The Status of Cloud Computing Standardization in ISO/IEC JTC 1 SC 38

Seungyun Lee, Ph.D
Convenor of ISO/IEC JTC 1 SC 38 SGCC

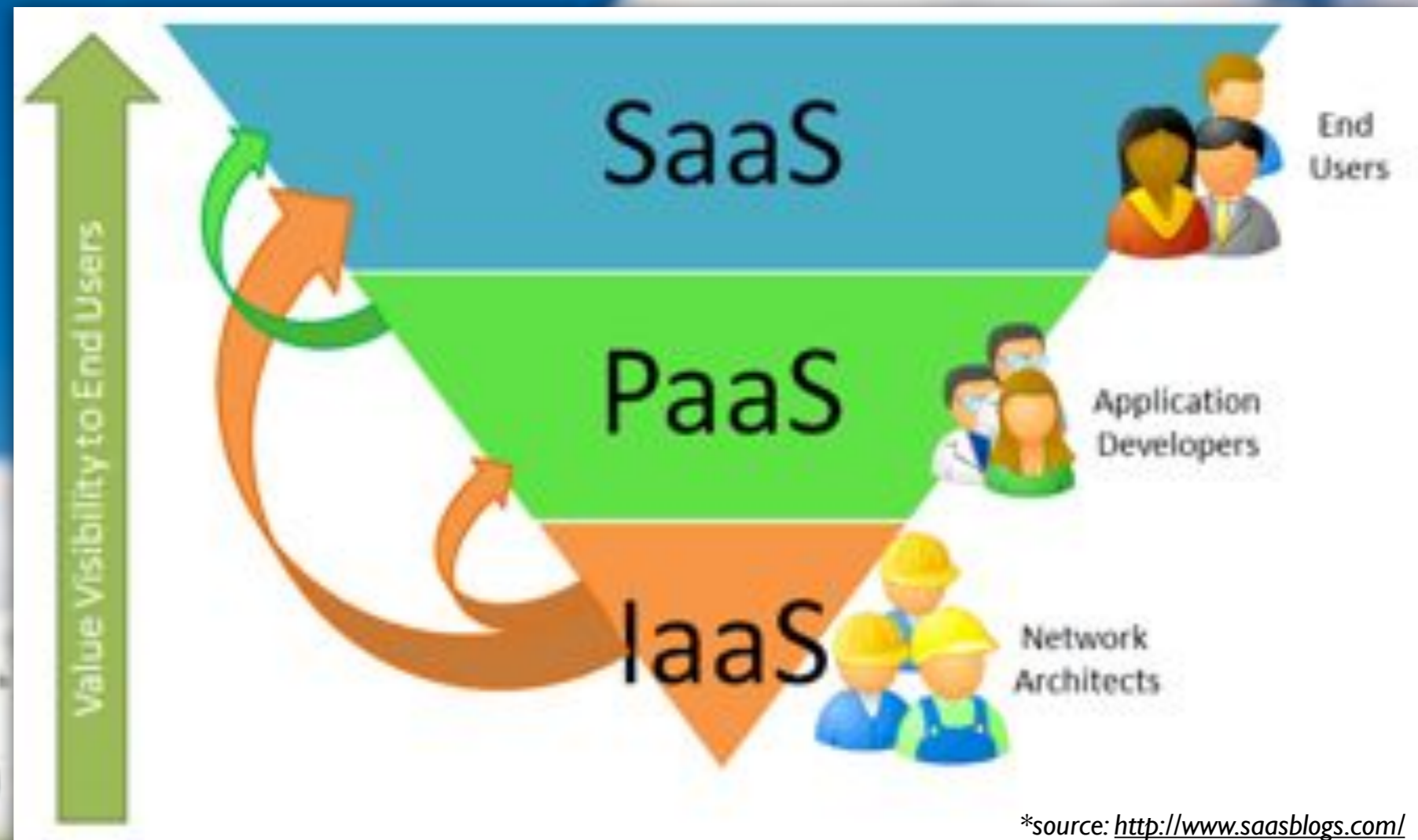# Everything on the Clouds ?

We already live in Cloud world !

Cloud Business Model

SaaS

PaaS

IaaS

End Users

Application Developers

Network Architects

Value Visibility to End Users

*source: http://www.saasblogs.com/

Cloud Business Model

New business opportunity

XaaS

Why People use Cloud ?

On-demand use

Ubiquitous Access

Pay-as-you-go

Elasticity

Resource Utilization

Does Cloud always Goodness ?

I don't like Cloud Service

What's the problem?

No interoperable?

Reality of Cloud Computing
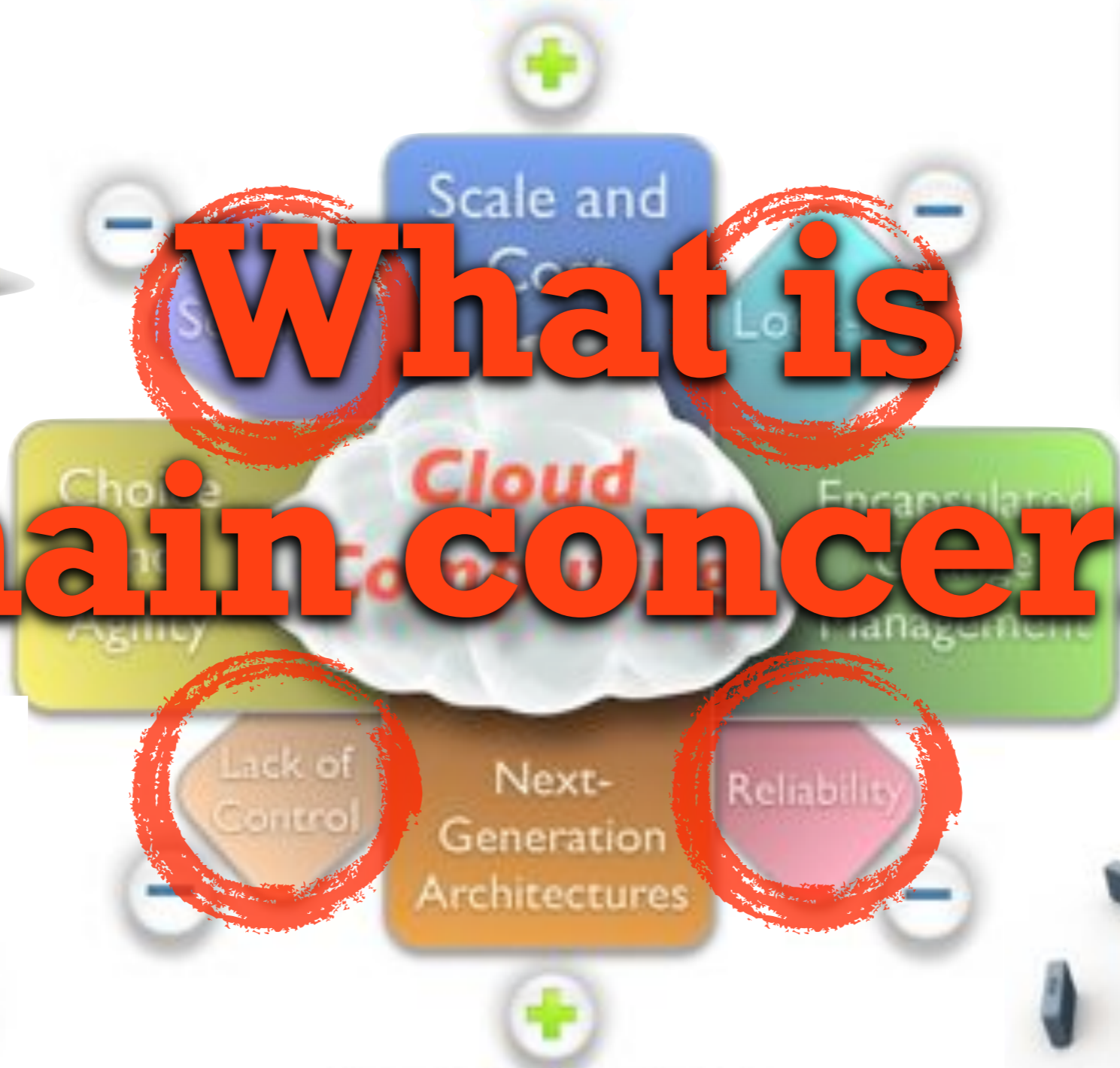
3 Key Requirements

from NIST

Reliability problem

Security

Portability

Lock-in problem

Interoperability

Inter-cloud problem

Cloud User Surveys - **Challenges**

Q: Rate the challenges/issues of the 'cloud'/on-demand model

Security	87.5%
Availability	83.3%
Performance	8?.?%
On-de...d p... ...a...	...%
Lack of interoperability standards	80.2%
Br...ging ...d ...i ...a... m... b... ...fficult	79.8%
Hard to integrate with in-house IT	76.8%
Not enough ability to customize	76.0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90%

Standards is a one of Challenging Point
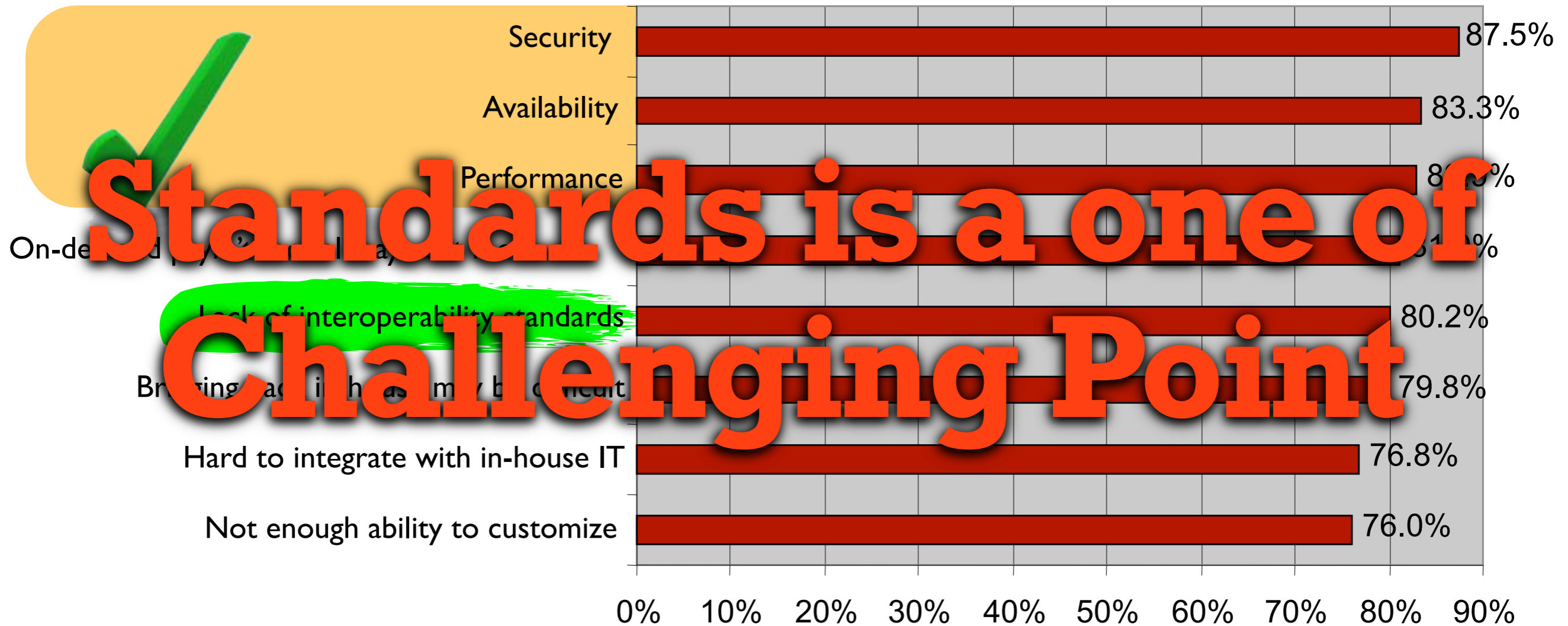
(Scale: 1 = Not at all concerned 5 = Very concerned)

Source: IDC Enterprise Panel, 3Q09, n = 263, September 2009

13

Do we need standards?

Lock-in problem

Reliability problem

Inter-cloud problem

YES, we need it in Minimum !

Difficult to Standardize?

Nothing New

Technology

Proprietary

What should be Standardized?

Business Model

?

Service Architecture

Diversity

Major Issues on Cloud Computing
to be standardized !

Standards

Standards

Definition, Taxonomy, Terms.

Security

Provisioning Model

Environmental Issues

Inter-operability

Business Process

Architecture

Legality

Standards

Availability
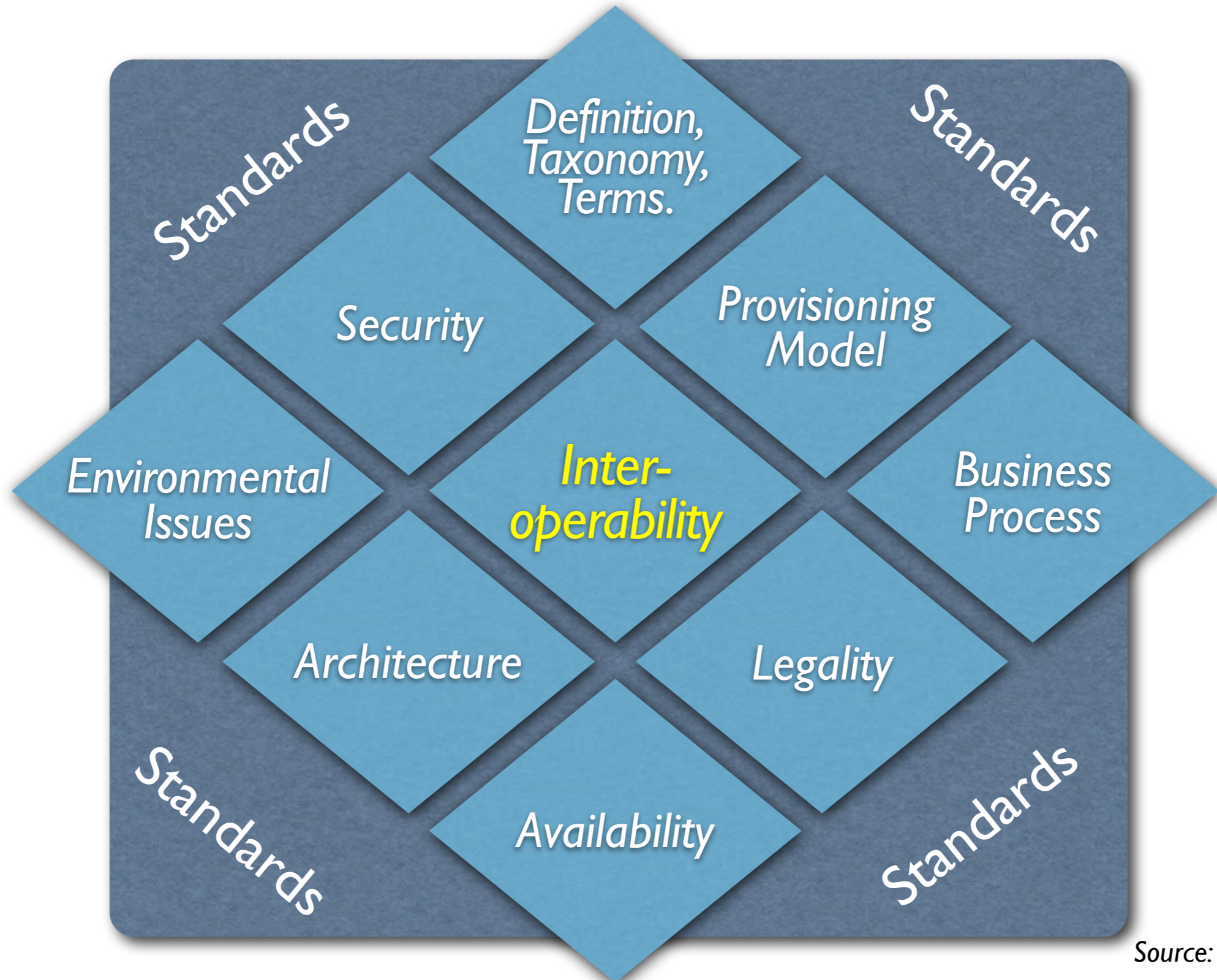
Standards

Source: ETRI, 2010

What should be standardized?

Some Possible Standards

- Fede ~~Security~~ . identity) across Clouds
- Metadata and d~~Portability~~ong Clouds
- Standards for m~~Portability~~ between Cloud platforms
- Standards for describing resource/perf~~Performance~~ es and requirements
- Standardized outputs for monitoring, auditing, billing, reports and notification for Cloud applications and services
- Common repre~~Interoperability~~ls, protocols) for interfacing to Cloud resources
- Cloud-independent representation for policies and governance
- Portable tools for developing, ~~Inter-cloud~~ g Cloud applications and services
- Orchestration and middleware tools for creating composite applications across Clouds
- Standards for machine-readable Service Level Agreement~~SLA~~

Source: http://cloud-standards.org/wiki/

What should be considered?

Customer & Business Satisfaction !

SLA　　　　　　　*Legals*

Cloud Computing Standardization NOW ?

<SDOs & Fora related to Cloud Computing>

Standardization on
ISO/IEC JTC 1 SC 38

ISO/IEC JTC 1 SC 38

Why do we need standards?

As more adoption of cloud service,
the issues of interoperability are become extremely important.

There are many of initiatives for cloud computing
standardization from other de-facto SDOs.

Now is a great opportunity
to initiate the global standardization.

ISO/IEC JTC 1 SC 38

Title: **Distributed Application Platforms and Services (DAPS)**

Scope: Standardization for interoperable Distributed Application Platform and services including:

- Web Services, Service Oriented Architecture (SOA), and
- **Cloud Computing.**

As per the JTC 1 Directives, SC 38 establishes its own substructure at its first meeting in Beijing China, May 2010

- Web Service WG

- Service Oriented Architecture (SOA) WG

- **Cloud Computing SG(Study Group)**

23

ISO/IEC JTC 1 SC 38

Terms of References for SGCC

1. **Provide a taxonomy, terminology and value proposition** *for Cloud Computing.*

2. **Assess the current state of standardization** *in Cloud Computing within JTC 1 and in other SDOs and consortia beginning with document JTC 1 N 9687*.*

3. **Document standardization market/business/user requirements and the challenges** *to be addressed.*

4. **Liaise and collaborate with relevant SDOs and consortia** *related to Cloud Computing.*

5. **Hold open meetings to gather requirements** *as needed from a wide range of interested organizations.*

6. **Provide a report of activities and recommendations to SC 38.**

*N9687: Report of JTC 1/SWG-Planning on possible future work on Cloud Computing in JTC 1 (2009)

Source: Resolution of ISO/IEC JTC 1 SC 38 Plenary

ISO/IEC JTC 1 SC 38

Member of SGCC	
★ Canada (11)	★ Japan (1)
★ China (9)	★ Korea (12)
★ Finland (8)	★ Singapore (1)
★ France (2)	★ Sweden (4)
★ German (4)	★ US (28)
★ Ireland (3)	

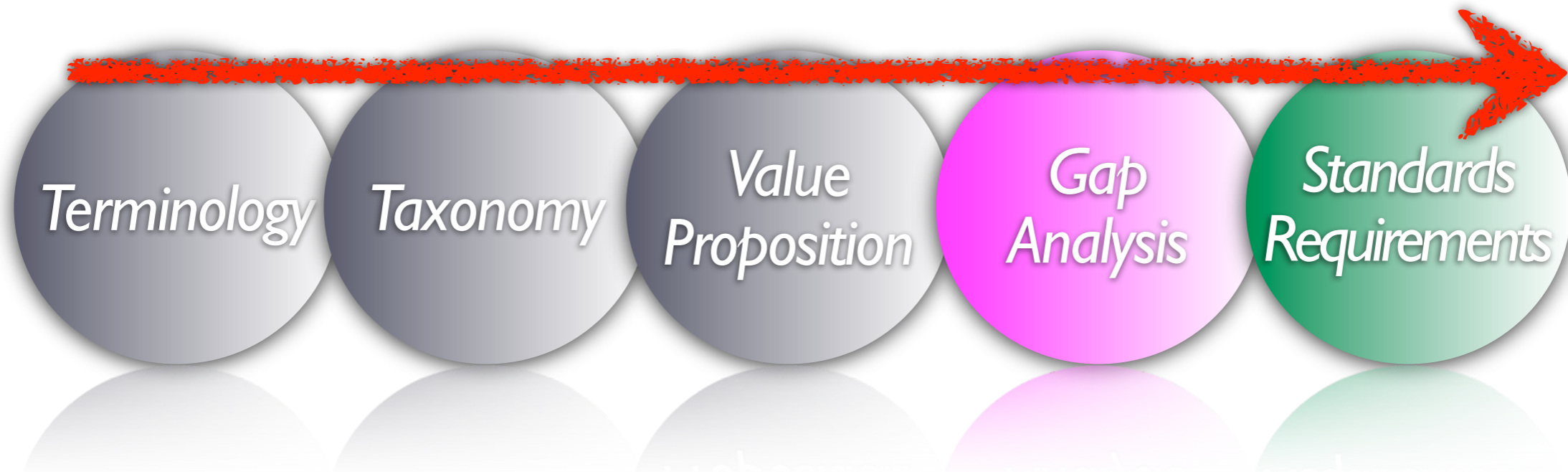*11 countries & 83 experts in total*

ISO/IEC JTC 1 SC 38

Working Method & Deliverables of SGCC

✳ **SGCC Editorial Team** will produce a draft **Study Group Report** by 15 November 2010

✳ **Cloud Computing Standards Analysis Work Team** will carry out its analysis and deliver a **Report** by 7 March 2011

Terminology · *Taxonomy* · *Value Proposition* · *Gap Analysis* · *Standards Requirements*

ISO/IEC JTC 1 SC 38

Meetings of SGCC

- 1st meeting : 12-14 May 2010 in Beijing, China (1st SC38 Plenary) *done

  ✓ approval of SGCC (ToR & Convenor/Secretary)

- 2nd meeting : 27 September 2010 in NY, US (2nd SC38 Plenary) *done

  ✓ re-establishment of SGCC (ToR & Convenor/Secretary)

  ✓ establishment of work plan (two work teams)

- 3rd meeting : 11-15 April 2011 in AFNOR, St. Denis, France (3rd SC38 Plenary)

- 4rd meeting : 19-23/24 September 2011 in Seoul, Korea (4rd SC38 Plenary)

ISO/IEC JTC 1 SC 38

Future of Cloud

Future of Cloud Computing

Desktop Cloud

Entertainment Cloud

Storage/Data Cloud

Mobile Cloud

e-Book Cloud
e-Learning Cloud

Future Clouds

Social Cloud

Cloud Office

Heath-care Cloud

IPTV | Media Cloud

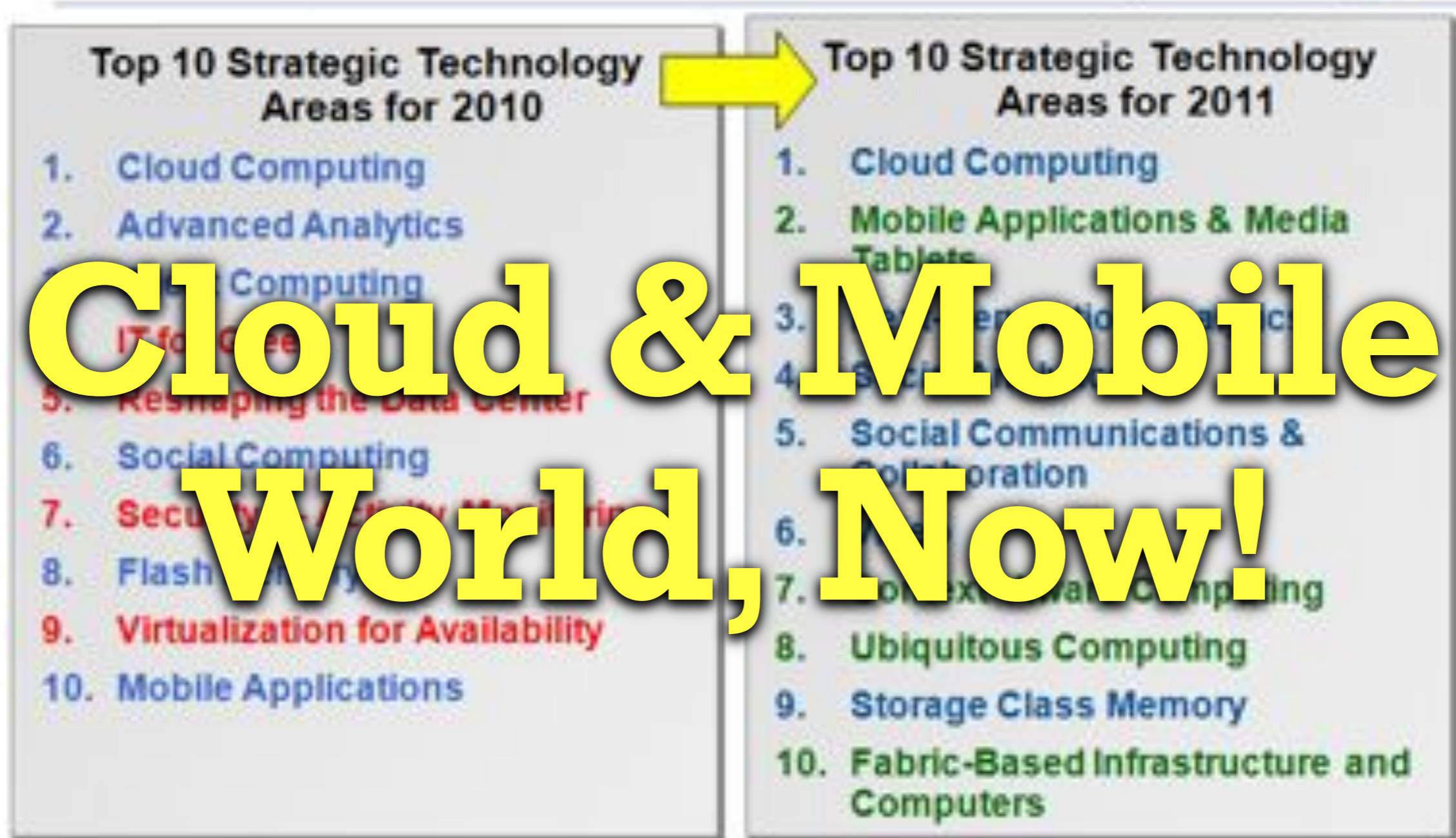Energy Efficiency | Green Cloud

Mobile Goes to the Cloud

More Rich Cloud Services

Some Issues on Mobile Application

Gartner Identifies the Top 10 Strategic Technologies for 2011

Technologies You Can't Afford to Ignore — Tablets Hot Near Term; Midterm Fabric, Context & UXP Impact Is Big
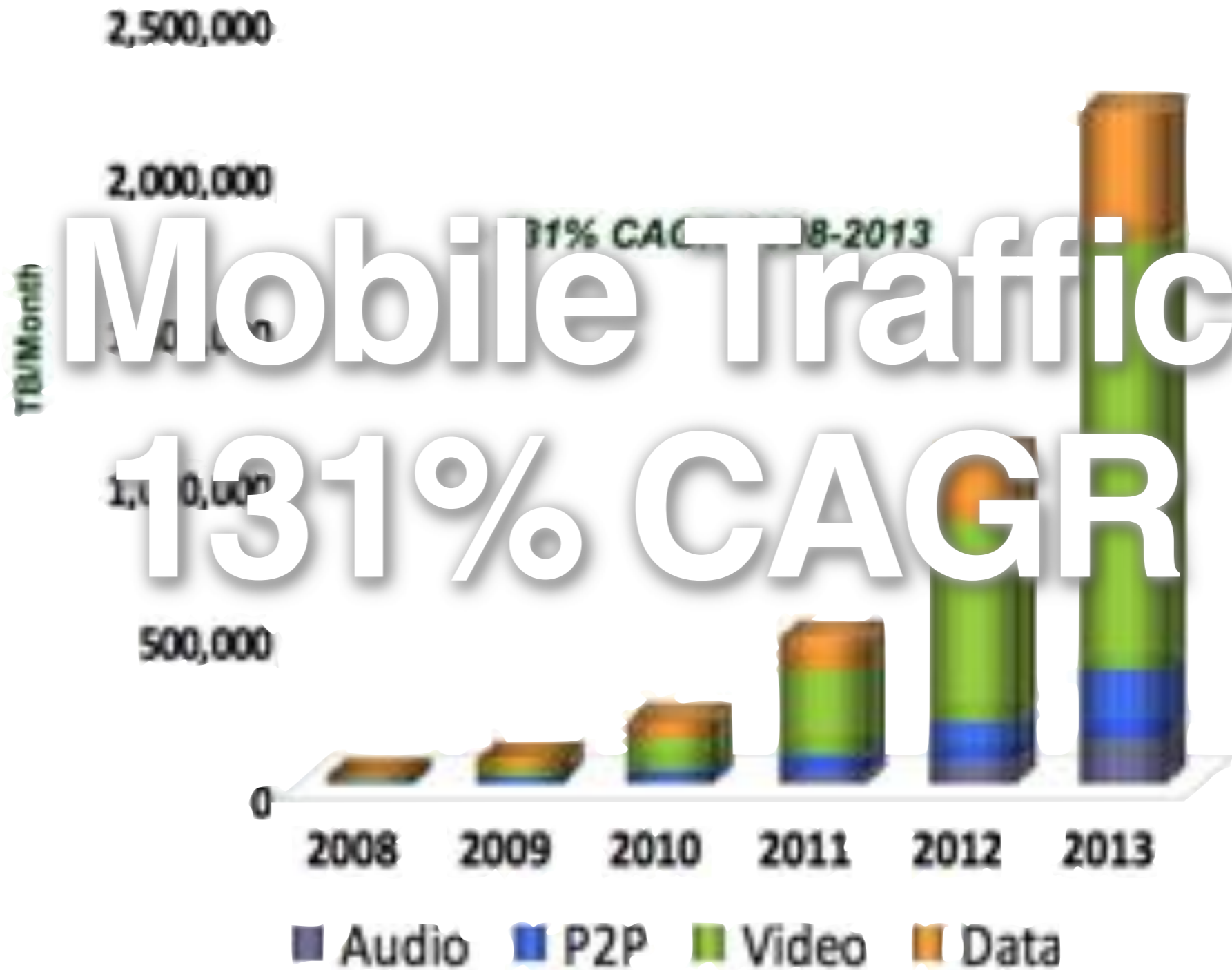
Top 10 Strategic Technology Areas for 2010

1. Cloud Computing
2. Advanced Analytics
3. ...Computing
4. ...
5. Reshaping the Data Center
6. Social Computing
7. Security...
8. Flash...
9. Virtualization for Availability
10. Mobile Applications

Top 10 Strategic Technology Areas for 2011

1. Cloud Computing
2. Mobile Applications & Media Tablets
3. ...
4. ...
5. Social Communications & Collaboration
6. ...
7. Context-Aware Computing
8. Ubiquitous Computing
9. Storage Class Memory
10. Fabric-Based Infrastructure and Computers

Modified for 2011   New for 2011   Dropped for 2011

Gartner

Cloud & Mobile World, Now!

Source: Cisco VNI Global Mobile Data Traffic Forecast Update 1/29/09

Mobile, Changing the World

More Socializing on the move

Immediacy + move

Mobile AR
Augmented Reality

Real world Navigation on the move

Mixed Reality Tech.

Smart Advertisement
on the move

admob

New Business Opportunity

Not NOW

New Driver
for future advertisement

More Bindings to the Cloud on the Web

Mobile Cloud Apps

HTML5 Enriching mobile apps

Mobile Web App is Mobile Cloud

Toward Platform "WebOS" ?
on the mobile

Web as a Platform even in mobile

W3C® OMTP OPEN MOBILE TERMINAL PLATFORM WAC

Operating System also goes to the Cloud ?

Mobile Application also needs to be **standardized**

Fragmentation Problem
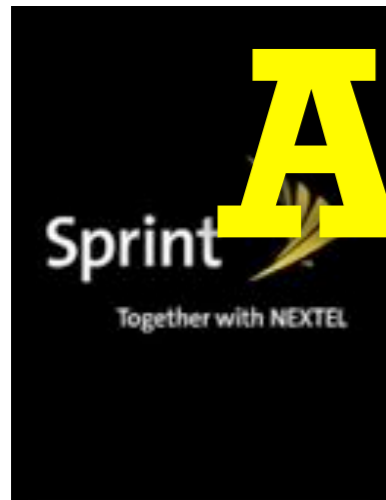
Too Many Mobile Platforms

Platform WAR !!!

Where is my money ?

How to develop?
How to sale ?

47

Mobile App Development

Developer

Device API (Web-based)

Calendar

Contact

Sys. Info & Event

Filesystem

Messaging

Capture

Gallery

Tasks

UI

We need standards for common APIs

48

Interfaces to be standardized
for development & delivery (e.g., store)

Operator

Developer

Mobile Application
(Interface, Delivery)

Consumer

Manufacturer

Development Interface

Delivery Interface

Delivery Interface

Development Interface
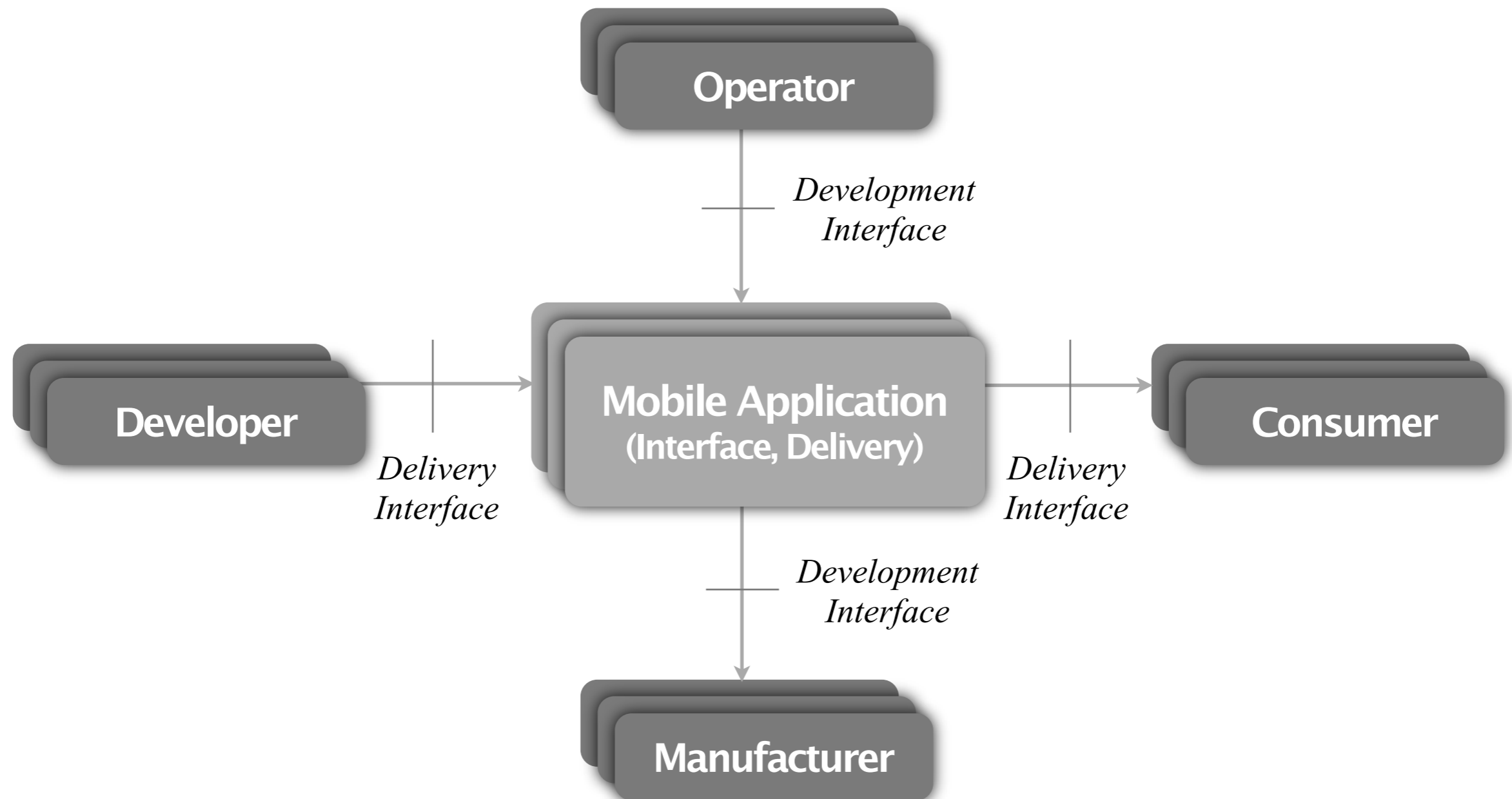
This is just an example for possible items to be standardized

Related Activities

OMTP
OPEN MOBILE TERMINAL PLATFORM
BONDI

JIL Joint Innovation Lab

oma
Open Mobile Alliance

WAC
Wholesale App Community
Super AppStore?

W3C®
Device & Policy WG

Possible Standardization Issues

- *Enabling the **platform-independent** mobile application development (e.g., Device APIs)*

- *Enabling the **platform-independent** mobile application development (e.g., Open Application Space)*

- *Enabling the **interoperability for mobile application** (e.g., mobile application protocols and communication interfaces, etc.)*

- *Supporting the **secure operations** in mobile devices (e.g., securing online transactions with biometric methods)*

  * Area of standardization above should be investigated more later on.

Platform independent

Future mobile world

Service Interoperable

...more Issues...

Secure on the move

Mobile App Standards will facilitate the "Mobile Cloud Service"

Beyond the Cloud

more Standardization Issues ?

Thank You

Seungyun Lee / Ph.D.

Convenor of ISO/IEC JTC 1 SC 38 SGCC | Study Group on Cloud Computing

Director of Service Convergence Standards Research Team

Standards Research Center, ETRI

Manager of W3C Korea Office

Office. +82-42-860-5508, Mobile. +82-10-8720-2954

Email. syl@etri.re.kr, syl@w3.org, bluse2@gmail.com

twitter @seungyun