windows Azure cloud platform, in combination with other cloud platforms and on-premise systems, savings of 30% or more can be achieved compared to traditional approaches. In addition, with a hybrid approach, on-premise and legacy applications can be fully integrated with the cloud whilst data is stored locally, within territory. Disaster Recovery can also take place to another local cloud in the event of a major outage.

Example scenarios

Fujitsu's hybrid cloud services enable interoperability, application portability and data governance across traditional infrastructure, Fujitsu and Microsoft private and public clouds. Below we outline a number of scenarios to illustrate how organizations can apply a hybrid approach to best meet their business needs.

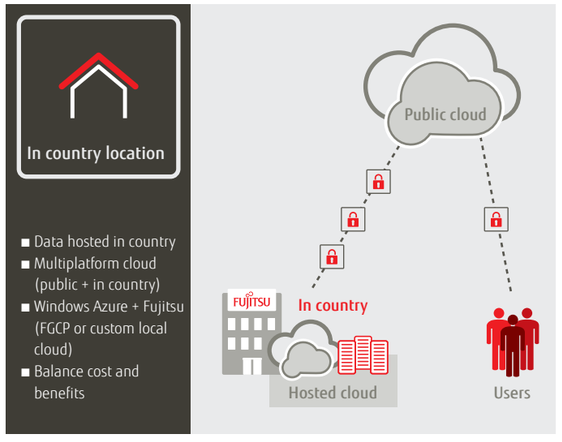
Scenario 1: To meet regulatory requirements, a healthcare provider wants to host confidential patient data on-premise – with processing taking place in Windows Azure. In this example, data may reside in back office systems on-premise or a private cloud on-premise, with a secure connection to the public cloud. The public cloud is used for data processing and presentation – supporting peak workloads.

Elastic cloud processing, data on-premise



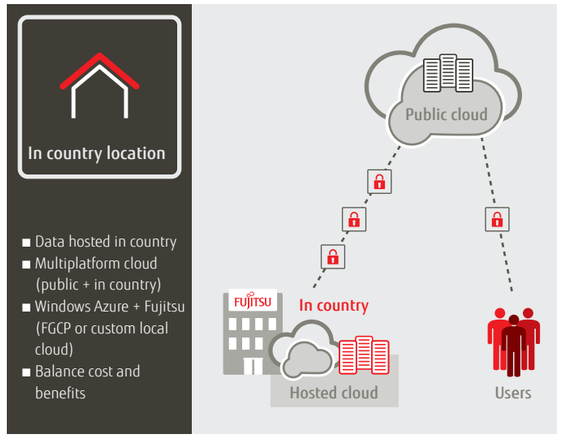
Scenario 2: A retail organization wants to use cloud computing for a new application. But to meet PCI compliance, they need the data to be kept locally, within country, with processing and presentation taking place in Windows Azure in any country.
In this example, data resides in country, in a Fujitsu data center, which can be Fujitsu's global cloud platform running Windows Server or a custom local cloud built with Hyper-V with a secure connection to the public cloud. Processing resources can be readily scaled to meet the demands of seasonal, peak workloads.

Elastic cloud processing, data hosted locally



Scenario 3: A global pharmaceutical company needs to balance the need to securely manage R&D data held within legacy systems with being able to fully leverage the processing power and cost benefits of the public cloud. Here data resides in both the cloud and on-premise depending on the level of data sensitivity with a secure connection to the public cloud.
The public cloud is used for processing and presentation.
The same architecture approach can be used to integrate cloud applications and legacy applications, including the pharmaceutical company's ERP and line-of-business systems.

Multiplatform cloud integration



By leveraging the proven Windows Azure cloud platform, in combination with other cloud platforms and on-premise systems, savings of 30% or more can be achieved.

Addressing the Big Management Issues

Any hybrid deployment mixing a number of cloud instances can also bring greater management complexity. To address the management challenge, Fujitsu has developed a set of middleware products known as Cloud Infrastructure Management Software. It enables us to provide a global management platform – supporting such services as Catalogues and Marketplaces, allowing dynamic resource allocation and simplifying the management of resources in hybrid and single type environments from classic infrastructure, private clouds and public cloud services.

Fujitsu also helps simplify management in several key ways:

Security: Providing built-in firewall and managed security services provisioning to ensure the security of an organization's environment

Flexibility: Ensuring quick provisioning by utilizing our resource pools. It allows companies to develop and launch their applications with agility and flexibility

Portability: Offering flexible cloud deployment options that enable application portability to avoid lock-in

Consolidation and Virtualization: Working with organizations to prepare their business for cloud migration, for instance, by consolidating their server environment before transitioning workloads to the cloud

Reducing data center and maintenance costs: Delivering a full range of managed data center services that free organizations of the day-to-day demands of managing their environment – enabling them to focus on strategic activities

Data residency: Through our hybrid cloud services, we can meet differing data residency requirements and industry standards that require data to be stored in-country, on-premise or in a secure trusted location

Managing the commercial complexity: In recognition of the potential commercial complexity involved with managing multiple cloud vendors, Fujitsu offers integrated billing and provisioning for all services in all locations spanning multiple clouds.

De-risking your investment

Fujitsu's professional services are all focused on helping organizations to de-risk investment and accelerate their adoption of cloud services. Through the use of our reference architectures and proof of concepts, we work closely with your business to ensure full alignment of cloud services with your business needs. We also provide the integration expertise to securely connect your existing on-premise systems safely with cloud instances.

Accelerating development

We recognize that reducing time-to-market is critical for helping you realize maximum value from your cloud deployments. With this in mind, we offer a range of unique tools that serve as accelerators. Fujitsu Velocity is a Software Factory that extends Microsoft's Visual Studio 2010 development platforms to considerably reduce the implementation time for business applications targeting the Windows Azure platform. It takes the form of a Domain Specific Language, a graphical modelling tool, to describe the application in terms of its Information Architecture.

From this model, Velocity creates a runnable implementation according to a service-oriented application design pattern that is ready to deploy directly to the Cloud. This is the starting point from which application developers implement the remaining functional aspects such as specific business logic/rules or non-functional elements such as look and feel. Velocity allows for the modelling of a complete application or elements of an application. In this way, it offers the flexibility to support hybrid solutions where different elements, such as web applications and business logic, are running in the cloud and the data is stored and managed on-premise.

Ensuring on-going performance

By providing a global help desk offering a single point of support, Fujitsu takes full ownership of any issues ensuring fast and effective problem escalation. At a practical level this delivers considerable value to organizations in eliminating the finger-pointing that can arise among vendors when help desk support is needed in a multi-platform hybrid environment.

Working with Fujitsu

A proven cloud services partner

Fujitsu is the third largest IT company in the world, providing a full range of enterprise-class IT services – with a track record of successful cloud deployments.

The Fujitsu and Microsoft global cloud alliance has created the first and only Windows Azure instance in a non-Microsoft data center. It's recognition of the strength of the partnership and shared expertise between the two companies.

Our Hybrid Cloud Offering is a truly global solution – meeting the demands of organizations wanting to deploy and easily expand their solutions across the world. Significantly, it's also 'local' with the default configuration set to ensure that data can stay resident in-country, meeting regulations and data sovereignty needs.

The bottom line

Embracing a hybrid cloud model needn't be costly and complex for organizations. With the right partner, it's possible to fully leverage the benefits of both public and private cloud instances, in order to drive value for your business. Fujitsu's depth and breadth of experience in enterprise service delivery – coupled with our proven track record in cloud and unique partnership with Microsoft – means we're well positioned to de-risk your investment and accelerate your journey to the cloud.

How can Fujitsu help your business?

For any inquiries on Fujitsu's global cloud offering please contact:

askfujitsu@uk.fujitsu.com

Alternatively:

- Request an Executive Workshop to help your business understand the cloud options available to best meet your business needs
- Engage Fujitsu to develop a Cloud Roadmap for your business through a series of facilitated working sessions with your team

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