Public – Private – Community – Hybrid Clouds

What, Why and When?

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Objectives

- Quick walk through foundational cloud computing considerations
- Open discussions based on a "use case" to generate meaningful discussion and provide new perspectives
- Gain a better understanding of cloud and why successful cloud experiences don't happen by accident

Safe Harbour for Us!

- Views are "ours"…or not
- Views expressed are not necessarily those of "you", Cloud Perspectives or any of the other groups Cloud Perspectives participates within
- Some information may be for entertainment purposes

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Cloud Perspectives

- NIST – Carrier, Audit, RA, CSRA, SLA, Broker, SAJACC, Security, Federation
- ISO/IEC JTC1 SC7 (Systems) and SC38 (Cloud) & co-editor Agile DevOps under SC7
- Cloud Security Alliance – Canada Chapter Director
- Object Management Group – CWG – SLA, Reference Architecture, CMP
- ITU-T (UN) – JCA
- TM Forum – Cloud SLA and Metrics
- IEEE – Reviewer and Keynote
- AFCEA, OWASP, IIBA, ISACA, itSMF, OpenStack & More
- Collaboration between cloud SDOs and Governments

NIST Cloud Elements

Five Essential Characteristics	Hosting	Four Deployment Models	Three Service Models
On demand self–service	Internal	Private cloud	Software as a Service (SaaS)
Broad network access		Community cloud	Platform as a Service (PaaS)
Resource pooling		Public cloud	Infrastructure as a Service (IaaS)
Rapid elasticity	External	Hybrid cloud	
Measured service			

Wherever You Go

- We have the need for new travel services

   Bookings generally require your name, address, phone number, credit card number, and passport number
   ◦ One feature shows hotel locations on a map, expected to be provided via Google or similar public cloud service non-resident to Canada

Data Classification & Categorization – PBMM

PB - Confidentiality

A compromise of the confidentiality of PROTECTED B information is reasonably expected to cause a medium level of injury to non-national interests

M - Integrity

A compromise of the integrity of supporting IT assets is reasonably expected to cause a medium level of injury to non-national interests

M - Availability

A compromise of the availability of supporting IT assets is reasonably expected to cause a medium level of injury to non-national interests

Continual Reflection Required by Customer

Assessing from What Lens/ Scope?

- End to End
- Application (s)
- Functions
- Micro-services

Search – Hotels – Unclassified
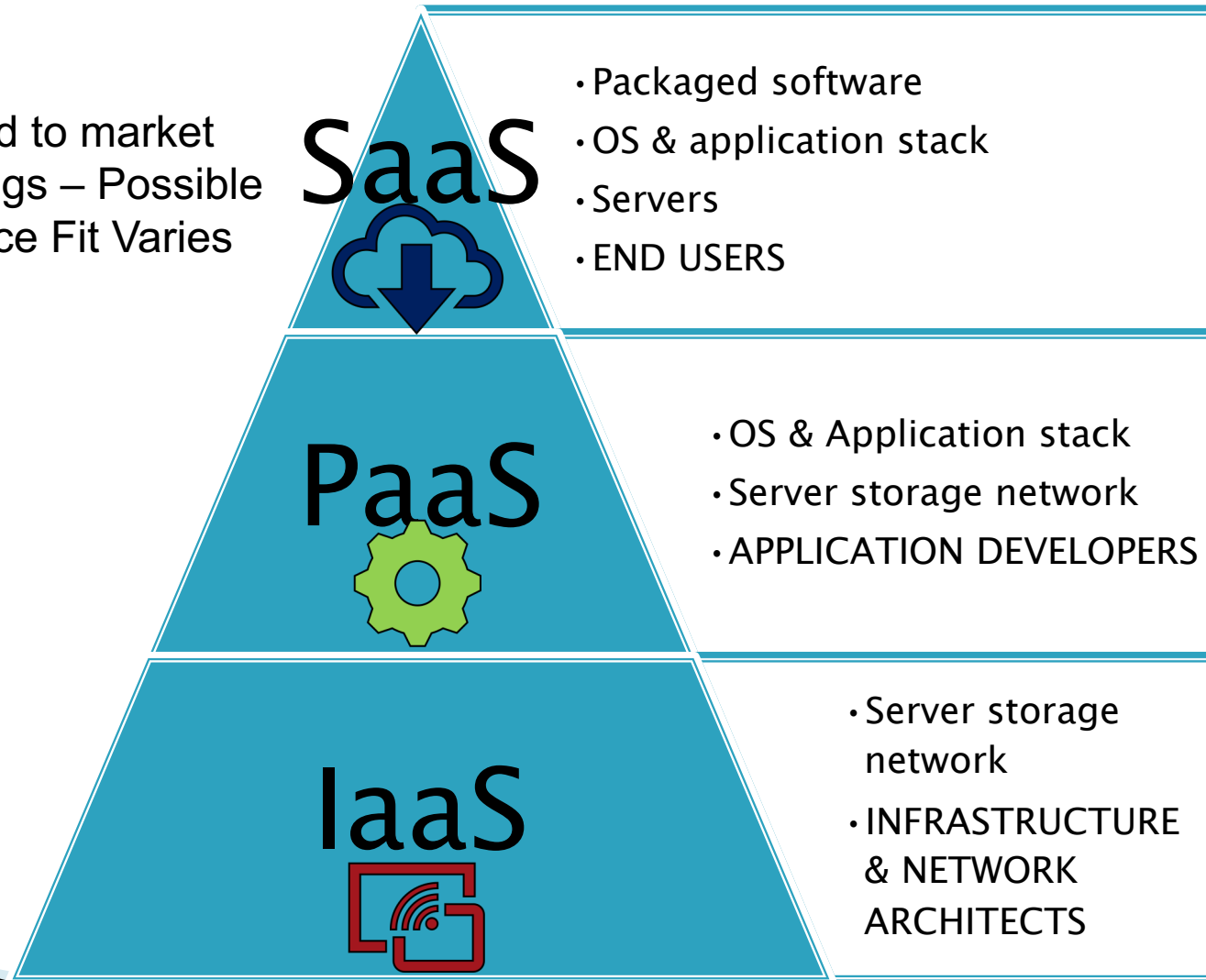Reserve Room - PBMM

Customer lenses vary

Data Residency

- Do we care about data residency?

- Business Advantages and Disadvantages?

- Hosting internally or externally more attractive?
- Hosting within Canada more attractive?
- Assuming available, if only hosted outside of Canada are we OK with that?

Cloud Service Models

✓ Speed to market
✓ Savings – Possible
✓ Service Fit Varies

SaaS

- Packaged software
- OS & application stack
- Servers
- END USERS

PaaS

- OS & Application stack
- Server storage network
- APPLICATION DEVELOPERS

IaaS

- Server storage network
- INFRASTRUCTURE & NETWORK ARCHITECTS

What is the primary service model?

- IaaS
- PaaS
- SaaS

Combining Cloud Deployment & Service Models

Private

Community

Public

Hybrid

o IaaS

o PaaS

o SaaS
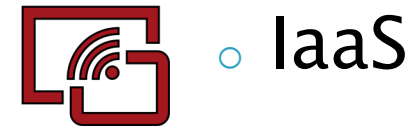
Deployment Models and Compliance

Laws and regulations   **Standards**   **Reporting**   **Business continuity and recovery**   **Logs and audit trails**   **Client specific compliance**   **Data isolation req.**

Private

Community
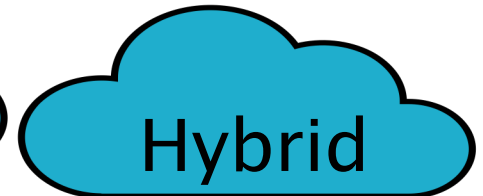
Public

Hybrid

Deployment & Service Models and Compliance

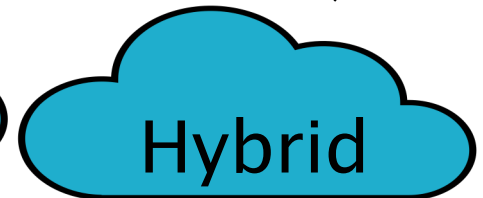| Laws and regulations	Standards	Reporting	Business continuity and recovery	Logs and audit trails	Client specific compliance	Data isolation req.

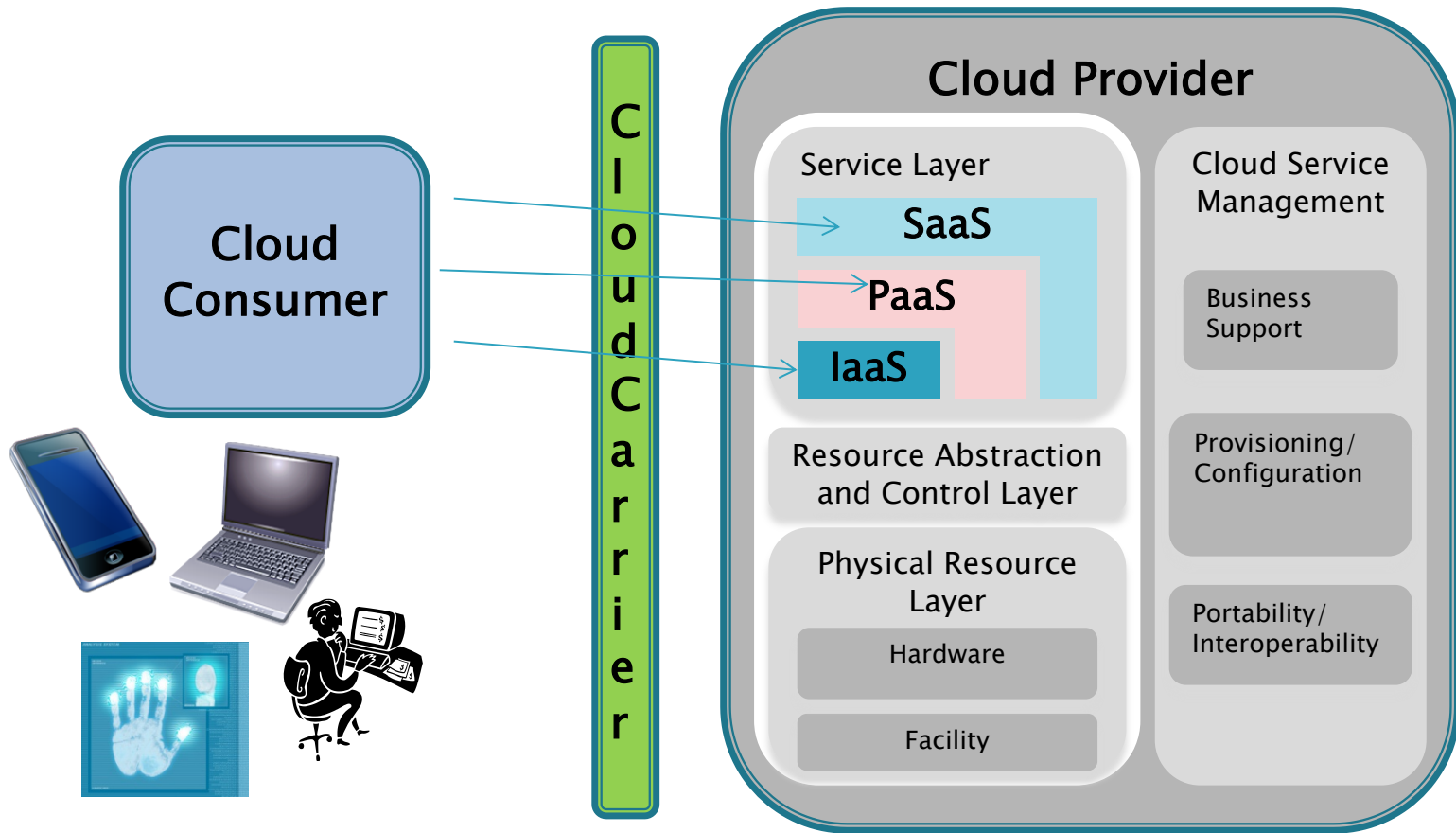Private

Community

Public

Hybrid

Issues with GOC policies

▸ What are some issues that arise with cloud technology which may conflict with Government of Canada policies?

▸ How about "click thru agreements"?

Resiliency

- CSP performance
- Geo-jurisdiction of data
- Security and resiliency requirements of applications should be carefully compared with the available cloud architectures and security controls
  - Adoption of cloud solutions should be planned before moving to the cloud
- Resiliency parameters -> Risk assessment
- Migration functionality

Core Connectivity....Secured!

Cloud Consumer

C l o u d C a r r i e r

Cloud Provider

Service Layer
SaaS

PaaS

IaaS

Resource Abstraction and Control Layer

Physical Resource Layer

Hardware

Facility

Cloud Service Management

Business Support

Provisioning/ Configuration

Portability/ Interoperability

Cloud Means ITIL is Obsolete?

No?
CSP – ITIL?
CSC – ITIL?

References

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- https://www.cyber.gov.au/sites/default/files/2019-05/PROTECT%20-%20Cloud%20Computing%20Security%20Considerations%20%28April%202019%29_0.pdf
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Helping Governments and Enterprises in the Cloud Journey

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