Government’s Initiatives in Cloud Computing and Data Centre Development

Mr Victor Lam, JP  
Acting Government Chief Information Officer

Cloud Expo Asia  
May 18, 2016
Disruptive Technologies

- Cloud Computing
- Big Data
- Mobile
- Internet of Things
Worldwide Public Cloud Services Market

The market is projected to grow to US$204 billion in 2016

<table>
<thead>
<tr>
<th>Service Type</th>
<th>2015</th>
<th>2015 Growth (%)</th>
<th>2016</th>
<th>2016 Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud business process services (BPaaS)</td>
<td>39.2</td>
<td>2.7</td>
<td>42.6</td>
<td>8.7</td>
</tr>
<tr>
<td>Cloud application services (SaaS)</td>
<td>31.4</td>
<td>15.5</td>
<td>37.7</td>
<td>20.3</td>
</tr>
<tr>
<td>Cloud application infrastructure services (PaaS)</td>
<td>3.8</td>
<td>16.1</td>
<td>4.6</td>
<td>21.1</td>
</tr>
<tr>
<td>Cloud system infrastructure services (IaaS)</td>
<td>16.2</td>
<td>31.9</td>
<td>22.4</td>
<td>38.4</td>
</tr>
<tr>
<td>Cloud management and security services</td>
<td>5.0</td>
<td>20.7</td>
<td>6.2</td>
<td>24.7</td>
</tr>
<tr>
<td>Cloud advertising</td>
<td>79.4</td>
<td>15.4</td>
<td>90.3</td>
<td>13.6</td>
</tr>
<tr>
<td>Total market</td>
<td>175.0</td>
<td>13.7</td>
<td>203.9</td>
<td>16.5</td>
</tr>
</tbody>
</table>

Source: Gartner, Inc
### Cloud Readiness Index (CRI) 2016

**Rank, Country**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Hong Kong</td>
<td>8.1</td>
<td>9.1</td>
<td>6.7</td>
<td>8.0</td>
<td>6.2</td>
<td>9.5</td>
<td>7.2</td>
<td>8.6</td>
<td>7.4</td>
<td>7.2</td>
<td>78.1</td>
<td>+4</td>
</tr>
<tr>
<td>#2</td>
<td>Singapore</td>
<td>6.4</td>
<td>9.4</td>
<td>6.5</td>
<td>7.8</td>
<td>6.8</td>
<td>9.0</td>
<td>8.6</td>
<td>8.9</td>
<td>7.3</td>
<td>6.0</td>
<td>76.7</td>
<td>+2</td>
</tr>
<tr>
<td>#3</td>
<td>New Zealand</td>
<td>4.6</td>
<td>8.2</td>
<td>7.6</td>
<td>6.8</td>
<td>7.4</td>
<td>9.0</td>
<td>8.1</td>
<td>8.7</td>
<td>6.9</td>
<td>7.2</td>
<td>74.4</td>
<td>-1</td>
</tr>
<tr>
<td>#4</td>
<td>Australia</td>
<td>4.3</td>
<td>8.0</td>
<td>6.6</td>
<td>6.3</td>
<td>7.6</td>
<td>9.5</td>
<td>7.4</td>
<td>8.3</td>
<td>6.7</td>
<td>8.3</td>
<td>73.2</td>
<td>-1</td>
</tr>
<tr>
<td>#5</td>
<td>Japan</td>
<td>3.9</td>
<td>8.9</td>
<td>6.7</td>
<td>5.9</td>
<td>7.1</td>
<td>8.0</td>
<td>8.7</td>
<td>8.7</td>
<td>8.3</td>
<td>7.8</td>
<td>73.0</td>
<td>-4</td>
</tr>
<tr>
<td>#6</td>
<td>Taiwan</td>
<td>4.1</td>
<td>8.8</td>
<td>6.7</td>
<td>6.4</td>
<td>7.0</td>
<td>9.5</td>
<td>6.7</td>
<td>7.4</td>
<td>7.1</td>
<td>7.2</td>
<td>71.1</td>
<td>+1</td>
</tr>
<tr>
<td>#7</td>
<td>South Korea</td>
<td>3.8</td>
<td>9.0</td>
<td>6.3</td>
<td>6.2</td>
<td>7.1</td>
<td>9.0</td>
<td>7.0</td>
<td>6.0</td>
<td>6.9</td>
<td>6.7</td>
<td>68.0</td>
<td>-1</td>
</tr>
<tr>
<td>#8</td>
<td>Malaysia</td>
<td>3.3</td>
<td>7.6</td>
<td>5.4</td>
<td>5.9</td>
<td>7.6</td>
<td>8.0</td>
<td>7.4</td>
<td>7.7</td>
<td>7.6</td>
<td>5.8</td>
<td>66.3</td>
<td>-</td>
</tr>
<tr>
<td>#9</td>
<td>Philippines</td>
<td>3.3</td>
<td>5.5</td>
<td>6.0</td>
<td>3.5</td>
<td>3.5</td>
<td>7.5</td>
<td>5.5</td>
<td>5.6</td>
<td>6.1</td>
<td>7.3</td>
<td>53.8</td>
<td>+1</td>
</tr>
<tr>
<td>#10</td>
<td>Thailand</td>
<td>3.8</td>
<td>8.6</td>
<td>6.0</td>
<td>5.2</td>
<td>4.1</td>
<td>5.0</td>
<td>5.1</td>
<td>4.6</td>
<td>6.3</td>
<td>3.8</td>
<td>52.6</td>
<td>-1</td>
</tr>
<tr>
<td>#11</td>
<td>Indonesia</td>
<td>1.8</td>
<td>6.3</td>
<td>5.4</td>
<td>2.7</td>
<td>4.7</td>
<td>6.0</td>
<td>5.6</td>
<td>6.1</td>
<td>6.1</td>
<td>5.8</td>
<td>50.6</td>
<td>+1</td>
</tr>
<tr>
<td>#12</td>
<td>India</td>
<td>1.7</td>
<td>5.6</td>
<td>5.1</td>
<td>1.9</td>
<td>7.1</td>
<td>4.5</td>
<td>5.5</td>
<td>6.0</td>
<td>6.0</td>
<td>5.8</td>
<td>49.1</td>
<td>+1</td>
</tr>
<tr>
<td>#13</td>
<td>China</td>
<td>1.6</td>
<td>6.6</td>
<td>5.3</td>
<td>2.5</td>
<td>4.4</td>
<td>5.5</td>
<td>6.2</td>
<td>5.7</td>
<td>6.1</td>
<td>1.3</td>
<td>45.4</td>
<td>-2</td>
</tr>
<tr>
<td>#14</td>
<td>Vietnam</td>
<td>3.0</td>
<td>6.7</td>
<td>5.4</td>
<td>2.6</td>
<td>3.2</td>
<td>5.0</td>
<td>5.4</td>
<td>5.1</td>
<td>5.1</td>
<td>2.4</td>
<td>44.0</td>
<td>-</td>
</tr>
</tbody>
</table>

**Comparison (and hypothetical rank)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil (#8)</td>
<td>3.8</td>
<td>6.8</td>
<td>7.0</td>
<td>4.4</td>
<td>7.1</td>
<td>5.0</td>
<td>5.2</td>
<td>4.7</td>
<td>6.1</td>
<td>7.0</td>
<td>57.1</td>
<td>76</td>
</tr>
<tr>
<td>Germany (#3)</td>
<td>5.0</td>
<td>8.4</td>
<td>7.1</td>
<td>6.9</td>
<td>7.1</td>
<td>8.0</td>
<td>7.3</td>
<td>8.1</td>
<td>8.1</td>
<td>8.3</td>
<td>74.3</td>
<td>78</td>
</tr>
<tr>
<td>South Africa (#8)</td>
<td>5.0</td>
<td>6.0</td>
<td>5.8</td>
<td>2.7</td>
<td>3.8</td>
<td>3.5</td>
<td>6.0</td>
<td>7.7</td>
<td>6.3</td>
<td>7.4</td>
<td>54.3</td>
<td>77</td>
</tr>
<tr>
<td>UAE (#8)</td>
<td>3.8</td>
<td>8.3</td>
<td>4.9</td>
<td>6.7</td>
<td>3.5</td>
<td>3.5</td>
<td>8.1</td>
<td>7.9</td>
<td>7.6</td>
<td>3.3</td>
<td>57.5</td>
<td>76</td>
</tr>
<tr>
<td>UK (#3)</td>
<td>6.1</td>
<td>8.5</td>
<td>7.2</td>
<td>6.6</td>
<td>7.1</td>
<td>8.5</td>
<td>7.8</td>
<td>8.6</td>
<td>7.9</td>
<td>7.6</td>
<td>75.7</td>
<td>78</td>
</tr>
<tr>
<td>USA (#5)</td>
<td>4.3</td>
<td>8.4</td>
<td>6.6</td>
<td>5.8</td>
<td>8.2</td>
<td>6.5</td>
<td>7.4</td>
<td>8.3</td>
<td>8.0</td>
<td>8.1</td>
<td>71.6</td>
<td>75</td>
</tr>
</tbody>
</table>

All values to 1 decimal place.
Government’s Cloud Computing Initiatives
Government’s Cloud Initiatives Overview

• Setting up Cloud Infrastructure
  ➢ Government Cloud Infrastructure
  ➢ E-Government Infrastructure Service Platform

• Promoting Adoption of Cloud Services
  ➢ List of Public Cloud Services Providers
  ➢ Big Data and Open Data Initiative
  ➢ “InfoCloud” Portal

• Setting up Expert Groups on Cloud Computing Services and Standards

• Promoting Cloud Adoption among SMEs
Government Cloud Infrastructure (GovCloud)

• Facilitate delivery of common e-government services
• Currently 12 application systems developed or hosted on GovCloud
E-Government Infrastructure Service Platform (EGIS)

• Offers centrally-managed services for G2C and G2B transactions
• New cloud-based platform in March 2015
• Hosting around 160 e-government services
Promote Adoption of Public Cloud Services

• A list of Government Public Cloud Service (GPCS) providers
  ➢ 47 GPCS providers
  ➢ Over 300 public cloud services
Government’s daily operations collect and generate a substantial amount of raw data in various sectors. These include:

- Law enforcement
- Licensing
- Municipal management
- Traffic
- Customs
- Prescription data
- Weather
- Restaurant inspection

These data sources contribute to Public Sector Information (PSI).
Automatic
Synchronised
Real-time
Raw
Free
API
Value-add
Mix-and-match
Service design

Benefits
- Innovators: entrepreneurship
- Public: convenience
- Society: wise decisions
6000+ datasets
18 categories
50 providers
More PSI datasets and APIs

DATA.GOV.HK
Big Data Analytics

- Big data and data analytics offers a window into valuable streams of information
- Provide insights and values from bringing together individual datasets
- Widening access to PSI datasets can lead to positive social and business outcomes
- The Government will further explore the use of big data analytics to enhance the efficiency in government operations for achieving better quality in public services
“InfoCloud” Portal

www.infocloud.gov.hk
Hong Kong/Guangdong Expert Committee on Cloud Computing Services and Standards
SME Cloud Promotion Campaign

- Allay concerns (Security, vendor lock-in)
- Advise on cloud services selection
- Best SME Cloud Adoptors
- Best SME Cloud Solutions
- Promotion & Publicity

Promotion Campaign

Imparting Knowledge via Training

Raising Awareness & Driving Adoption
SME Cloud Competitions Award Ceremony
Cloud Training Programmes for SME Sectors

- Beneficial use of cloud services
- Selection of cloud services
- Sector-specific applications / usages
- Useful checklists
- Allaying concerns
- Success stories
Government’s Data Centres Development Initiatives
Data Centres in Hong Kong

• An essential part of ICT infrastructure
• Technology Backbone to business operations
Rising Demand for Data Centres

• Increasing Use of Cloud Computing
• Big Data applications
• Smart City Development
Hong Kong as a Prime Location for Data Centres

Strategically located in heart of Asia

2014: 7,585 overseas and Mainland companies; 3,883 regional HQ and regional offices

Ranked in 2013 as the safest city in Asia for data centres

IDC ranked Hong Kong in 2013 as the most suitable location in Asia Pacific for setting up data centres
Competitive Advantages of Hong Kong

- Pro-Business Environment
- Robust Telecommunications Infrastructure
- Reliable power supply
- Free flow of information
- Low and Simple Taxation Regime
- Proximity to the Mainland
Multi-pronged Facilitation Initiatives

(A) Land Supply by Government

- Industrial Estates
  - Some 19 hectares granted for data centres
  - Cluster of 11 data centres at TKO

- Sites dedicated for data centres
  - 1st one-hectare site sold in October 2013
  - 2nd and 3rd one-hectare sites to be made available
(B) Two Concessionary Measures - Extended

- Use of Industrial Building / Lots for Data Centres

Partial Conversion of Industrial Buildings

- Exempt waiver fee
  - 29 applications
    (14 approved, 12 being processed, 3 withdrawn by applicant)
- 67,639 m² floor area (approved)

Redevelopment of Industrial Lots

- Land premium based on high-tier data centre use
  - 2 applications
    (1 approved, 1 withdrawn by applicant)

As of March 2016
(C) Data Centre Facilitation Unit

- **Thematic data centre website** – comprehensive information on building data centres in Hong Kong

- **Helpdesk** – one-stop services for establishing data centres in Hong Kong
  
  - www.datacentre.gov.hk
  
  - datacenter@ogcio.gov.hk
  
  - (852) 2582 4574
A Territory-Wide Blueprint for Smart City
Smart City Blueprint

- Digital Framework and Relevant Standards
- Legal Framework
- Smart City Blueprint
- Public-Private Collaboration

Big Data Initiative

Legal Framework

Smart City Blueprint
Changing the World with Disruptive Technologies

Thank you