Turbocharge Your Database Performance

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TalesFromTheDatacenter.com
Mythics.com/blog

- ✓ Published Author
- ✓ RAC Attack Ninja
- ✓ Linux since 1992
- ✓ Solaris since 1996
- ✓ DB 12c BETA user
- ✓ Prelaunch ODA “comet”
- ✓ First Version of Oracle…7 in 1994
- ✓ ZFS since “Thumper”
- ✓ OEM 12c since Product Launch
- ✓ OAUG EM for Apps SIG co-chair
- ✓ OEM12c CAB Member
- ✓ IOUG Solaris SIG Leader

IOUG
ORACLE OSSUG SPARC SOLARIS USER GROUP
NATCAP-OUG
OAUG oracle applications users group

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I do not work for Oracle

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Mythics Overview

- Founded in 2000 - Owned & Managed by Former Oracle Employees
- Oracle Systems Integrator & GSA / TCPN Reseller for Entire Oracle Portfolio
- Focused ***100%*** on Oracle Solutions
- 300+ Oracle Professionals
- 1750+ Implementations of Oracle Technology
- Strong Cloud, SW, HW & Engineered Systems Experience & Solution History

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Global Leader in Oracle Specializations

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Specialized

Applications
Oracle CRM on Demand

Cloud Services
Cloud Application Foundation
Cloud Builder
Oracle Exalogic Elastic Cloud

Database
Oracle Database
Oracle Database Performance Tuning
Oracle Database Data Warehousing
Oracle Enterprise Manager 11g
Oracle Enterprise Manager 12c
Oracle Real Application Clusters

Engineered Systems
Exadata Database Machine

Industries
Aerospace and Defense
Education and Research
Healthcare
Public Sector

Middleware
Oracle Application Development Framework
Oracle Application Grid
Oracle Business Intelligence Applications
Oracle Business Intelligence Foundation
Oracle SOA Suite
Oracle Unified Business Process Management
Oracle WebCenter Content
Oracle WebCenter Portal

Server And Storage Systems
Oracle Database Appliance
Oracle Linux 5
Oracle Linux 6
Oracle VM3
StorageTek Tape Libraries
Sun ZFS Storage Appliance
Oracle ZFS Storage ZS3

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David Bloyd
Database Administrator Manager
dbloyd@nova.edu

30 Years of DBA Experience
First Oracle Version 8i
Moved from Informix
Manage both MSSQL and Oracle Databases

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NOVA SOUTHEASTERN UNIVERSITY

Law School
Medical School
Business School
Oceanographic Center
Primarily PHD level education and research

Located in Fort Lauderdale Florida

20,000 Enrolled Students

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ODA Review

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Why Engineered?

- Faster to Deploy
- Easier to Maintain
- Secret Sauce for improved performance and functionality

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What is an Oracle Database Appliance?

The Oracle Database Appliance is **a single, easy-to-deploy and manage engineered system**. It's engineered for simplicity; **saving time and money** by simplifying deployment, maintenance, and support of database and application workloads.

It provides a fully integrated and redundant system of software, servers, expandable storage and networking in a single system that **delivers high-availability database services** for a wide range of homegrown and packaged online transaction processing (OLTP) and data warehousing applications

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History of the ODA - Hardware

V1

24 cores
192G
292G raw redo
12T raw HDD

X3

32cores
512G
800 G raw redo
36T raw HDD

Storage expansion
800 G raw redo
36T raw HDD

X4

48cores
512G
800 G raw redo
36T raw HDD

Storage expansion
800 G raw redo
36T raw HDD

X5

72cores
512G – 1.5T
800G raw redo
1.6T SSD for DB
128T raw HDD

Storage expansion
800 G raw redo
1.6T SSD DB
128T raw HDD

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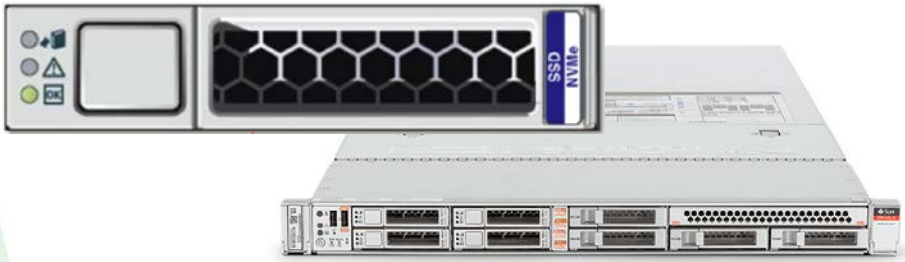
The Current ODA – X6 SML



ODA X6s

10cores
128G
500G SSD OS
3.6T NVME Database

expansion
+3.6T NVME
+256G RAM

ODA X6m

20cores
256 G
500G SSD OS
3.6T NVME Database

expansion
+3.6T NVME
+512G RAM

ODA X6l

20cores
256 G
500G SSD OS
19T NVME Database

expansion
+9.8T NVME raw
+256G RAM

Now supporting SE2 on S&M!

KVM Virtualization

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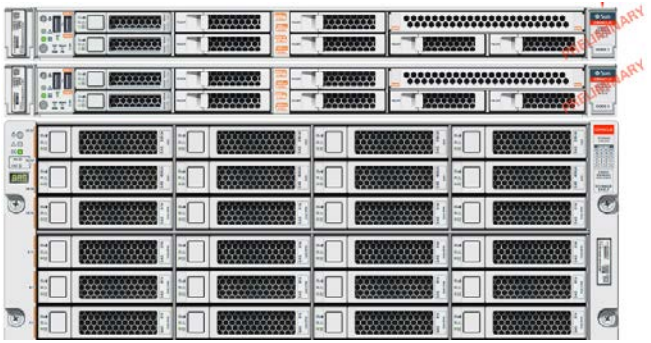
Oracle Database Appliance X6-HA

Base Unit



Processing Power

- 20 Intel Xeon processor E5-2630 v4 cores per node
- 256 GB of main memory, grow to 768 per node!

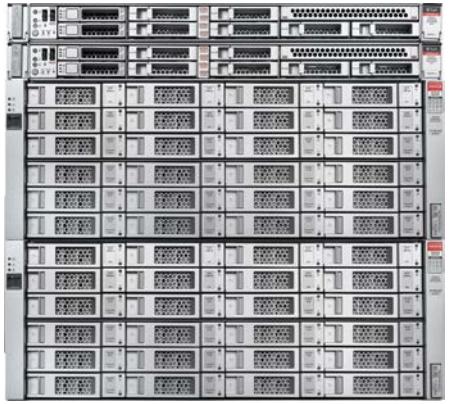
Networking

- Redundant 10-GbE Base-T Interconnect
- Four 10-GbE Base-T Ethernet Ports
- Infiniband interconnect

Storage Capacity

- 12 TB Raw Disk Storage
- 800 GB Raw SSD for REDO
- Additional 12TB Raw in expansion pack

Storage Expansion



Double Available Storage Capacity

- Double the number of Disks and Solid State Drives with Optional Storage Expansion Shelf

Raw Disk Storage

- Additional 24 TB SSD
- 38 TB Total Raw

Raw Solid State Storage

- Additional 800 G for SSD for REDO

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X6s Summary

	SINGLE APP	POWER APP	MANY POWER APPS	HA/IN-A-BOX
Model	**ODA X6-2S**	**ODA X6-2M**	**ODA X6-2L**	**ODA X6-2-HA**
Processor	2.2 GHz Intel Xeon E5-2630 V4	2.2 GHz Intel Xeon E5-2630 V4	2.2 GHz Intel Xeon E5-2630 V4	2.2 GHz Intel Xeon E5-2630 V4
Cores	10	20	20	40
Max Memory / Node	384GB	768GB	768GB	768GB Per Node (1.5TB Total)
Networking	2 x 10GBase-T 2 x 10GbE SFP+	4 x 10GBase-T 2 x 10GbE SFP+	4 x 10GBase-T 2 x 10GbE SFP+	4 x 10GBase-T OR 2 x 10GBase-T 2 x 10GbE SFP+
Form Factor -RU	1	1	2	6
Useable Storage	2.4TB to 4.8TB	2.4TB to 4.8TB	7.6TB to 11.2TB	4.8TB to 19.2TB
Max IOPS Write/read	240,000/480,000	240,000/480,000		500,000/1,000,000

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What's Next for the ODA?

Watch for an important news at #OOW17

X7?

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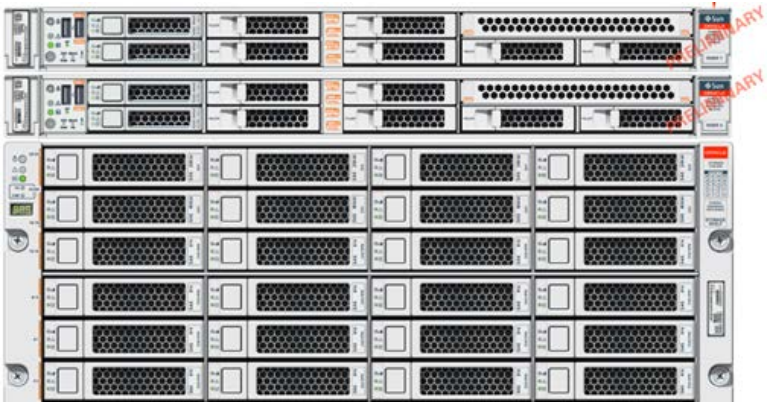
Virtualized ODA



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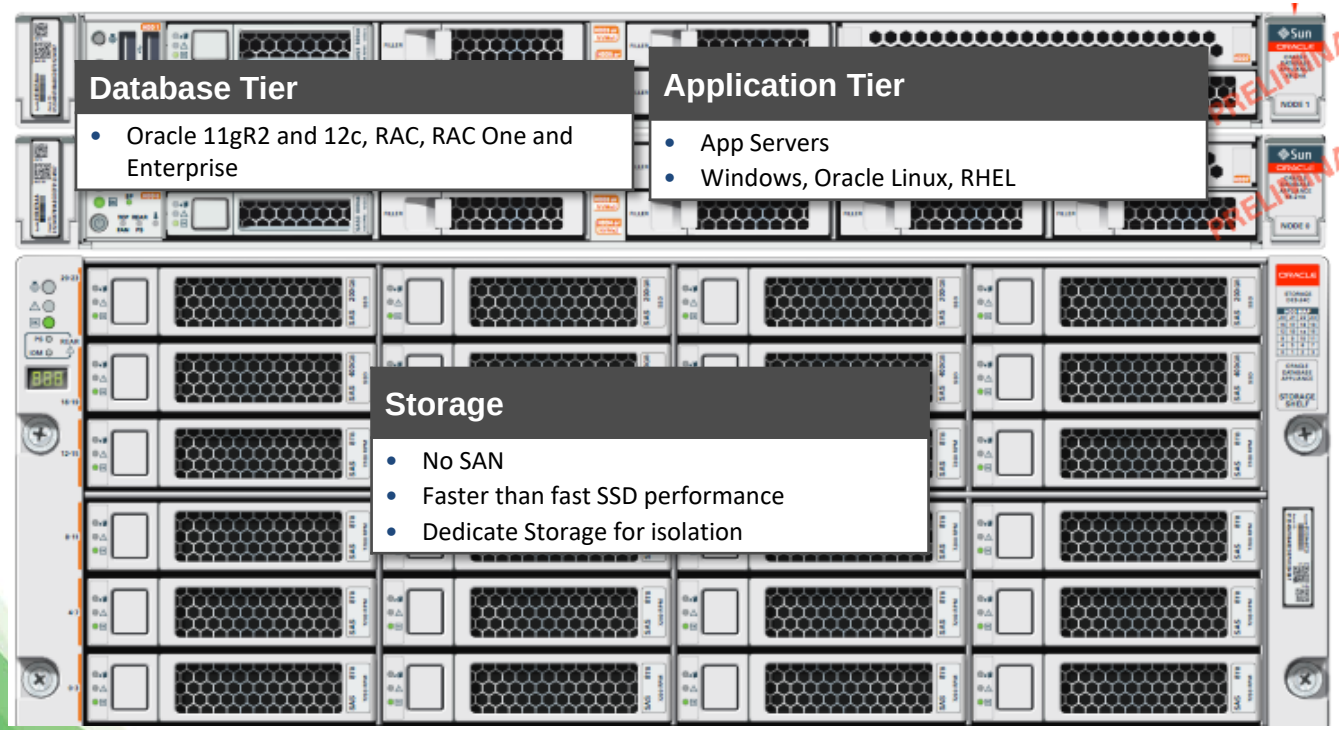
Why Virtualize

Virtualized the Entire Application Stack



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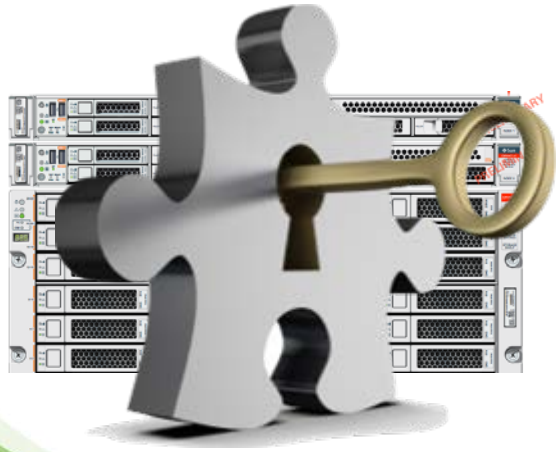
Virtualized Solutions



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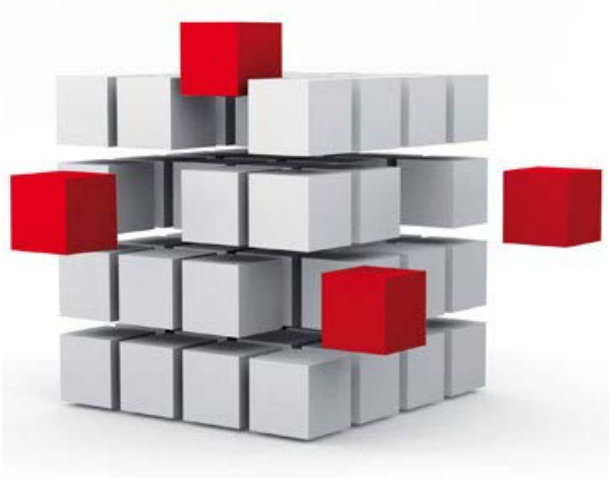
And more Solutions

More…

Virtual machines contained with the Oracle Database Appliance can support other business function, like Identity Management, Source Code management, and more. The key driver is the size of the Virtual Machine.



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NOVA’s Experience

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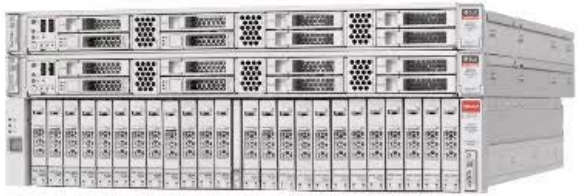
ODA @ NOVA



X6s – Axium, separated for licensing and HIPPA

X4 – Banner, Luminis , Automic, Ariba, EIS, Developers Instance, Bosscars, Ad Astra

X4 – Cbord, Huron, Museum of Art, Dorm system, OEM OMR, RMAN Repo

X4- Test environment

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Changes @ NOVA IT

Tech refresh
- Systems were old, some new
- Frankenstein IT

License Expense
- Sized the Dental License to the need, 8 cores
  - Dental was “The database is too fast!”
  - Removed the need for a separate reporting server
  - Windows Server “Performance was really bad”
  - Real-time reporting

Consolidation
- 19 to 3 servers
- still moving database we did not plan to move due to extra headroom

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Performance @ NOVA

ERP Banner, 47x faster than the old hardware – I/O Constrained
Tried a T4 Server with SSD SAN, ODA was 11x faster
University Portal System - Sharklink
3000 concurrent users
under 1s response time
Tomcat became the bottleneck
ERP import – Old system 40 hours, ODA was 5 hours
Did it on Thanksgiving for the time
completed way ahead of schedule
Financial process with from 3 hours to a few minutes
Accounts Receivable from 54 minutes to a minute

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Performance @ NOVA

Performance continued

- Finical Aid process from 3 hours to 3 minutes
- Programmer commented a 20 minute process went to 1 minute

Banner Upgrade/Patching went from 6 hours to under 1 hour to run

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Architecture differences

ASM

Wouldn’t use w/o the ODA

The Sysadmins patch the ODA, including the database!

Better security, separate user for ASM and the listener

Chargeback for project work

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Lessons learned

Keep the Database server a database server

Don’t wait to patch, patch quarterly
Sleep is good

Use standard ports, 1521 is 1521. Do not get fancy

Backup externally, using RMAN to an NFS share

Multiple Backups, multiple locations

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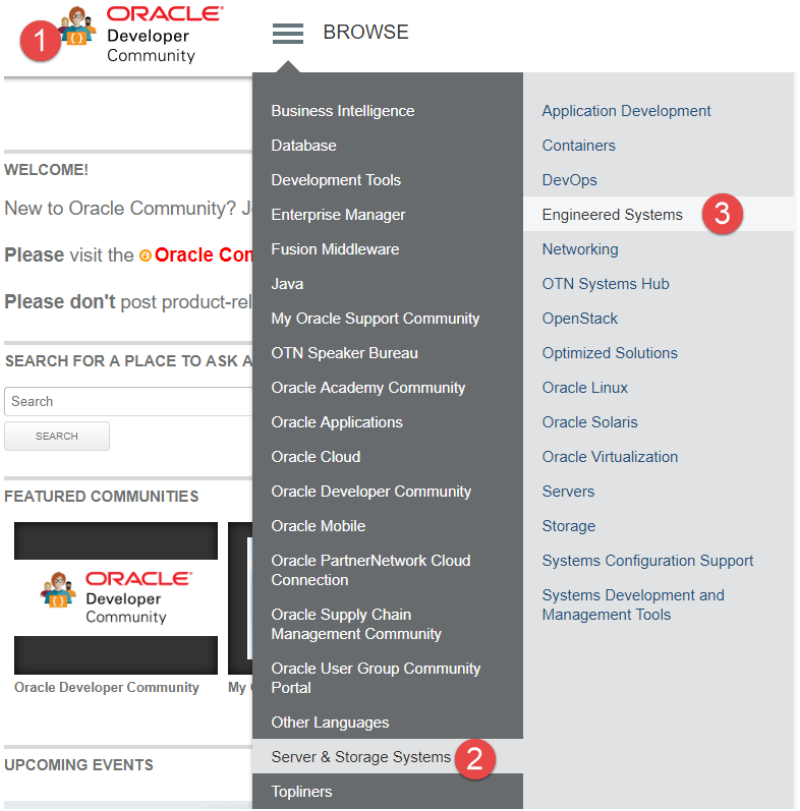
Where can I get help?

Community.oracle.com
Server and Storage
Engineered Systems



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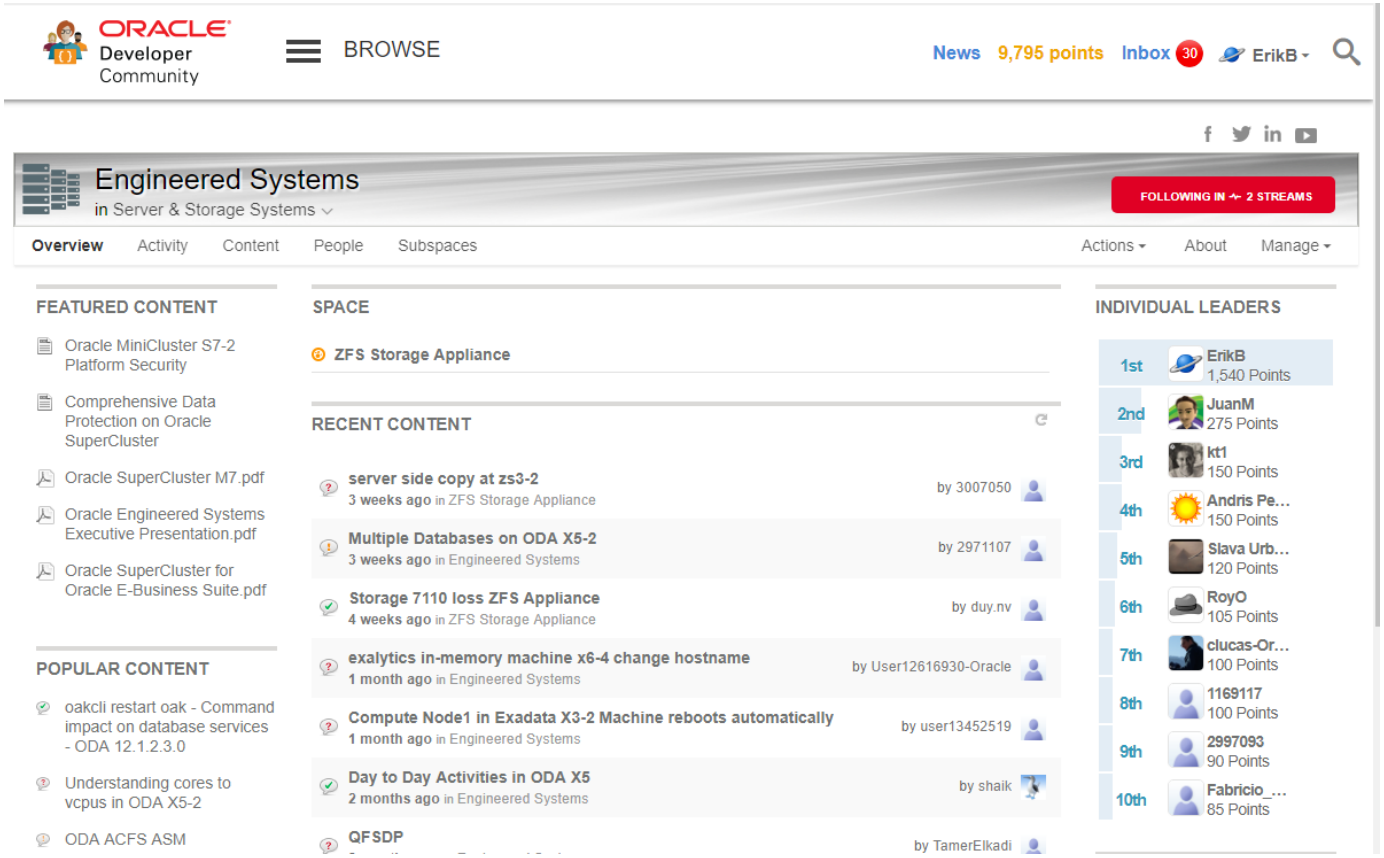
“ODA” Community



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ODA Product Manager Sessions

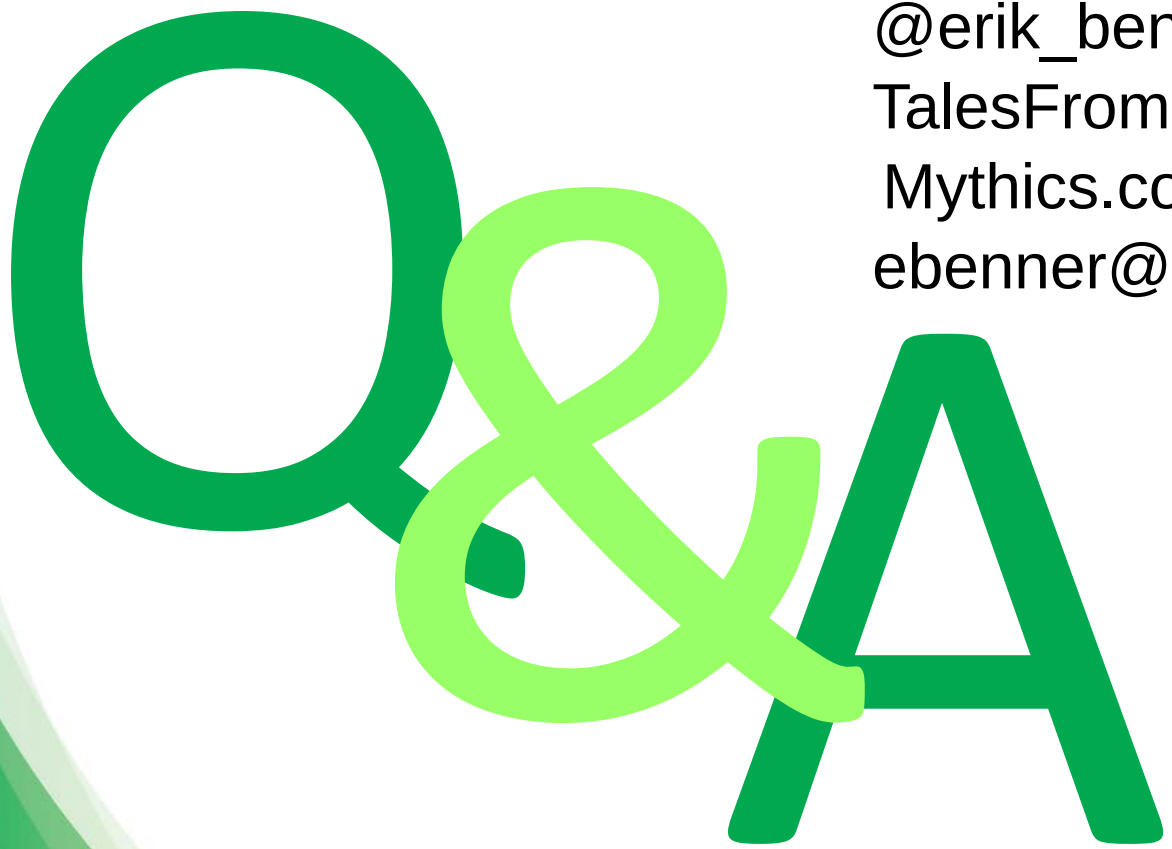
Session Title	Abstract
Top 10 Tips that will Increase your Expertise on ODA [CON6696] **Paul Tsien**, Monday, Oct 02, 1:15 p.m. - 2:00 p.m. | Moscone West - Room 3008	Do you need to be an Oracle Database Appliance expert in order to deploy it successfully into your business? Of course not! ….. Join this session for 10 tips about the Oracle Database Appliance that will have your colleges call you the ODA Expert.
Under the Hood with ODA with Real-World Use Case [CON6701] **Mascha Barantschik**, Tuesday, Oct 03, 12:45 p.m. - 1:30 p.m. | Moscone West - Room 3008	Join this session learn about Oracle Database Appliance under the hood and hear from a customer that is running their business successfully and taking advantage of the Oracle Database Appliance out-of-the-box-value.
Private Database Cloud on ODA using Oracle Multitenant [CON6700] **Tammy Bednar**, Wednesday, Oct 04, 3:30 p.m. - 4:15 p.m. | Moscone West - Room 3006	Are you looking for a way to create a Private Database Cloud that will provide the rapid provisioning, elasticity, security, and easy management that you have heard about? Look no further. ……. Join this session to hear about Oracle Database Appliance along with Oracle Multitenant to create your Private Database Cloud.

ODA Hands-On-Lab, Demo, Engineering Systems Showcase

	Date and Time	Location
Hands On Lab Experience the ODA Web console Interface	Monday, Oct 02, 11:00 a.m. - 12:00 p.m. Tuesday, Oct 03, 8:00 a.m. - 9:00 a.m. Wednesday, Oct 04, 1:15 p.m. - 2:15 p.m.	Hilton San Francisco Union Square (Ballroom Level) - Continental Ballroom 6
ODA Demo	Monday, Oct 02, 10:15 a.m. - 6:00 p.m. Tuesday, Oct 03, 11:00 a.m. – 5:45 p.m. Wednesday, Oct 04, 10:15 a.m. – 4:30 p.m.	Moscone West (SOA-095)
Engineering Systems Showcase	Monday, Oct 02, 10:15 a.m. - 6:00 p.m. Tuesday, Oct 03, 11:00 a.m. – 5:45 p.m. Wednesday, Oct 04, 10:15 a.m. – 4:30 p.m.	Moscone West (SOA-085)

Additional ODA Sessions

Session Title	Date and Time	Location
Turbocharge Your Database Performance [SUN2304] **Erik Benner**, Enterprise Architect, Mythics, Inc **David Bloyd**, Database Administrator, Nova Southeastern University	Sunday, Oct 01, 2:45 p.m. - 3:30 p.m.	Moscone South - Room 153
Oracle Database Appliance: One Button, Multiple Shows [CON1526] **Heema Satapathy**, Oracle Consultant, BIAS Corporation	Monday, Oct 02, 12:15 p.m. - 1:00 p.m.	Moscone West - Room 3014
Flexible Architectures: Oracle Database Appliance and the Cloud [CON5192] **Eric Coleman**, SVP, Services, Re-Quest, Inc.	Monday, Oct 02, 5:45 p.m. - 6:30 p.m.	Moscone West - Room 3020
Thinking Outside the Box to Deliver a Complete Solution—In a Box [CON4687] **Charles Cowan**, Director / Senior Director, 2CANA SOLUTIONS (PTY) LTD **Rudolph Olivier**, Executive - IT & Risk, Bestmed Medical Scheme	Monday, Oct 02, 11:00 a.m. – 11:45 a.m.	Moscone West - Room 208
OPN Central: How ISVs Use Oracle Database Appliance for App-in-a-Box **Paul Tsien,** Principal Product Manager, Oracle **Milan Thanawala**, Senior Director, ISV Business Development, Oracle	Wednesday, Oct 04, 11:30 a.m. - 11:55 a.m.	OPN Lounge, San Francisco Marriott Marquis Foothill D Conference Room. 2nd Level



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