

THE WHITE BOOK OF...

Cloud Adoption

The definitive guide to a
business technology revolution

shaping tomorrow with you

The Fujitsu logo consists of the word "FUJITSU" in a bold, red, sans-serif font. Above the letter "I" is a red infinity symbol.

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Contents

Acknowledgments	4
Preface	5
1: What is Cloud?	6
2: What Cloud Means to Business	10
3: CIO Headaches	16
4: Adoption Approaches	22
5: The Changing Role of the Service Management Organisation	42
6: The Changing Role of The Enterprise Architecture Team	46
7: The Future of Cloud	50
8: The Last Word on Cloud	54
Cloud Speak: Key Terms Explained	57

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- **Ian Mitchell, Chief Architect, UK and Ireland, Fujitsu**
- **Stephen Isherwood, Head of Infrastructure Services Marketing, UK and Ireland, Fujitsu**
- **Marc Silvester, Global Chief Technology Officer, Fujitsu**

For more information on the steps to cloud computing, go to:

<http://uk.fujitsu.com/cloud>

If you would like to further discuss with us the steps to cloud computing, please contact:

askfujitsu@uk.fujitsu.com

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1

What is Cloud?

In pure business terms, cloud is essentially a flexible, scalable, pay-per-use model for the way IT services are delivered and consumed, typically through short-term contracts. With its pay-as-you-go model, cloud moves many IT costs from capital expenditure to operating expenditure; its “elastic model” means available IT capability can be flexed to mirror changing business demand; and it enables consumers of IT to have much greater transparency over their costs.

But there are different levels where that model can be applied – and the desired benefits attained:

- **Infrastructure-as-a-Service (IaaS)** Virtual machine services accessed over the network, providing compute and/or storage capabilities
- **Platform-as-a-Service (PaaS)** Platform software services (such as web, application, database servers, enterprise service buses and other middleware, with associated security mechanisms) on which web service-based applications can be built
- **Software-as-a-Service (SaaS)** Applications provided as a service from the cloud, with end-user licences procured or “released” in line with changing demand
- **Data-as-a-Service (DaaS)** Data or information delivered from the cloud either as raw data sets or consumed through an analytics interface
- **Business Process-as-a-Service (BPaaS)** Cloud-delivered business services that are aligned to business processes and associated measurable business outcomes.



Cloud's elastic model means IT capability can be flexed to mirror changing business demand, while turning capital spending on IT into an operating cost

10) Our people don't have the time or knowledge to move us to cloud.

Who will set up our cloud? And can we trust them?

There are four areas to consider here:

i) In today's tough and challenging economic times, some service providers will simply not survive.

Approach: While this is unlikely to happen to the strong brands, it is a potential area of risk. Therefore, organisations should thoroughly assess vendor robustness.

ii) In many instances, organisations simply don't have the skillset to competently make the move to cloud-based services on their own.

Approach: IT departments and organisations can focus on their primary business objectives while a cloud provider manages the transition to cloud services, integrating and establishing the systems as a seamless part of the IT estate. Providers ensure effective transition to a fully working system, so customers can benefit from the cloud cost-savings and speed without the problems of establishing clouds themselves.

iii) How will we manage all the individual cloud services and providers? And how will our cloud be managed?

Approach: To ensure that cloud services continue to operate as an effective part of the IT service to business users, a cloud service "broker" would manage the day-to-day system management and ongoing supplier management of the individual cloud service providers. This would enhance both cost-effectiveness as well as ensuring IT service levels deliver increasing value for money to customers.

iv) A provider may simply fail to deliver the required service.

Approach: In both (ii) and (iii) an organisation should verify vendor viability through the proven and trusted methods adopted in choosing any outsourcer or managed service provider. Steps should also be taken to secure the protection of business data and application intellectual property rights (IPR).

Identified benefits

This is a rough indication of the type and size of benefits an organisation can expect to receive by moving this system to the cloud. A CIO should use this in line with the objectives of the business. (Note that the term “significant” should be used within the context of the organisation, i.e. one person’s “significant” can often be another person’s annoyance.)

IDENTIFIED BENEFITS SCALE			
No benefits	1	No identified benefits	Migrating this system to the cloud provides either no benefit, or negative benefits.
	2	IT cost savings	The only benefit of moving the system to the cloud is the reduction in IT costs.
	3	Increased IT flexibility and responsiveness	Migrating the system to the cloud means that the IT department can be more responsive to associated change requests and flexible to the provision of new/ different business requirements.
	4	Additional business benefit	Moving the system to the cloud provides additional benefit above IT cost savings and/or IT flexibility. E.g. increased revenue, customer acquisition or brand enhancement.
Most benefits	5	Significant additional business benefit	Moving the system to the cloud provides significant additional benefit (or multiple additional benefits) above IT cost savings and/or flexibility. E.g. increased revenue, customer acquisition or brand enhancement.

5

The Changing Role of the Service Management Organisation

Moving to a cloud-based IT landscape will have a very large impact on the service management organisation responsible for managing IT services – probably more than initially expected. Here are some important considerations to help manage this:

Service consistency

In an IT landscape that exploits the cloud to different degrees, the service management organisation will need to pay close attention to ensuring continuity of the service level agreements (SLAs) throughout the initial transition to cloud and any subsequent moves. Moving to a cloud environment means accepting the SLAs and contractual terms of the provider, as opposed to stating them as initial requirements. This is a shift that impacts the initial assessment at the point of provider selection, making that process more complex. Additionally, it might be more beneficial to the organisation to accept more relaxed SLAs than currently exist for a given service, without negatively impacting service delivery or continuity. Performing a market comparison in this environment is inherently more difficult and needs strong consideration.

Governance

All governance processes and policies will need to be reviewed in light of a move to cloud computing, to ensure they cater for the concept and do not inhibit the inherent benefits of cloud (speed to market being the main one). Existing processes, principles, etc should be modified to ensure they work for both cloud and non-cloud delivered services. However, it is inadvisable to create new processes solely for cloud.

Service brokering

The service management organisation's role will have to factor in the need for the brokering of service provision across multiple services, and service providers, ensuring a consistent delivery of service with no gaps or overlaps. The service broker role also needs to establish how it is going to deal with monitoring the market for better service provision and switching vendors, almost dynamically, to maximise benefit.



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Once the enterprise architecture team has demonstrated the success of a given application that has been migrated to or developed in the cloud, it will need to continually evaluate the situation to ensure this remains the case

8

The Last Word on Cloud

Cloud is here to stay. It is immature, but maturing fast. There are clearly benefits to cloud adoption, but the journey is complex and long, with implications for both the IT organisation and the wider business.

Fujitsu's analysis shows:

- Despite the hype, cloud is making serious inroads into enterprise IT. However, there is a lot of confusion about what cloud really means – the tendency to label everything “as a Service” (whether it really is or not) is a classic example of this
- Cloud has a certain set of characteristics, e.g. a pay-as-you-go model, with a taxonomy standardising around two dimensions: business value (IaaS, PaaS, SaaS, DaaS, BPaaS); and the level of sharing (private, community, public)
- The main focus to date has been on cost reduction as the primary win when adopting cloud computing. There are, however, many additional business benefits to cloud – ranging from IT agility and responsiveness to new revenue opportunities
- CIOs' concerns about cloud are mainly in the areas of service interoperability, data security, residency and contracting
- Several architectural patterns can be applied to an application or business service for easier and more efficient migration to the cloud
- The roles of service management and enterprise architecture are impacted significantly by the move to cloud
- Cloud adoption will be evident across the spectrum of IT-enabled business services and will provide new levels of business efficiency
- The cloud journey will go even further – to “Organisation-as-a-Service”, where business services that meet all of an organisation's needs are procured as a group.

Despite the challenges that the adoption of cloud computing may present, it is important never to lose sight of the many real opportunities that are there for the taking. With a carefully considered approach, genuine business benefits can be achieved in every organisation.

Fujitsu in the cloud

At Fujitsu, we recognise that cloud is a means to an end – that end being the creation of business value. IT industry players must be serious about this – and not simply pursue cloud as a technology fad – since the ramifications will be felt across the whole of the sector and its customers. As a major global player,



The main focus to date has been on cost reduction when adopting cloud computing. There are, however, many additional business benefits



Cloud Speak

In your journey to cloud, these are some of the key terms you are likely to come across. These definitions will also help in your discussions with other stakeholders in your cloud adoption programme:

Application integration	Interfaces/converters enabling applications from different sources to interact.
Application programming interface (API)	An interface from which users can operate a cloud platform using their own programs and tools.
Architectural patterns	A design model that documents how a solution to a design problem can be achieved and repeated.
Azure	Microsoft's Azure is a cloud services platform that enables the benefits of cloud computing delivered in a familiar Windows operating system environment.
Business Process-as-a-Service (BPaaS)	Cloud-delivered business services that are aligned to business processes and associated measurable business outcomes.
Cloud application	An application that is never installed on a local computer and instead is only accessed in the cloud.
Cloud-oriented architecture (COA)	An architecture for IT infrastructure and software applications that is optimised for use in cloud computing environments.
Cloud provider	A service provider that makes a cloud computing environment – such as public cloud – available to others.
Cloud service broker	A third-party IT services partner who handles the day-to-day ongoing supplier management of an organisation's array of cloud service providers.
Community cloud	A private cloud for shared use by multiple organisations.
Data-as-a-Service (DaaS)	Data or information delivered from the cloud either as raw data sets or consumed through an analytics interface.
Desktop-as-a-Service	See Virtual desktop infrastructure.
Enterprise architecture	The definition for the structure of an enterprise (including its supporting technology) that maps out different business entities and the relationships between them.
Fujitsu cloud services	Services which provide a fully flexible model for IT infrastructure, platforms and applications, allowing companies to match technology systems and costs directly to changing business needs.
Fujitsu trusted cloud	A hybrid platform which combines the ease of use of public cloud with the confidence and security of private cloud. Services are hosted in Fujitsu data centres at a defined location with secure private connections to the network.