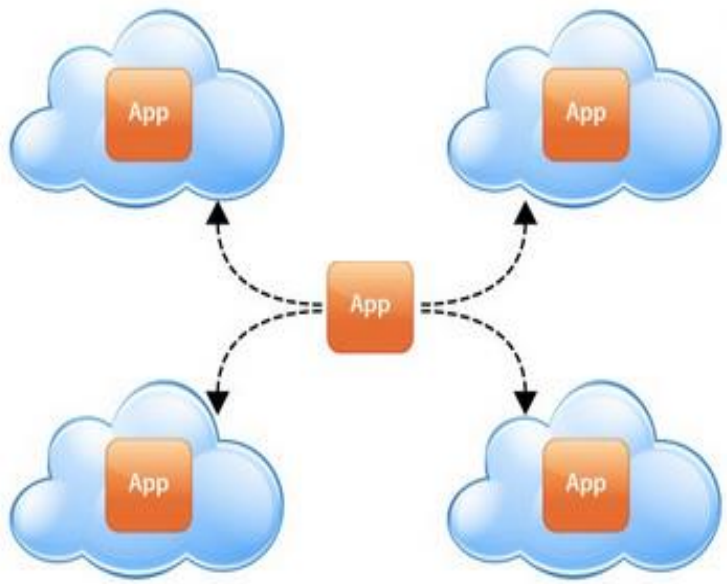

兩岸雲端標準推動構想

第三届中国云计算标准化研讨会

Dr. Zonyin Shae

雲端系統軟體研究所，前瞻科技研究所

Institute For Information Industry

02 December 2013, Beijing

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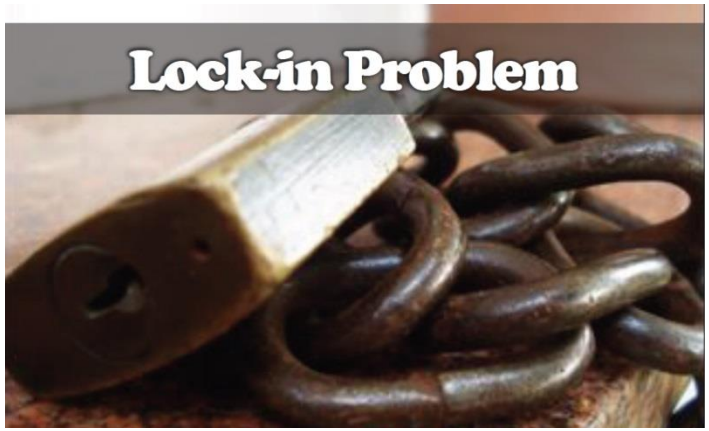
Why Cloud Computing Standard?

ISO/IEC JTC 1 SC 38 SGCC

ISO JTC1 IEC INFORMATION TECHNOLOGY STANDARDS

To gather requirements from a wide range of interested organizations on Cloud Computing standardization.



IEEE SNIA Storage Security In cloud security alliance CSA DMTF ITU THE Open GROUP tmforum atis OASIS Advancing open standards for the information society OpenGridForu Occi GICTF グローバルクラウド基盤連携技術フォーラム Global Inter-Cloud Technology Forum

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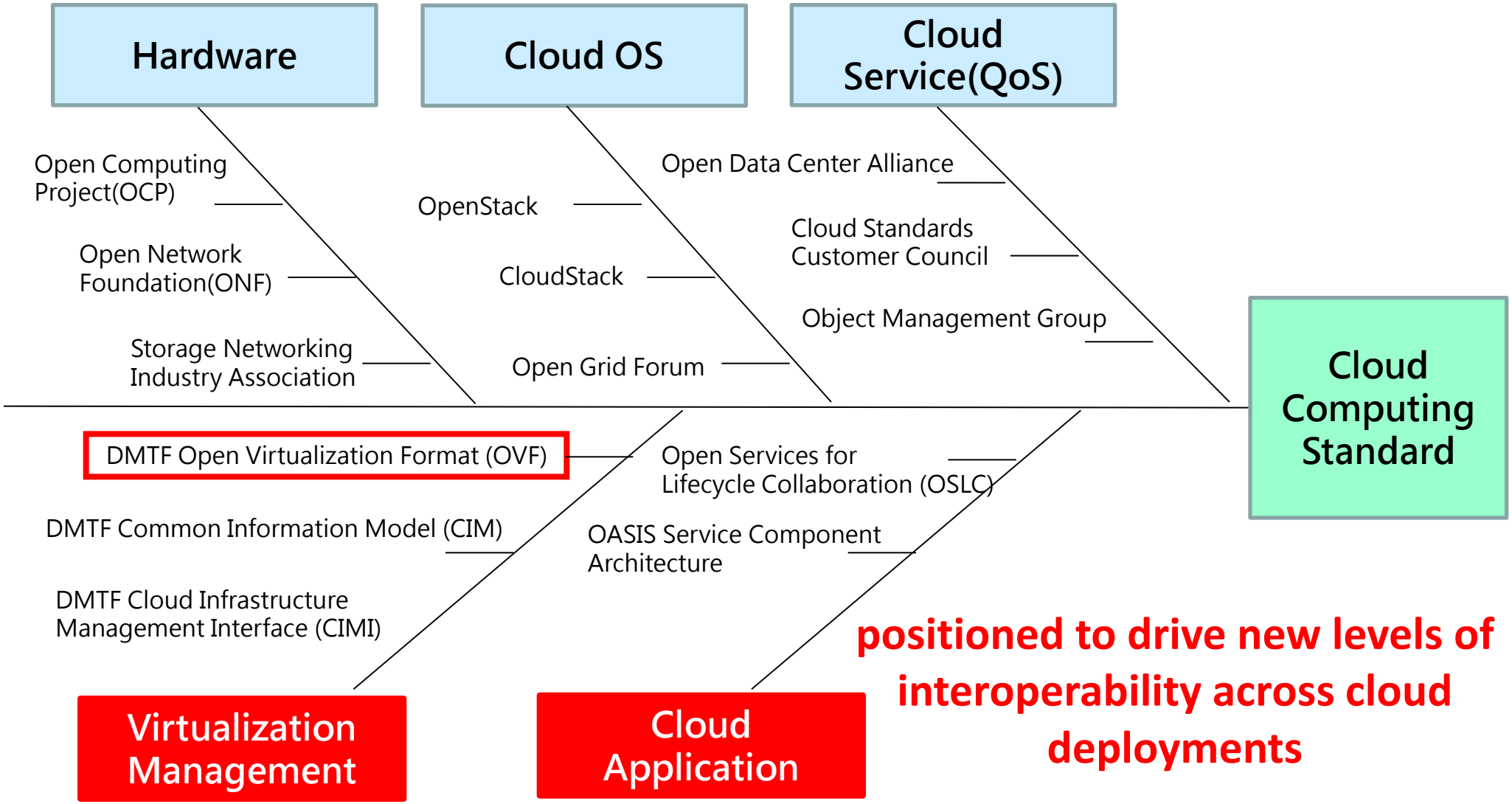
Cloud Computing Standards



positioned to drive new levels of interoperability across cloud deployments

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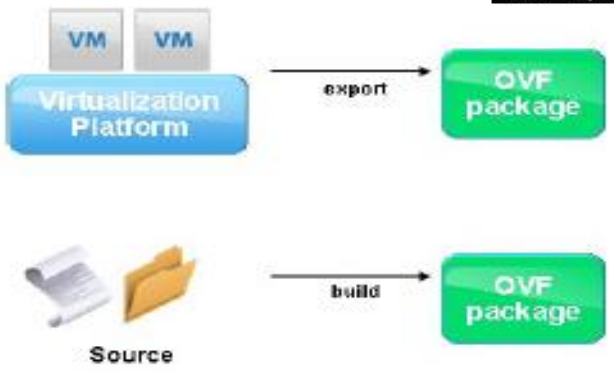
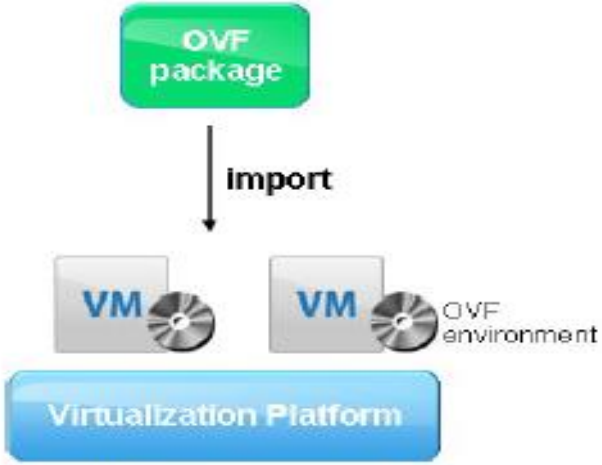
Open Virtualization Platform

OVF is a DMTF standard for packaging and distributing virtual appliances. A virtual appliance is a pre-built software solution, comprised of one or more virtual machines that are packaged, maintained, updated and managed as a unit. OVF enables portability and simplifies installation and deployment of workloads across multiple virtualization platforms and cloud computing infrastructures.



OVF Authoring Diagram



OVF Deployment Diagram

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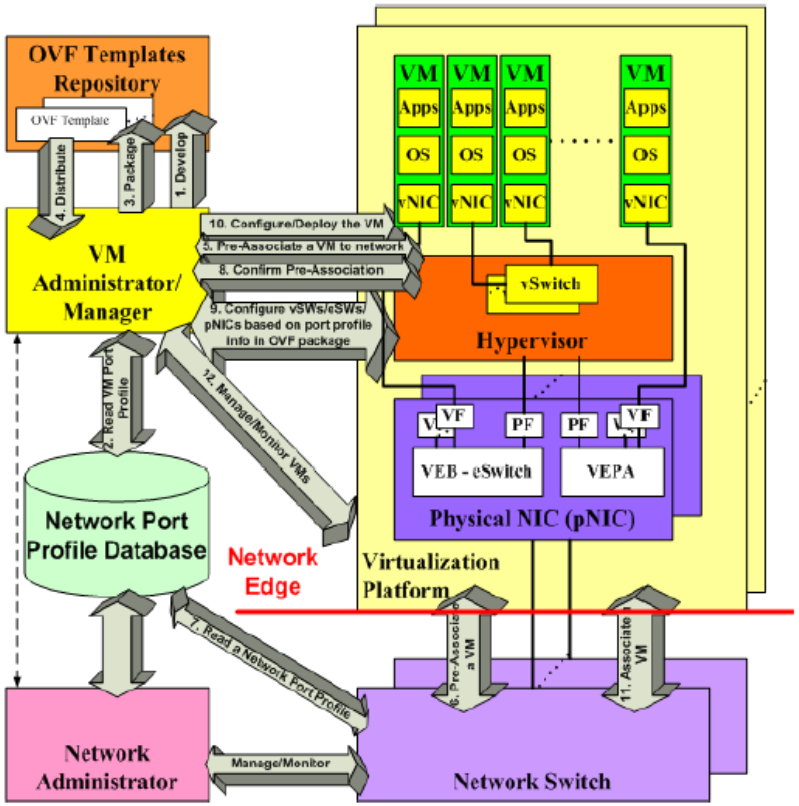
Virtualization Management Technology

Virtualization Management standards provide a consistent way to discover, monitor, and administer virtualized computer systems. In conjunction with the Server Management standards it allows an IT organization a cost effective means to deal with a multi-vendor data center (both the physical and virtual systems).

Resource Allocation Diagram



Network Port Profile Use Case Diagram

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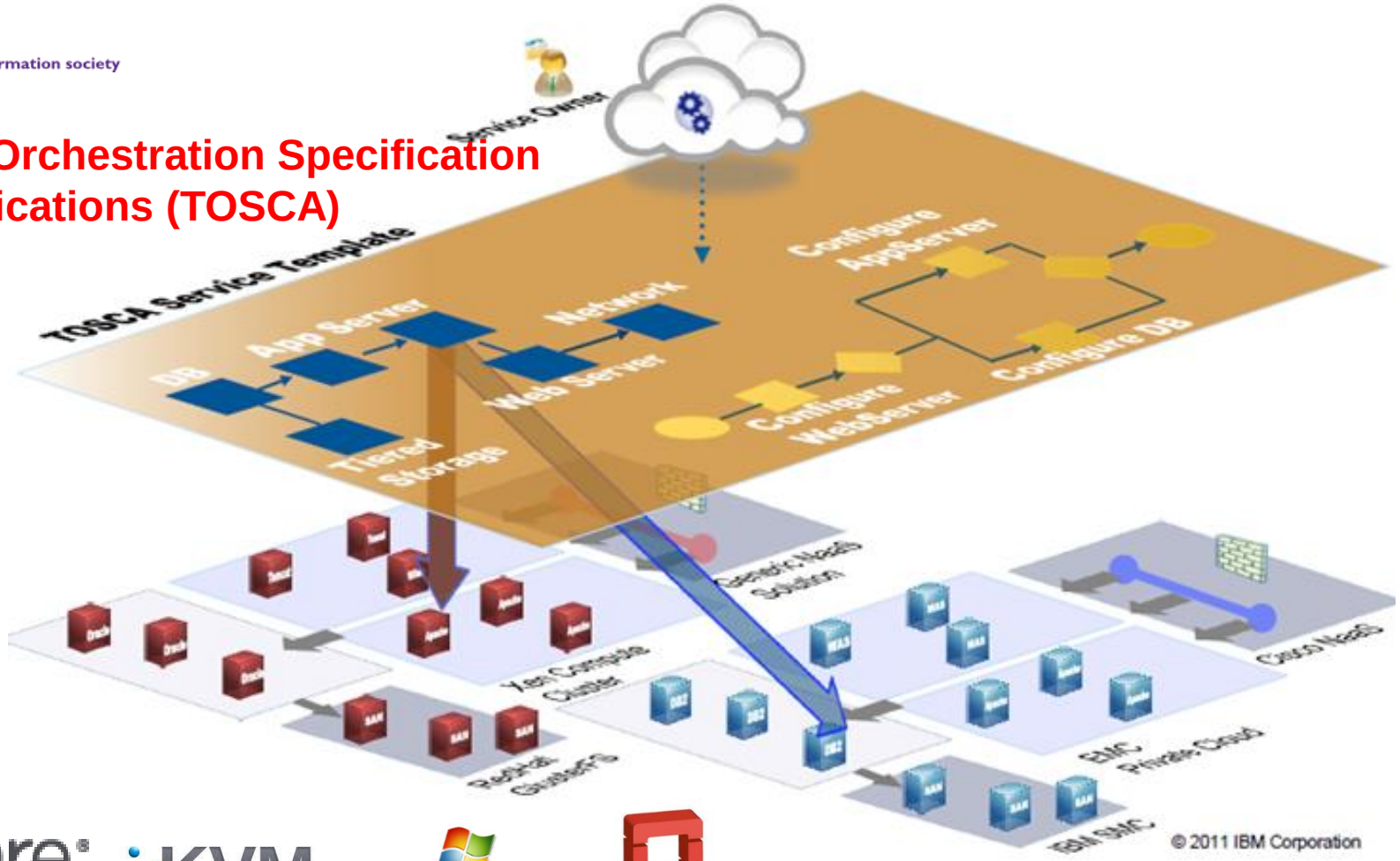
Cloud Application Portability

Portability between Cloud providers using the very same Service Templates

OASIS
Advancing open standards for the information society

Topology and Orchestration Specification for Cloud Applications (TOSCA)



vmware KVM Windows Hyper-V openstack

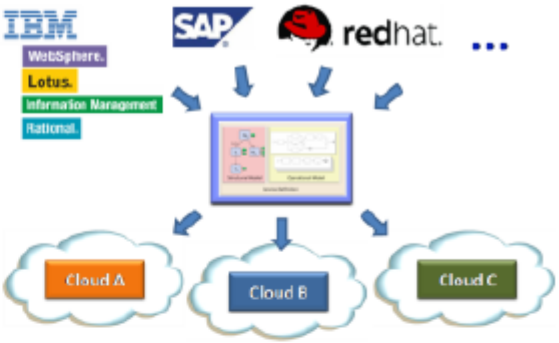
Source : IBM

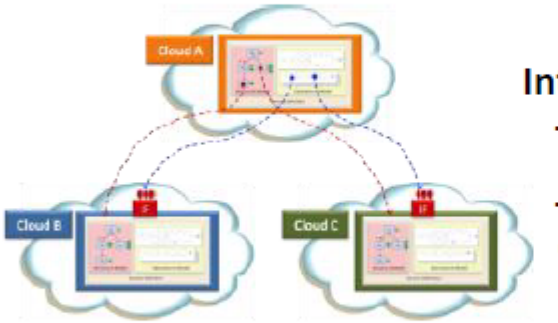
Benefits of Cloud Application Portability

Open Ecosystem for Cloud Services

- Vendor-independent definitions of complex Cloud services provide new marketing channel for solutions in the Cloud
- Ability to deploy services in any standards-compliant environment avoids vendor lock-in and eases migration

➔ **Enables "AppStore" for Cloud Services**





Interoperability and Composition

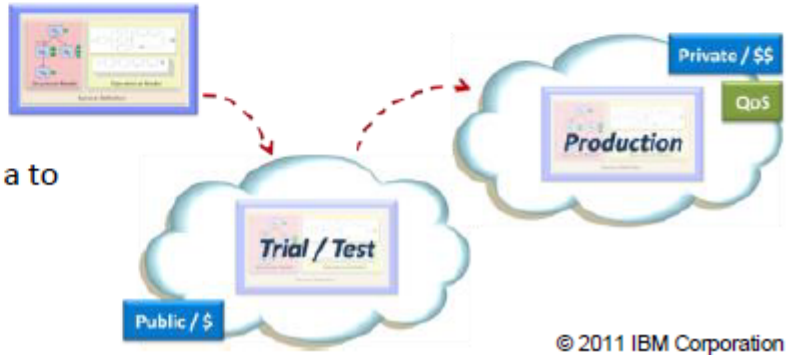
- Composition of components deployed in different Clouds into a higher-value service
- Similar to VMs that can be hosted at different providers

➔ **Key enabler for open Hybrid Clouds**

Easy Adoption of new Cloud Services

- Model-driven creation of Cloud Services
- Standardized deployment into various kinds of environments (from test to production, from cloud a to cloud b)

➔ **Key enabler for DevOps Scenarios**



Source : IBM

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Standard Building Blocks of TOSCA

- **DMTF Open Virtualization Format (OVF)**
  - **–TOSCA assembles and orchestrates virtual images into larger structures and relates it to existing infrastructure**
  - **–TOSCA extends lifecycle support beyond deployment**
- **DMTF Common Information Model (CIM)**
  - **–TOSCA has a higher level of abstraction to describe both applications and infrastructure components, enabling cloud orchestration**
  - **–TOSCA supports a richer set of relationships to express cloud application topologies, e.g. “deployed on”, “licensed by”, “data locality constraint”**
- **DMTF Cloud Infrastructure Management Interface (CIMI)**
  - **–TOSCA orchestrates appropriate behavior to enable CIMI infrastructure management to do the right thing at the right time**
- **OASIS Service Component Architecture (SCA)**
  - **–TOSCA extends SCA by providing topologies and orchestration services that bring together SCA applications with cloud infrastructure**
- **OpenStack**
  - **–TOSCA is a standard which sits above Open Stack. It can leverage Open Stack and bind to the Open Stack interfaces as the implementation of operations defined by TOSCA Node Types.**
- **Open Services Lifecycle Collaboration (OSLC)**
  - **–TOSCA and OSLC are complimentary efforts. Together they can be used to create a composable, pluggable Cloud Management Infrastructure allowing model based Cloud Service Management.**

Source : IBM

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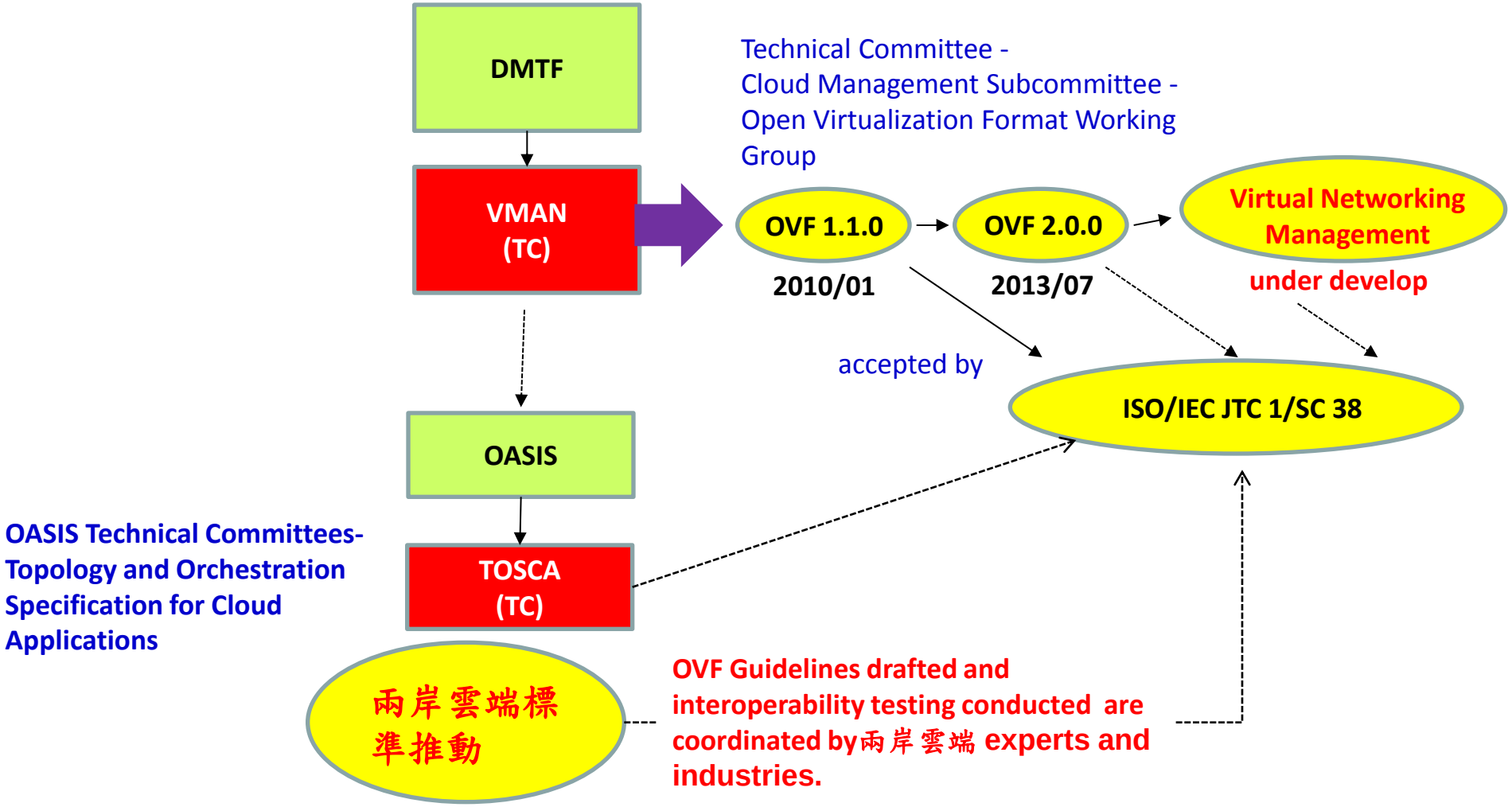
Roadmap



* CSSI/ARI Institute For Information Industry

** Cloud Computing Association in Taiwan

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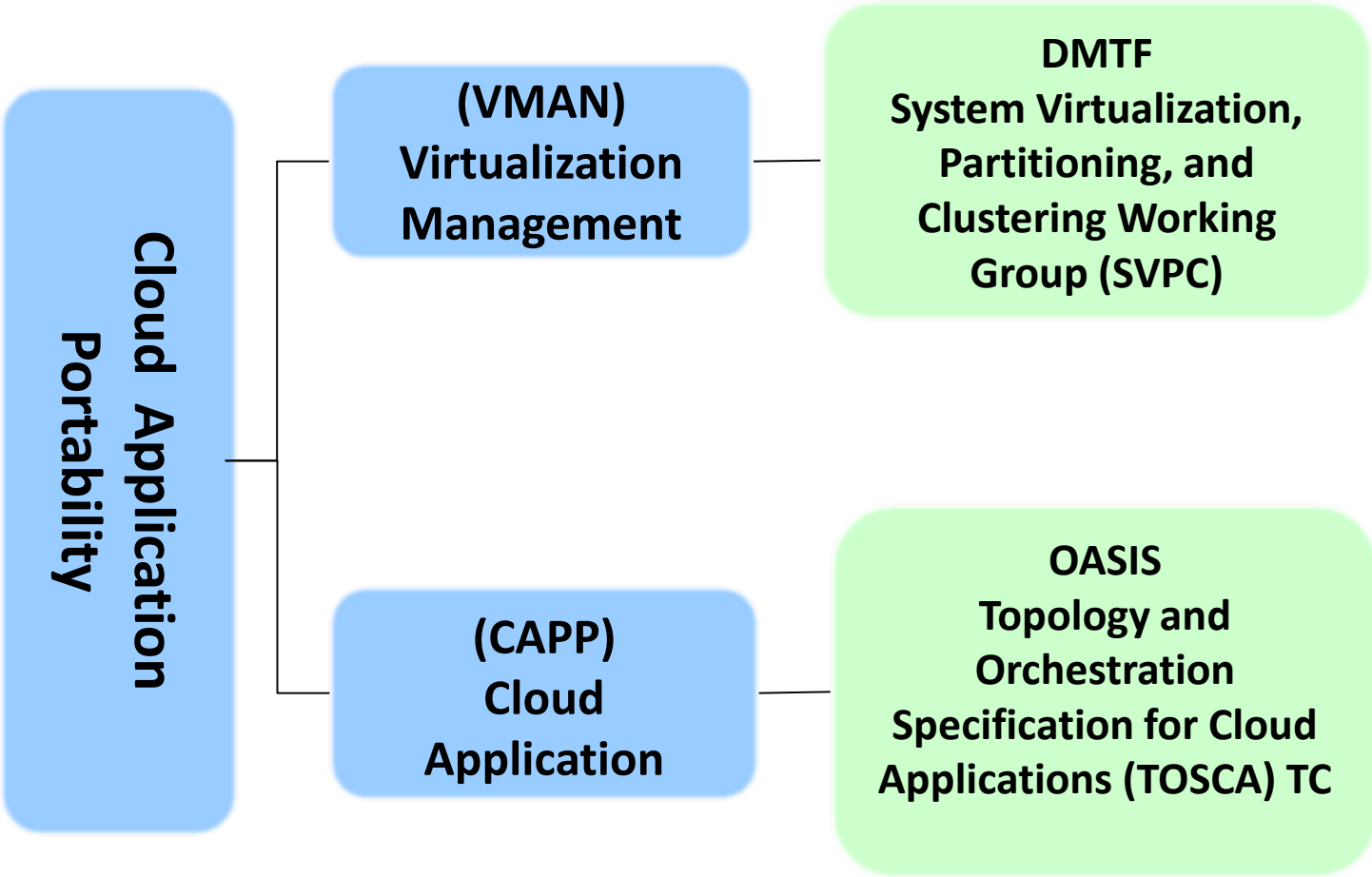
Cloud Computing WG Focus Point



- Virtual Ethernet Switch
- Generic Device Resource Virtualization
- Ethernet Port Resource Virtualization
- Storage Resource Virtualization
- Memory Resource Virtualization
- Processor Resource Virtualization
- Allocation Capabilities
- System Virtualization
- Resource Allocation

- Portable deployment to any compliant cloud
- Smoother migration of existing applications to the cloud
- Flexible bursting (consumer choice)
- Dynamic, multi-cloud provider applications

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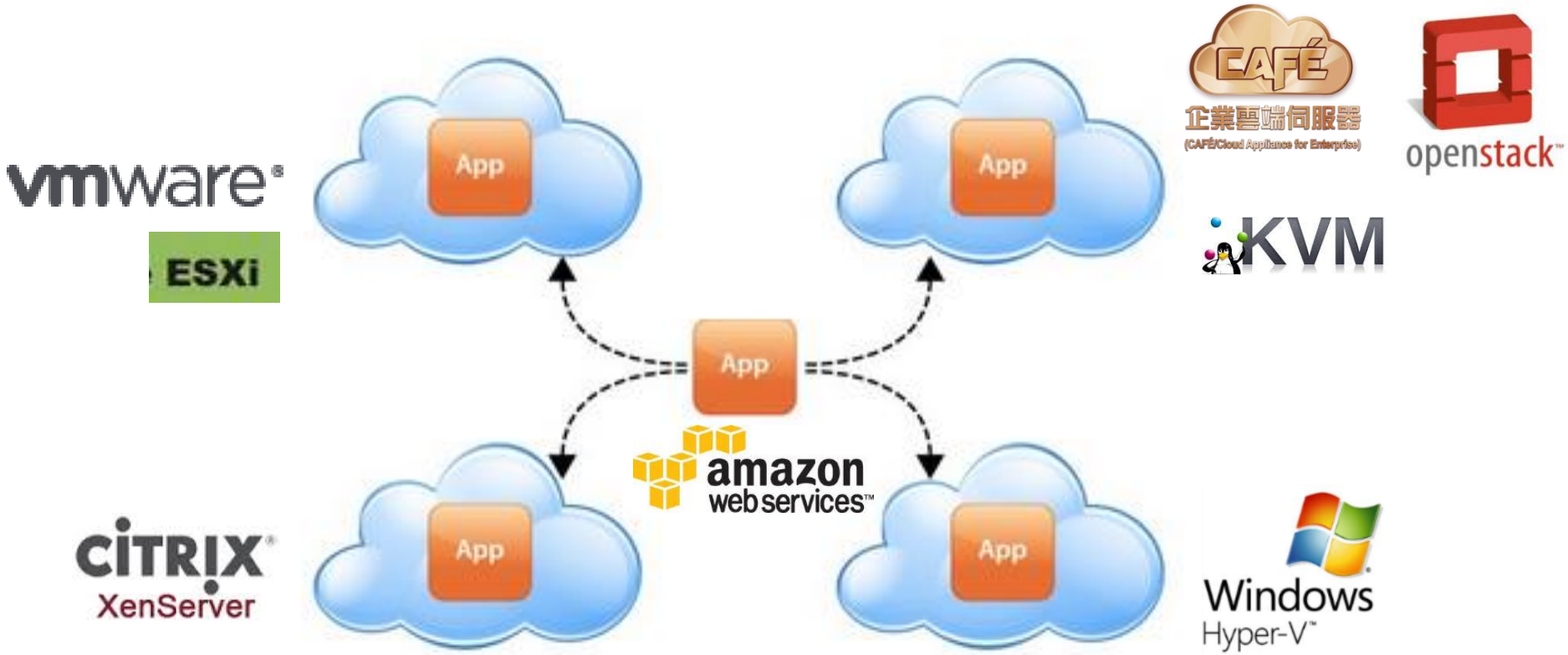
OVF Portability Practice Guideline



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Goal of OVF Portability Practice Guideline

To investigate the issues and best practice in using OVF to support
(1)moving the existing applications into cloud.
(2)moving a workload from one cloud to another
(3)moving a workload from one part of the data center to another

The investigation will consist of major virtualization vendors:
(1)Vmware: ESX Server hypervisor
(2)Amazon EC2: Amazon Machine Images.
(3)Red Hat/Open Stack: KVM
(4)Microsoft: Hyper-V
(5)Citrix: Xen Server

The investigation will base on a set of common applications and infrastructure (OS, CPU, memory, storage, network, and database requirements).

The investigation will also check if any geo-specific related issues in OVF. Preference application types (large enterprise, small and medium enterprise), and configurations

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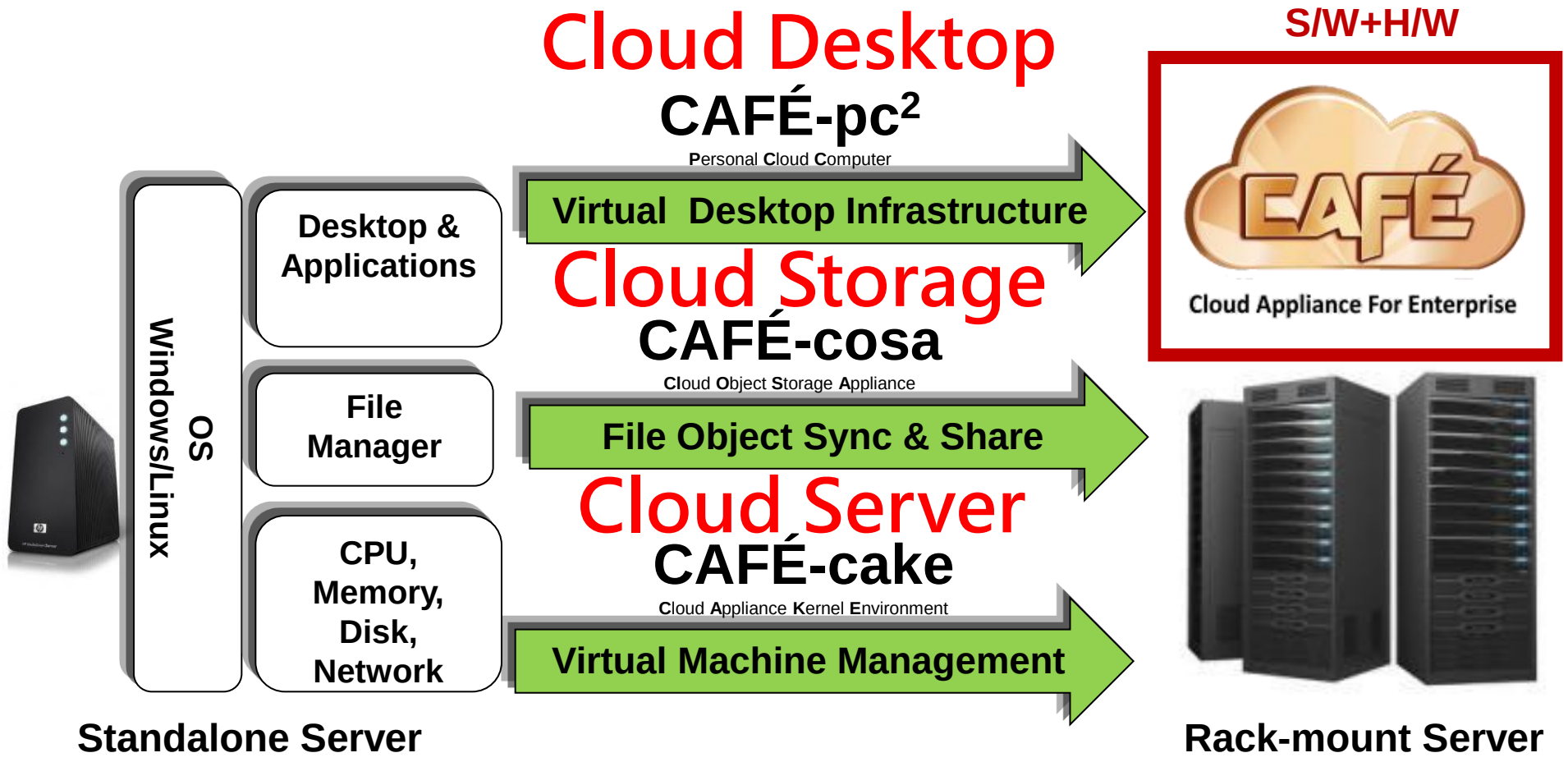
III CAFÉ R&D



PC Server

Cloud Appliance

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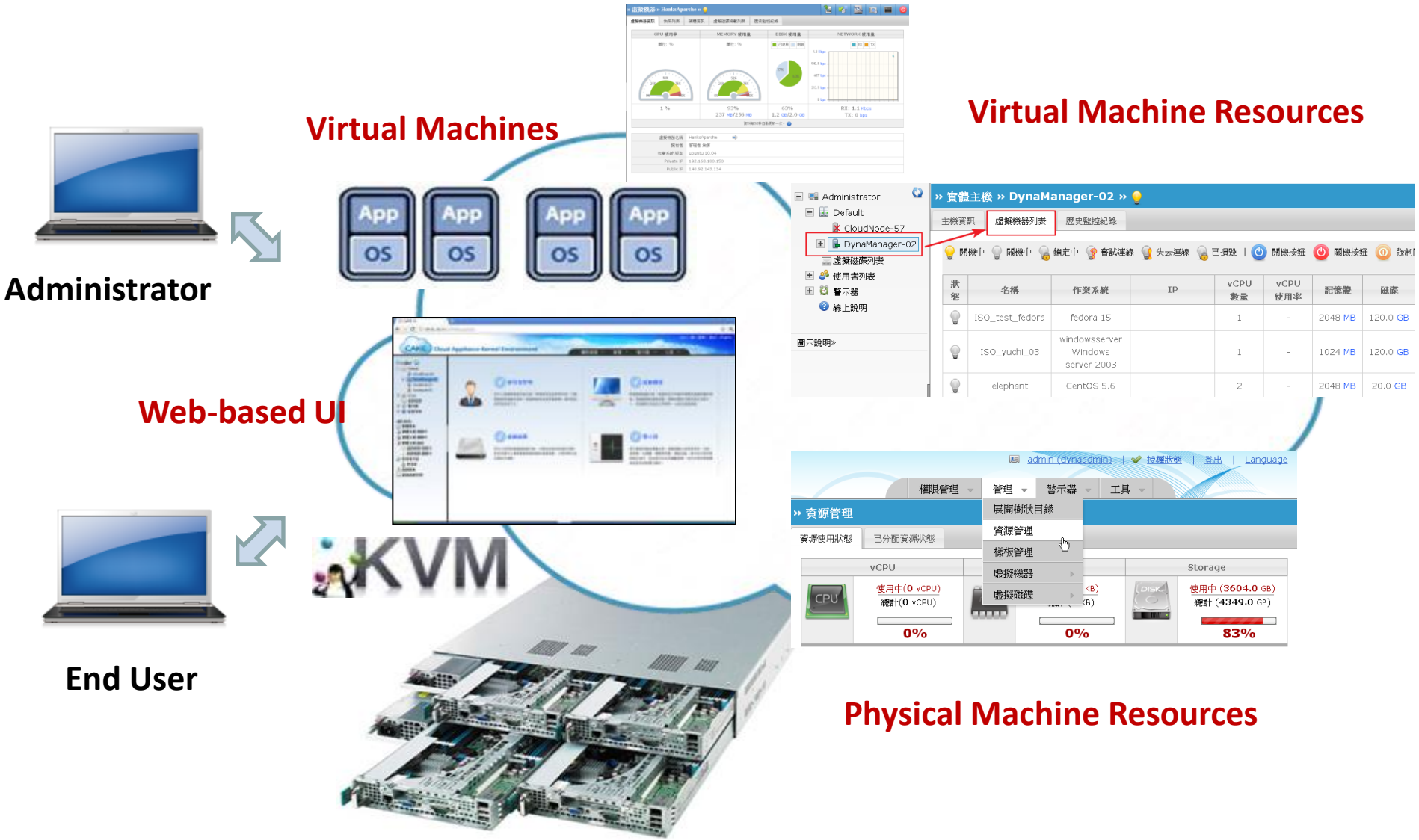
CAFÉ CAKE(Cloud Appliance Kernel Environment)



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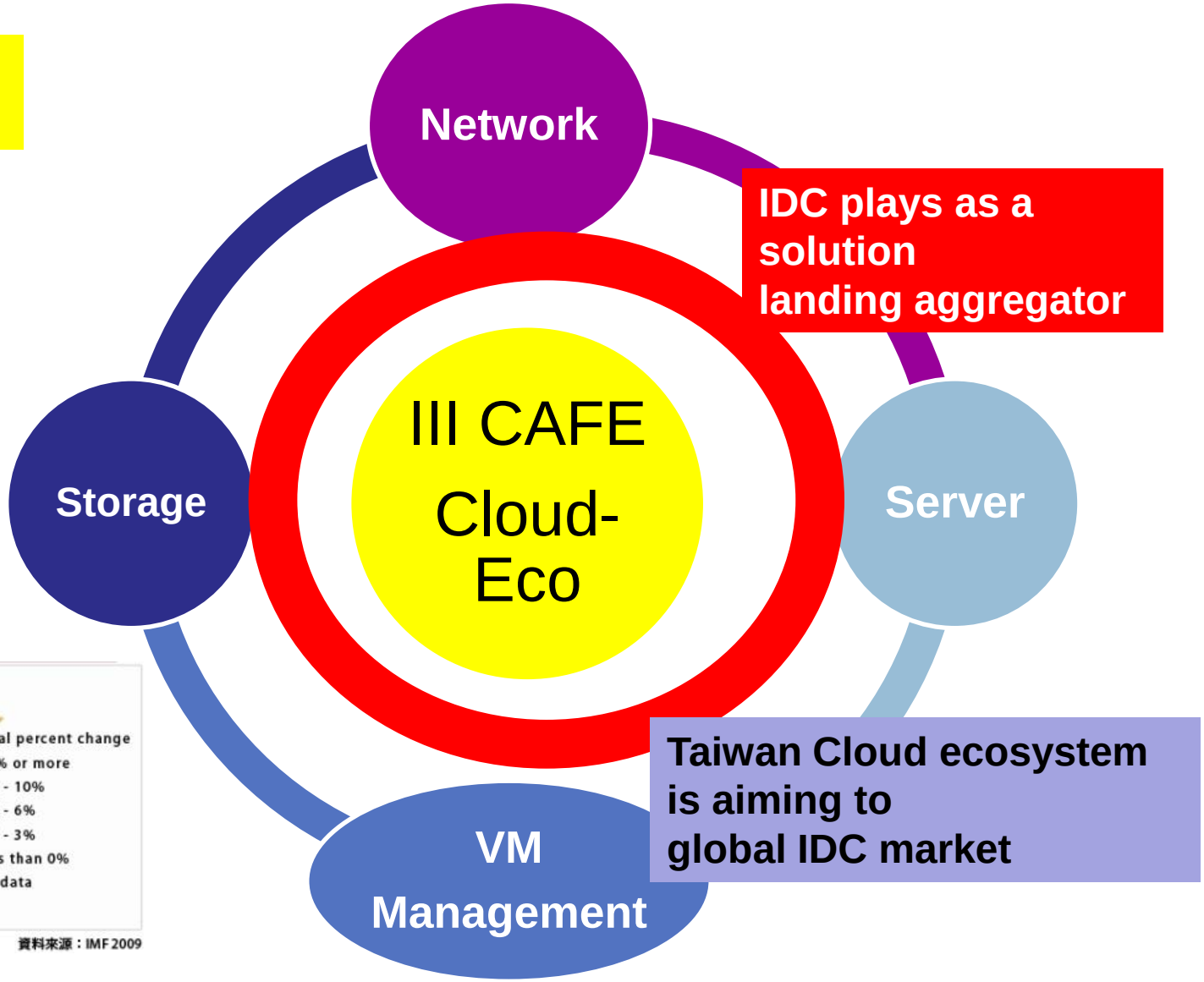
III CAFÉ Global IDC Pilot

Taiwan vendor solutions Stack Demo Center

Education, Healthcare, Tourism, GIS, e-Marketing Mobile POS/CRM Video Conferencing, . .

Global IDC Pilot: Thailand ,Vietnam, Kuwuit

資料來源：IMF 2009



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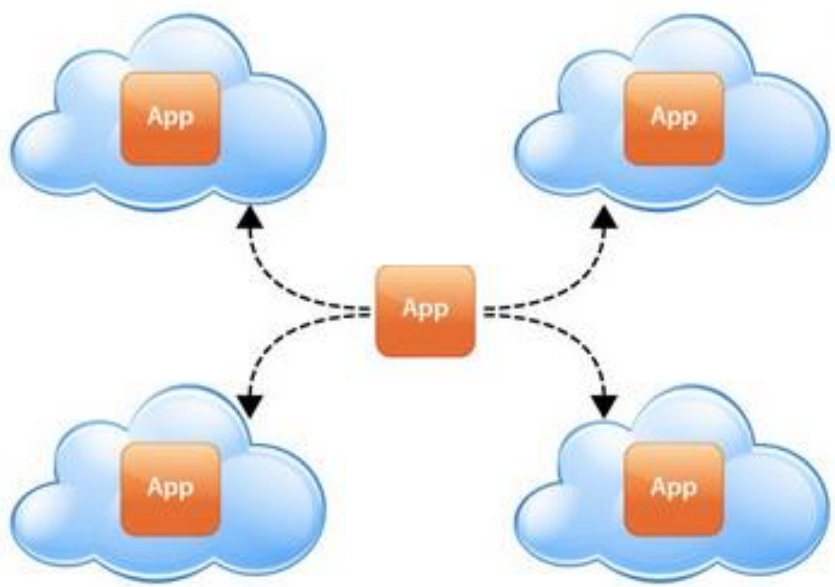

Let’s doing more for Cloud Computing Standards!

Thank you

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