Standards for Big Data in the Cloud

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Panelists

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Seed questions for open discussion after presentations

- Is the cloud-based big-data industry mature enough to begin defining open interoperability standards?
- What standards are necessary for full interoperability among disparate cloud-based big-data environments?
- What standards currently exist?
- What standards should be developed?
- What issues have delayed or impeded development of standards?
- What roles should existing standards groups, private industry, and open-source communities play in the development of standards?
- Does it make more sense to establish new groups to develop standards for big data in the cloud?
How critical are open standards for big data in the cloud?

- Open platforms and ecosystems
  - *Hadoop, NoSQL, etc.*

- Open languages, tools, and APIs
  - *MapReduce, Pig, R, etc.*

- Open expertise
  - *Open source communities, crowdsourcing, Kaggle, TopCoder, etc.*

- Open data
  - *Commercial data marketplaces, social networking, Data.gov, Data.gov.uk, Dopa-project.eu, etc.*

- Open governance
  - ?????
The Cloud Standards Customer Council
The Customer’s Voice for Cloud Standards!

- Provide customer-led guidance to the multiple cloud standards-defining bodies
- Establishing the criteria for open-standards-based cloud computing

425+ Organizations participating

2011 Deliverables
- Practical Guide to Cloud Computing
- Cloud Computing Use Cases

2012 Deliverables
- Practical Guide to Cloud SLAs
- Security for Cloud Computing
- Impact of Cloud Computing on Healthcare

Projected 2013 Projects
- Convergence of Social, Mobile & Cloud
- Analysis of Public Cloud SLAs
- Cloud Security Standards Landscape
- Practical Guide for Big Data in the Cloud

http://cloud-council.org
Synergistic effect of all four technologies is revolutionizing business and society, disrupting old business models and creating new leaders.

- Enterprises leveraging convergence to create business value
  - New channels for reaching customers
  - Contextual applications for richer and more targeted experiences.
  - Deeper customer insight from applications and data
  - Enhanced collaboration

- Business value being realized across all industries
  - Retail, Healthcare, Public Sector, etc.

- However, many businesses struggling to reinvent their business operations
  - Keep pace with explosion of mobile and social channels
  - Address security and privacy requirements
  - Handle the volume and variety of data being generated
  - Adopt cultural and process changes within organizations.

“These forces are intertwined to create a user-driven ecosystem of modern computing. The individual is empowered. People expect access to similar functionality across all their roles and make fewer distinctions between work and non-work activities. People have come to expect and make use of presence and location services, contextual search results, and spontaneous interaction with their social networks to enhance everyday experiences. And they spread those experiences across multiple devices, often at the same time.”

Gartner, Inc. The Nexus of Forces: Social, Mobile, Cloud and Information.
Convergence of Social, Mobile, Big Data, and Cloud: 7 Steps to Ensure Success

Practical reference to help consumers deploy converged technologies

- Requirements & best practices are highlighted taking into account the realities of today’s landscape
- Postulate how this space is likely to evolve in the future & the key role that standards will play

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"Cloud is the core, mobile its edge and social the connections between endpoints. It places the disruptive technologies that are transforming businesses in context, and describes the technical and services infrastructure needed to provide that ideal end-user experience where everyone’s connected (social), everywhere they go (mobile), and have access to data when they need it (cloud)."

Aberdeen Group, SoMoClo Evolution
Step 1: Adopt Open IT Strategy & Architecture

- Key considerations for IT strategy
  - Align to business objectives
  - Identify experts
  - Measure Success
  - Adopt IT governance

- Challenges to current enterprise architecture
  - Disparate services/technologies both internal & external to organization
  - Explosion of mobile channels
  - Increased volume & variety of data
  - Greater demand for scalable, agile and fault tolerant applications

- Architectural requirements:
  - Event-Driven SOA
  - Complex Event Processing
  - Weak Transactional Semantics
  - Non-Relational Databases
Step 2: Establish Cloud as the Core

- Cloud provides the platform that supports the reach, speed and scale required by the rise of mobile and social applications.
- “Without cloud computing, social interactions would have no place to happen at scale, mobile access would fail to be able to connect to a wide variety of data and functions, and information would be still stuck inside internal systems.” Gartner, Inc.

Several requirements must be considered for successful cloud deployment:
- Deployment and service models
- Security & privacy
- Cloud SLAs
- Governance
- Legal & regulatory requirement
- Interoperability
- Integration with existing systems
Step 3: Prioritize Mobile Access

- Mobile apps are the new systems of interaction:
  - Customers can engage directly with the enterprise brand anytime, anywhere
  - Employees can collaborate and work more effectively
  - Integrate context-awareness, customer feedback and predictive analytics

- Mobile apps present unique challenges:
  - Development platform
  - Service interruption
  - Governance & management
  - Security & version management
  - Synch with enterprise systems

- Four key capability areas
  - Mobile development & connectivity
  - Mobile device management
  - Mobile security
  - Mobile analytics
Step 4: Extend Social Interaction

- Social technologies both drive and depend on mobile and cloud computing:
  - Mobile devices are the primary channel for accessing social networks
  - Social depends on cloud for scale and access
  - Social feeds and depends on deep analysis

- Social building blocks:
  - Profiles, Activity Streams, Wikis, Blogs, Instant Messaging, Files, Communities, Social Analytics, UI Components

- Critical steps & requirements for deploying an effective social business platform:
  - Take a strategic approach
  - Apply to the most common activities
  - Build trusted relationships
  - Apply analytics
  - Monitor and measure
Step 5: Leverage Big Data to Gain Insight

- **Big Data pivotal to convergence of Social, Mobile & Cloud**
  - Big Data clouds incorporate new sources of information: unstructured, streaming, etc.

- **Big Data analytics cloud applications optimizing all lines of business**
  - Marketing, sales, customer service, finance, manufacturing, etc.

- **Big Data applications in social channels**
  - Sentiment analysis, influence analysis, behavioral segmentation, etc.

- **Big Data applications in mobility:**
  - Continuously optimized mobile services location-contextual experiences, etc.

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Step 6: Establish DevOps Capability for Rapid Delivery of Innovation

- DevOps is a software development method that stresses communication, collaboration and integration b/w software developers and IT professionals
  - Supports rapid pace of change
  - Addresses agility mismatch with traditional operations

- Key Tenets:
  - Establish executive support
  - Agree upon DevOps practices
  - Establish meaningful measurements
  - Institutionalize tools that embrace DevOps
  - Cultivate cross-team collaboration

- Challenges:
  - Differences between production and development environments
  - Inability to rapidly provision and deploy an application for testing
  - Dependence on manual processes and tribal knowledge
  - Lack of customer feedback, quality metrics, and business requirements
Step 7: Adopt a Flexible Integration Model

• Today, companies are increasingly considering a hybrid cloud approach for deployment of their mobile and social enterprise applications

• Different integration strategies can be used:
  • Established connectivity, messaging and integration approaches like EAI/ESB
  • Special cloud integration solutions

✓ Cloud integration solutions are most effective:
  • Standard applications or when applied to business objects with stable, typed data structures
  • A good example is cloud-based CRM integration with backend ERP solutions

✓ EAI/ESB solutions good fit for:
  • Internally developed applications or lesser known SaaS solutions
  • Need for complex mediation

continuously increasing agility

ease of use
Call to Action

- **Join the CSCC Now!**
  - To have an impact on customer use case based standards requirements
  - To learn about all Cloud Standards within one organization
  - To help define the CSCC’s future roadmap
  - Membership is free & easy: [http://www.cloud-council.org/application](http://www.cloud-council.org/application)

- **Get Involved!**
  - Join one or more of the CSCC Working Groups
    - [http://www.cloud-council.org/workinggroups.htm](http://www.cloud-council.org/workinggroups.htm)
  - Participate in monthly web conferences for all members

- **Review and leverage CSCC resources**
  - Convergence of Social, Mobile & Cloud: 7 Steps to Ensure Success
  - Practical Guide to Cloud Computing V1
    - [http://www.cloud-council.org/10052011.htm](http://www.cloud-council.org/10052011.htm)
  - Practical Guide to Cloud SLAs V1
    - [http://www.cloud-council.org/04102012.htm](http://www.cloud-council.org/04102012.htm)
  - Public Cloud Service Agreements: What to Expect and What to Negotiate
    - [http://www.cloud-council.org/publiccloudSLA.pdf](http://www.cloud-council.org/publiccloudSLA.pdf)
  - Security for Cloud Computing: 10 Steps to Ensure Success
    - [http://www.cloud-council.org/security.htm](http://www.cloud-council.org/security.htm)
  - Impact of Cloud Computing on Healthcare
    - [http://www.cloud-council.org/healthcare.htm](http://www.cloud-council.org/healthcare.htm)

- **“Socialize” the Convergence whitepaper**
Thank You