



MEMO

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Adoption of Government Cloud Services

This circular appeals to bureaux and departments (“B/Ds”) to adopt Government Cloud Services in information technology (“IT”) projects.

Background

2. The Government offers different electronic services for internal and external use. Traditionally, B/Ds build and maintain IT systems on its own. As a result, the resources of government IT systems may not be best utilised. In 2011, the Office of the Government Chief Information Officer (“OGCIO”) formulated a Government Cloud Strategy to capitalise on cloud computing technology to meet rising public demand and expectations. B/Ds have since been adopting cloud services on a voluntary basis.

3. Cloud services can be deployed rapidly, and shared solutions will result in substantial cost savings. By bundling the demand of different B/Ds, an optimal shared pool of computing and support resources can be set up to maximise the use of IT resources within the Government and achieve economy of scale. As cloud computing adopt a “pay-per-use” charging model, low initial investment is required to begin, and additional investment is needed only when demand for resources increases. It may reduce the total cost of ownership of IT systems as compared with the traditional model. Cloud computing also provides flexibility in catering for B/Ds’ new hosting needs for their IT systems as well as handling sudden surge in demand of hosting capacities quickly and easily. It offers the

Government an opportunity to increase operational efficiency and become more agile. To address information security, various security measures have been implemented in government cloud platforms in compliance with the government security policies and guidelines.

Options of Government Cloud Services

4. Depending on the required data security level and other considerations, the following cloud service models are available for B/Ds' adoption –

(a) **Public Cloud for unclassified information:**

A Public Cloud is a form of cloud computing used by various organisations and individuals whereby data are stored in the providers' data centres for shared use among different users. Under the ***Government Public Cloud Services ("GPCS")***, more than 300 cloud service options from over 40 providers are offered to B/Ds. The GPCS providers will provide cloud services for productivity applications, business applications, cloud IT services and social media applications.

(b) **Private Cloud for sensitive information:**

A Private Cloud is a form of cloud computing for the dedicated use of one organisation. It can reside on either the Government data centres ("In-house Private Cloud") or be hosted in outsourced data centres ("Outsourced Private Cloud"). The ***Government Cloud Infrastructure ("GovCloud")*** is an outsourced private Cloud while the ***e-Government Infrastructure Service ("EGIS")*** and the ***Central Computer Centre Virtualised Infrastructure ("CCCVI")*** are In-house Private Clouds. Their key features are summarised in the table below –

	Outsourced Private Cloud	In-house Private Cloud	
	GovCloud	EGIS	CCCVI
Service Offerings	Infrastructure-as-a-Service ¹	Platform-as-a-Service ²	Infrastructure-as-a-Service
Service Scope	G2C ³ and G2G ⁴	G2C	pilot/ proof of concept use
Data Classification	up to Confidential	up to Restricted	up to Confidential
Service Level	≥99.95% per month	≥99.9% per month	≥99.9% per month
Operational Support	24x7	24x7	24x7
Technical Support	24x7	24x7	office hours only
Resilience	Dual Site Active-Active ⁵	Dual Site Active-Active	Dual Site ⁶
Service Provisioning	Self-service Portal	Self-service Portal	Manual

5. An overarching consideration in determining whether an application system should be placed in a Public Cloud or a Private Cloud is the level of sensitivity and confidentiality of the data and information involved. Public Cloud is only suitable for IT services handling open or non-sensitive data (i.e. not involving personal data and classified information), while Private Cloud is targeted for application systems with restricted and confidential data. The services provided by each cloud service model are at **Annex**.

¹ “Infrastructure-as-a-Service” provides the processing, storage, networks, and other fundamental computing resources to consumer who is able to deploy and run arbitrary software.

² “Platform-as-a-Service” is the capability provided to the consumer to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider

³ G2C stands for “Government-to-Citizen”, e.g. sport venue booking system

⁴ G2G stands for “Government-to-Government”, e.g. government electronic information management system

⁵ Dual Site Active-Active: when there is failure in one site, the other site will take over and provide all the required service automatically.

⁶ Dual Site: when there is failure in one site, the other site may take over part or all of the required service manually.

Charging

6. The Government Cloud Services adopt a “pay-per-use” principle. B/Ds are only required to pay for the allocated resources (such as processing, storage and network resources). They can enhance their services when demand grows or decommission allocated resources when demand drops. The charging mechanisms of different Government Private Clouds have been uploaded to the following web pages for B/Ds’ reference.

GovCloud	(CCGO)	http://itginfo.ccgo.hksarg/content/govcloud/costing/
	(Internet)	http://www.itginfo.gov.hk/content/govcloud/costing/
EGIS	(CCGO)	https://itginfo.ccgo.hksarg/content/egis/fund_contri.asp/
	(Internet)	http://www.itginfo.gov.hk/content/fund_contri.asp/
CCCVI	(CCGO)	https://itginfo.ccgo.hksarg/content/cccvi/index3.html/
	(Internet)	http://www.itginfo.gov.hk/content/cccvi/index3.html/

Source of Funding

7. In general, B/Ds can seek funding for the non-recurrent costs of IT projects through the Capital Works Reserve Fund Head 710. While B/Ds are normally required to absorb the recurrent costs of these projects, please note that according to paragraph 5(e) of OGCIO Circular No. 6/2004 (“Funding of Recurrent and Non-Recurrent Costs of Administrative Computer Projects”), Head 710 can also provide funding for the costs of bundled services that cannot be broken down into recurrent and non-recurrent portions. Government Cloud Services are considered a bundled service that may be charged to projects under CWRP Head 710 including the Block Allocation managed by OGCIO provided that any identifiable recurrent cost components are excluded from the funding submission.

8. Given the benefits of cloud computing to B/Ds and the Government as a whole, B/Ds should first consider adopting Government Cloud Services when developing new services or systems, or revamping existing service or systems. When funding is sought under Head 710, if a project is amenable to cloud computing but B/Ds decide not to adopt Government Cloud Services, strong justifications are required for such funding applications to be approved.

Enquiry

9. OGCIO has established a “Cloud Computing” theme page under the ITG InfoStation setting out the basic definitions, potential benefits and major factors to be considered for adoption of cloud computing for B/Ds’ reference. The theme page can be accessed via:

(CCGO) <http://itginfo.ccgohksarg/content/cloudComp/>

(Internet) <http://www.itginfo.gov.hk/content/cloudComp/>

10. OGCIO stands ready to provide advice and assistance to B/Ds on the use of Government Cloud Services. The contact points of different Government Cloud Services are at **Annex**. We will also arrange briefing sessions on services offered by different Government Cloud Services to B/Ds.



(Ir Allen Yeung)

Government Chief Information Officer

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Details of Government Cloud Services

Details of the services provided by each Government Cloud Service are listed below:

Public Cloud

Government Public Cloud Services (“GPCS”)

2. GPCS facilitate B/Ds in delivering e-Government and IT services involving no personal data or sensitive information. B/Ds can issue their requests for quotations and place orders to the GPCS providers according to the prevailing procurement procedures.

3. GPCS providers provide, on a subscription basis, four categories of public cloud services, namely: –

- (a) Productivity Applications with "Office Tools and Suites", "Document and Content Management" & "Collaboration, Meetings, Conferencing" as mandatory items;
- (b) Business Applications with “E-Mail” as a mandatory item;
- (c) Cloud IT Services with “Backup and Restore” as mandatory item; and
- (d) Social Media Applications with "Photo Hosting/ Sharing" & "Video Hosting/ Sharing" as mandatory items.

4. The “GPCS” theme page, including a list of GPCS providers and their offerings, can be accessed via:

- (CCGO) <https://itginfo.ccgo.hksarg/content/gpcs/>
- (Internet) <http://www.itginfo.gov.hk/content/gpcs/>

Private Cloud

Outsourced Private Cloud

Government Cloud Infrastructure (“GovCloud”)

5. GovCloud is an outsourced private cloud aiming at hosting Government-to-Citizen (“G2C”) and Government-to-Government (“G2G”) e-Government services for use by B/Ds. It is commensurate with the Infrastructure-as-a-Service (“IaaS”) layer (i.e. servers, storage and network resources) with a dedicated infrastructure developed and operated in the service provider's data centres for exclusive use by the Government. GovCloud is designed based on the following principles:

- (a) Generic IaaS for hosting both internal and public facing e-Government services;
- (b) Infrastructure is dedicated for exclusive use by the Government;
- (c) Fully virtualised to leverage cloud computing benefits;
- (d) High availability and resilience;
- (e) Elasticity for dynamic demand;
- (f) Security up to “CONFIDENTIAL” level; and
- (g) Agile on-demand service.

6. GovCloud provides round-the-clock technical and operation services. The committed service availability of GovCloud is not less than 99.95% per month.

7. The “GovCloud” theme page can be accessed via:

- (CCGO) <https://itginfo.ccgo.hksarg/content/govcloud/>
- (Internet) <http://www.itginfo.gov.hk/content/govcloud/>

In-house Private Cloud

E-Government Infrastructure Service (“EGIS”)

8. EGIS offers a Platform-as-a-Service infrastructure for G2C e-Government services. Apart from providing a reliable and secure application hosting platform for shared use among B/Ds, it also provides shared services,

namely, notification, messaging, e-payment, SMS, PKI certificate revocation list checking and ebXML messaging services handler service. EGIS handles information up to “RESTRICTED” level.

9. EGIS provides a testing site and two active-active production sites with round-the-clock technical and operation support services. The committed service availability of EGIS for each production site is not less than 99.9% per month.

10. The “EGIS” theme page can be accessed via:

(CCGO) <https://itginfo.ccgo.hksarg/content/egis/>

(Internet) <http://www.itginfo.gov.hk/content/egis/>

Central Computer Centre Virtualised Infrastructure (“CCCVI”)

11. CCCVI is a pilot implementation of IaaS (i.e. servers, storage and network resources) for hosting pilot or proof of concept IT systems. Clients are required to bring, deploy and run their own arbitrary software stack (including operating systems, system software and application software) on CCCVI but they do not need to manage the underlying CCCVI. They have control over their subscribed virtual machines and own software stack. CCCVI handles information up to “CONFIDENTIAL” level.

12. CCCVI provides technical support services during the office hours. The committed service availability of CCCVI is not less than 99.9% per month.

13. The “CCCVI” theme page can be accessed via:

(CCGO) <https://itginfo.ccgo.hksarg/content/cccvi/>

(Internet) <http://www.itginfo.gov.hk/content/cccvi/>

Enquiries

14. For enquiries related to Government Cloud Services, please contact the following offices:

Government Cloud Services	Contact Point	Phone No.	Email Address
GPCS	GPCS-Admin	2231 5420 or 2231 5424	<u>Notes Mail:</u> GPCS-ADMIN/OGCIO/HKSARG <u>Internet Mail:</u> gps-admin@ogcio.gov.hk
GovCloud	GovCloud Contract Management Office	2582 4204 or 2582 6067 or 2582 6066	<u>Notes mail:</u> GovCloud Admin/OGCIO/HKSARG <u>Internet mail:</u> gcpadmin@ogcio.gov.hk
EGIS	EGIS Client Advisory	3182 6099	<u>Notes mail:</u> EGIS Client Advisory /OGCIO/HKSARG <u>Internet mail:</u> egis@ogcio.gov.hk
CCCVI	CCCVI Client Liaison Team	2582 2037 or 2582 2061 or 2582 4457	<u>Notes mail:</u> CCCVI Client Liaison /OGCIO/HKSARG <u>Internet mail:</u> cccvl_client_liaison@ogcio.gov.hk