



**Asia-Pacific
Economic Cooperation**

2012/CTI2/CON/007

Enabling Innovation

Submitted by: TRPC



**Conference on Innovation and Trade:
Policy Considerations Related to
Generating and Absorbing Innovation
Singapore
4-5 April 2012**

ENABLING INNOVATION

APEC Conference on Innovation and Trade

April 5, 2012

Dr. Peter Lovelock, Director TRPC

Identifying Innovation

BAKRIE CONNECTIVITY



SDH 盛大网络

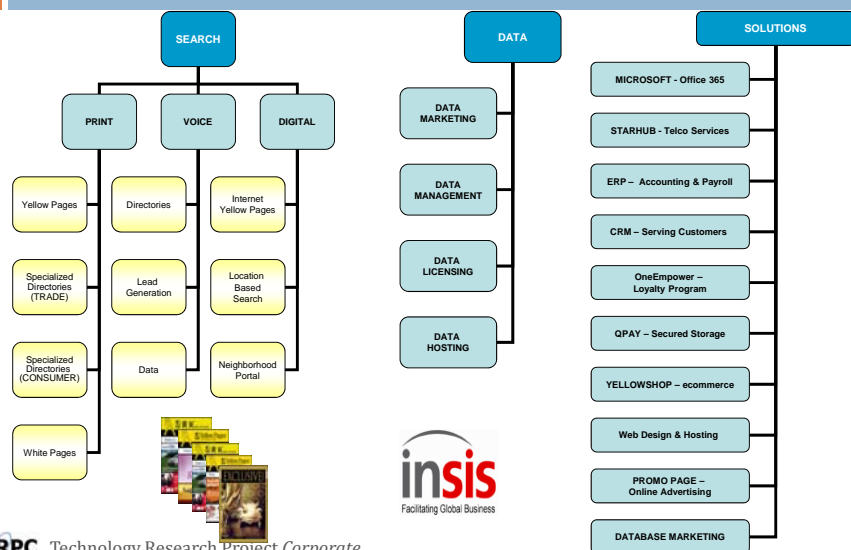
Cloud Computing: Key Attributes

- Abstracted and offered as a service
- Built on a massively scalable infrastructure
- Based on dynamic, elastic, flexibly configurable resources that enables rapid provisioning
- Shared and multi-tenanted resources (hardware, memory, database)
- Easily purchased and billed by consumption
- Self-service based usage model
- Accessible over the Internet by any device

Why Now? *Commoditized Bandwidth, Commoditized Access, Commoditized Storage*

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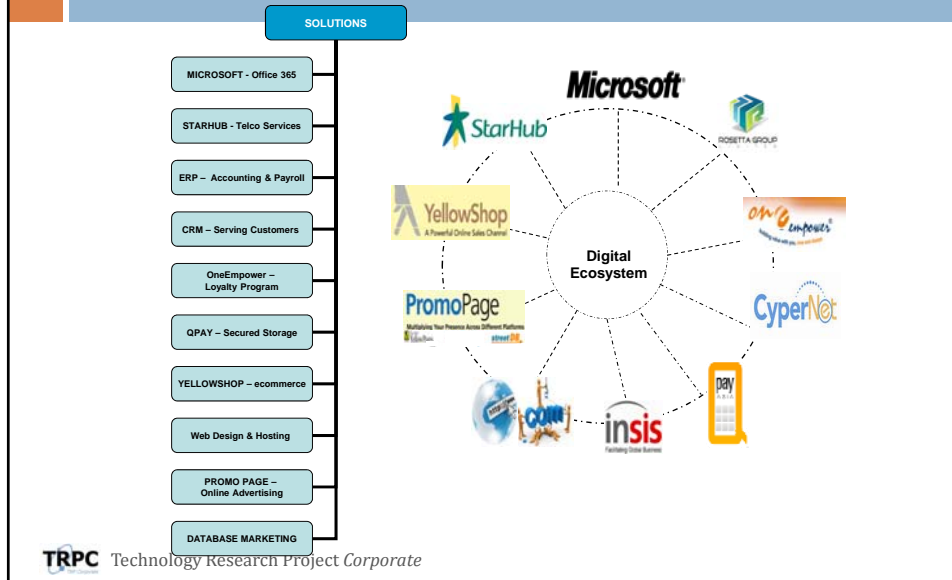
New Cloud Models



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Digital Solutions... pay per use



Cloud ... the great leveller?

- Should be the great 'leveller': biggest beneficiaries – SMEs and emerging economies
- Government regulatory frameworks developing *right now* on multiple fronts

Challenges:

- Impact of regs on data retention, protection and sovereignty on service agreements and overall business proposition.
- Network attack, data breaches and system failure – trust issues
- Public or private cloud? Data sovereignty? Portability?

Opportunities

- Integration of cloud services for public sector (also people sector)
 - ▣ Industry specific application of cloud solutions – health, education, public safety etc.
- Changing economics of service delivery
 - ▣ Reconceptualization of channels and channel partners

Enabling SMEs

Market	Population (mill)	Fixed BB (mill)	Mobile (mill)	SMEs ('000)	SME pop. (mill)
Australia	22.5	5.4	22.5	2.1	16.5
China	1,300.0	126.3	910.1	42	650
Hong Kong SAR	7.1	2.1	14.4	0.3	5.2
India	1,100.0	11.0	752.2	26.1	765
Indonesia	248.0	1.9	220.0	53	180
Malaysia	29.0	2.1	35.0	0.5	21.2
Philippines	90.0	1.7	79.9	8	73.3
Singapore	5.2	1.3	7.8	0.2	4.1
Thailand	69.0	3.2	71.6	2.9	48.9
Vietnam	88.0	3.6	154.0	2.7	68.6

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SME & Cloud: Market Sizing

Market	Population (mill)	SMEs ('000)	SME seats (mill)	Addressable seats (mill)	Lead segments (mill)
Indonesia	248.0	4,893	180	72	14.4
Malaysia	29.0	513.8	21.2	17	6.8
Thailand	69.0	2,900	48.9	29.3	8.79

The *immediately* addressable cloud pop. across these 3 markets is **29.99 million** office productivity seats.

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SME Cloud Readiness

Awareness – includes education programmes :

An ability to try – People are happy to pay for results;

Support – a crucial element of the journey to *broad-based* cloud computing adoption is extensive support services. 'Support' for the SME market is remarkably different to that for the mid- and large-corporates.

Lack of lock-in – no matter how compelling or cheap a new technology or service offering is, SMEs will be worried about 'lock-in';

Trust/ comfort – there often needs to be a personal or local touch to instill a sense of trust – a physical presence of some sort.

Affordability – of course, price, will be one of the biggest drivers – or inhibitors – of mass adoption.

Cloud provisioned access should drive end-user prices down dramatically, but that depends on how the services are accessed and used, which of course goes back to the issues of awareness and education.

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Mobile Payment

- Driven by decreasing cost of access devices (supply side) and consumers use mobiles for more than just for SMS/calls (demand side).
 - 80% of Asian mobile Internet users indulge in **and prefer** mobile shopping to PC shopping (*InMobi study, May 2011*)
 - 69% of Asian m-pay users prefer using their phones for most payments (compared to 26% for US and Europe combined, Mar 2011)

Challenges:

- Uncertainty due to 'Reg Convergence'
 - Telco regulator or central bank?
 - Comp issues?
- Security/ privacy issues around cloud-based services also threaten.
 - As do issues around identity.
- Trust and security issue: who will provide service?

Opportunities:

- *Who owns the customer in these new models? And how to own the customer?*
- *How to integrate physical and e-/m-commerce worlds?*
- *Identity? Authentication?*

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Indonesia: Banking The Unbanked

- **Aim:** To study the market potential for extending banking service to “un-banked” and “under-banked”
- Conducted for the IFC, Jul-Nov 2009
- Focus group discussions (FGDs)
 - ▣ 189 participants in 8 locations across Indonesia
 - ▣ 2 FGDs in each location
 - 1 “banked” group (have accounts) & 1 “un-banked” group
 - ▣ All have mobile phones

Banking The Unbanked: Findings

Current usage of M-wallet services

	Unbanked/ Banked	Airtime transfer	Games/ Ringtones	OTA reselling	OTA
Denpasar	U		X		
	B	X	X		All
Banda Aceh	U	X			All
	B	X		X	All
Manado	U			X	All
	B	X	X		All
Pontianak	U	X	X		All
	B	X		X	All
Sukabumi	U		X	X	All
	B		X	X	All
Wonosobo	U	X	X	X	All
	B	X	X	X	All
Malang	U	X	X		All
	B	X	X	X	All
Lombok	U		X	X	All
	B		X		All

Banking The Unbanked: Findings

M-Payments: Interest levels for various uses

	Unbanked/ Banked	OTA	Cash-in	Transfers	Bill payment
Denpasar	U	X	X	X	X
	B	X		X	X
Banda Aceh	U	X	X		
	B	X			X
Manado	U	X		X	X
	B	X	X	X	X
Pontianak	U		X	X	X
	B	X			X
Sukabumi	U	X	X	X	X
	B	X		X	X
Wonosobo	U	X	X		X
	B		X	X	
Malang	U	X	X	X	X
	B	X	X		
Lombok	U	X	X	X	X
	B	X		X	X

Banking The Unbanked: Findings

Interest in specific m-banking services

	Unbanked/ Banked	Account checking	Cash-in	Transactions/ Transfers	Pay utility bills	Apply for loan
Denpasar	U	X		X		
	B	X		X		
Banda Aceh	U	X		X	X	
	B	X		X	X	
Manado	U	X	X	X	X	X
	B	X		X	X	X
Pontianak	U	X		X	X	
	B	X	X	X		
Sukabumi	U	X	X	X	X	
	B	X	X	X		
Wonosobo	U	X		X	X	
	B	X	X	X	X	
Malang	U		X	X	X	
	B	X	X	X	X	X
Lombok	U	X	X	X		
	B	X	X	X		

Banking The Unbanked: Findings

- Services in demand:
 1. Top-up :
 - *Already being done but ...not recognised as a type of m-wallet service*
 2. Bill payments
 - Very high interest, esp. for under- and un-banked
 3. Transfers
 4. Remittances (*due to family working overseas*)
 5. Transactions
- However, the above do not necessarily require bank accounts, so selling point is not the chance to get one

Market Segmentation

The un-/ underbanked can be split into following market segments:

- **Unbankable (20-30%):**
 - Those who either have no money to save or have no interest in participating in the state financial sector.
- **Borderline bankworthy (10-20%):**
 - *Providing immediate access to savings – e.g., through m-banking – would transform them into 'bankworthy'.*
- **Bankworthy but remote (20-30%):**
 - Range from barely bankworthy through to substantial savings,
 - Because of distance/time factors, formal banking system inconvenient.
 - *If conditions were right, would readily move savings out of informal sector*
- **Migrant workers (and other 'Apex' individuals) (30%)**
- **MSMEs:**
 - encompasses diverse range of individuals – everyone from farmers and small entrepreneurs, through small industrialists, motorcycles distributors, through to becak drivers and massage ladies.
 - Overlaps with some of segments above.
 - One of most approachable and still under-served segments for savings, loans, credit and other financial services.

Successful M-Payment Services

More than 20% of Kenya's GDP is now carried by M-Pesa!



Remittance

- International remittance in Asia = US\$300 billion *officially* according to Citibank.
 - High costs and inconvenience are blockers
- Rural poor social equity inhibited by lack of secure, simple, low cost banking and micropayment
- First world banking suffers high levels of fraud.
- M-banking functions limited due to security issues

Micro-finance

In Bangladesh Grameen Telecom offers a service to women in rural areas who are given a micro-loan to purchase a phone calling plan who resell the service to other users. The program has 270,000 users in 50,000 villages across the country and has generated over US\$100m to date.



Telecom Liberalization in APAC

	Liberalized?	Penetration rates (%)			
		Internet	Broadband	Mobile	Fixed line
Brunei Darussalam	Yes	50	5	110	20
Cambodia	Yes (recently)	1	0	58	3
Lao PDR	Yes (recently)	7	0	66	2
Myanmar	No	0.5	0	1.2	1
Indonesia	Yes	9	1	92	16
Australia	Yes	76	23	101	39
China	Yes	34	9	64	22
Hong Kong SAR, China	Yes	69	30	196	61
Korea, Rep.	Yes	83	36	105	58
Malaysia	Yes	55	7	120	16
New Zealand	Yes	83	25	115	43
Philippines	Yes	9	2	86	7
Singapore	Yes	70	25	145	39
Thailand	Yes	21	4	104	10
Vietnam	Yes	28	4	175	19

Source: World Bank 2010

Telecom Liberalization

- Liberalization attracted investment, drove down prices, leveled the playing field and forced businesses to innovate.
 - Lowers mobile and broadband subscription prices and encourages adoption
 - Opens up new consumer markets e.g. foreign workers, lower-income groups etc.
- Access to telecommunications encourage innovations in ICT services and products offered.

Next-Gen Networks...

Country	What are they doing?	Govt investments	Total estimated costs	What are their objectives?
Australia National Broadband Network	Formed a public-private partnership with government owning 51% stake	AUD4.7 billion (USD5.06 billion) initial investment	AUD43 billion (USD45.6 billion) over 8 years	Open-access, 100 Mbps+ FTTH network to 90% of households by 2018
China Next Generation Internet	To build nation-wide optic fibre backbone network. Focus on developing next generation broadband wireless networks	CNY20 billion (USD3.18 billion) state investment	CNY100 billion (USD15.8 billion) over 8 years	100 Mbps Internet access on 1000 Gbps backbone network. Develop LTE, 4G and other long-term tech
Malaysia National Broadband Initiative	Formed a public-private partnership with Telekom Malaysia	MYR2.4 billion (USD787 million)	MYR11.3 billion (USD3.75 billion) over 10 years	FTTH/FTTB access with 10-100Mbps
Singapore Next Generation Nationwide Broadband Network	Formed a public-private partnership and structural separation for infrastructure, operating and retail	SGD 1 billion (USD793 million) worth of grants	-	100Mbps downstream, 50Mbps upstream per user. 95% fibre coverage of homes and commercial buildings by Jun 2012

... anything but liberalised

Trade Issues

- Issues of flexibility and relevance of IP regimes are well covered?
 - Safe harbour and fair dealing provisions.
 - Secondary liability, etc.
 - Issues of interoperability, standards, portability
- Cloud computing, in partic, has implications for the way agreements are applied and enforced
 - For innovation and national development
 - For companies operating regionally and exploiting economies of scale to move up the value chain
 - For inward foreign investment

Policy/Regulatory Interoperability

- Internet has enjoyed 'light touch' regulation
- Data is becoming 'stateless':
 - Cross platforms
 - Cross providers
 - Cross borders
- Increasing 'control' over data means more clarity is needed:
 - Developers need certainty to build globally relevant applications
 - Customers need confidence that their data – and identity – is protected
 - Service providers need clarity to build the platform & infra for the cloud
- How reg & legal frameworks 'interoperate' becomes critical



Thank You!

Questions?

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