

IMPACT OF Cloud Computing Standardization



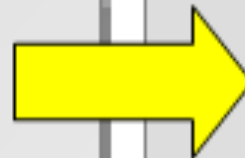
Seungyun Lee, Ph.D

Gartner Identifies the Top 10 Strategic Technologies for 2010

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. Client Computing
4. IT for Green
5. Reshaping the Data Center
6. Social Computing
7. Security — Activity Monitoring
8. Flash Memory
9. Virtualization for Availability
10. Mobile Applications



Top 10 Strategic Technology Areas for 2011

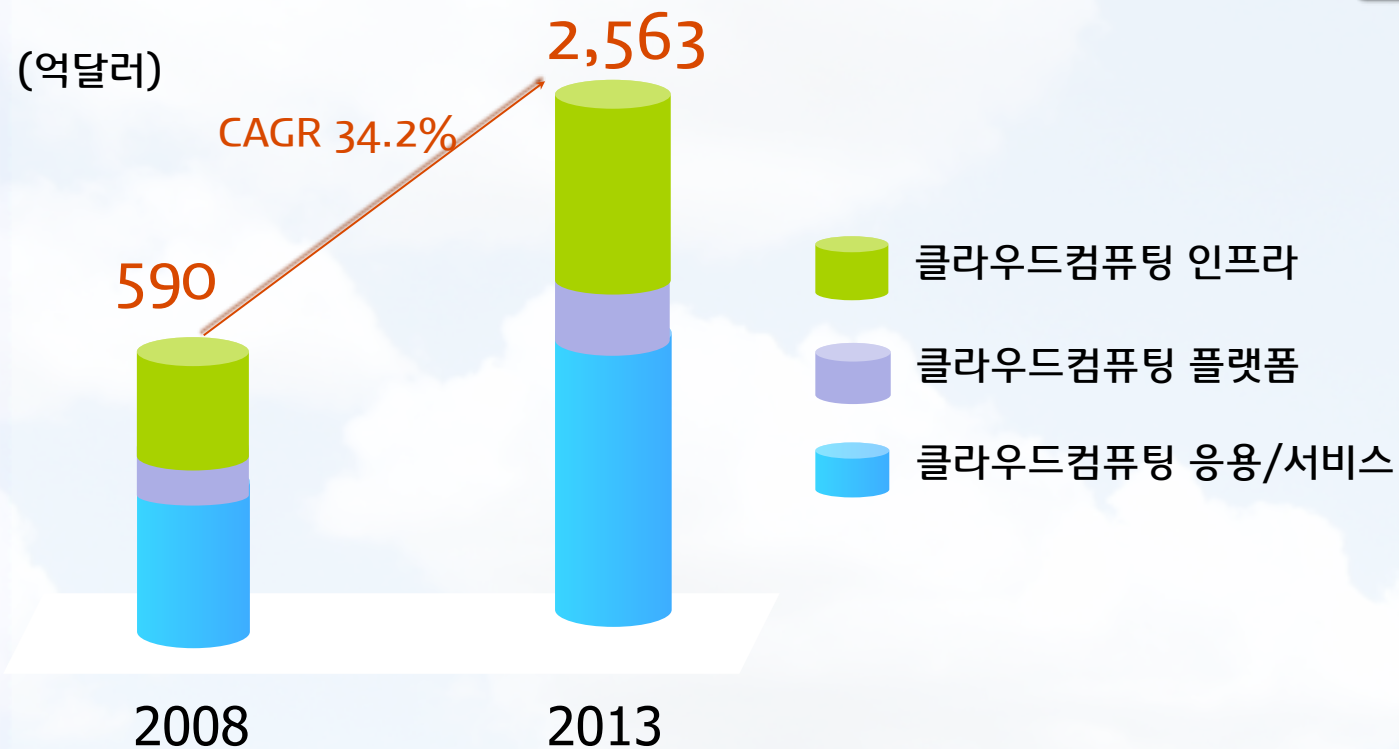
1. Cloud Computing
2. Mobile Applications & Media Tablets
3. Next-Generation Analytics
4. Social Analytics
5. Social Communications & Collaboration
6. Video
7. Context-Aware Computing
8. Ubiquitous Computing
9. Storage Class Memory
10. Fabric-Based Infrastructure and Computers

■ Modified for 2011 ■ New for 2011
■ Dropped for 2011

Gartner

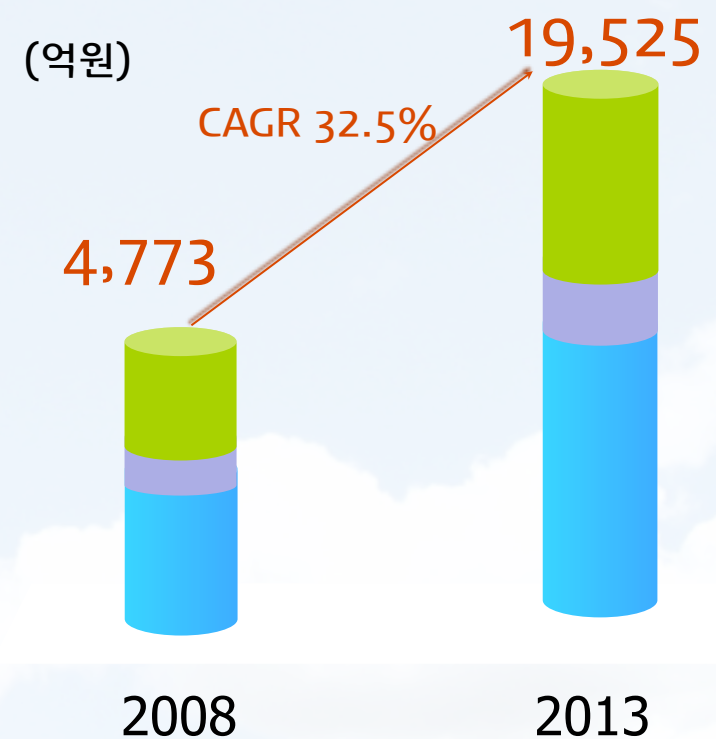
Cloud Market Estimation

세계 클라우드컴퓨팅 시장



* 출처[KEIT 2009] : IBM(2008), Gartner(2008), IDC(2008) 참조

국내 클라우드컴퓨팅 시장

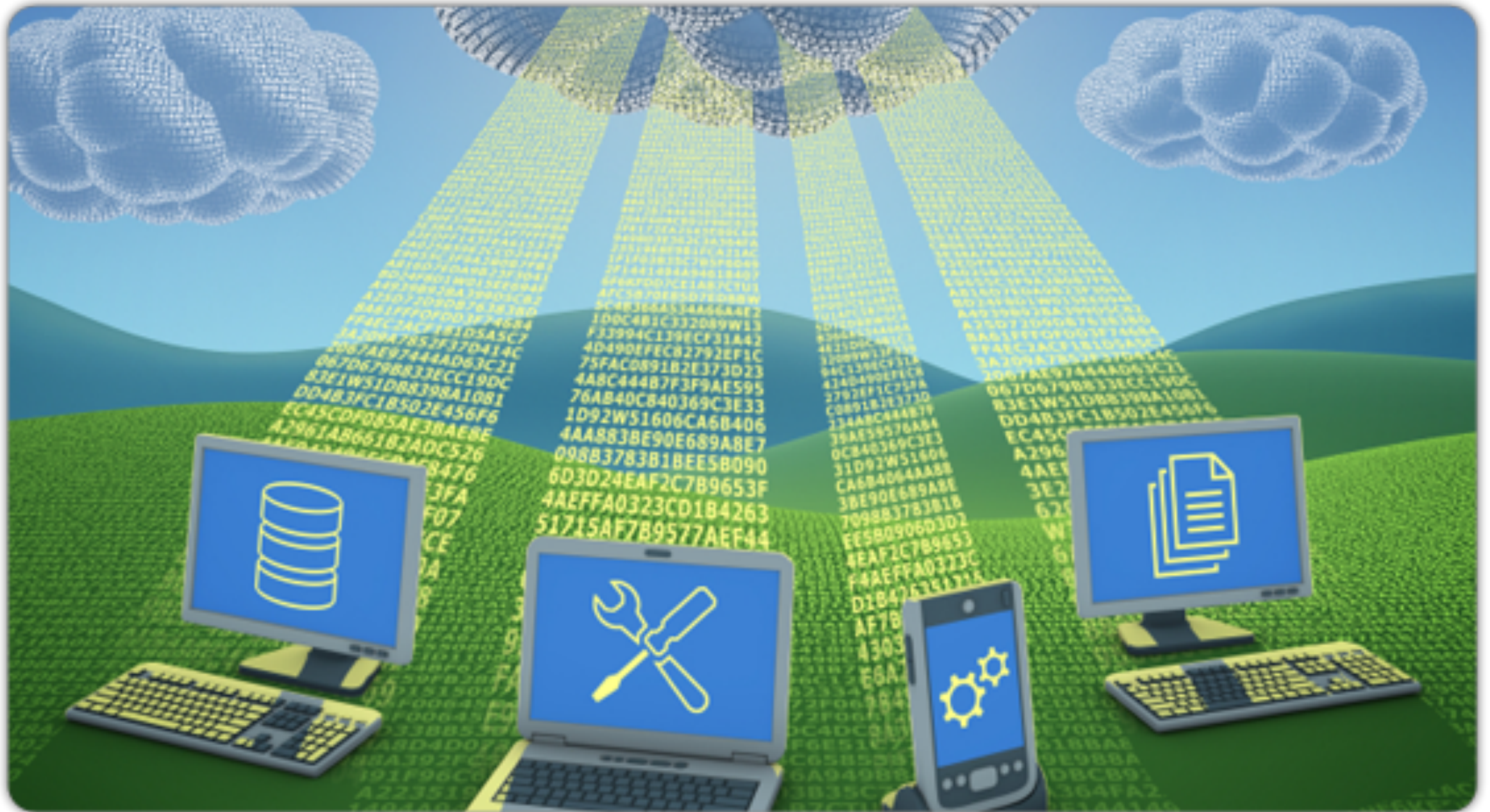


* 출처[KEIT 2009] : IDC(2008), KRG(2009) 참조

Definition – still confusing?



Everything goes to Cloud !



What is NOT Cloud Computing ?

What's the Cloud Computing?

We already live in cloud...

"The cloud to us (at Ford Motor Co.) is about delivering services, features and information that exist outside the vehicle, in the Internet or on servers that are part of our solution network and presenting it to customers in the way they can use and consume to make the driving experience a much better one."

JIM BUCZKOWSKI

Henry Ford technical fellow and director of electrical and electronic systems research & advanced engineering, Ford Motor Co.



"Fundamentally the cloud model to me means a different way of delivering, billing for and consuming IT capabilities."

ALEX ZAVGORODNI

Director, storage management, EmblemHealth



"I'm pretty liberal in my view on cloud; really, in a sense, the whole industry is becoming cloud computing. It's hard to differentiate today the software industry and cloud computing."

GEVA PERRY

Independent cloud strategist



What is cloud computing?

Everybody has a different definition of cloud computing, so we asked 6 analysts and end users for their take on the cloud.

"It's a distributed environment, a bunch of shared services delivered from our systems or in partnership with external solutions providers that allow us to cut up a very complicated problem into smaller steps. The advantage of that is speed to market and the scalability we can achieve."

DAVID DIMEO

Service delivery network operations manager, Ford Motor Co



"We're defining cloud as an approach to solving information systems needs. From a technology standpoint, cloud is an evolutionary progress along virtualization, automation and advances in the needs and capabilities of security."

MARK WHITE

CTO of Deloitte Consulting's technology practice

"I have a tendency to use the NIST definition of cloud computing, where it's basically a shared resource, there's resource pooling, you're paying per use, you're typically leveraging multitenant infrastructure and it's used in three major ways – software as a service, infrastructure as a service and platform as a service – and it's delivering the economies of scale that give us cost and efficiency advantages."

DAVID LINTHICUM

CTO at Blue Mountain Labs



GIACOMO MARCHES

Why people use Cloud ?



On-demand use

Ubiquitous Access

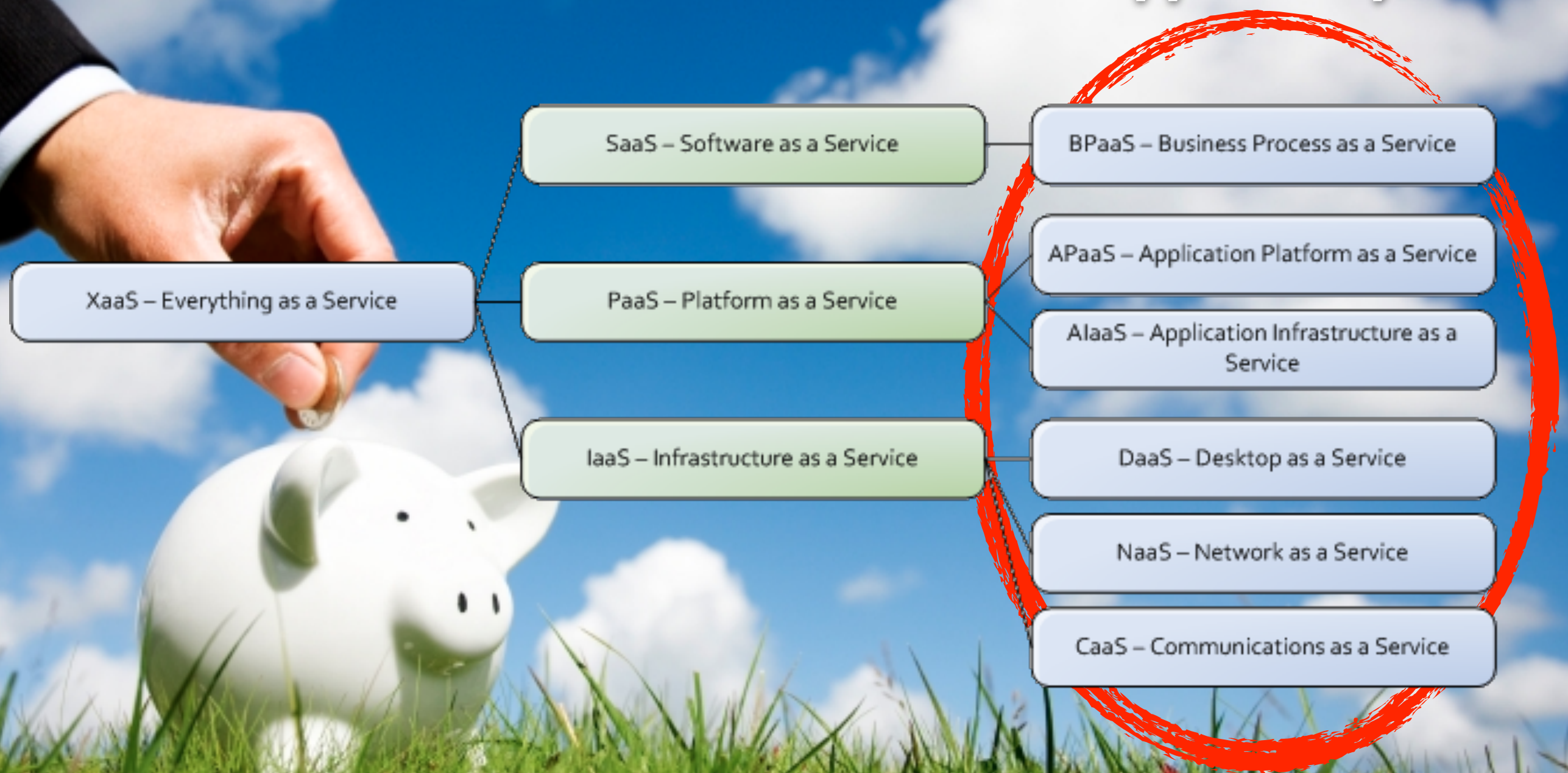
Pay-as-you-go

Elasticity

Resource Utilization

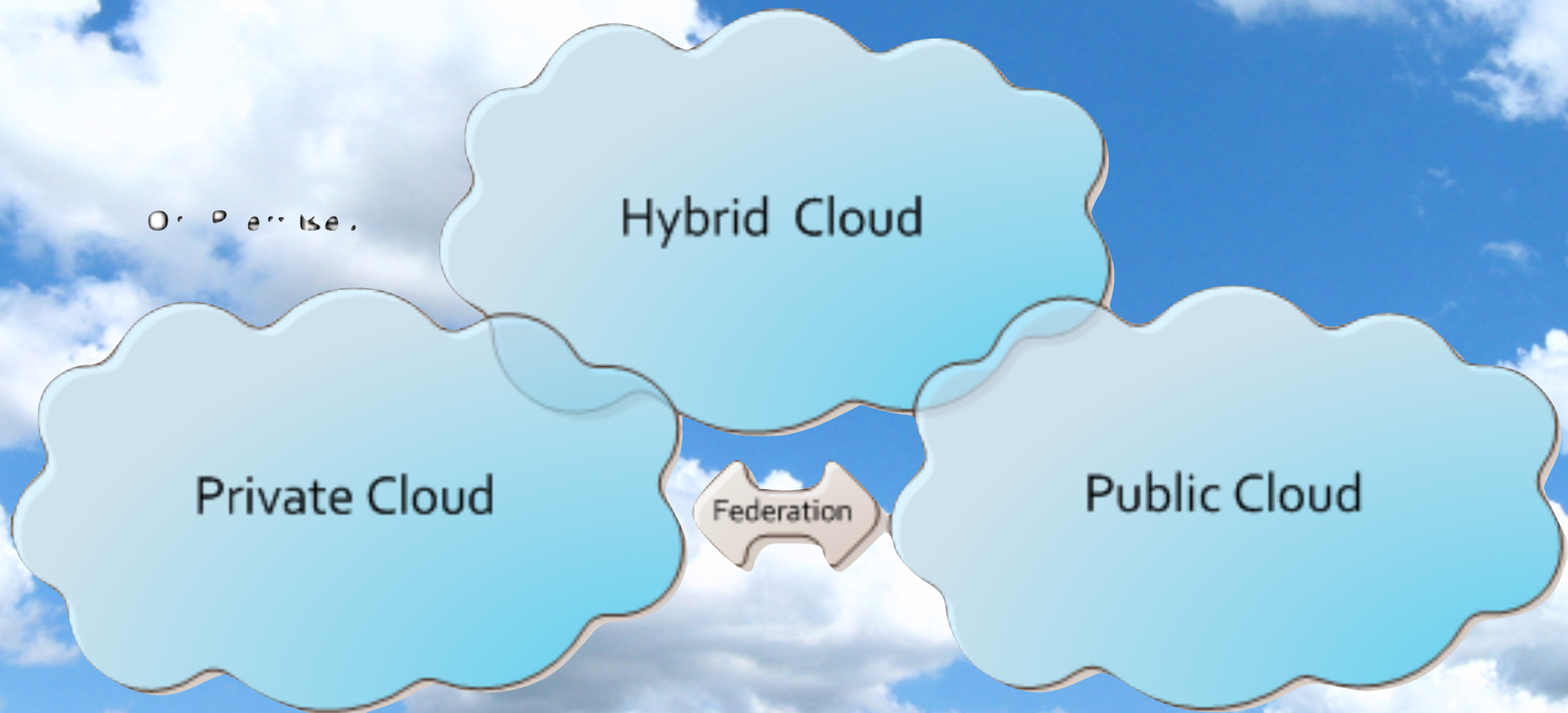
Cloud Business Model - extended

Our Opportunity here?



*Source: <http://itechthoughts.wordpress.com/2010/02/23/cloud-computing-the-new-it-paradigm/>

Types of Cloud Computing



What should be differentiated in terms of standards?

Everything *as a Service*



New business opportunity ?

Does Cloud always Goodness ?

**I don't like
Cloud Service**



Key = Resource Management

Cloud Computing is :

- Scalable IT services
- Shared compute and storage resources
- Flexible resource management
- Faster IT services
- Platform to deliver applications

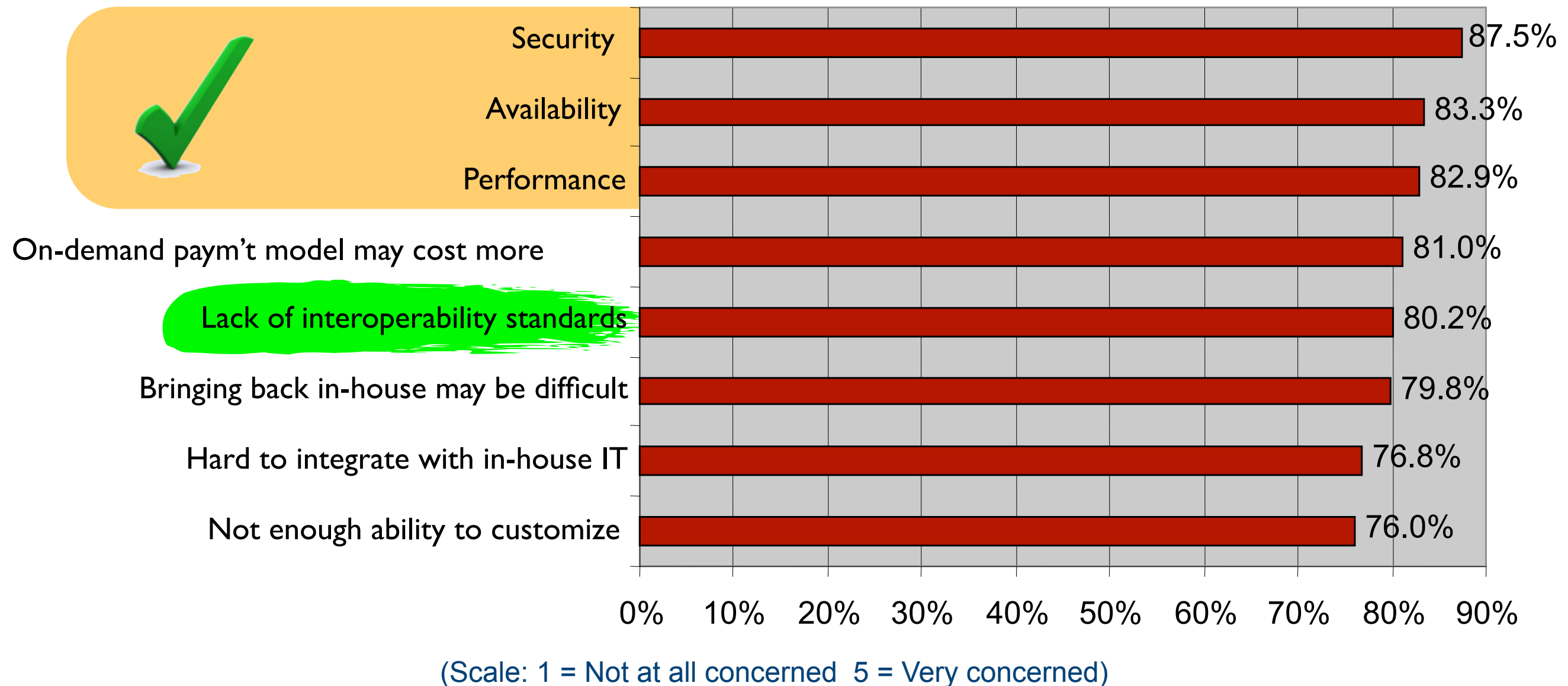
Cloud Computing is NOT:

- Hosted applications
- Software as a Service (SaaS)
- Gmail or Yahoo mail services
- Storage pictures on Flickr
- Storing information on the Internet

“Virtualization Technology,,

Cloud Computing – User Survey

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



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

Reality of Cloud Computing

Pros and Cons



What is a major concern?



“Lock-in”



What is a major concern?

“Interoperability”

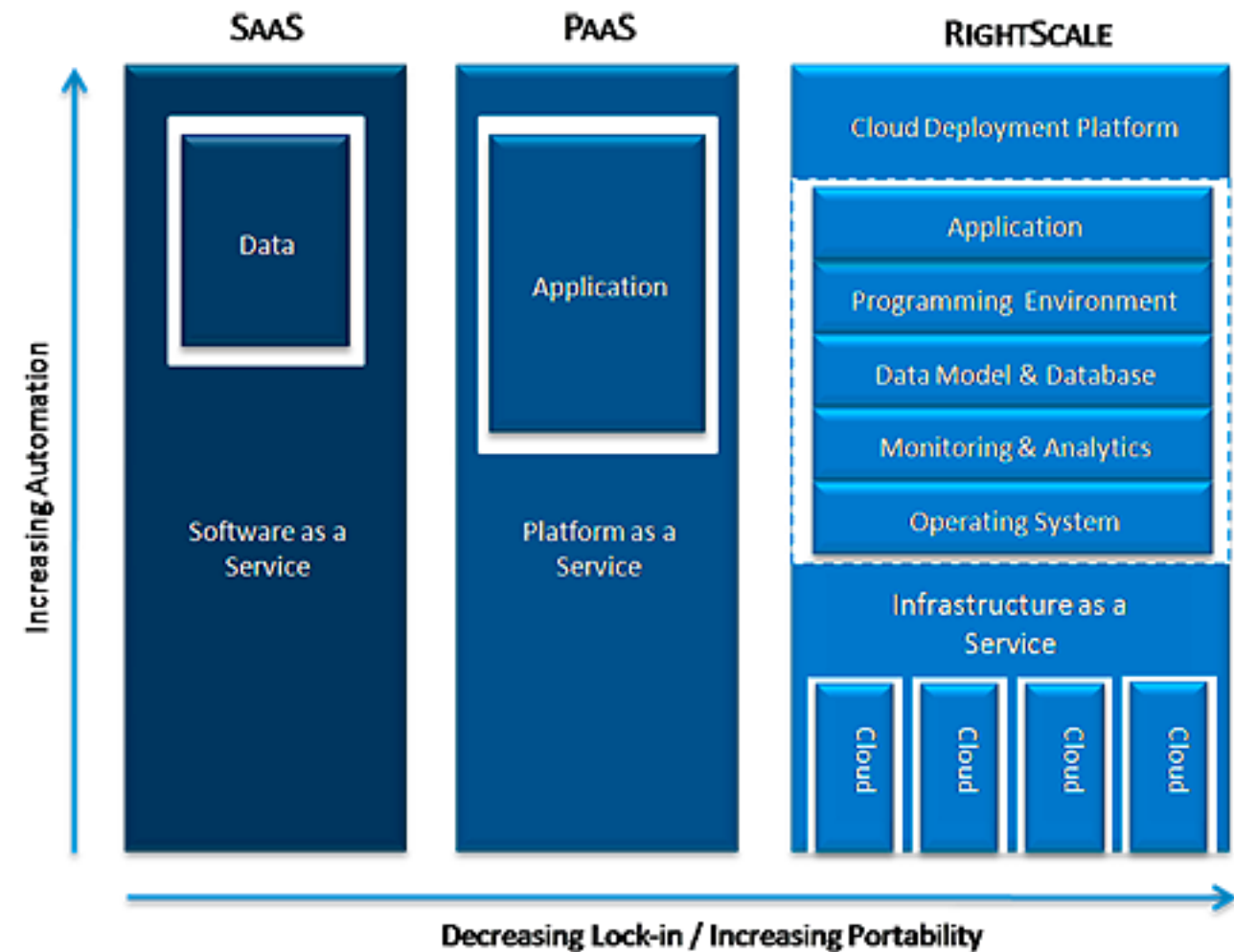
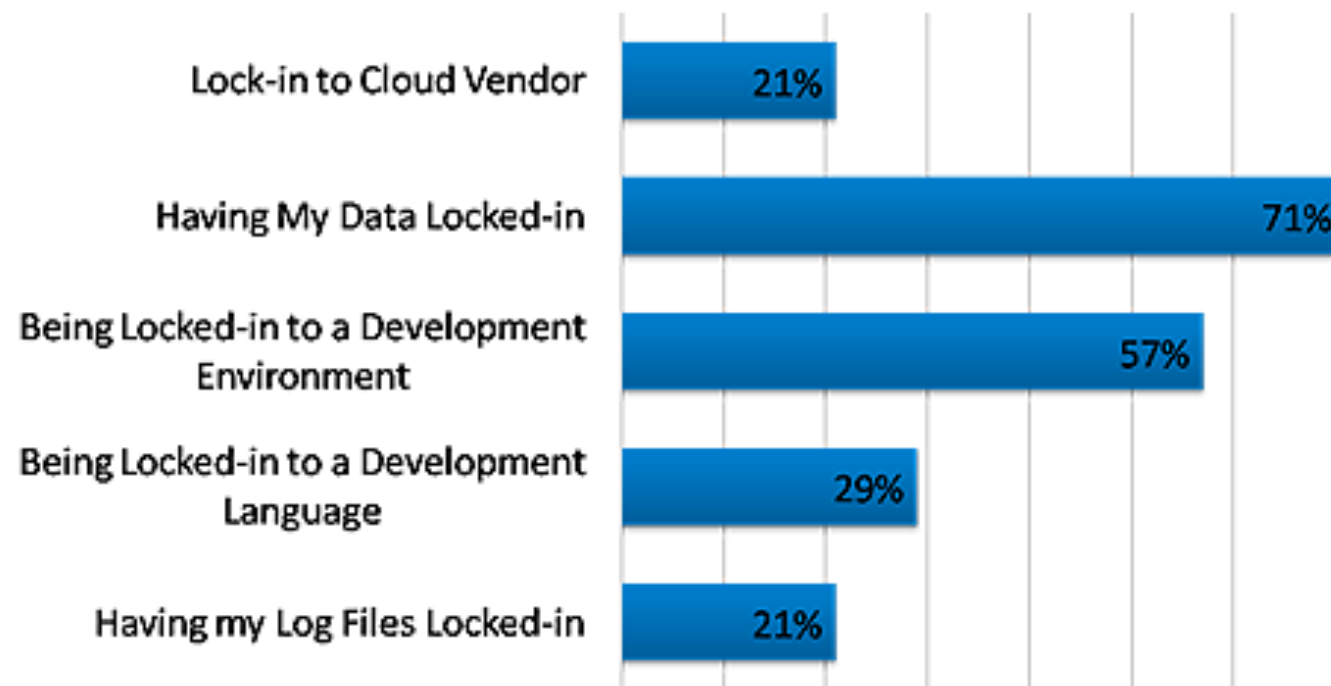
Vendor Cloud Lock-in



“needs of interoperability”

Issues on Cloud Lock-in

What concerns you about moving to the cloud?



“Can Standards solve this issue?”

Do we need standards?

Lock-in
problem

Reliability
problem

Inter-cloud
problem

**YES, we need it
at Minimum !**

Difficult to standardize?

Nothing New

Technology

Proprietary

Business Model



**Service
Architecture**

Diversity

3 Key Requirements

from NIST

Reliability
problem

Security

Portability

Lock-in
problem

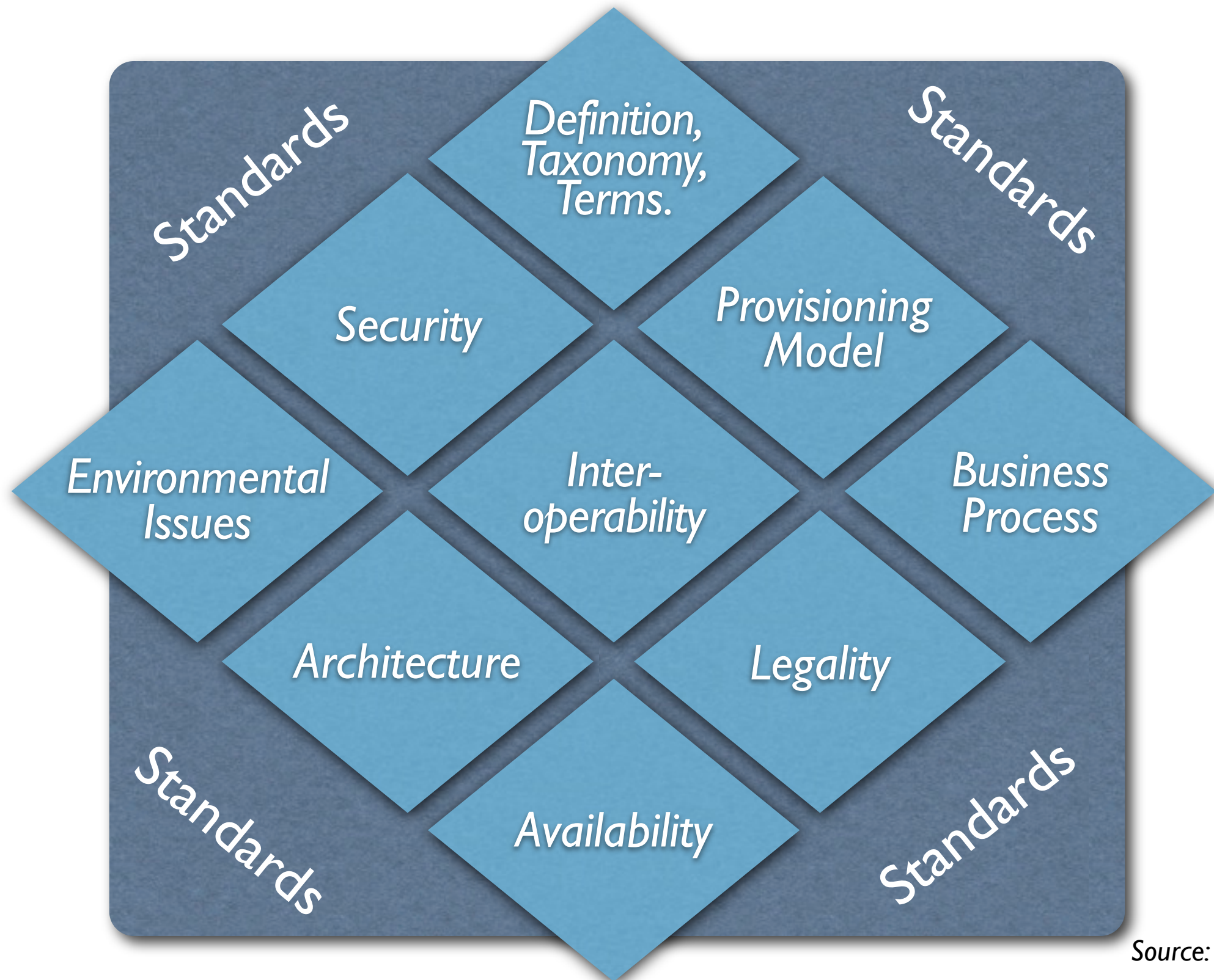
Interoperability

Inter-cloud
problem



Major Issues on Cloud Computing

To be standardized !



Source: ETRI, 2010

What else to be considered?



SLA



Legals

Cloud Computing



Current Activities



Cloud Computing Standards: Too Many, Doing Too Little

By Kevin Fogarty, CIO - April 06, 2011



Open Virtualization Format

Enables portable movement of IaaS workloads from cloud to cloud

DSP #	Version	Title	Date	Comments
DSP0243	1.1.0	Open Virtualization Format Specification	20 Jan 2010	.pdf file, DMTF Standard
DSP0243	1.0.0	Open Virtualization Format Specification	22 Feb 2009	.pdf file, DMTF Standard

Some Products here



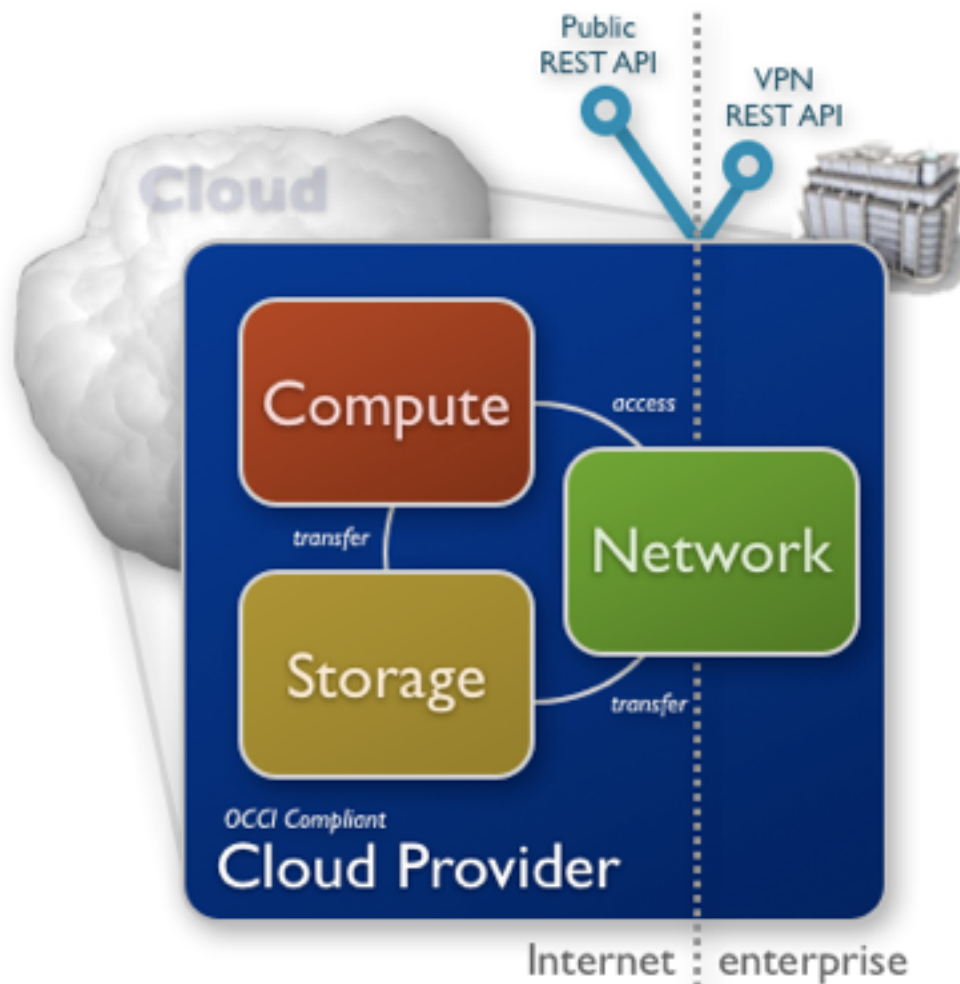


Occi
Open Cloud Computing Interface

Open Cloud Interface

Example

A Leading Cloud Standard Contender: Open Cloud Computing Interface (OCCI)



ebiz From <http://www.ebizq.net/blogs/enterprise> by Dion Hinchcliffe

GFD-P-R.183
OCCI-WG

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Alexander Papaspyrou, TU-Dortmund
Thijs Metsch, Platform Computing
April 7, 2011

Open Cloud Computing Interface - Core

Status of this Document

This document provides information to the community regarding the specification of the Open Cloud Computing Interface. Distribution is unlimited.

Obsoletes

This document

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Trademarks

OCCI is a tra

Abstract

This document
(OGF), provid
requirements

GFD-P-R.184
OCCI-WG

Thijs Metsch, Platform Computing
Andy Edmonds, Intel
April 7, 2011

Open Cloud Computing Interface - Infrastructure

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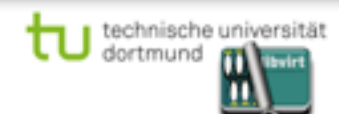
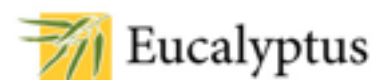
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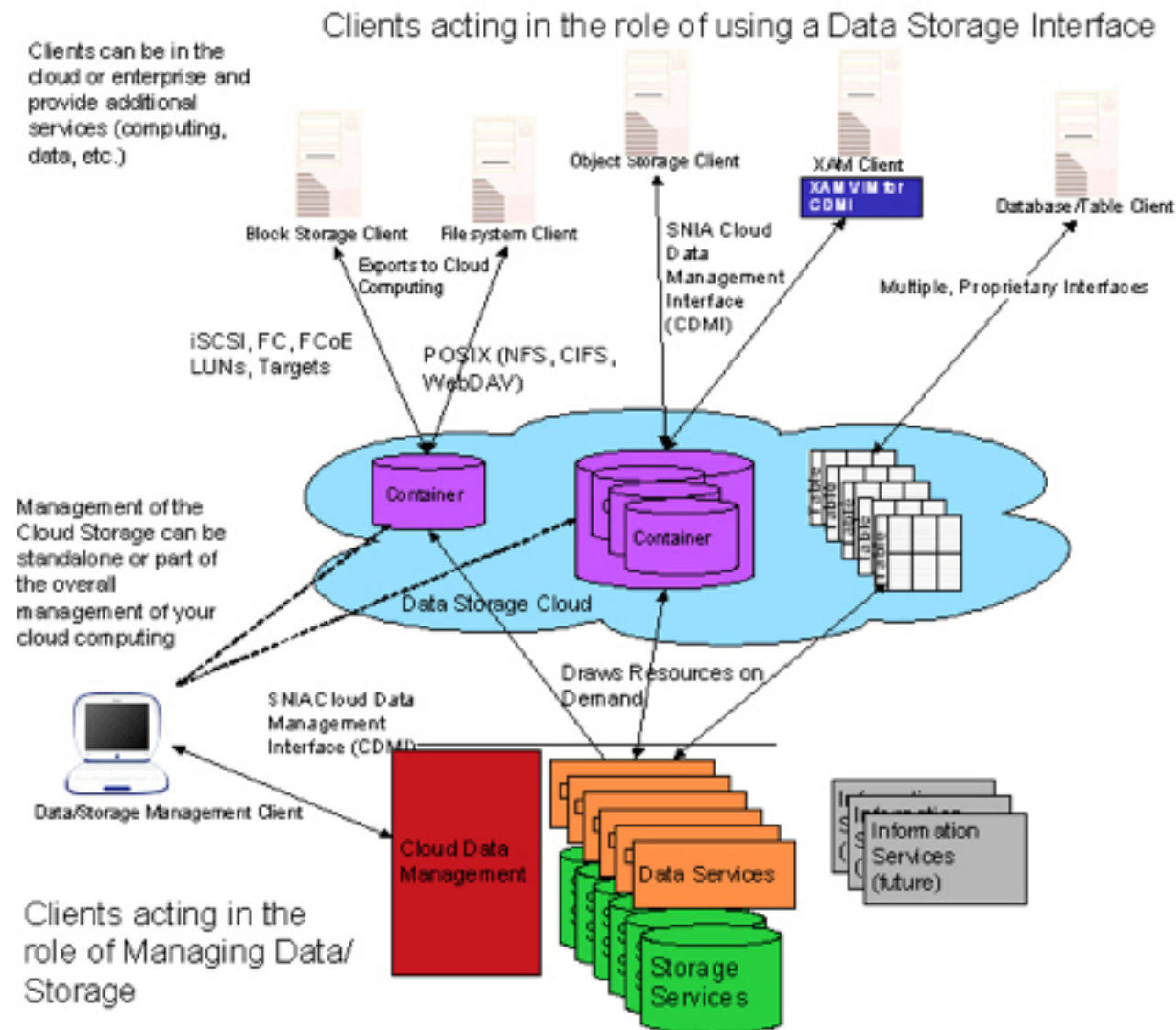
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Abstract

This document, part of a document series, produced by the OCCI working group within the Open Grid Forum (OGF), provides a high-level definition of a Protocol and API. The document is based upon previously gathered requirements and focuses on the scope of important capabilities required to support modern service offerings.





Cloud Data Management Interface

Version 1.0

"This document has been released and approved by the SNIA. The SNIA believes that the ideas, methodologies, and technologies described in this document accurately represent the SNIA goals and are appropriate for widespread distribution. Suggestion for revision should be directed to <http://www.snia.org/feedback/>.

SNIA Technical Position

April 12, 2010



ITU-T FG Cloud

SINCE 2010

ITU-T Focus Group on Cloud Computing

FG Objective

The objective of the Focus Group is **to collect and document information and concepts that would be helpful for developing Recommendations** to support cloud computing services/applications from a **telecommunication/ICT perspective**.

Current Activities

Developing the 6 deliverables.

Future Plan

FG Cloud continues until December 2011.

The formal transfer of the deliverables will take place after the closure of FG Cloud; however, ITU-T SG 17 and ITU-T SG 13 are able if they so wish to study the relevant draft deliverables

6th ITU-T FG meeting, 27 June - 1 July 2011, Geneva, Switzerland



ITU-T FG Cloud

ITU-T Focus Group on Cloud Computing

FG Cloud Deliverables

No	ITU-T FG Cloud #1	ITU-T FG Cloud #2	ITU-T FG Cloud #3, #4
1	Introduction to the cloud ecosystem: definitions, taxonomies, and use cases	Introduction to the cloud ecosystem : Definitions, Taxonomies, Use Cases, High Level Requirements and Capabilities	Introduction to the cloud ecosystem : Definitions, Taxonomies, Use Cases, High Level Requirements and Capabilities
2	Requirements for Reference Architecture	Functional Requirements and Reference Architecture	Functional Requirements and Reference Architecture
3		Infrastructure & network enabled cloud	Infrastructure & network enabled cloud
4		Overview of SDOs involved in cloud computing	Overview of SDOs involved in cloud computing
5		Cloud security, threat & requirements	Cloud Computing Security
6			Benefits of cloud computing from telecommunication/ICT perspective



ISO/IEC JTC 1 SC 38 SGCC

Study Group on Cloud Computing

SINCE 2010

SC38: Distributed Application Platforms and Services (DAPS)

WG 1. Web Service WG

WG 2. Service Oriented Architecture (SOA) WG

SG 1. Study Group on Cloud Computing (SGCC)

Current Activities

SGCC Report Version 1 - asses current status of standardization activities as well as gap analysis. *(not complete yet)*

Future Plan

SGCC Report Version 2 (by 13 May 2011 - will be open to other SDOs)

SGCC Open Meeting, 18 May 2011, Boulder, CO, USA

4th SC38 Plenary, 19-23(24) September 2011, Seoul, Korea



ISO/IEC JTC1 SC 38 SGCC

Study Group on Cloud Computing

SINCE 2010



Global Standards

국내 클라우드 컴퓨팅 표준화 현황

최종 목표

- 클라우드 서비스의 상호호환성 확보가 가능하고, 안전하며 품질이 보장 되는 클라우드 컴퓨팅 기술 및 新 산업 선도가 가능한 기술 표준화

클라우드 컴퓨팅 표준 개발 관련 사업 (2010 기준)

No.	사업명	사업구분	표준화 관련 내용	비고
1	클라우드 컴퓨팅 표준개발	표준개발	•클라우드 컴퓨팅 상호운용성 및 보안 표준 개발 •클라우드 서비스 품질 및 제공관리 표준 개발 •클라우드 플랫폼 인터페이스 표준 개발	•ETRI •NIA •KCSA (공동수행)
2	클라우드 DaaS 시스템 및 단말 기술 개발	표준연계 기술개발	•DaaS 용어 표준화 *DaaS(Desktop as a Service) •DaaS 서비스의 상호 호환성 및 운용성 표준화	•ETRI
3	고성능 가상머신 규격 및 기술 개발	표준연계 기술개발	•고성능 가상머신(VM)의 기본 구조 규격과 가상머신 활용을 위한 기타 표준	•KIST
4	클라우드컴퓨팅 포럼	민간포럼	•민간 중심의 클라우드 컴퓨팅 산업 활성화 및 표준화 •표준화 워킹그룹 (WG) 운영 : 모바일 클라우드, 정책 및 인증, 미디어클라우드, 스토리지클라우드, 그린IDC클라우드적용기술, 클라우드기술프레임워크	•전략포럼 지원사업 (TTA)

국내 클라우드 컴퓨팅 표준화 현황

클라우드 컴퓨팅 표준화 전략 (안)

R&D 연계 및 시장수요 기반 표준화 전략 | 국내표준화

- R&D 핵심 기술 확보 기반의 표준화 연계 추진 | 선도기술중심 표준화
- 민간 포럼 을 통한 국내 표준화 추진 | 시장수요기반 표준화
- 공공분야 조기 도입 적용을 위한 관련 표준 개발 | 표준의 조기 보급 및 활성화

글로벌 표준화 대응 전략 | 국제표준화

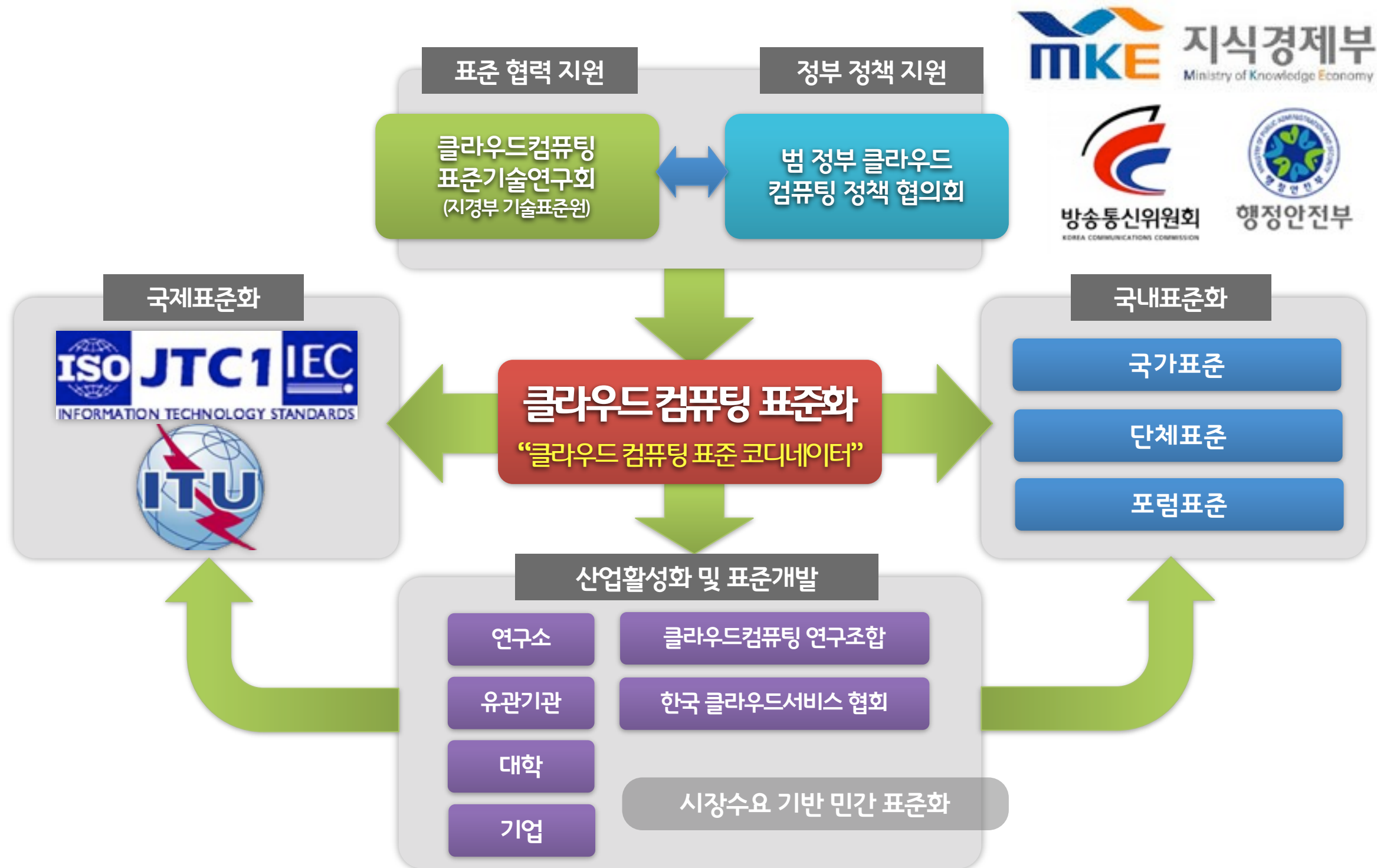
- ISO/IEC JTC 1, ITU-T 등 국제표준화 기구 선도 | 한국의 의장단 활동 중
- 국내표준/규정(SLA등) 기반의 국제표준 대응 전략 개발 | 국내 시장 보호 기반의 국제표준화

정부정책 연계 표준화 대응 전략 | 신규 서비스 기반의 표준화 선도

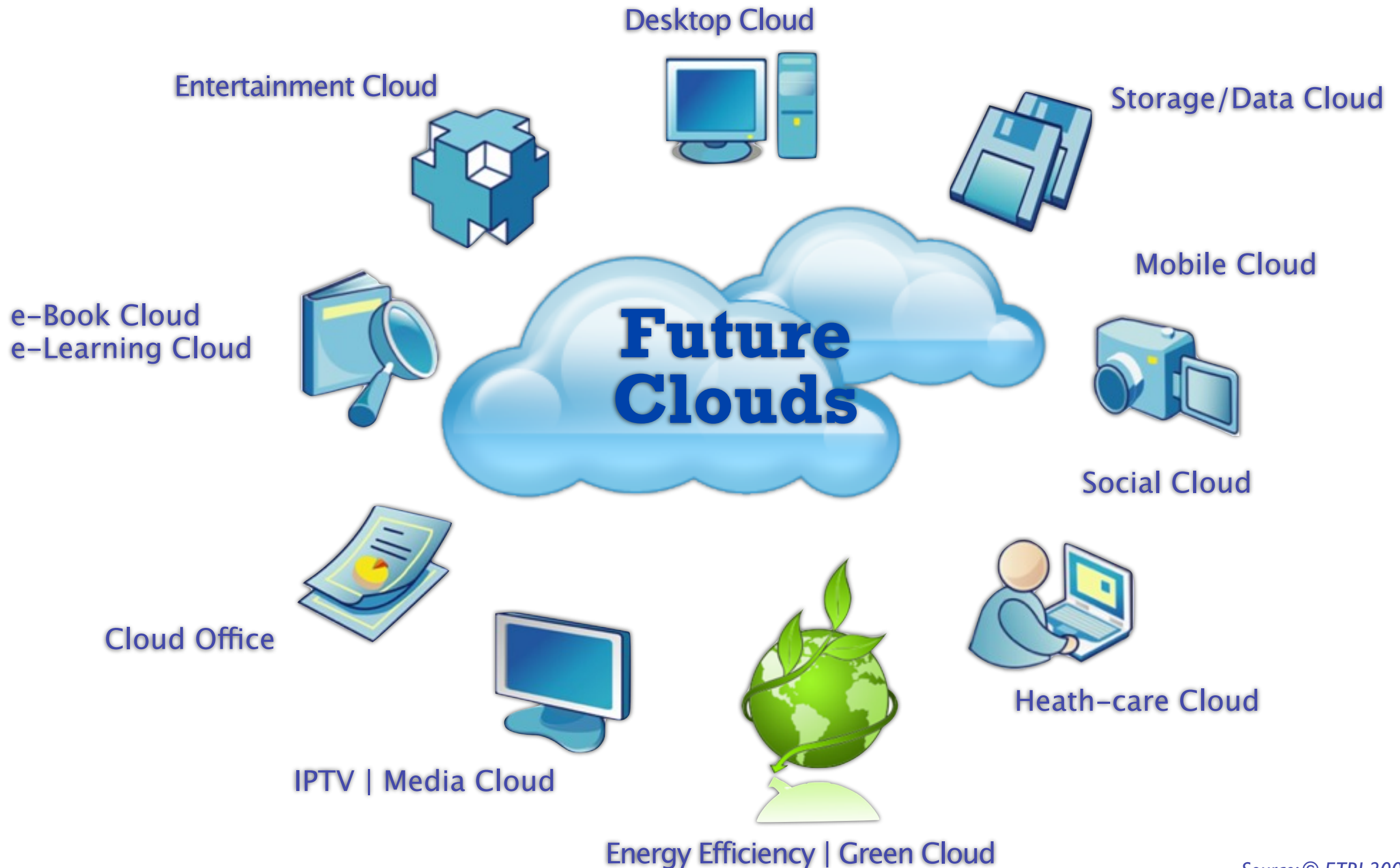
- 범 정부 표준화 협력 및 공조 추진 | 한국범 정부 클라우드 정책 협의회 (행안부, 방통위, 지경부 공동)
- 2011 국가 표준화 전략맵 개발을 통한 전략적 표준화 추진 | ICT표준화전략맵 SSM2011
- 모바일 클라우드 서비스 등 신 산업 창출 과제 발굴 연계 표준화 추진

국내 클라우드 컴퓨팅 표준화 현황

범 정부 클라우드 컴퓨팅 표준 개발 추진 체계



Future of Cloud Computing



Mobile Goes to the Cloud



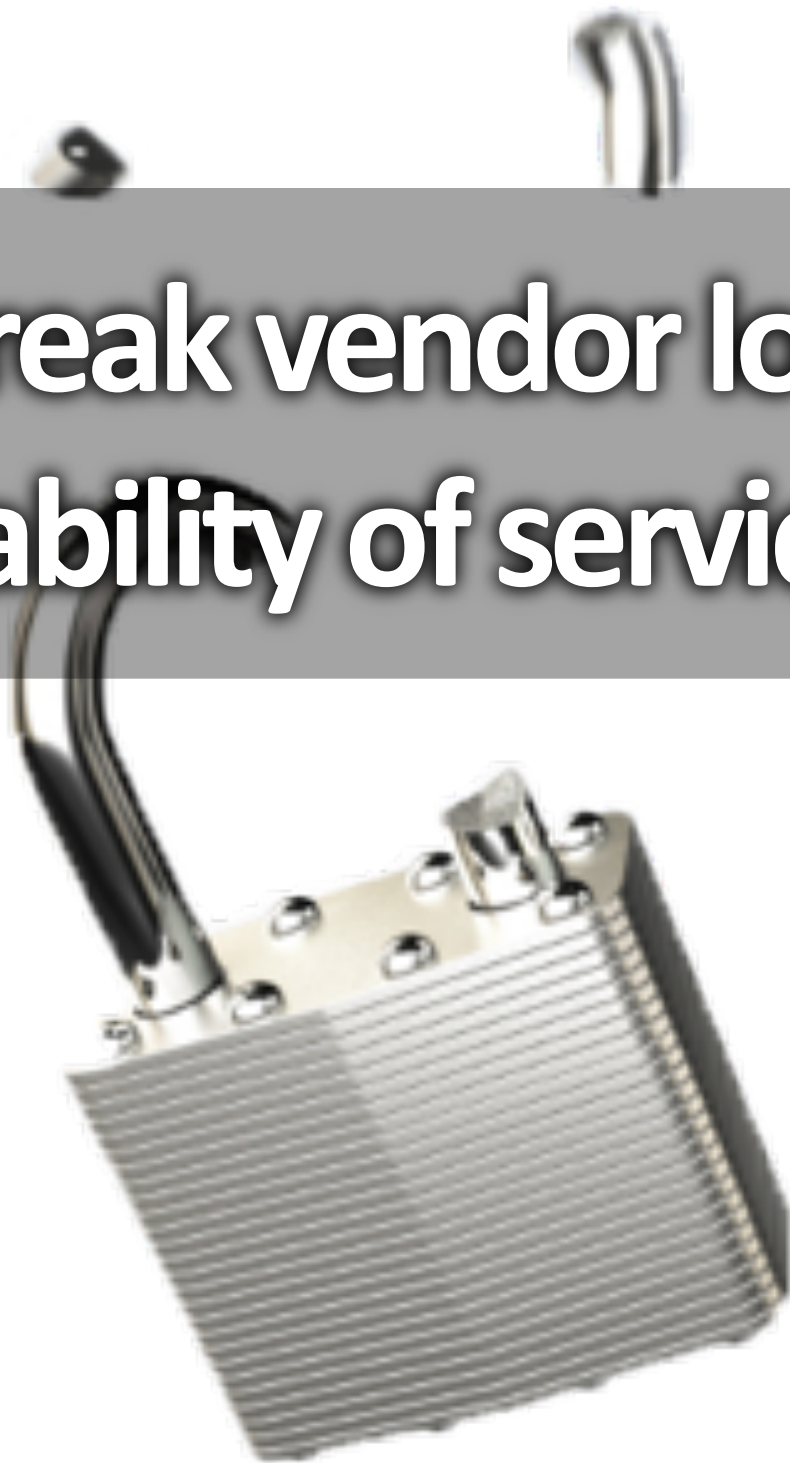
More Rich Cloud Services



Operating System also goes to Cloud ?

Cloud Standards

We should break vendor lock-in and ensure the availability of services and data.



Thank You



Seungyun Lee / Ph.D.

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