

Leveraging the Private Cloud to Enhance IT Service Delivery and Business Value

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Private clouds have generated considerable buzz in the Asia/Pacific region. The question is whether a private cloud will indeed help Asian enterprises save money and gain business efficiency. This IDC Executive Insights highlights the results of a recent survey which examines the level of cloud computing adoption in ASEAN and highlights the benefits that early adopters have gained. This paper also offers a checklist for CIOs who are considering or planning to implement a private cloud in the next 12 months.

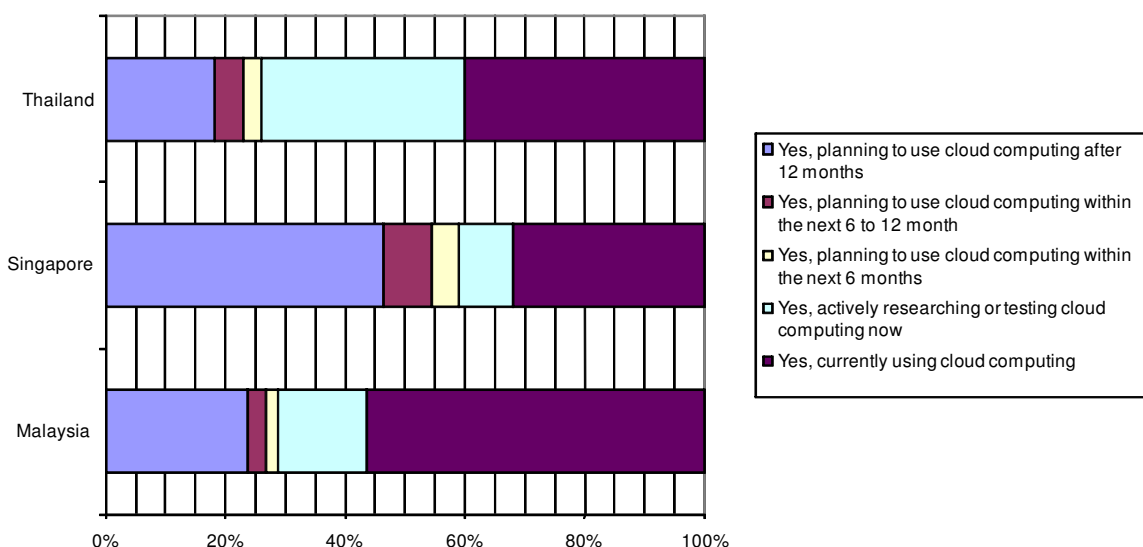
Cloud Makes an Impact in the Business World

Cloud computing has matured in the last 12 months. The number of cloud vendors and their range of cloud offerings has expanded, while early adopters have told IDC that they have gained business value from their investments. Cloud's growing momentum is also telling in a recent IDC phone survey conducted with 300 IT heads in Thailand, Singapore and Malaysia. The survey results revealed that 42% of respondents were already using cloud services, and the balance were either actively testing or planning to use cloud services in the next 12 months (see Figure 1).

According to the survey findings, it is clear that both the sourcing of IT and business services from the cloud and the use of cloud technologies in the datacenter is now considered mainstream. The survey found that CIOs who were skeptical in early 2009 now view the use of cloud computing as an integral part of their ICT strategy.

Figure 1

Current Usage and Plans for Cloud Computing in ASEAN



N = 311

Source: IDC's Cloud Computing in ASEAN Survey, 2009

The CIOs who participated in IDC's survey recognize that the increasing use of cloud services and technologies is central to ongoing IT transformation. They also indicated that they will continue to invest in cloud computing when a clear ROI can be demonstrated. Of the ASEAN CIOs surveyed, 64% agreed that cloud computing can enable them to more effectively use IT, and 52% agreed that cloud computing can improve the overall business operating environment.

On the benefits gained from the use of public clouds, respondents said that adoption is, at this stage, primarily driven by two requirements: one old and one new. Indeed, CIOs are seizing the opportunity to become less reliant on traditional IT funding models by using the new pay-per-use cloud computing model to reduce their capital expenditures (capex) and begin a transition to an operating expense (opex) budgeting basis. And they are using the flexibility of the cloud delivery model to address the old IT requirement of agility.

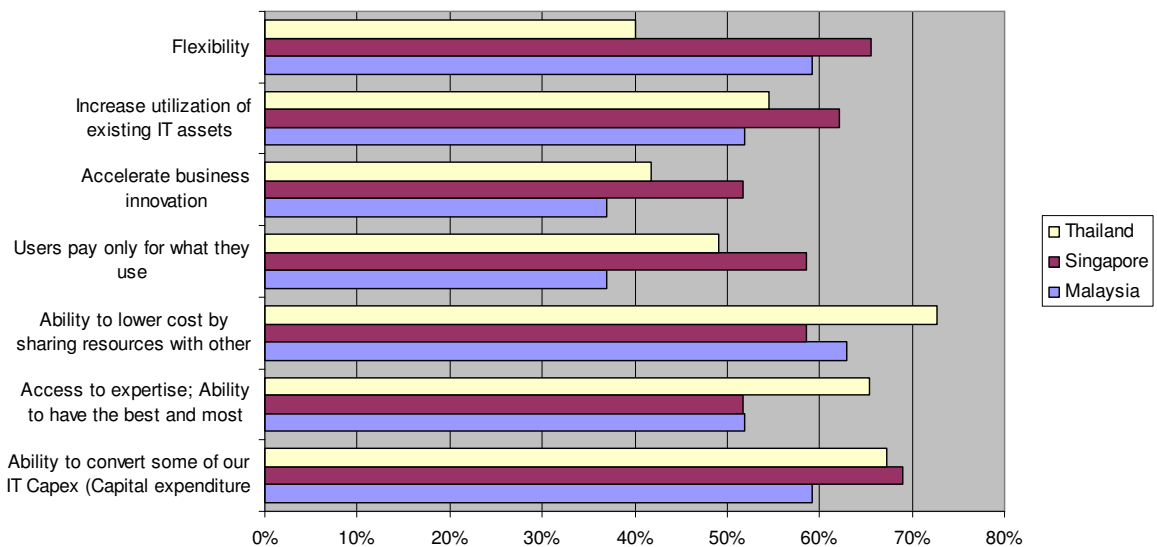
Growing Interest in Private Cloud

Although there are risks in both public and private clouds, concerns about the security and performance of public clouds as well as its suitability for some applications, are accelerating CIOs' interest toward the other end of the spectrum. Extending current datacenter investments to a private cloud environment is where some of the benefits of cloud computing can be gained whilst addressing particular risk factors of public clouds.

Early adopters of private clouds said they are convinced about the benefits that they are receiving from their early adoption, as shown in Figure 2.

Figure 2

Benefits from the use of Private Clouds



N = 311

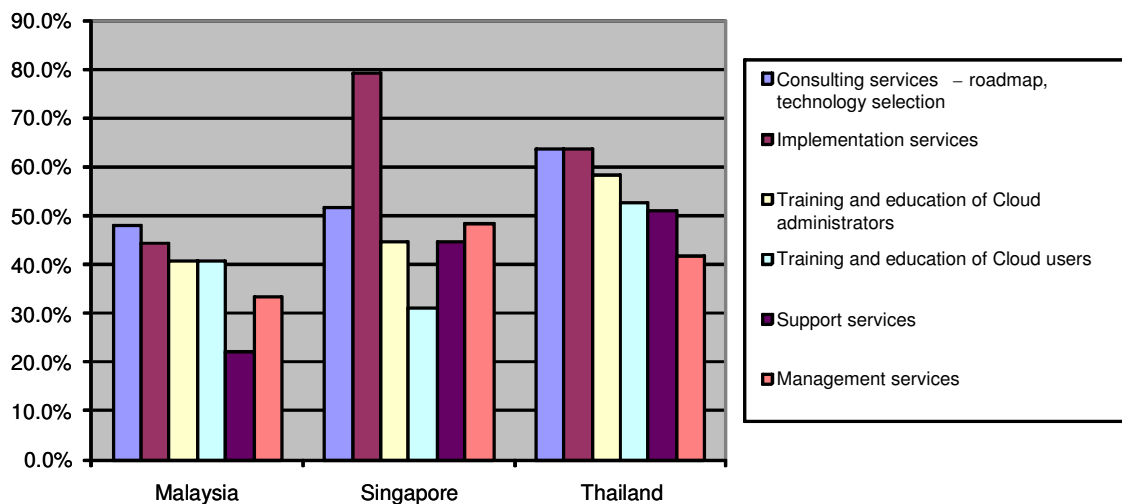
Source: IDC's *Cloud Computing in ASEAN Survey, 2009*

As with any new technology, skills and understanding are scarce; therefore, as mainstream adoption of cloud computing increases, CIOs will require clear guidance for implementation from their product and service providers, and from specialist consulting firms. Figure 3 shows the areas of assistance that CIOs would require

Figure 3

External Assistance for Deploying Private Cloud Technology

Q. In which of the following areas do you think your organization would need the most assistance in deploying private cloud technology?



N = 311

Source: IDC's *Cloud Computing in ASEAN Survey, 2009*

Thorough Evaluation Needs a Robust Assessment Framework

User organizations that are evaluating when, where, how and why they should consider cloud computing services must first understand that cloud computing spans a wide range of IT-enabled capabilities, from low-level infrastructure to high-level business processes.

Cloud services are separated by IDC into three high-level groups: Applications as a Service (AaaS) Infrastructure as a Service (IaaS), and Platform as a Service (PaaS). A more granular view can split these three categories into service types that are less general and easier to align with enterprise IT operations. For example:

IaaS

IaaS includes the fundamental forms of cloud computing services, and are analogous to the infrastructure and datacenter services in IT today. IaaS services include system-level capabilities, such as server/computing, server operating system (OS), client OS, storage, infrastructure management software, or networking on which the consumer can run a variety of applications.

PaaS

Platform as a service (PaaS) represents the next-generation cloud computing application development environment, where end users (e.g., third-party developers, IT organizations, and

ISVs) buy and consume shared infrastructure and toolkit components that allow them to create their own computing solutions. These applications are then hosted by the PaaS or hosted infrastructure provider, and can be sold in a searchable, exchange-like hub.

AaaS

AaaS is a service delivery model made up of a cloud computing environment in which unrelated customers share a common application and infrastructure that is managed by an ISV or a third-party service provider, and code, or intellectual property (IP), of the service is typically owned by the AaaS ISV residing in the cloud. Applications as a service (AaaS) is characterized by the software, services, and support offerings that are specifically built and designed for one-to-many delivery over the Internet using a Web services architecture. An underlying shared infrastructure is typically rolled into the AaaS offering and is not sold separately. Usage-based pricing models managed by the end-provider characterize this service.

Process as a Service

Business process services are business processes (e.g., payroll) that are delivered as scalable services via the Internet. These services are different from AaaS services in that while AaaS may include business process logic as part of the service, a business process service includes some business process activity that is performed by the service provider.

An Approach to Using Cloud Computing

While cloud computing is delivering significant technical and business benefits to early adopters, it is still a developing market. When considering the use of cloud services or technologies, it is important to not move too quickly before first determining whether available services deliver measurable benefits for your project.

As a start point, like any project, it is important to gather information on business solution requirements and technical requirements and determine the extent to which resource requirements can be forecast. These characteristics and the required capabilities of the application are a basis for evaluation of aspects of the potential value of a cloud-computing approach.

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Other factors to guide planning in the use of cloud services and technologies include:

- What business benefit are you looking to achieve by using a cloud-computing model? For example, improved agility in deploying a new application, or reduced capital expense budgets?
- What set of cloud capabilities is required to achieve the objectives for which the solution is designed? Do you just need IaaS or AaaS?
- What are the application characteristics and its demands for elasticity? Is it really suitable for cloud delivery?
- What does a risk analysis reveal? Do considerations such as security and privacy, data sovereignty and availability mandate a private cloud or traditional on-premises delivery?
- Should you source the service from the public cloud or build a private cloud for delivery of the new service?
- How will you manage the governance of the solution? Will a public or private cloud solution pass risk and compliance assessments?

- How will you design, develop, and test the solution? Do you have the internal capability or must you engage an external services partner?
- What operational mechanisms are needed to support either public or private solutions? Are investments in tools and processes required?
- How will you pay for it, and are costs satisfactorily predictable?

It is not always necessary to build a unique solution using cloud services or infrastructure as the available cloud services are constantly expanding to fill more enterprise requirements. Applications from many vendors present excellent alternatives to traditional in-house enterprise software for straightforward solutions such as e-mail, CRM, ERP, governance, and business productivity applications.

Seven Guidelines for Evaluating Cloud Computing

IDC offers seven guidelines to ensure CIOs adopt a well-grounded approach when embarking on cloud computing.

1. Know what's available in the marketplace

When beginning an evaluation of a cloud project, first consider the range of available cloud infrastructure and application products and services that may be used to support the proposed solution. The most basic level of cloud infrastructure provides computing, storage and networking as cloud services, but higher levels extend to include business processes within the application.

2. Study the various options

Next, an analysis of the characteristics of the solution alternatives is required. They extend from enterprise cloud-hosted applications to full, cloud-optimized solutions that themselves are deliverable as cloud applications, information or business process services. Ensuring that a proposed cloud delivery approach fits with the IT architecture is essential and, in the absence of internal capability, specialist advice may be necessary. This is most essential when the driving force for cloud services originates from a business unit, where the motivation factor is a business need rather than technical compliance.

With real cloud skills in short supply and still concentrated in the major providers, a decision to use an external service provider may be necessary.

3. Public or Private? Recognize the different paths to using cloud computing

In addition to consuming public cloud services, some enterprises may themselves also act as cloud service providers, and build a private cloud to deliver metered-by-use application, information or business process services to internal customers and external business partners. The preferred path is one on which many Asia/Pacific organizations have already started: that of using virtualization technologies for servers and storage to increase operational efficiencies and implementing automated IT processes to, in turn, automate resource provisioning. This approach is typically called a private cloud and is seen, for some organizations, as a lower risk approach to gaining cloud infrastructure service benefits whilst maintaining control over data location, security and availability.

When evaluating the viability of a private cloud, it is important to fully understand the capability of the resources available to plan and implement the new cloud environment. With real cloud skills in short supply and still concentrated in the major providers, a decision to use an external service provider may be necessary. This can, of course, increase costs, but engaging a specialist cloud infrastructure provider also offers the additional benefit of gaining access to their experience and pre-tested processes.

4. Take it slow

In some situations, public cloud services are more appropriate than private cloud services. The least-disruptive approach to exploiting cloud services is to continue the use of traditional development tools and techniques or existing applications, and use cloud services purely as a shared-hardware environment for computing and storage services (IaaS) and deploying the traditional application infrastructure over cloud system infrastructure (PaaS) instead of on-premises infrastructure. The resulting cloud-hosted applications are already designed as enterprise-class solutions and require minimal retraining of IT staff. This is very similar to deploying the application to a local server, except that you share datacenter space with other tenants, and may not know where your applications will execute or where data will be stored. This approach is also valuable to evaluate and prototype applications, or to deploy testing and development environments.

The primary benefits of this approach are realized from the cost perspective and some elasticity inherent to shared-hardware environments, and from the delegation of managing and procuring hardware resources to a provider.

5. Don't forget about maintenance

However, the responsibility for ongoing maintenance and management of the applications running on the system infrastructure may remain with the enterprise unless a choice is made to outsource the management. Also, not all applications will be lower in cost when hosted on cloud system infrastructure; those with unpredictable, volatile or short-term resource requirements will gain the most benefits, while those with stable, predictable and long-term requirements may actually cost more to run in a variable-cost cloud system infrastructure environment — particularly if the enterprise is already making heavy use of virtualization on internal systems.

6. Beware of differences in approaches

A more complex approach to using cloud-based services is to use PaaS services as the foundation to deploy existing applications or build new enterprise-class applications. Not all applications are suitable for this approach, and redeploying existing applications within a PaaS environment may need some rework. In addition, there are wide differences between application infrastructure service offerings, ranging from simple, shared-hardware to advanced shared-everything multi-tenant approaches.

7. Understand the developer's role and PaaS

PaaS combines development, deployment and runtime capabilities into an integrated service, and offers less overall control than a cloud system infrastructure service approach where the developer controls and manages the entire stack above the shared-hardware foundation. However, the integration of capabilities into a unified service offering with standard service building blocks can result in faster development and lower management costs for many applications, which is making this model very attractive to enterprises.

Enterprises must choose from a range of alternatives when constructing new solutions in the cloud. The decision-making process requires understanding the trade-offs involved, and an understanding of the enterprise's role in the cloud solution — whether as a consumer or a provider. Either way, the fundamental questions around risk, business value, and cost drivers remain.

In the future, enterprises may consider composite cloud solutions that incorporate best-of-breed cloud information services from a range of service providers. Such cloud information services could arise from popular SaaS applications, or they could be standalone cloud information services delivered by traditional non-technology companies for the purpose of creating new cloud-based mashups.

Recommendations

IDC offers the following essential guidance to ensure adopters are ready and geared up to get the most out of their cloud investments:

- Understand the different cloud service delivery models and how they are best applied to your environment, and assess your organization's ability to implement cloud services without external help.
- To start developing experience in cloud computing, evaluate opportunities for low-risk, non-mission-critical applications to benefit from cloud-based infrastructure and development services, but exploit cloud computing services selectively based on potential business value and cloud service category maturity.
- Thoroughly understand the possible degree of proprietary lock-in, and develop plans to move to alternative providers or internal systems, if needed.
- Establish governance models and guidelines for evaluating cloud-based services and their integration with internal systems.
- Plan for integration of cloud management and security with existing enterprise tools and processes.

Conclusion

As with any new technology, there will be skeptics who avoid the technology and early adopters who capitalize on its benefits. There is, however, little doubt that cloud technologies will change the way organizations do business and the business models currently in play in the market. Pay-per-use has a strong appeal in today's economically challenging times and where executive boards demand IT investments that focus on growing shareholder value. Vendors will continue to polish their offerings and improve security and functionality. Speed of deployment and instant scalability will continue to appeal to organizations focused on growing their core business and not on the physical hardware. The cloud momentum will continue to grow as cloud services enable organizations to focus on their core competencies instead of the technology and hardware, and as they realize how easy it is to enhance IT service delivery with the right cloud strategy.

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