



# Cloud: So Much More Than The Same Old Thing!

sangam  
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**Presented by: John Jay King**

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# Session Objectives



- Become aware of the main features of Oracle's Database As A Service (DBaaS)
- Learn how to provision a new database instance using Oracle DBaaS
- See how Oracle DBaaS is used from applications

# Who Am I?



- John King – Partner, King Training Resources
- Oracle Ace Director 
- Member Oak Table Network 
- Providing training to Oracle and IT community for over 25 years – <http://www.kingtraining.com>
- “Techie” who knows Oracle, ADF, SQL, Java, and PL/SQL pretty well (along with many other topics)
- Member of AZORA, ODTUG, IOUG, and RMOUG

# Arizona, USA





# Who Are You?

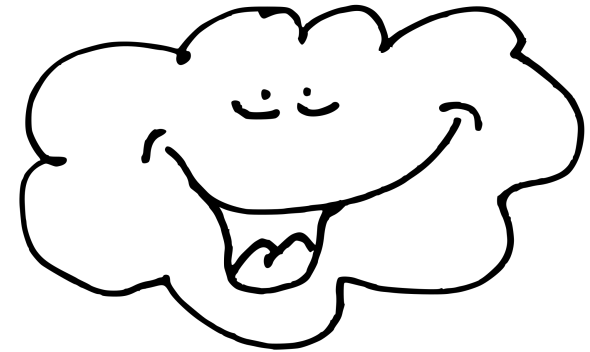


- Application Developer
- DBA
- Business Analyst
- Other?

# The Cloud Is Upon Us!



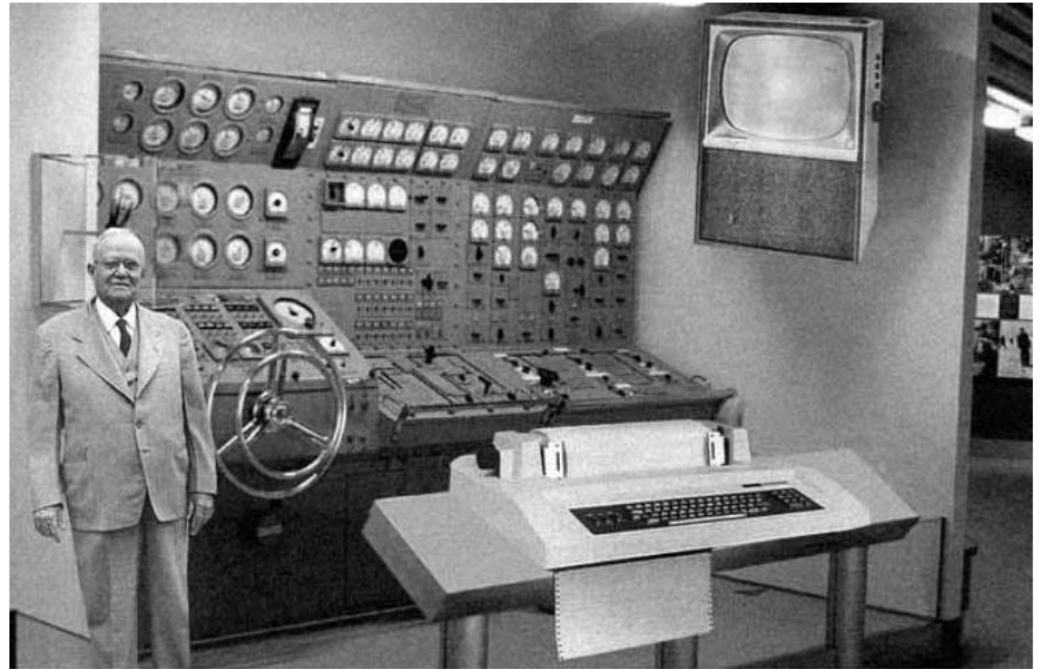
- Everywhere you turn vendors are offering cloud solutions promising (once-again) a single solution to solve the ills of our IT organizations.
- Bah! Some naysayers say “this is just the same-old, same-old, we’ve been doing the cloud for years”  
– hmmm is this really true?



# Same Old Thing?



- Do you think Cloud is the “Same Old Thing retreaded?”
  - In some ways you’re right
  - But mostly you’re wrong



*Scientists from the RAND Corporation have created this model to illustrate how a “home computer” could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.*

# Cloud is Not Really New



- Ways in which the cloud is not really new
  1. Accessing data over communication lines has been normal for years
  2. Hosting data at off-premise sites has likewise been around for years
  3. Vendors providing hosted, pre-defined platforms are as old as H. Ross Perot's Service Bureau in 1962
  4. Vendors providing shared resources are as old as the Time-Sharing systems first introduced at Dartmouth in the 1960's



# Guess What? Cloud is More



- Not only is the cloud more-advanced than what's gone before, it has properties that have never-before been available
- So, what's changed to enable this? Today's communications systems are reliable (at least mostly), fast, and distributed; making cloud-based resources as performant as our own resources
- But, that's still not it



# Defining the Cloud



- To understand what makes the cloud “the cloud” NIST (U.S. National Institute of Science and Technology <http://www.nist.gov/itl/cloud/index.cfm>) has devoted some effort to defining it for us
- Here is the URL for a PDF document detailing NIST’s definition of cloud computing:  
<http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf> .



# Five Characteristics of Cloud



- NIST defines five essential characteristics for cloud computing (paraphrased below):
  - On-demand self-service
  - Broad Network Access
  - Resource pooling
  - Rapid elasticity
  - Measured service
- These five traits are what are new (ish)

5

# On-Demand



- In the past provisioning of computing time, processors, and storage was based upon up-front estimates and contractually agreed to months or years in advance
- Self-Service nature of cloud allows customer to provision resources without human interaction with provider
- With cloud it's self-service and on-demand (pay as you go!)



# Broad Access



- In the past network access meant contracts with telephone/Internet providers
- Most cloud providers provide regional and often global ability to access resources
- Cloud providers use standard mechanisms



# Resource Pooling



- Resource pooling came along with the virtual computing wave a few years ago
- With the cloud, pooling is managed by the cloud provider to meet service level agreements
  - Provider resources are pooled
  - Multiple locations to improve performance and reduce dependencies (may be controlled)



# Rapid Elasticity



- Rapid elasticity is perhaps the most-obvious advantage of using the cloud;
  - If an organization needs to ramp up for a busy time of year (or influx of “big data”) a good cloud service will simply expand their memory and disk capacity as needed
  - When things slow down the cloud service can take the excess resources away
  - All automatically making sure you spend money only for resources you need when you need them



# Measured Service



- Measured service is again an area where we have experience already but with key differences
  - Cloud systems can measure use to control elasticity and pooling automatically
    - Allowing applications to have required resources to run
    - Making sure costs are in line with usage
  - Charges are for what you actually use  
(Note: Most vendor's provide discounts for up-front service commitments)





# Cloud Service Models



- Many, many acronyms come along with the cloud; here are three that are common
  - IaaS                      Infrastructure as a Service
  - PaaS                     Platform as a Service
  - SaaS                     Software as a Service



- Infrastructure as a Service means that the cloud provider gives you:
  - Hardware
  - Operations
  - Maybe core operating systems
- Does your organization really need to be in the Data Center Operations business?





- Platform as a Service means the provider is responsible for some core software load
  - Operating System
  - Backup & Recovery
  - Disaster Recovery
  - Maybe a database and/or web server
- Is the day-to-day administration of platform keeping you from work that is important and unique to your business?





- Software as a Service means that the provider has it all
  - Infrastructure
  - Platform
  - Software stack  
(e.g. SalesForce, Oracle Fusion)
- Huge portions of IT budgets are devoted to maintaining the existing code base; should your organization leverage the work of others so that you can focus on what is unique to your business?



# Comparing Models



On-Premise	IaaS	PaaS	SaaS
			Customizations
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
Operating System	Operating System	Operating System	Operating System
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking
Customer Managed		Vendor Managed	

# Services and Transport



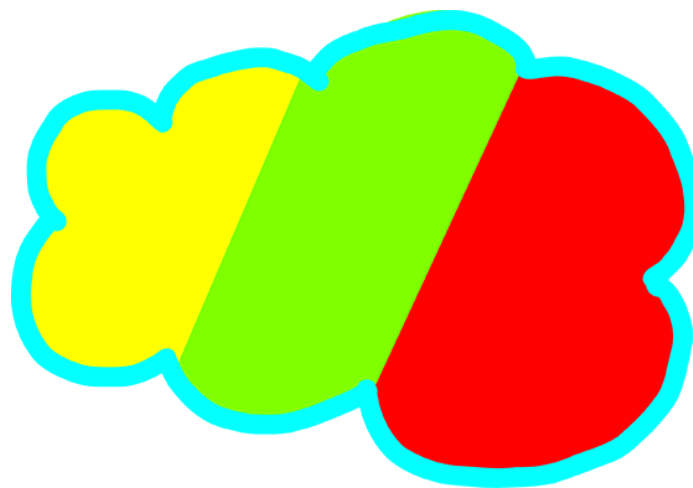
On-Premises	IaaS	PaaS	SaaS
Personal Car	Leased Car	Rented Car	City Bus
<ul style="list-style-type: none"> <li>- Your car</li> <li>- You buy gas</li> <li>- You provide maintenance</li> <li>- You choose direction of travel</li> <li>- You choose travel schedule</li> </ul>	<ul style="list-style-type: none"> <li>- Provider's car</li> <li>- You buy gas</li> <li>- You provide maintenance</li> <li>- You choose direction of travel</li> <li>- You choose travel schedule</li> </ul>	<ul style="list-style-type: none"> <li>- Provider's car</li> <li>- Gas might be provider option</li> <li>- Provider's maintenance</li> <li>- You choose direction of travel</li> <li>- You choose travel schedule</li> </ul>	<ul style="list-style-type: none"> <li>- Provider's vehicle</li> <li>- Provider's gas</li> <li>- Provider's maintenance</li> <li>- Provider has fixed route</li> <li>- Provider has fixed schedule</li> </ul>



# Cloud Deployment



- Cloud offering offer deployment options
  - Public      You have private areas in public resource pools
  - Private      Your resources stored in private resource pools (perhaps on-premise)
  - Hybrid      Some combination



# Public Cloud



- Vendor provides services that while specific to you may be sharing resources with other customers
- Backup/Recovery might be handled for all customers rather than individual customer
- Disaster Recover might be handled for all customers rather than individual customer



# Private Cloud



- Cloud vendor manages resources dedicated to customer
- Private Cloud resources usually exist within firewall of customer
- Private Cloud sometime on-premise of customer but managed by cloud provider



# What About Security?



- Really?
- What's your organization's budget for security?
- What do you suppose the security budget is at Oracle ? (Amazon or Microsoft)
- If cloud providers slip once; public embarrassment and exit of customers follows
- Your data is probably safer in the cloud



# Some Things To Consider



- Security of data in Public Cloud and off-premise Private/Hybrid Cloud environments
- Segregation of “secure” data
  - Normal processing
  - Backup/Recovery
  - Disaster Recovery
- Guaranteed wiping of data should you part ways with vendor (might be tough)
- Responsibility for regulated data lies with customer, not vendor

# Oracle and the Cloud



- In case you missed it <grin> Oracle's into the Cloud in a big way...

<https://cloud.oracle.com/home>

- SaaS Cloud Applications (formerly Fusion Applications) finally goes big?
- PaaS Reduces your administration load?
- IaaS Takes you out of data center biz?





- Oracle has exposed their applications stack as SaaS including:
  - Customer Experience
  - Human Capital Management (HCM)
  - Enterprise Resource Planning (ERP)
  - Supply Chain Management (SCM)
  - Enterprise Performance Management (EPM)
  - Analytics
  - Data
  - Social Media
  - More...

# Oracle PaaS



- Oracle is ready to provide infrastructure and management including:
  - Database and Big Data
  - Middleware, Integration, and SOA
  - Application Development (Java, Developer, etc.)
  - Content and Collaboration
  - Business Analytics
  - More...

# Oracle IaaS



- Oracle provides three families of IaaS:
  - Compute
  - Storage
  - Network
- Oracle announced at Open World 2016 that they intend to be a major player in IaaS and intend to surpass Amazon

# Oracle DBaaS



- Oracle DBaaS, A Real Cloud; Not Vapor



# Oracle's Strength



- Oracle has been king of the database hill for many years
- Now, they're extending that dominance to the cloud. Oracle DataBase as a Service (DBaaS)
- DBaaS uses the Platform as a Service (PaaS) model to enable deployment and management of Oracle database instances in the cloud

# How Oracle DBaaS Works



- Oracle's DataBase as a Service (DBaaS) is easy to use
- Instances use pre-configured VM images
- Built upon IaaS Compute & Storage services
- Customer has full administrative control
- Creation and deployment via wizards
- Works just like on-premise database
  - Any applications
  - Any connections control

# What Comes With DBaaS?



- RAC and Data Guard built-in
- ORDS built-in
- Oracle manages database for you
- Quarterly patching & upgrading
- Automated Backup
- Point In Time Recovery
- You can manage from command line, Enterprise Manager, or Oracle Management Cloud

# Creating a New Service



- Requires Oracle Cloud account with DBaaS
- Create Service is a wizard-based process

The screenshot displays the Oracle Cloud My Services interface. At the top, the Oracle logo and 'CLOUD My Services' are visible. Navigation links for 'Dashboard', 'Users', and 'Notifications' are on the right. The main section shows the 'Oracle Database Cloud Service' with tabs for 'Services', 'Activity', and 'SSH Access'. A summary bar indicates 1 Service, 1 OCPUs, 7.5 GB Memory, 93 GB Storage, and 1 Public IP. Below this, a 'Services' section includes a search bar and a 'Create Service' button. The timestamp 'As of Aug 18, 2016 8:49:23 PM UTC' is also present.


Summary	1	1	7.5 GB	93 GB	1
	Services	OCPUs	Memory	Storage	Public IPs
<b>Services</b>					
Enter a full or partial service name <input type="text"/>					
As of Aug 18, 2016 8:49:23 PM UTC <input type="button" value="Create Service"/>					



# Subscription Type and Billing



- Create using wizards, manually, or via DBCA

 Provision New Oracle Database Cloud Service

**Create Oracle Database Cloud Service Instance**

Cancel

Subscription

Release

Edition

Details

Confirmation

Next >

**Subscription Type**  
Select the service level and billing frequency for this Oracle Database Cloud Service instance.

**Service Level**

☒ **Oracle Database Cloud Service**  
Oracle Database software pre-installed on Oracle Cloud Virtual Machine.  
Database instances are created for you using configuration options provided in this wizard.  
Additional cloud tooling is available for backup, recovery and patching.

☐ **Oracle Database Cloud Service - Virtual Image**  
Oracle Database software pre-installed on an Oracle Cloud Virtual Machine.  
Database instances are created by you manually or using DBCA.  
No additional cloud tooling is available.


**Billing Frequency**

☐ **Hourly**  
Pay for the number of hours used

☒ **Monthly**  
Pay one low price for the entire month irrespective of the number of hours used



- Specify the database version to be used

 Provision New Oracle Database Cloud Service

Create Oracle Database Cloud Service Instance

< Previous

Cancel

Subscription

**Release**

Edition

Details

Confirmation

Next >


**Software Release**  
Select the database release version for this Oracle Database Cloud Service instance.

☐ **Oracle Database 11g Release 2**  
Oracle Database Version 11.2.0.4  
Installed on Oracle Linux 6.6

☒ **Oracle Database 12c Release 1**  
Oracle Database Version 12.1.0.2  
Installed on Oracle Linux 6.6



- DBaaS flexibility supports different editions

 Provision New Oracle Database Cloud Service

Create Oracle Database Cloud Service Instance

[< Previous](#)

Cancel

Subscription

Release

**Edition**

Details

Confirmation

[Next >](#)

**Software Edition**  
Select the database edition for this Oracle Database Cloud Service instance.

☒ **Standard Edition** [\(Details\)](#)  
Oracle Database 12c Release 1  
Installed on Oracle Linux 6.6

☐ **Enterprise Edition** [\(Details\)](#)  
Oracle Database 12c Release 1  
Installed on Oracle Linux 6.6

☐ **Enterprise Edition - High Performance** [\(Details\)](#)  
Oracle Database 12c Release 1  
Installed on Oracle Linux 6.6

☐ **Enterprise Edition - Extreme Performance** [\(Details\)](#)  
Oracle Database 12c Release 1  
Installed on Oracle Linux 6.6

# Service Details (Configuration)



- You may specify Service, Backup & Recovery, and Database Configuration

Provision New Oracle Database Cloud Service

Create Oracle Database Cloud Service Instance

Previous Cancel

Subscription Release Edition **Details** Confirmation

Next

**Service Details**  
 Provide details for this Oracle Database Cloud Service instance.

**Service Configuration**

\* Service Name sedemo1 ?

Description Demo db for article ?

\* Shape OC3 - 1 OCPU, 7.5 GB RAM ?

\* Timezone (UTC) Coordinated Universal ?

\* SSH Public Key Edit ?

**Database Configuration**

\* Usable Database Storage (GB) 25

Total Data File Storage (GB) 88.5

\* Administration Password ?

\* Confirm Password ?

\* DB Name (SID) ORCL ?

\* PDB Name PDB1 ?

**Backup and Recovery Configuration**

\* Backup Destination Both Cloud Storage and Local Storage ?

\* Cloud Storage Container ?

\* Cloud Storage User Name

\* Cloud Storage Password

Create Cloud Storage Container ☐ ?

Total Estimated Monthly Storage (GB) 140 ?

\* Create Instance from Existing Backup No ?

\* Character Set AL32UTF8 - Unicode Uni ?

\* National Character Set AL16UTF16 - Unicode UT ?

Enable Oracle GoldenGate ☐ ?

# SSH Security



- Security is a major concern in today's world
- Oracle's DBaaS requires that you provide a valid SSH key to protect your resources

**Public key input for VM access** [X]

Select and then provide the values for either the VM Public Key, or the file that contains the VM Public Key contents.

☒ Key file name: mydbaaskey.pub **Update...** ?

☐ Key Value: [Text Area] ?

☐ Create a New Key ?

[Enter] [Cancel]

PDB Name PDB I

# Create Service Complete!



- DBaaS assigns IP address & connect string

Oracle Database Cloud Service / sedemo1

**Overview**

1 Node

**Administration**

0 Patches available

0 Snapshots available

**Summary**

1 Nodes	1 OCPUs	7.5 GB Memory	150 GB Storage
---------	---------	---------------	----------------

**Nodes** As of Aug 18, 2016 9:44:06 PM UTC

<b>sedemo1</b> Public IP: 129.144.15.167	SQL *Net Port: 1521 SID: ORCL PDB Name: PDB1	OCPUs: 1 Memory: 7.5 GB Storage: 150 GB
---	--	---

**Additional Information**

Identity Domain:	uskingtrai
Edition:	Standard Edition
Service Level:	Oracle Database Cloud Service
Subscription Type:	Monthly
Connect String:	sedemo1:1521/PDB1.uskingtrai.oraclecloud.internal
Created On:	Aug 18, 2016 9:15:56 PM UTC
Created By:	john@kingtraining.com
Container Name:	ORCL
Backup Destination:	None
Timezone:	Coordinated Universal Time
Character Set:	AL32UTF8 - Unicode Universal character set UTF-8 form 32-bit
National Character Set:	AL16UTF16 - Unicode UTF-16 Universal character set
Location:	US006_Z23

[show less](#)

**Activity**

Activity Summary	
	<b>Create Service Completed</b> Start Time: Aug 18, 2016 9:15:56 PM UTC End Time: Aug 18, 2016 9:38:54 PM UTC

# Using DBaaS

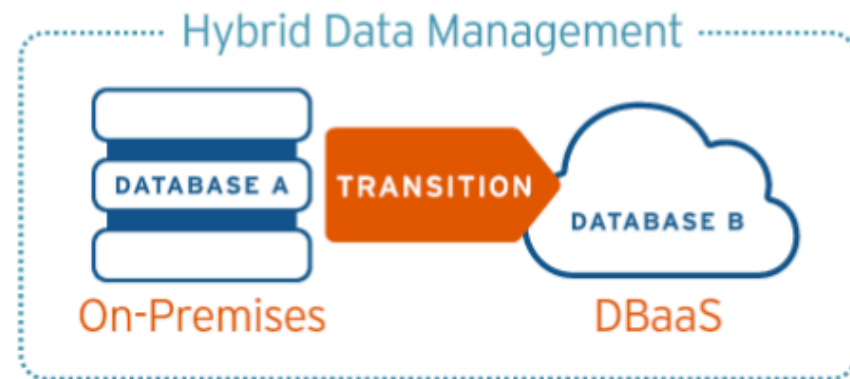
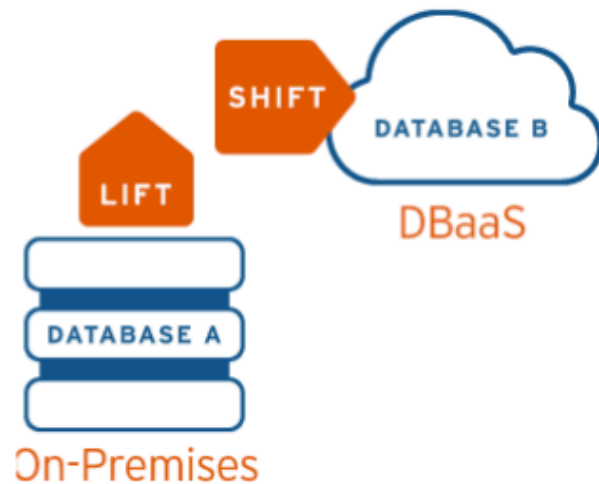


- Once created both CDB and PDBs may be accessed in normal ways
  - Best option is to connect using SSH this provides a more-secure connection
  - By default direct listener access (port 1521 usually) is disabled, if enabled access string is exactly as with non-cloud instances

# Lift-and-Shift vs Hybrid



- DBaaS strategies choices include “lift and shift” vs hybrid of on-premise and DBaaS





# Trends Pushing DBaaS

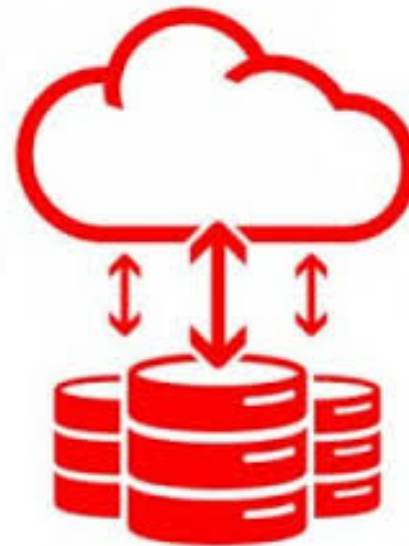


- Database Sprawl
- Infrastructure Growth
- Drive towards Self Service Technology
- Virtualization
- Data driving business decisions
- Need to scale in cost-effective way

# What's In It for Me?



- Some potential use-cases for DBaaS today include
  - Temporary database creation for testing
  - Cloning for Disaster Recovery
  - Ability to experiment with new patches and releases
  - Training



# Wrapping it all Up



- Cloud is everywhere, cloud is here to stay
- Oracle's DBaaS provides a safe and simple way to use the cloud



# RMOUG Training Days 2017

February 7-9, 2017

(Tuesday-Thursday)

Denver Convention Center



## Tracks

- Application Development
- Business Intelligence
- Database Administration
- DBA Deep Dive
- Database Tools of the Trade
- Hyperion
- Middleware
- Professional Empowerment

PHOTO CREDIT: Mike Landrum, SQL Developer and the "Data Tsunami" from i-Behavior

[www.rmoug.org](http://www.rmoug.org)







# COLLABORATE17

TECHNOLOGY AND APPLICATIONS FORUM  
FOR THE ORACLE COMMUNITY

Save the Date for

**COLLABORATE 17**

*We'll see you  
again in Vegas*



APRIL 2 - 6, 2017 | MANDALAY BAY RESORT & CASINO





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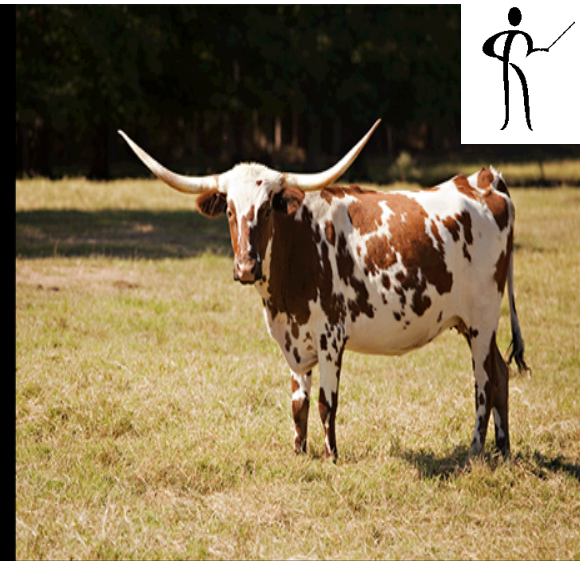
**SAN ANTONIO  
JUNE 25-29**

"Great event, great content #Kscope16 many thanks #orclapex #letsreckthistogether"  
- Simon Greenwood @APEXORADEV

"#kscope16 was a blast. On the way to the airport with a heavy heart. Thanks @odtug for making this event what it is: the best!"  
- Christian Berg @Nephentur

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## *Cloud: So Much More Than The Same Old Thing*

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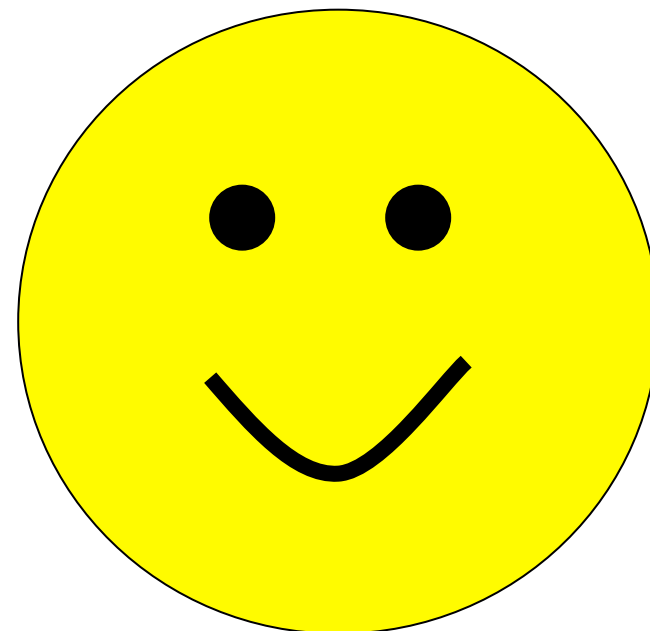
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**Thanks for your attention!**

Today's slides and examples are on the web:

**<http://www.kingtraining.com>**



- End