CLOUD READINESS INDEX

September 2011

Cloud Readiness Index

The Cloud Readiness Index has been prepared by the Asia Cloud Computing Association (The Association). The Index evaluates key attributes in order to identify the state of readiness for cloud computing in various markets across the Asia region. Additionally, it provides insight into how regulation and policy work by governments. It also assists companies and individuals in determining which markets are best placed for wide adoption of cloud computing services in Asia.

The Index

The "Cloud Readiness Index", created by the Asia Cloud Computing Association, is designed to track Asia's progress toward a complete spectrum of cloud computing-based infrastructures and services. By mapping the conditions and criteria required for successful implementation and uptake, The Association aims to identify potential bottlenecks that could slow adoption and threaten Asia's digital future.

The Index also serves to help identify the gaps between policy, legal and commercial cloud drivers. This is achieved by leveraging the works of other trade associations, NGOs and publicly available sources in order to provide a tool for businesses organizations, and even policy makers to look at the cloud in a more holistic manner.

Why Cloud Computing?

Technology, in general, has always been a great leveler of opportunity for business, communities, and citizens. Just think about how access to the PC and the Internet has helped bridge the divide for millions across Asia in terms of access to information and the opportunities to tap into new economic opportunities.

Cloud technologies offer the opportunity to lower technology costs and to create time to market advantages. Additionally, cloud technologies promise to securely democratize data access – and in doing so, create a myriad of value-add possibilities across Asia.

The potential socio-economic impact in different parts of the world is still unclear. There are no exhaustive studies for Asia at this point in time but the benefits are potentially huge. The Centre for Economic and Business Research states, in a recent study, that cloud computing will create 2.3 million new jobs across Europe's top five economies between 2010-2015. The World Economic Forum (WEF) says in its 2011 report that many believe the impact of cloud to become equal to or exceed that of mobile technologies.

To realize this potential in Asia, the region needs to harmonize the policy and regulatory frameworks to promote effective trade in digital information and services. It is therefore necessary to have an active

debate with an Asia focus. The Cloud Readiness Index has been developed by The Association to facilitate this discussion.

Why Asia?

While cloud is global, much of the debate and discussion on the cloud is taking place in Europe and the US. This is not surprising given that many of the key vendors and consumers are from those regions. However, we believe Asia's cloud computing is poised to grow faster on both sides of the market: as cloud consumers and cloud providers. Because Asia is experiencing much economic growth, it is crucial for all Asian economies to begin to look beyond the opportunities for the cloud for their individual economies and instead begin to analyze how the cloud can help drive greater economic value to the broader region.

The knowledge economy will fuel Asia's future and we think that cloud computing is the next great 'leveler' for the region, poised to help accelerate the momentum around trade and economic integration in Asia.

What the Index includes

The Countries

The Index analyses 14 countries including China, Australia, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.

While these countries have been selected for the first version of the Index because they are key markets, the Association intends to include more countries in the region in future versions of the Index.

Attribute Overview

The Index analyses 10 key attributes critical to successful deployment and use of cloud computing technology. By mapping the conditions and criteria required for successful implementation and uptake, the Association aims to help ensure Asia's digital future and accelerate the growth of the cloud market.

The Attributes Analyzed

The following 10 key attributes comprise the first release of the Index:

Regulatory Conditions

License requirement of cloud services and data centers, intellectual property protection, lawful intercept for cloud content.
Source: Business Software Alliance

Int'l Connectivity

Bandwidth available for International connectivity; combined with the reciprocal of price per Gbps
Source: TeleGeography 2010

Data Protection Policy

Survey based answers to questions about data protection such as: Are cloud providers free from laws that penalize based on nationality? Are there laws that protect user data disclosure?
Source: Business Software Alliance

Broadband Quality

Combination of the Broadband Quality Score (up/down/latency) with broadband penetration figures for each country.
Source: Oxford University Broadband Survey

Government Prioritization

Combination of Government ICT prioritization, Cloud RFIs/RFPs
Source: World Economic Forum-Global Information Technology Report, The Association members

Power Grid Quality

Electricity supply availability: evaluates interruptions and shortages so that cloud services are delivered unimpeded
Source: World Economic Forum Global Competitiveness Report 2010

Internet Filtering

Incoming filtering of content, freedom of content flow without tariff and net neutrality policy in place
Source: Business Software Alliance

Business Efficiency Index

Based on five factors: productivity, labor market, finance, management practices, and attitudes/values
Source: International Institute Management Development

Global Risk

Seven key risk areas: macroeconomic, security, governance, resource security, climate, pandemics, and societal resilience
Source: Maplecroft Global Risk Atlas and Fault lines

ICT Development

Eleven ICT indicators are included in the IDI (grouped by the three sub-indices: access, use, and skills)
Source: International Telegraph Union 2010 – ICT Development Index (IDI)

Methodology

Attribute Selection

All ten of these attributes affect how cloud computing products and services can be offered, delivered, and consumed by the market. More attributes will be covered in future releases but these 10 are a good starting point for the debate.

Weightings

Each attribute has an equal weight. Each country's score for a particular attribute has been evaluated based on the published metrics listed above.

Methodology Reliability

Each attribute needed to be handled differently. In some cases it was one metric from the source listed that was normalized to be on a scale of ten. In other cases the metric is an average of a few parameters that are combined from one source. The only special attribute is government prioritization; it is a combination of a number of sources and information gathered from members of the Association.

The Index by Rank

	INDEX SCORE	RANK		Regulatory Conditions	International Connectivity	Data Protection Policy	Broadband Quality	Government Prioritization	Power Grid Quality	Internet Filtering	Business Efficiency Index	Global Risk	ICT Development
TOP SCORE				**10.0**	**9.0**	**10.0**	**9.0**	**9.4**	**9.2**	**10.0**	**9.3**	**8.0**	**8.8**
Japan	**85**	1		8.7	**9.0**	**10.0**	8.0	8.2	9.0*	**10.0**	6.8	6.5	8.4
Hong Kong	**83**	2		7.5	**9.0**	**10.0**	6.4	8.4	**9.2**	**10.0**	**9.3**	5.0	8.4
Korea	**82**	3		8.7	7.0	**10.0**	**9.0**	8.6	8.4	7.5	6.4	**8.0**	**8.8**
Singapore	**82**	3		**10.0**	**9.0**	6.0	5.6	**9.4**	8.9	7.5	8.9	**8.0**	8.3
Australia	**78**	4		**10.0**	6.0	8.0	5.3	6.6	8.0	**10.0**	8.1	**8.0**	7.7
Taiwan	**76**	5		6.2	8.0	**10.0**	5.4	7.3	8.2	**10.0**	7.8	5.0	7.7
New Zealand	**73**	6		7.5	4.0	**10.0**	5.3	8.7	6.9	8.7	7.5	6.5	8.2
Malaysia	**68**	7		7.5	6.0	6.0	4.7	8.8	7.6	**10.0**	6.5	5.0	6.3
China	**60**	8		8.7	**9.0**	2.0	4.9	5.2	7.0	6.2	6.3	5.0	5.7
India	**53**	9		6.2	6.0	6.0	4.7	6.6	4.1	7.5	5.9	2.0	4.2
Thailand	**51**	10		5.0	5.0	2.0	5.0	4.1	7.6	7.5	6.6	2.0	5.7
Indonesia	**50**	11		7.5	4.0	6.0	4.6	4.3	4.8	8.7	3.3	2.0	5.0
Vietnam	**48**	12		7.5	5.0	4.0	4.5	3.5	4.8	3.7	5.0	5.0	5.5
Philippines	**45**	13		5.0	5.0	2.0	4.6	3.7	4.5	7.5	5.1	2.0	5.4
*	Japan's power grid quality score is pre-earthquake based.												

Country Highlights

Japan

Despite some concerns around global risk due to earthquake fault lines and the efficiency of doing business, Japan, the world's third largest economy, has proven itself well and truly ready to maximize the opportunities from Cloud Computing. A mature IT market, it has established itself with a set of known regulations and conditions that encourage Cloud Computing within Japan and is therefore posed for significant growth in the future.

Korea

Korea has an ambitious cloud strategy, with the Government investing US$500m to incubate the cloud for both public and private sector cloud initiatives raising their investment to US$2billion by 2014. Their stated aim is to capture 10% of the global cloud market by 2014 and achieve a 50% reduction in IT infrastructure op-ex in the public sector by 2015. In addition, they seek to grow the export potential of cloud services through new and innovative business models. Areas for improvement are greater transparency on content filtering and data security laws for cloud service providers.

Hong Kong

Hong Kong is increasingly becoming the North Asia data hub with many cloud service providers situating data centers in the SAR. World leading broadband penetration and excellent international connectivity, coupled with good policy governance, provides a strong platform for cloud adoption by HK government and local businesses.

Singapore

It is apparent that the IDA and other government agencies understand the significance of ICT to economic competitiveness. Singapore scored well in most categories and we see them improving their scores as the results of their specific initiatives are reflected in the external metrics use for the index parameters: Broadband Quality and Data Protection Policy.

Australia

Australia's strong policy environment provides a predictable environment for cloud services. The roll out of the National Broadband Network and the release of the Federal Government's Digital Economy Strategy and Cloud Computing Strategic Direction Paper demonstrates a strong encouragement for the uptake of cloud services by both the public and private sector. The challenges for Australia remain the quality of the international connectivity to become a global cloud service hub as well as regulatory constraints limiting the off-shoring of data for certain sectors, such as financial services.

New Zealand

The New Zealand Government's recent tender for private cloud is a strong indicator of the appetite cloud in the public sector. The roll out of the Ultra-Fast Broadband will enable rural communities to tap into cloud services, especially small and medium enterprises. That said, international connectivity is a major area for development and could easily affect the reliability of services. New Zealand's EU-compliant data protection laws provides a layer of certainty for cloud customers, and also serves as a barrier for use of off-shore cloud services due to restrictions on where data can be exported.

Taiwan

Taiwan's thriving ICT ecosystem and one of the worlds most connected countries in terms of broadband penetration – both wired and wireless –has the potential to further accelerate the adoption of the cloud. Recent updates to privacy and data protection laws will certainly assist in promoting use of cloud by Taiwanese customers, but harmonization of laws around data security would certainly help grow the potential for Taiwan to be a global cloud service provider.

Malaysia

A growing economy that is relatively stable and developed. The government is starting to show positive signs in regards to encouraging Cloud Computing and this is reflected in its rating. The challenge for Malaysia in becoming a desired hub for Cloud Computing is mainly related to networking; international connectivity, costs and broadband quality.

China

China is an emerging economic powerhouse with the world's largest online population and with an increasing rate of growth in Cloud Computing. Restrictive data protection Laws are currently prohibitive in regards to building a global Cloud Computing industry in China. However recent announcements by the government to invest US$154.5 billion to develop cloud computing hubs, may well see China improve its index rating in the near future.

Indonesia

Although its ranking is in the lower tier, Indonesia continues to demonstrate a desire to execute on its policy to not be left behind in the ICT industry. With the highest rate of mobile internet access in South East Asia, there is definitely demand for IT services. Many of its low-ranked parameters in the cloud readiness index will improve as Indonesia's business and physical infrastructure continues to develop to 21st century standards.

India

Like its economy, India's cloud growth is forecast to be spectacular. However, there are significant challenges at present for India taking on a leading role across the region for Cloud Computing including the quality of its network, broadband and power grid capabilities. An improved and more clarified regulatory situation in India would also make India more

attractive to Cloud Computing customers and service providers.

Thailand

This developing economy continually shows signs of improving its ICT infrastructure. However, the last few years of political unrest has constrained progress in a number of areas. Despite this, we expect the index score to improve in the future as focus on infrastructure projects is increasing. In fact, as Thailand continues to demonstrate its ability to innovate (e.g. Thailand's Global Innovation Index recently jumped 12 points), cloud computing is likely to play a significant role in improving productivity.

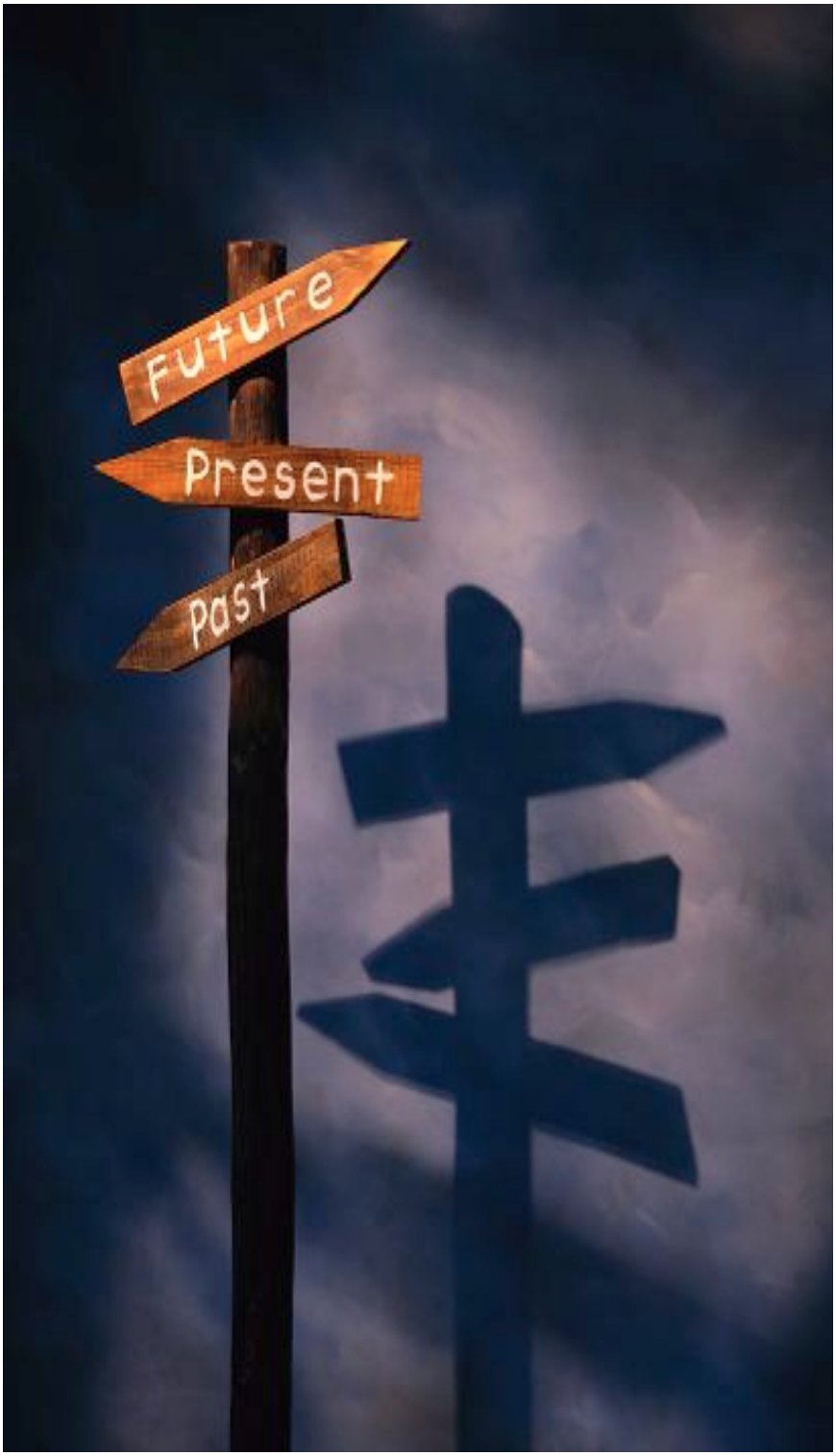
Vietnam

As a developing economy, Vietnam is starting to put more focus/prioritization on IT infrastructure. Being part of the lowest tier of the index, they need to look at improving all parameters except for regulatory conditions in which they scored well. As the ICT industry continues to grow twice as fast as the rest of the economy, MIC is naturally going to look at emerging trends like cloud computing to ensure that the right conditions are in place to maximize the opportunity.

The Philippines

The Philippines performs well in some areas of the Index but there is still room for improvement in many other areas. From our discussions with telecommunication companies, enterprises and government agencies, we conclude that scores could improve significantly over the next few years. For example, NTC has stepped in recently to ensure that service providers provide a higher level of transparency and service level in their offerings.

Looking forward



The purpose of the Index is to facilitate an ongoing discussion and to track the progress of a series of critical conditions required for cloud based services and solutions in the region.

This first release does not cover all necessary conditions but we believe it serves as a good platform for the initial debate and discussion. We anticipate another release within the next six months. This new release will incorporate many more attributes including: Government Cloud Incentives; Environmental Risks; Green Regulations for Data Centers; Ecosystem Development; and Local vs. Global Provider Level Playing Field.

Beyond publishing a numerical index The Association will plot cloud readiness vs. cloud adoption for each country and analyze the different clusters.

The Association

The Association, launched in November 2010, is a forum for hardware and software developers, carriers, enterprise users, policy makers, and researchers. We drive the adoption of cloud computing by addressing regional issues of regulation and policy, security infrastructure and awareness.

As the only forum focused on cloud computing issues in Asia, The Association is a place for collaboration and innovation for all stakeholders with an interest in Asia's cloud market.

The Association's primary mission is to accelerate the growth of the cloud market in Asia. This is done through working groups where best practice recommendations and other thought leading outputs are produced. The working groups draw on subject matter expertise and experience from the member companies. Current working groups include: Public Policy and Regulatory Working Group; Security Working Group and Carrier-Grade Cloud Group.

Members of The Association currently include Alcatel-Lucent, AT&T, CITIC Telecom CPC, Cisco Systems, CloudGarage, Dimension Data, Eire Systems, EMC Corporation, Genetic Finance, Hong Kong Cyberport, Huawei, Microsoft, NetApp, Nokia Siemens Networks, PLDT/Smart, Rackspace, Telstra International, Telenor Group and Verizon

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