



ca
IT Leaders
Forum

Working in the Cloud – using the new ISO/IEC/ITU-T Cloud Computing Standards

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- CISO, Bridge Point Communications
- Adjunct Associate Professor, ITEE, University of Queensland
- Founding Director, Cloud Security Alliance, Australia

What are we talking about:

- ISO/IEC 17788 Information technology –Cloud Computing – Overview and Vocabulary
- ISO/IEC 17789 Information Technology – Cloud Computing – Reference Architecture
- ISO/IEC 19086-1 Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework and Terminology
 - (with project split approved pending JTC1 endorsement)
 - ISO/IEC 19086-2 IT – CC – SLA Metrics
 - ISO/IEC 19086-3 IT – CC – SLA Core Requirements

Why do you care?

Common issues encountered with cloud services

- e.g. The Cloud Consumer assumes the Cloud Service is “secure” without understanding the contract.
 - **Actual:** *Cloud Service includes “automatic backup service that copies customer data to an external backup service, providing a further level of security to customer data ... stored for 3 months after being made ... can be extended to up to 7 years if required”*
- Perfectly legitimate, but there are 2 meanings for “secure” here
 - By default, the backup is overwritten after 3 months ... no restores over 3 months old!
 - The backups go to a third party ... with whom you have no contract for handling your data!
 - The backups are ... NOT encrypted!

ISO/IEC 17788 Overview & Vocabulary

- Lots of Definitions
- 6 Key Characteristics
- 4 Deployment Models
- 3 Cloud Capabilities Types

cloud computing¹:

- paradigm for enabling **network access** to a **scalable and elastic pool of shareable** physical or virtual resources with **on-demand self-service** provisioning and administration

[1] ISO/IEC 17788:2014 Information technology —
Cloud computing — Overview and vocabulary



What is Cloud?

- 6 Key Characteristics:
 - Broad network access
 - On-demand self-service
 - Multi-tenancy
 - Resource pooling
 - Rapid elasticity and scalability
 - Measured service

cloud service¹:

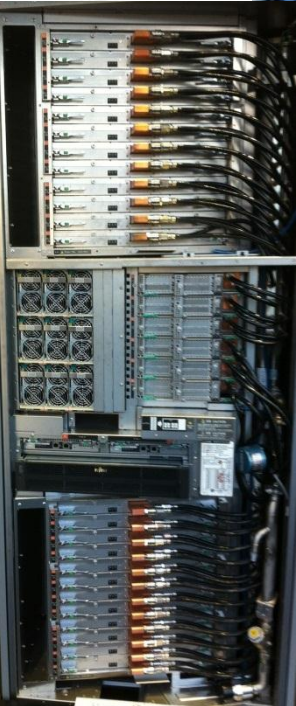
- one or more capabilities offered via **cloud computing** (3.2.5) invoked using a declared interface

[1] ISO/IEC 17788:2014 Information technology —
Cloud computing — Overview and vocabulary

Managed Services

Business Continuity Solution

Mirrored Sites
Another Super



Technical
Account
Manager
Team
Certified: R40CE, MCS

NOT cloud

On-Demand Self-Service

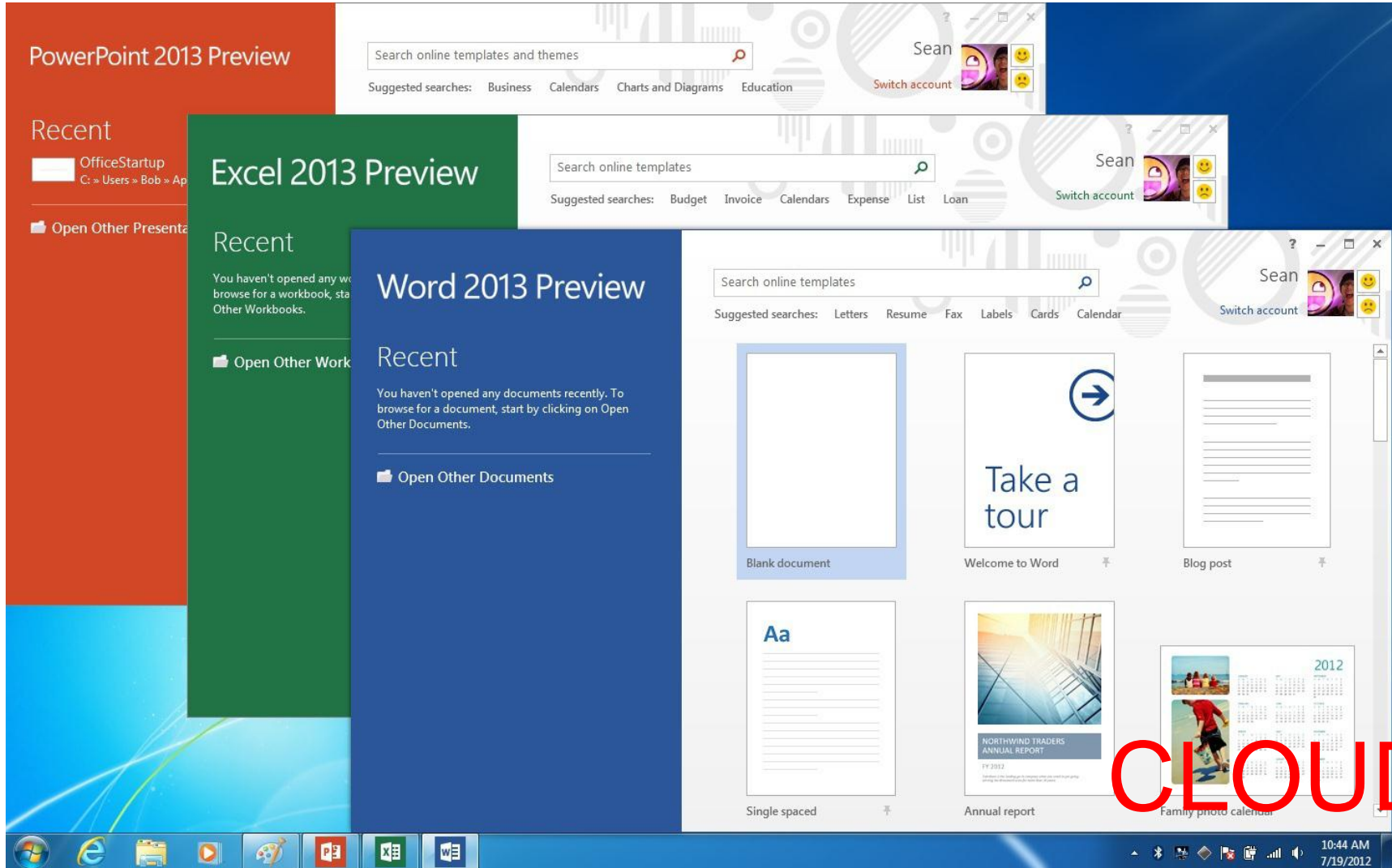


Google Search

I'm Feeling Lucky

CLOUD

On-Demand Self-Service



On-Demand Self-Service

Windows Azure Platform

English | Billing | Sign Out

New Hosted Service | New Production Deployment | New Staging Deployment | Upgrade | Configure | Delete | Start | Stop | Swap VIP | Configure OS | Reboot | Reimage | Enable | Configure | Connect

Hosted Services (4) | Storage Accounts (6) | User Management | VM Images

Home | Hosted Services, Storage Accounts & CDN | Database | Data Sync | Reporting | Service Bus, Access Control & Caching | Virtual Network

Name	Type
Subscriptions	Subscription
remotedesktopmanager	Hosted Service
Certificates	
RemoteDesktopManager.Online	Deployment
RemoteDesktopManager.Online_IN_0	Instance
RemoteDesktopManager.Online_IN_1	Instance
Sandboxes	Subscription

Role Name: RemoteDesktopManager.Online

Role ID: RemoteDesktopManager.Online_IN_1

Properties:

- Created: 9/21/2011 12:53:31 AM UTC
- Cores used: 4
- DNS name: Computer
- URL: http://[id].cloudapp.net
- Environment: Production
- ID: [id]
- Input endpoints: RemoteDesktopManager.Online:85.52.198.15

Done. 23s to next refresh. © 2012 Microsoft Corporation | Privacy Statement | Terms of Use | Help and Support | Feedback

CLOUD

On-Demand Self-Service

AWS Management Console - Mozilla Firefox

File Edit View History Bookmarks Diigo Tools Help [https://console.aws.amazon.com/ec2/home](#) Google

AWS Management Console

Home > Resources > AWS Management Console BETA > Amazon EC2 Welcome, Michael Pietroforte | Settings | Sign Out

Amazon EC2 Amazon Elastic MapReduce Amazon CloudFront

Navigation

Region: US-East

- > EC2 Dashboard
- INSTANCES
 - > Instances
- IMAGES
 - > AMIs
 - > Bundle Tasks
- ELASTIC BLOCK STORE
 - > Volumes
 - > Snapshots
- NETWORKING & SECURITY
 - > Elastic IPs
 - > Security Groups
 - > Key Pairs

Amazon EC2 Console Dashboard

Getting Started

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

[Launch Instances](#)

Note: Your instances will launch in the US-East region.

Service Health

Current Status	Details
✔ Amazon EC2 (US)	Service is operating normally View complete service health details

My Resources

You are using the following Amazon EC2 resources in the US-East region: [Refresh](#)

- 0 Running Instances
- 0 Elastic IPs
- 1 EBS Volume
- 1 EBS Snapshot
- 2 Key Pairs
- 5 Security Groups

Related Links

- > Documentation
- > All EC2 Resources
- > Forums
- > Feedback
- > Report an Issue

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Find: ap [Next](#) [Previous](#) [Highlight all](#) [Match case](#)

Done S3 Fox PageRank Alexa

CLOUD

Cloud computing roles and activities

- **cloud service provider:**
party (3.1.6) which makes **cloud services** (3.2.8) available
- **cloud service customer:**
party (3.1.6) which is in a business relationship for the purpose of using **cloud services** (3.2.8)
- **cloud service user:** natural person, or entity acting on their behalf, associated with a **cloud service customer** (3.2.11) that uses **cloud services** (3.2.8)
 - NOTE – Examples of such entities include devices and applications.

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cloud service partner:

- **party** (3.1.6) which is engaged in support of, or auxiliary to, activities of either the **cloud service provider** (3.2.15) or the **cloud service customer** (3.2.11), or both

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cloud auditor:

- **cloud service partner** (3.2.14) with the responsibility to conduct an audit of the provision and use of **cloud services** (3.2.8)

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Cloud computing — Overview and vocabulary

cloud broker:

- **cloud service partner** (3.2.14) that negotiates relationships between **cloud service customers** (3.2.11) and other **cloud service providers** (3.2.15)

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Cloud computing — Overview and vocabulary

4 Deployment Models

- Public Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

But Forget Cloud “Types”

- The original NIST Cloud Types:
 - IaaS
 - PaaS
 - SaaS
- Have been superseded by an infinite number of:
 - Guff-as-a-Service...
- The original NIST Cloud Types have been renamed...

3 NIST “Types” now “Capabilities Types”

- De-facto NIST “Types” now abstracted to 2 levels:
 - **Cloud Service Categories**
 - **Cloud Capabilities Types**
- Now 3 “Capabilities Types” (ISO 17788):
 - **Infrastructure Capabilities Type,**
 - **Platform Capabilities Type,** and
 - **Application Capabilities Type.**
- And many “Cloud Service Categories”, including:
 - Infrastructure-as-a-Service (IaaS),
 - Platform-as-a-Service (PaaS), and
 - Software-as-a-Service (SaaS).

Cloud Service Categories & Cloud Capabilities

Cloud Service Categories	Cloud Capabilities Types		
	Infrastructure	Platform	Application
Software as a Service			X
Platform as a Service		X	
Infrastructure as a Service	X		
Network as a Service	X	X	X
Data Storage as a Service	X	X	X
Compute as a Service	X		
Communication as a Service		X	X

ISO/IEC 17789 Reference Architecture

- More definitions
- Plenty of descriptive text
- Lots of graphics

**Cloud Service
Partner**

Cloud Service Customer (CSC)

Cloud Service Provider (CSP)

Cloud Service Partner

Cloud service developer

Cloud auditor

Cloud service broker

Cloud Service Customer (CSC)

CSC:
Cloud service user

CSC:
Cloud service administrator

CSC:
Business manager

CSC:
Cloud service integrator

Cloud Service Provider (CSP)

CSP:
Cloud service operations manager

CSP:
Cloud service deployment manager

CSP:
Cloud service manager

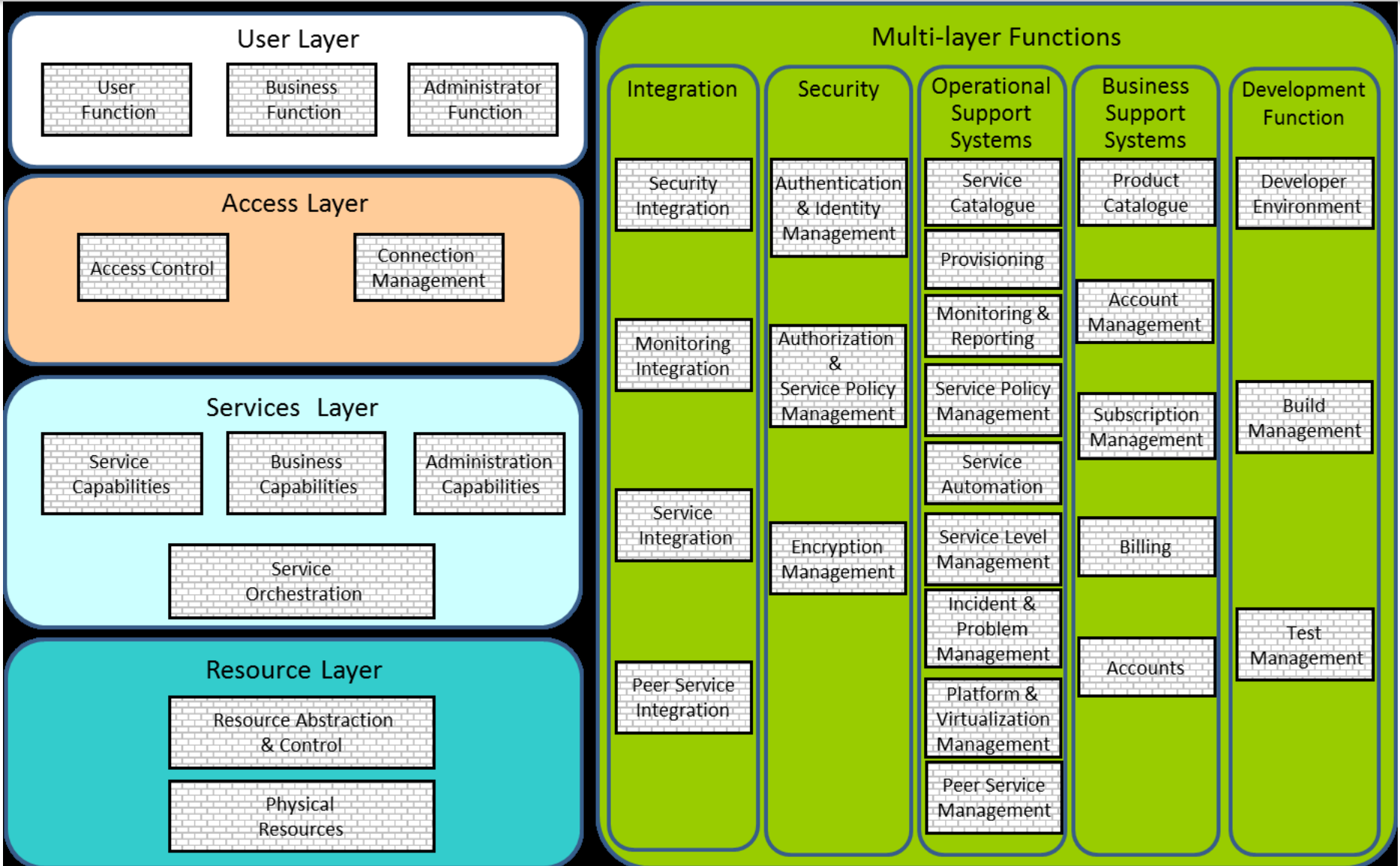
CSP:
Cloud service business manager

CSP:
Customer support & care representative

CSP:
Inter-cloud provider

CSP:
Cloud service security & risk manager

CSP:
Network provider



ISO/IEC 17789:2014 Information technology — Cloud computing — Reference architecture

Cloud – Service Level Agreements

- We are at the crux of a new standard
- And **you** can shape its development
- Australia is a very active P-member in the development of the Cloud Computing standards
- Australia is directly affecting the final output of these processes
- We want **you** to have **your** say – contact us!

ISO/IEC

- Joint Technical Committee 1 (JTC 1)
- To develop, maintain, promote, and facilitate standards in the fields of information technology (IT) and Information and Communications Technology (ICT).
- 29 sub-groups:
 - Sub-Committees (SC)
 - Working Groups (WG)
 - Special Working Groups (SWG)
 - Sub-Committees' Working Groups (SC x/WG y)

ISO/IEC JTC 1/SC 38

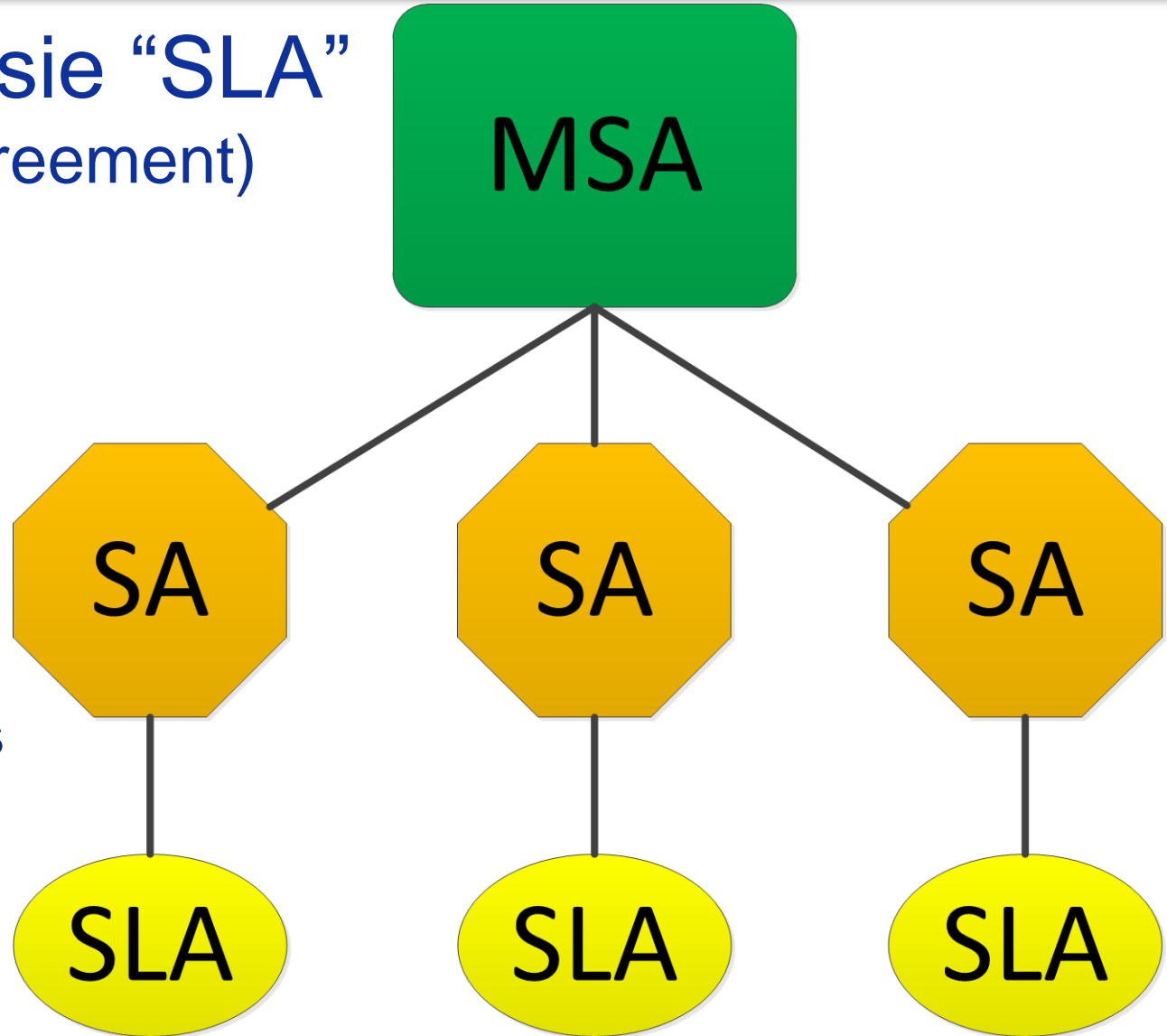
- Distributed application platforms and services (DAPS)
 - WG 1: Web Services,
 - WG 2: Service Oriented Architecture (SOA), and
 - WG 3: Cloud Computing
- Number of published ISO standards under responsibility of ISO/IEC JTC 1/SC 38 (includes updates): 4
- Participating countries: 27
- Observing countries: 8

ISO/IEC JTC 1/SC 38 Stds Dev Process

- (My count on the day, may have been late starters too)
- Kobe, Japan, Monday, 23 September 2013 (start of work on SLA)
- From the 26 P-Members (National Body) (number-of-delegates-present):
 - Australia (SA) (4)
 - Brazil (ABNT) (1)
 - Canada (SCC) (3)
 - China (SAC) (8)
 - France (AFNOR) (1)
 - Germany (DIN) (3)
 - Ireland (NSAI) (2)
 - Japan (JISC) (5)
 - Korea, Republic of (KATS) (6)
 - Poland (PKN) (2)
 - Singapore (SPRING) (1)
 - Sweden (SIS) (2)
 - Switzerland (SNV) (1)
 - UK (BSI) (2)
 - USA (ANSI) (15)

What it isn't

Not an Aussie “SLA” (ie Service Agreement)



This standard is
STRICTLY
about service
LEVELS →

Not an SLA template document

- This standard does not provide a standard structure that used for cloud SLA contracts.
 - Contracts are highly customized items between providers and customers.
- This international standard does not supersede any legal requirement.

What it is

The Cloud Computing SLA Standard(s)

- This standard seeks to establish a set of common cloud SLA building blocks (concepts, terms, definitions, contexts)

that can then be used to create cloud SLAs

that help avoid confusion and facilitate common understanding between the cloud service providers and the cloud service customers.

The Cloud Computing SLA Standard(s)

- RELATIONSHIP BETWEEN THE MASTER AGREEMENT AND SLAS
- CLOUD SLA MANAGEMENT
- THE ROLE OF SERVICE LEVEL OBJECTIVES, METRICS, REMEDIES, AND EXCEPTIONS IN THE SLA
- CLOUD SLA COMPONENTS
- 10.1 General
- 10.2 Covered Services Component
 - 10.2.1 Description
 - 10.2.2 Relevance
 - 10.2.3 Service Level Objectives
- 10.3 SLA Definitions Component
 - 10.3.1 Description
 - 10.3.2 Relevance
 - 10.3.3 Service Level Objectives
- 10.4 SLA Scope Component
 - 10.4.1 Description
 - 10.4.2 Relevance
 - 10.4.3 Service Level Objectives

The Cloud Computing SLA Standard(s)

- 10.1 General
- 10.2 Covered Services Component
- 10.3 SLA Definitions Component
- 10.4 SLA Scope Component
- 10.5 Service Monitoring Component
- 10.6 Roles and Responsibilities Component
- 10.7 Accessibility Component
- 10.8 Availability Component
- 10.9 Cloud Service Response Time
- 10.10 Protection of Personally Identifiable Information (PII) Component
- 10.11 Information Security Component
- 10.12 Termination of Service Component
- 10.13 Support Component
- 10.14 Governance Component
- 10.15 Service Reliability Component
- 10.16 Cloud Service Customer Data Backup and Restore
- 10.17 Data Management Component
- 10.18 Attestations, Certifications and Audits Component

Where it is going

19086 SLA Framework & Terminology

- WD 19086 ISO/IEC 19086 Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework and Terminology
- Editors: Eric Simmon (US)
Liu Na (China)
Toshihiro Suzuki (Japan)
- Working Draft in progress

Part 1 : Overview and Concepts

- ISO/IEC 19086-1 Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework and Terminology – Part 1 : Overview and Concepts
- Acting Editors: Eric Simmon (US)*
 Liu Na (China)*
 Toshihiro Suzuki (Japan)*
- Pending Project Subdivision

Part 2 : Metrics

- ISO/IEC 19086-2 Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework and Terminology – Part 2 : Metrics
- Acting Editors: Eric Simmon (US)*
 Liu Na (China)*
 Toshihiro Suzuki (Japan)*
- Pending Project Subdivision

Part 3 : Core Requirements

- ISO/IEC 19086-3 Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework and Terminology – Part 3 : Core Requirements
- Acting Editors: Eric Simmon (US)*
 Liu Na (China)*
 Toshihiro Suzuki (Japan)*
- Pending Project Subdivision