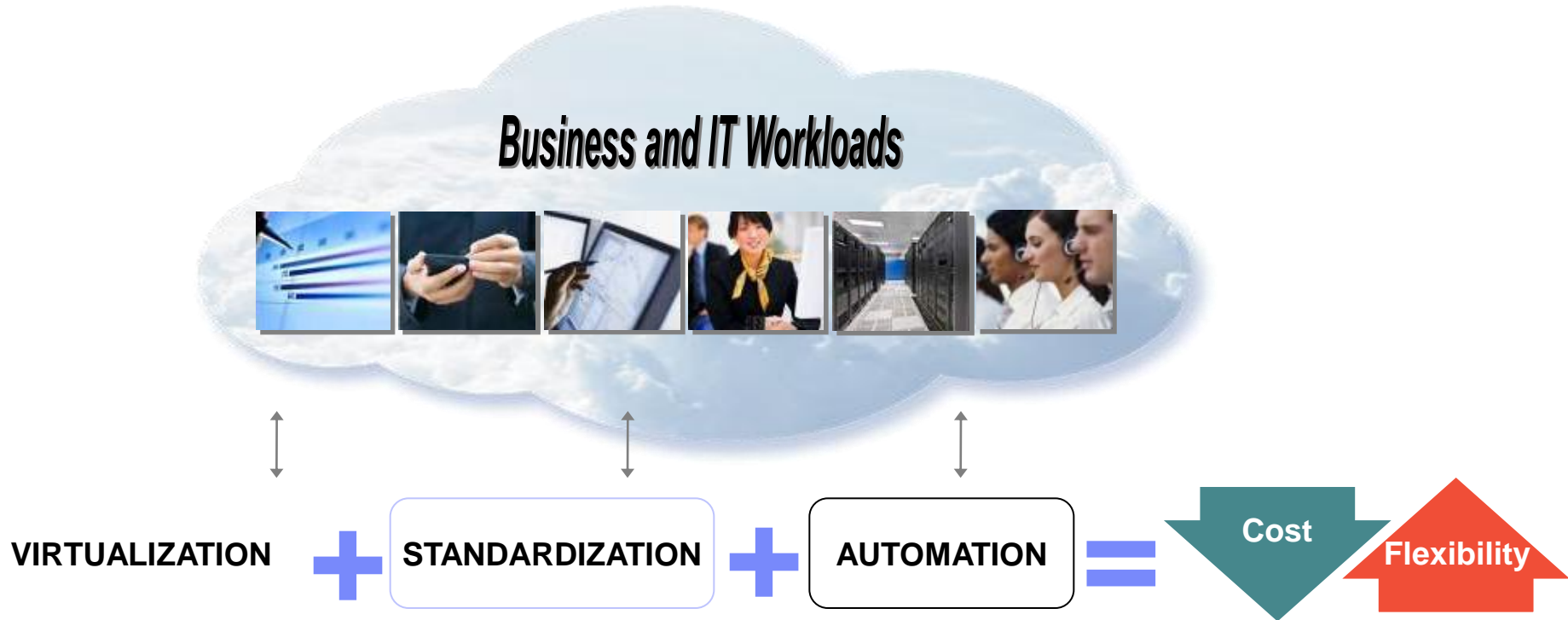


On a Smarter Planet – Thinking Dynamically about Infrastructure

Prepared for “Cloud Interoperability/Portability Roadmaps for IaaS” at OMG



Infrastructure needs to become more dynamic ...



... to free budget for new investment and speed deployment of new capabilities.

... to accommodate new consumption and delivery models that drive new sourcing options and business flexibility.

IT needs to become smarter ...

about delivering “services”

- An Instrumented world means sprawling **processes become standardized** services that are efficient, secure and easy to access to lower costs and unlock productivity.
- A **Service Management System** will provide **visibility, control and automation** across IT and business services to ensure consistent delivery.

about workloads

- Workload characteristics will drive the rate and degree of standardization of IT and business services.
- Some workloads will present **rapid return-on-investment and productivity gains** while complex transaction will likely present **challenges and risks** of migration to standardized services.

about new choices

- **New consumption and delivery models are emerging** for the enterprise – even if they were first inspired by consumer Internet services.
- Self-service, economies-of-scale, and flexible sourcing options – **new choices of deployment** – define these new models.



Analytics



Collaboration



Dev & Test



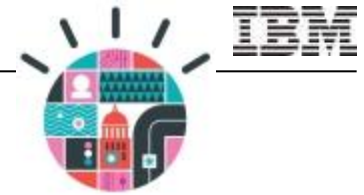
Desktop
& Devices



Infrastructure



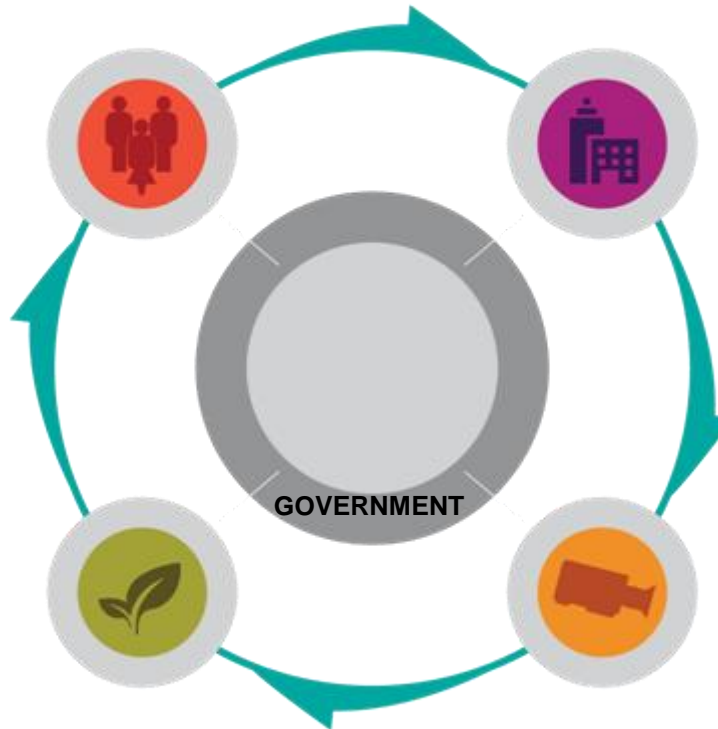
Business
Services



Smarter governments are working toward...

CITIZEN-CENTERED EXPERIENCES

Connecting people to programs based on individual needs—achieving sustainable outcomes while reducing operational costs and maximizing taxpayer value.



GOVERNMENT ACCOUNTABILITY

Leveraging business intelligence and planning to improve insight and elevate performance with visibility and control.

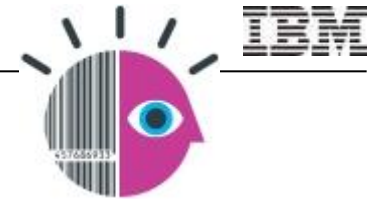
GREEN GOVERNMENT FOR A GREENER PLANET

Deploying environmentally responsible operations, from energy efficiency and conservation to transportation management and the pursuit of renewable resources.

SENSE AND RESPOND CAPABILITIES

Enabling defense and law enforcement organizations to achieve situational awareness, increased speed of command and combat superiority.

Cloud Continuum for Government
First of a Kind from IBM Research
Client Alignment
ISV Participation
Smart City Initiatives
Government Standards & Regulation



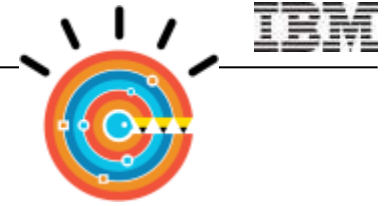
Smarter Retail: ARTS Cloud Computing Technical Report

The Association for Retail Technology Standards (ARTS) announced a Cloud Computing for Retail technical report in September 2009. ARTS is targeting the NRF 2010 Event in January to announce the final version. The paper explores:

- What is Cloud Computing?
- What are the Best Places for Applying Cloud in Retail?
- What is the Cost of Cloud Computing in Retail
- How do to Integrate Cloud Services with Retail Store and Enterprise IT
- Reliability, Availability, Security, Accountability – Overcoming THE Top Cloud Concerns in Retail
- Avoiding Vendor Lock-in - Supporting an Open Cloud

For more on the ARTS including Cloud Computing Standards Presentations see <http://events.nrf.com/ARTS09/Public/Content.aspx?ID=7252>





Smarter Education: The IBM Cloud Academy

IBM has a strong tradition of research collaboration with academia. We go beyond the boundaries of our IBM labs to work with colleagues in universities around the world. We also foster collaborative relationships through fellowships, grants and funding for programs of shared interest.

The IBM Cloud Academy

IBM Cloud Academy is a collaborative organization of educational leaders who are designing and building cloud computing infrastructures and services that are transforming education.

- Higher Education and K-12 participation
- World-wide participation
- Forum to Collaboration



www.ibm.com/solutions/education/cloudacademy

IBM is engaging with the IT Community around Cloud Computing

- A statement of principles for openness in cloud computing
- Raise awareness and educate customers on vendor lock-in and proprietary cloud technologies
- Catalyst for standards organization coordination
- More than 280 Companies supporting. [More are added every day.](#)

open cloud manifesto

IBM is participating in an **open web community** of almost 1,000 participants to document **cloud use cases**.

Cloud Computing Use Cases
White Paper

IBM teams with Zend, Microsoft, Rackspace and other cloud leaders on interoperable [open source cloud application development](#) APIs



IBM is participating in **open standards organizations and partnerships** to assure portability and interoperability for cloud computing.

Cloud Computing Use Case Discussion Group

■ What is the Open Cloud Use Case Project?

- It is an on-line experiment in group authorship utilizing an open source process
- An initiative that originated with Open Cloud Manifesto community and over 1000 individuals have joined

■ What is the goal of the Open Cloud Use Case project?

- To produce a whitepaper that describes the high level use cases and requirements for an open cloud environment based on real customer requirements
- Version 2 available and explores cloud standards for developers
- Version 3 is currently underway with a focus on security.



Join today <http://groups.google.com/group/cloud-computing-use-cases>

Simple Cloud API



www.simplecloudapi.org

▪ **What is the Simple Cloud API project?**

- A new open source initiative which enables developers to build truly portable cloud applications.
- developers can have their software applications interface to a variety of cloud environments without making time consuming and expensive changes to their source code giving the choice and flexibility in cloud providers.

▪ **Who is participating?**

- IBM, Microsoft, Zend, Nirvanix, Rackspace and GoGrid are co-founding contributors to this community project, with additional support from other cloud leaders.

▪ **What was launched and what are the next steps?**

- The initial reference implementation include: Storage, Queues, and DB
- This next step is to take direction from the community on new capabilities, language, and types of cloud services that will be supported

“Today developers have to write to a proprietary API, but with this Simple API you’ll have a common API that would work across vendors. It’s about portability and avoiding vendor lock-in. And this (Simple Cloud API) supports both public and private clouds.”

- eWeek

“For developers of new “cloud-native” applications, this (the Simple Cloud API project) is a write once and run anywhere opportunity.”

- ZDNet blog

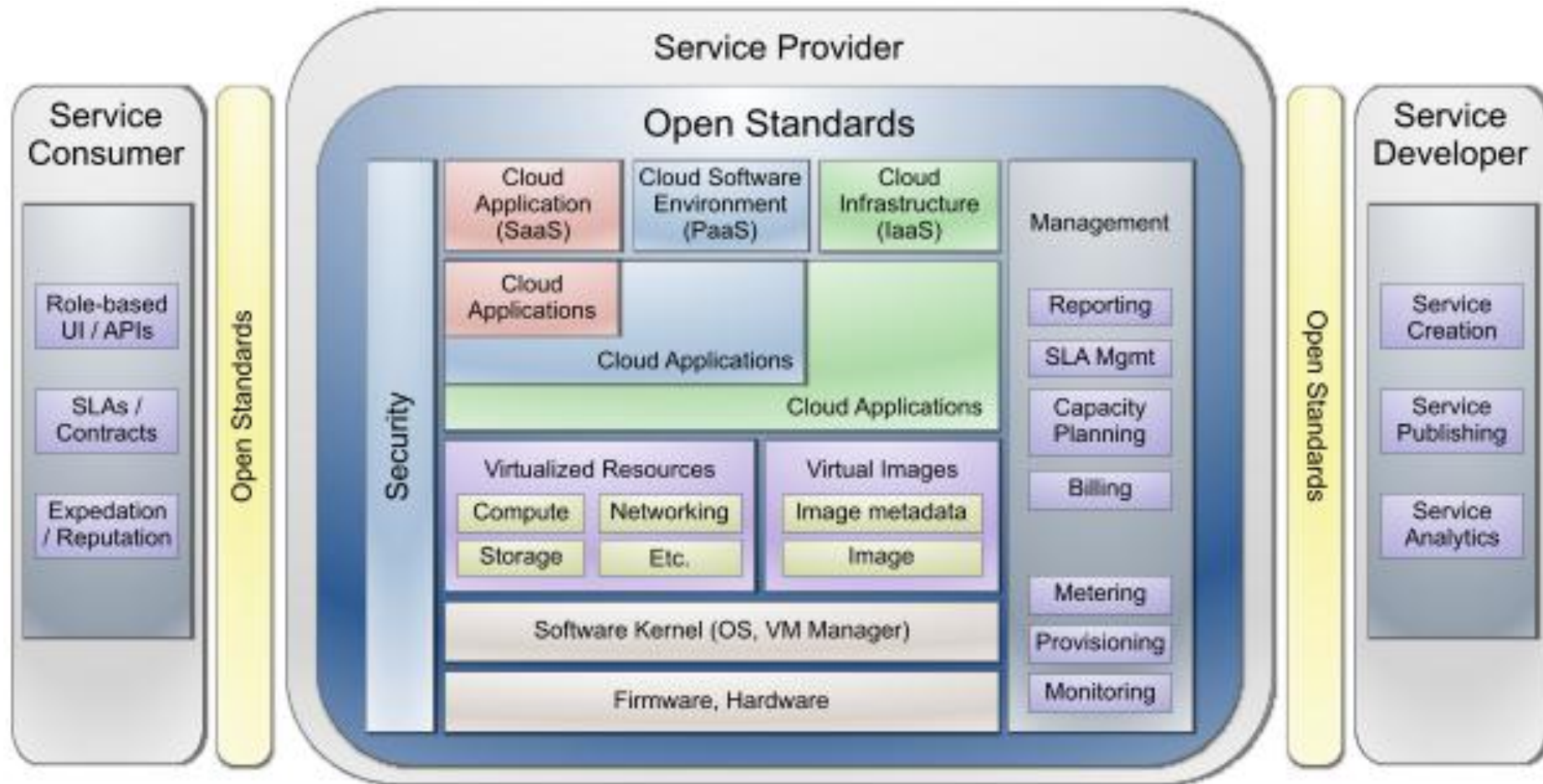
“This (the Simple Cloud API project) will accelerate adoption of cloud computing. We’re on a very good trajectory, but this will make more developers comfortable and it will lower barriers to entry. They can build applications in house and deploy them anywhere.”

- BusinessWeek

“The Simple Cloud API project allows developers to get all of the scalability and high-availability and other advantages of the cloud while maintaining portability.”

- The Register

Cloud Computing Taxonomy



Customer Standards Issues

- Security, Data and Application, Integration, Data and Application Portability, Governance & Management, Metering & Monitoring

IBM Research Explores Open Cloud Computing

- Comprehensive cloud middleware
- Agnostic w.r.t. any clouds, that is,
 - cloud providers, e.g., Amazon, Google, IBM
 - cloud frameworks, e.g., RoR, Python, Java
 - cloud interfaces, e.g., Amazon's API
- Learn best practices patterns for app classes
- Fluid cloud applications deployments
- Optimize cloud usage prices
- Give indication of cloud readiness of applications
- Provide a comprehensive cloud-agnostic RESTful APIs for cloud management and usage

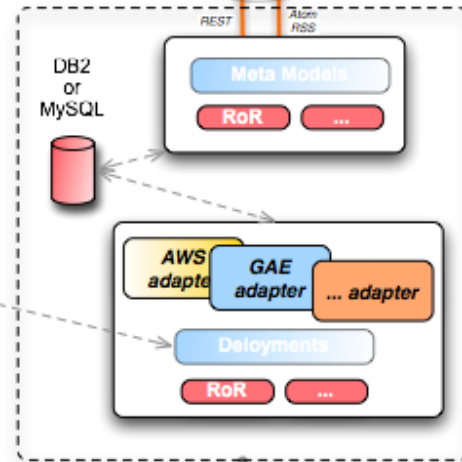
Altocumulus Architecture overview

User dashboard



Cloud APIs Web based tools with auto documentations

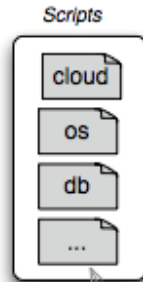
Cloud best practices, fees models, and costs estimate calculations



Cloud APIs (RESTful and comprehensive)

Scalable best practices with configurable topologies, strategies, and rules*

Cloud services scripts, e.g., create_image




Cloud adapters

Clouds or brokers



Support for various clouds and brokers uniformly

Demonstration Available for anyone interested



User max (superuser) logged in. [Logout](#)

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[Admin](#)

Cloud readiness

- [Your readiness](#)
- [New readiness](#)

Deployments

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[New](#)

Best practices

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[New](#)

All deployments

[search](#)

[RSS](#) [ATOM](#)

0

BlueMentor [Pending (0%)] [\(deploy\)](#)

Created by max on 16 Oct 08 @ 10:43 AM, **8 weeks ago**

http://ac-src.almaden.ibm.com/solutions/blue_mentor/blue_mentor-0.5.0.gem



A Facebook application to allow IBMers to create mentoring relationships with students or other IBMers

Using best practice *Java EE Best Practice* with 1 config bundle

No config bundle selected

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0

IBM Web Highlights 1.0.2 [Deploying (0%)] *(private)* [\(check status\)](#)

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http://ac-src.almaden.ibm.com/repos/solutions/highlightr/trunk/ibm_web_highlights-1.0.2.gem

IBM Web Highlights 1.0.2

Using best practice *Java EE Best Practice* with 1 config bundle

Using config bundle *Ruby/RoR Mongrel Config Bundle* with 5 configurations

[0 comment](#) | 0 tag: | [Email it](#) | [\(edit destroy\)](#) [new comment](#)

Open Matters - We hold these truths ...

- Standards will foster adoption of Cloud Computing by addressing inhibitors such as **security, vendor lock-in, integration and portability**.
- Cloud Standards **are emerging throughout the market, within IT and other Industries**. The right standards will foster innovation in Cloud Computing.
- **Interoperability, Portability and Integration** are fundamental issues.
- **Security** is a top concern of customers.
- Standards need to be **open**, have **long term stewardship**, have **code** to back them, and be **widely adopted**.
- **Collaboration** must happen with providers, end users, developers and existing communities.
- Standards should be driven by **customer needs and achievement focused**.
- **Existing standards** should be used and adopted whenever possible.
- New standards should only be introduced in a **judicious and pragmatic manner**.

**There are a lot of very hard problems to solve.
There are massive incentives to solve these problems.**

In Summary ... there is opportunity in the shift to a smarter planet



- Growth of instrumentation, interconnection and intelligence in the world will drive the emergence of IT and business services and the requirement for service management systems.
- Cloud Computing as a new IT consumption and delivery model is very compelling for many workloads today and will position governments and other enterprise for the future.
- Collaboration is key to assure **standards** for Cloud Computing are simple, widely adopted and relevant to business goals.

Thank you

Contact me at
ginnyb@us.ibm.com