Cloud Computing – Key Models and Integration Perspectives

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Agenda

- Introduction
- Canada and Cloud Hype
- Models and SOA Fit
- SOA and PaaS Integration
- Final Descent Through the Clouds
Objective Today

- Provide Canadian context
- Provide interesting analogies
- Provide cloud model examples
- Identify SOA fit and perspectives
- Preliminary cloud benefits/ results with PaaS
- Encourage SOA cloud collaboration
Cloud Perspectives

- NIST – RA, Metrics, Carrier, Broker, Security
- OMG CSCC – SLA, Reference Architecture
- IEEE – Reviewer and Keynote at SoSE
- ITU-T (UN) – JCA
- TM Forum – Cloud SLA and Metrics
- CSA – Canada Chapter Founding Exec
- ISO – Director, International Software Measurement Association – IFPUG
- Collaboration between cloud SDOs
- Canadian Gov’t Advisor and Industry Leader
Accelerate time-to-value and manage risks for cloud computing
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Cautious Canada

- Risk Adverse
- Government Late to the Cloud Table
- Private Sector Leading and Partnering
- Cloud Technology Leaders
- Telecommunication Challenges
- US Patriot Act
Oh Canada!

- Shared Services Canada
- Consolidate Services and Data Centres
- 43 Departments and Agencies
- Over 7000 IT Related Positions
- Budgets Allocated
- Community Cloud Provider, Consumer and Broker
Consumer Side “Shadow IT”

- Unresponsive IT?
- Not Innovative IT?
- I can use my credit card!...problem solved!
Introduction
Canada and Cloud Hype
Models and SOA Fit
SOA and PaaS Integration
Final Descent Through the Clouds
NIST – Cloud Essentials

- National Institute of Standards and Technology (www.nist.gov)

- Model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (networks, servers, storage, applications, services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.
The Rental Model
My Rental

Rent

Buy

Public Transit

Lease
My Rental Experience

- Economy Car
- Without Air
- Unlimited Mileage
- Automatic
  - €21.74/ Day
  - 4 Days
  - Taxes Fees €43.52
  - Total €130.48

- €21.74/ Day
- 4 Days
- Taxes Fees €43.52
- “Total” €130.48
- Ireland Insurance
- N. Ireland Insurance
- Airport Fee
- Actual Total €323
NIST Combined Conceptual Reference Diagram – 2013

Cross Cutting Concerns: Security, Privacy, etc.
ITU-T Function Reference Architecture

User Layer
- User Function
- Partner Function
- Administration Function

Access Layer
- Endpoint Function
- Inter Cloud Function

Services Layer
- SaaS/CaaS
- PaaS
- IaaS
- NaaS
- Service Orchestration

Resources Layer
- Resource Orchestration
- Pooling and Virtualization
- Physical Resources

Cross-Layer Functions
- Management
- Security & Privacy
- Cloud Operational Function
- Cloud Availability Function
- Monitoring & SLA

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SOA Fit

- Service mentality
- Building for Reuse
- Improve efficiency
- Improve delivery on commitments
- Improve time-to-market
- Improve effectiveness

SOA approaches can be applied to Service Models in the Cloud
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Combined Conceptual Reference Diagram – Critical Considerations

Policies

Culture

Cloud Consumer

Cloud Provider

Cloud Auditor

Cloud Orchestration

SaaS

PaaS

IaaS

Service Layer

Resource Abstraction and Control Layer

Physical Resource Layer

Hardware

Facility

Cloud Service Management

Business Support

Provisioning/Configuration

Portability/Interoperability

Cloud Broker

Service Intermediation

Service Aggregation

Service Arbitrage

Cross Cutting Concerns: Security, Privacy, etc.

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Functionality Discussions with Other Commodities

- **Business Facing Services**
  - $5000/Service Developed
  - $1000/Service Integrated

- **Developer Facing Services**
  - $10000/Service Developed

- **Operational Facing Services**

- **SaaS**
  - Service Facing Functions
  - $/Function/Service
  - Configured
  - Enhanced
  - Developed
  - Supported

- **PaaS**
  - $5000/Service Developed
  - $1000/Service Integrated

- **IaaS**
  - $/Gig Storage
  - $/Use of API Service
  - $/MB of Inbound/Outbound Data Movement
Cloud Modeling Helps Clarify Boundaries

SaaS

SOA Reuse Opportunities

PaaS

Cloud Models & Other Considerations

IaaS
Reusable Services Enabling APIs

Understand what is in the layer
What are the consequences?
Does it look too good to be true?
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Cost vs Functionality New Deployment (Enterprise App)
Schedule vs Functionality New Deployment (Enterprise App)
Modeling the Costs to Get There and Demonstrate Results

- Migration
  - Average Costs by Appropriate Categorization
- New Development
  - Average Costs by Appropriate Categorization
  - Premiums (Schedule and Quality)
- Conversion
- Integration and Configuration
- Training/ Education
- Business Impact (Regulations, Policies)
Categorization Costing Examples

- Configuration $700/ Business Function
- Development $4000/ Business Function
- Migration to cloud $3500/ Business Function
- SaaS development leveraging reusable SOA Services $1000/ Business Function
- SaaS deployed product with minor configuration and integration $300/ Business Function
- SaaS Total Cost of Ownership for 10 Years $3 million vs $10 million from traditional IT
SOA Approaches and Cloud Help Realize “Real Business Benefits”

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