SCB Economic Intelligence Center

Note by EIC

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Keeping a pulse on Cloud Computing... how is it beneficial?

Cloud Computing is a technology that is becoming more popular and important due to its cost benefits. Cloud Computing is a system that opens more IT opportunities for small businesses, a growth opportunity for software developers on cloud and manufacturers of computer data storage units like Hard Disk Drive (HDD) and Solid State Drive (SSD).

Cloud Computing is the new technology that will change business IT from operating its own server to storing as well as processing data through cloud provider's facilities using the internet . Therefore, business owner does not have to worry about the high cost of investing in computer hardware and software since cloud computing is a pay-as-you-use model. Moreover, business owner can focus on its core competency instead of managing IT operations and can access the information anytime and anywhere through the mobile devices such as laptop smartphone and tablet.

Public Cloud Computing is likely to start playing a larger role, especially in small businesses.

There are two models of Cloud Computing, private and public. Private Cloud Computing is operated solely for a single organization. It can be managed internally or by a third-party and accessed through private network. Private Cloud Computing is much safer due to the ability of the provider to control their own system. However, the pitfall of private cloud computing is its high cost comparing to the public cloud computing which is operated by cloud provider. Cloud provider could invest in the computer infrastructure, both hardware and software, and made the service available to users who have internet access on a pay-as-you-use model. Therefore, public cloud computing is gaining its popularity due to the growth of internet users and users of mobile devices like smartphones and tablets, which has resulted in an increase of the demand for users to be able to access their data anywhere and anytime, Aside from responding to this demand, Cloud Computing is also becoming more widely used in the business sector, especially by small businesses with restricted IT investment budgets.

Cloud Computing has been on the Top 10 list of popular technologies since 2009 and continues in popularity.

Spending on Cloud computing services worldwide will grow from 25 billion US Dollars in 2011 to 100 billion US Dollars in 2016, according to estimates by the International Data Corporation (IDC). This growth is equal to a 30% CAGR, 6 times higher than the growth of traditional IT[1] spending. Cloud computing offers three service types, depending on usage. Software as a Service (SaaS), such as Salesforce or Google Apps, composes the highest proportion among all Cloud Computing services and is expected to grow by 18% per year over the next 4 years. The major reason for the growth in SaaS is because it is appropriate for small businesses that lack their own

[1] Traditional IT is the way business invests in computer hardware and software for its own use. No matter how much the company utilizes its own IT, it has to bear fixed cost, e.g. system maintenance.

software development capabilities and is low risk (Figure 1) Meanwhile, Infrastructure as a Service (IaaS) will see the highest growth at 43%, meaning it will start to play a bigger role compared to other Cloud services. IaaS offers data storage, processing, and backup services. Companies that use IaaS can upgrade or downgrade their services whenever they want without having to invest in their own hardware. Meanwhile, Platform as a Service (PaaS), or offering tools to create applications, is likely to grow well but currently still has a small market share, PaaS still lacks of flexibility; the tools provided by the PaaS providers might not meet the exact demand of the users.

Cost is a major factor that has led the business sector to increase their use of Cloud Computing. Currently, most organizations use only around 30-40% of their hard disk space, some of which is for duplicate data, making their IT investment less than optimal. Small companies are also unable to bring much IT into use due to their financial limitations. Cloud Computing provides a solution by letting companies considerably decrease their IT investment. For instance, examples of 11 business owners that use Amazon Web Services have been able to reduce their costs (per AWS application) by over 70%, or 400,000 US Dollars per year, compared to their traditional IT use. Companies can avoid any basic infrastructure costs and save up to 60% of their maintenance and application development costs (Figure2 and 3).

Businesses in Thailand have begun to realize the importance of Cloud Computing since the Floods in 2011. Spending for Cloud Computing in Thailand grew from 32% to 50% in 2012[2]. One major reason for this growth is that many companies suffered from damaged servers and loss of important data and began to realize the benefits of Cloud Computing. For instance, one foam and packaging operator in Thailand with over 1 billion Baht profit per year faced flooding in their factories. However, their manufacturing and billing data were undamaged because the company used Cloud Computing to move all their servers and databases to the Data Center. As a result, the company was able to resume operations quickly.

However, problems with Thailand's internet network, data security, and government support remain obstacles that have resulted in Cloud Computing use in Thailand not being as high as other countries. The Asia Cloud Computing Association conducted an analysis into readiness for Cloud Computing systems in Asia Pacific countries, in which they analyzed many readiness aspects, such as data safety and broadband system readiness. The analysis ranked Thailand in the bottom group, both in the index and expected spending, with Thailand expected to spend less than 1 billion US Dollars on Cloud Computing in 2013. Meanwhile, China and India are countries with medium level readiness, but are both expected to spend considerable amounts on Cloud Computing in 2013. Telecommunication companies play a large role In China's economy. In 2012, three telecommunications companies in China had a total of 4.7 billion US Dollars' worth of investment in Cloud Computing, accounting for 60% of China's Cloud Computing investments. Meanwhile, 86% of leading companies in India are internet companies or E-Commerce providers. It is therefore unsurprising that both countries spend more on Cloud Computing than other regions. Developed countries in Asia like Singapore, Hong Kong, Taiwan, and Malaysia spend from 1 to 2.5 billion US Dollars on Cloud Computing and have greater Cloud Computing system readiness than Thailand. Factors that have made Cloud Computing not yet so popular in Thailand are problems due to slow networks, lack of operator trust in the security of data storage, and little government support in investing in systems (Figure 4).

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2 Data from global consulting firm Frost & Sullivan.

Implication

- **SMEs should introduce more Cloud Computing into their IT work.** Due to small businesses being limited financially, it is not necessary for SMEs to invest large amounts of capital for IT use on a small scale. Data from the Enhancing Competitiveness Through IT (ECIT) project in 2010 found that SMEs that have switched to Cloud Computing have been able to reduce investment costs by an average of 300,000 Baht compared to businesses that invest in their own software and have to hire IT staff and pay for yearly maintenance. Bringing IT into the company should increase its operational effectiveness as well as focus on core competency instead of worrying about IT operation. Furthermore, the recent 3G auctions are also beneficial for Cloud Computing systems, as users will become more confident in the system.

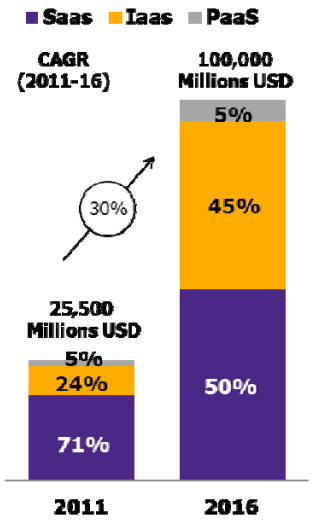
- **Software Developer should increase developing applications on cloud.** Due to the growth in the adoption of Cloud Computing, the growth of tablet and smartphone, as well as the preparation for AEC, the business owners are more willing to use Cloud Computing in the form of software-as-a-service. There is more demand towards ERP (Enterprise Resource Planning) and Analytics software to help manage their businesses. Thus, software developers should adapt themselves, and develop more Cloud computing software to response to this market demand.

- **The manufacturers of computer data storage units like Hard Disk Drive (HDD) and Solid State Drive (SSD) will benefit from growth in Cloud Computing.** Cloud Computing technologies will attract companies to use services provided by Cloud Providers to save IT cost. Therefore, HDD manufactures will still benefit from growth in this service, as it means more demand for storage. Moreover, SSD shipment for enterprise servers will see a rapid growth. IHS iSuppli projects SSD sales for Enterprise servers will grow from 170,000 units in 2009 to 1,900,000 units in 2014, or a 63% CAGR. Many Cloud Providers see benefits in SSD speed in accessing information and reducing energy consumption, and therefore use SSD along with HDD for enterprise server storage and processing.

Figure1 : Income of Cloud Computing is likely to grow by an average of 30%. Software as a Service (SaaS) will have the highest proportion but Infrastructure as a Service (IaaS) will greatly grow to reach nearly equal proportions in 2016

Computing revenue according to service fundamental model

Unit: % of total cloud computing's revenue



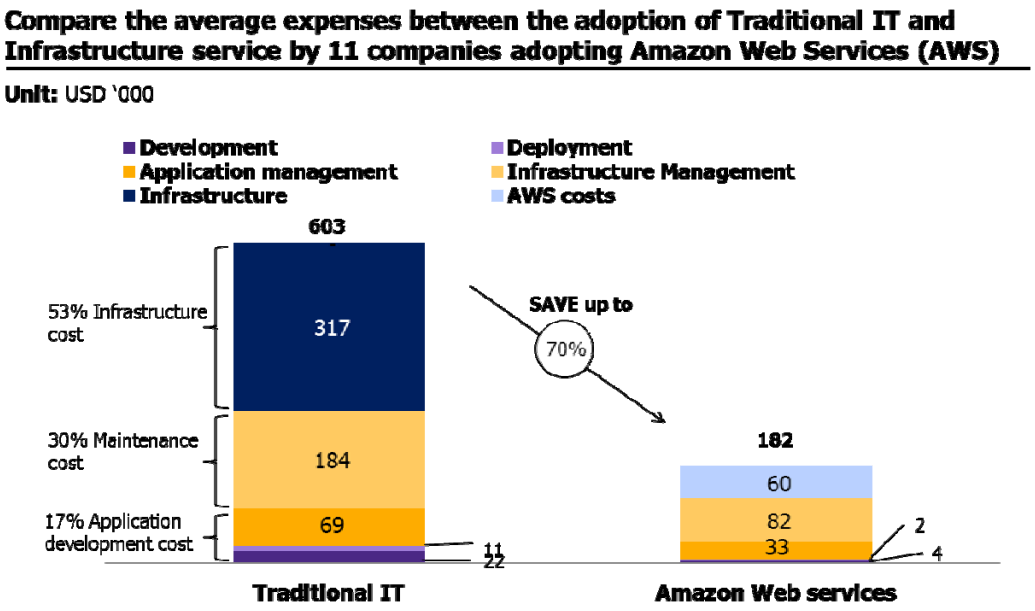
Cloud Type	Definition	Example Of Providers
Software as a service (SaaS)	Cloud providers provide single application through the browser for users to run on.	salesforce, Dropbox, Google Apps
Infrastructure as a service (IaaS)	Cloud providers provide users with infrastructure in the form of virtual machines	amazon web services, RIGHTSCALE
Platform as a service (PaaS)	Cloud providers provide the application platform e.g operating system, database, and web server for users to develop solutions on their own	Google, Azure

Source: EIC analysis based on data from IDC and Gartner

Figure2: Cloud Computing benefits operators, especially operators of small business who have financial limitations. However, there must be developments in network and security.

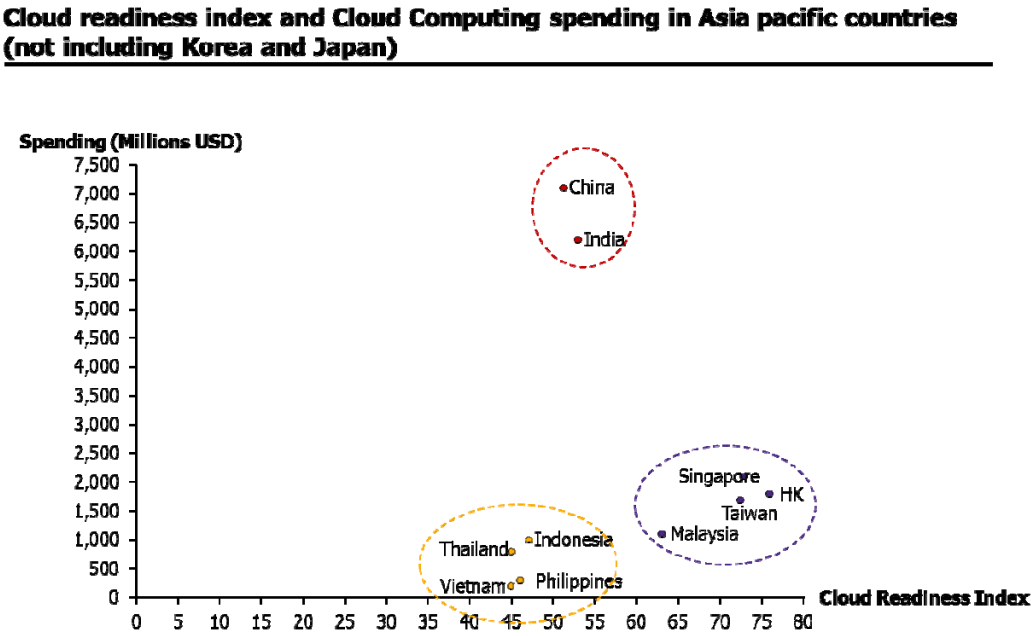
Pros	Cons
1. Cost savings 1.1 Infrastructure costs, e.g. Hardware 1.2 System maintenance expenses e.g. electricity and upgrading fees 1.3 Pay-as-you-use service (no fixed cost) with flexibility - can enhance or reduce the use of IT as necessary	1. Depends largely on the internet connection , in case of: 1.1 Delayed internet connection – working process through cloud computing will be delayed as well 1.2 Failure of the internet network could cause data loss
2. Beneficial to SMEs with limited IT capital	2. No guarantee of data security
3. Can focus on the core competency of the business instead of worrying about their IT system	

Figure 3: Once Cloud Computing has replaced traditional IT systems, companies can save over 70% of its costs due to the lack of basic infrastructure costs, maintenance costs and application development costs



Source: EIC analysis based on data from IDC

Figure 4: Thailand still has low levels of Cloud Computing spending compared to other countries due to the lack of network readiness, data safety and government support



Source: EIC analysis based on data from IDC and Asia Cloud Computing Association

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