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# DBAs can use Oracle Application Express? Why?

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# Brief Introduction - @joelkallman

Joel R. Kallman

- Director of Software Development, Database Server Technologies Division
- Responsible for all product management and software development of Oracle Application Express
- 19 year Oracle employee
- Co-creator of Oracle Application Express
- Actively developing Oracle Application Express since its creation in 1999



**Joel R. Kallman**

@joelkallman

Director of Software Development for Oracle Application Express ([#orclapex](#)). Customer success with APEX, PL/SQL and the Oracle Database is my passion.

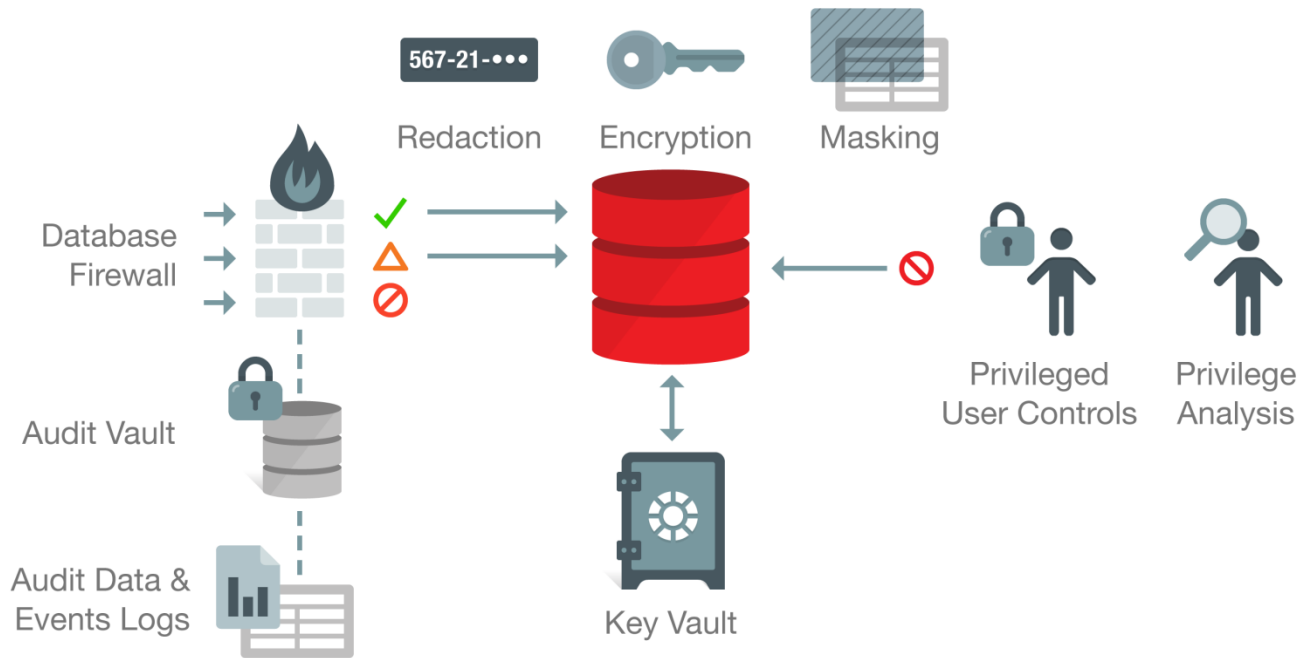
📍 Dublin, Ohio USA

🔗 [joelkallman.blogspot.com](http://joelkallman.blogspot.com)

 @joelkallman

# A DBA needs to know a lot...

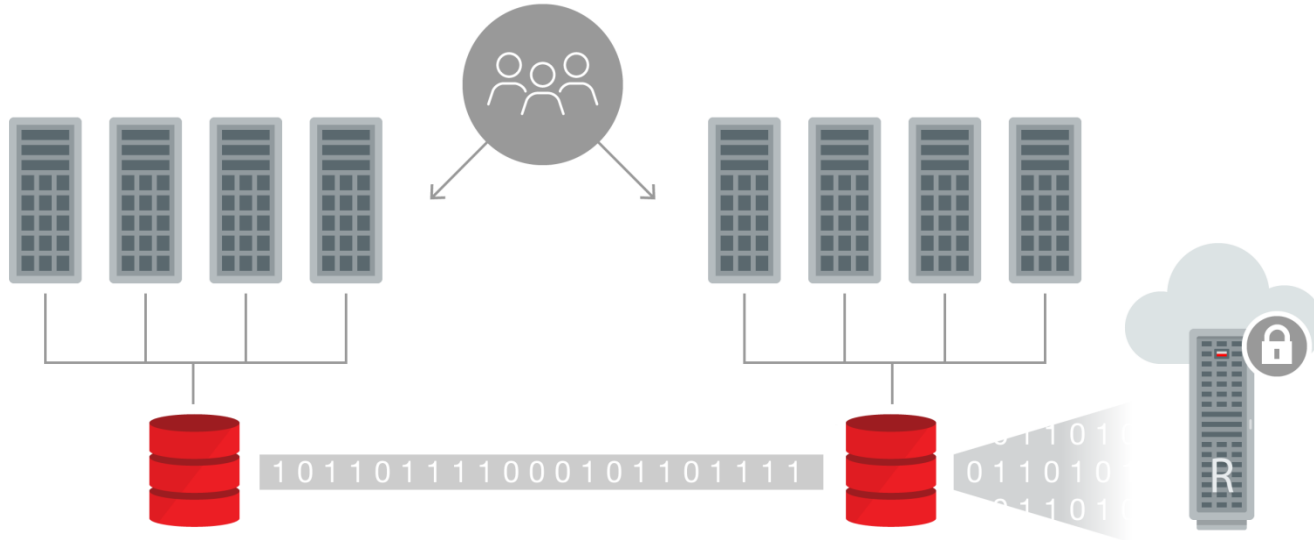
## Security features of the Oracle Database



Transparent Data Encryption	✓
Database Vault	✓
Audit Vault	✓
Database Firewall	✓
Key Vault	✓
Data Redaction	✓
Data Masking	✓
Auditing	✓

# A DBA has a lot of responsibility...

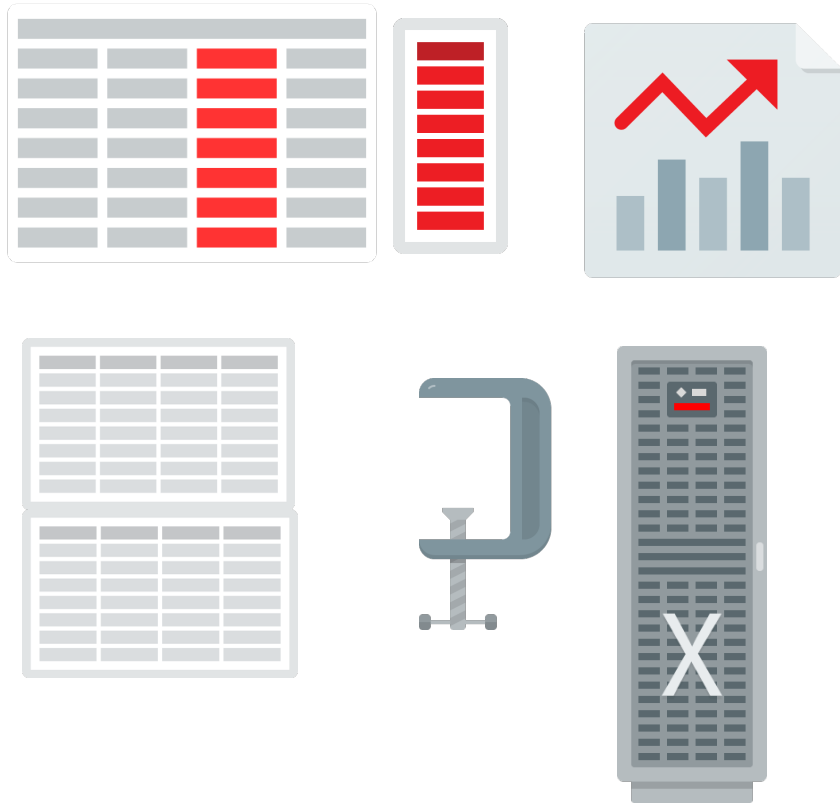
## High Availability features of the Oracle Database



Real Application Clusters	✓
Data Guard	✓
Active Data Guard	✓
Golden Gate	✓
Secure Backup	✓
Online Reorganization	✓
Edition-Based Redefinition	✓
Flashback, Total Recall	✓
Automated Rolling Upgrade of Database	✓
Failover to the Cloud	✓

# A DBA needs to understand many things...

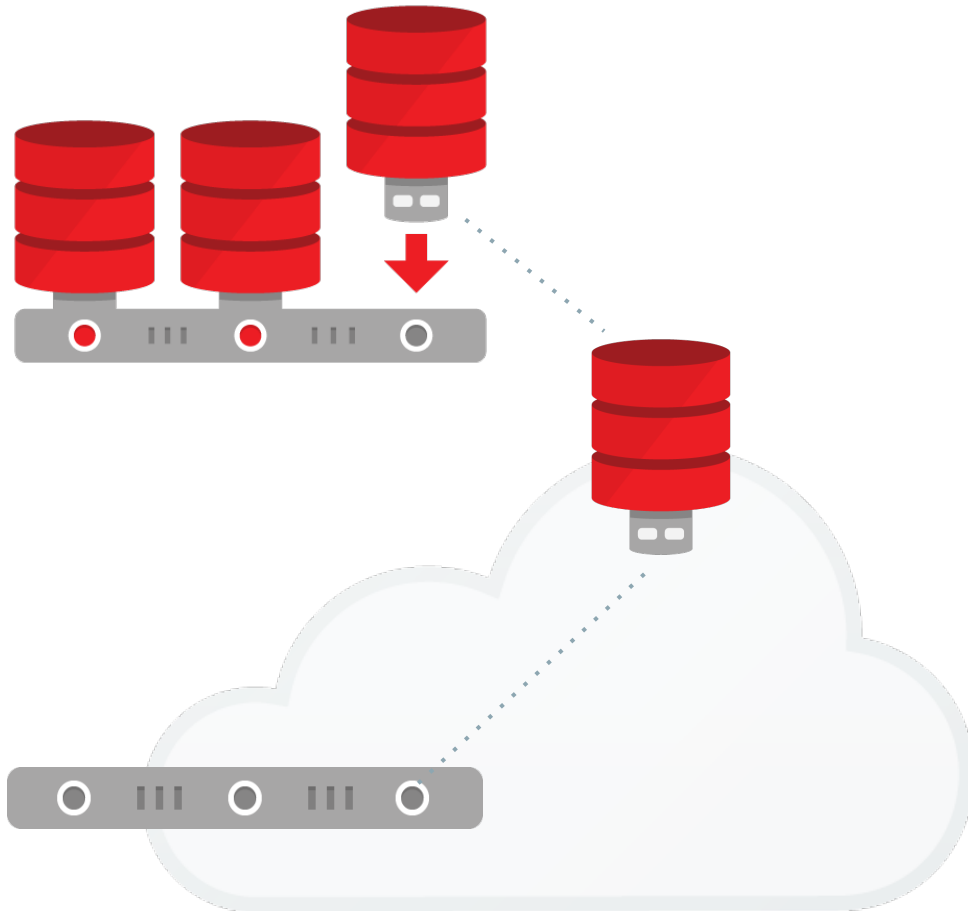
## High Performance features of the Oracle Database



Multi version read consistency	✓
Row level locking	✓
In-Memory	✓
Compression	✓
Partitioning	✓
Hadoop, Big Data SQL, R	✓
Cost based query optimizer	✓
Scale-out with Oracle RAC	✓
Exadata Smartscan & Infiniband	✓

# A DBA needs to constantly learn...

## Simplified consolidation and deployment with Oracle Multitenant



PDB Deployment	✓
PDB Cloning	✓
PDB Self Service App	✓
PDB Migration	✓
High Density Consolidation	✓
Automated Provisioning and Configuration	✓
PDB Resource Management	✓



Two Simple Messages...

1. DBAs can understand APEX
2. DBAs can flourish with APEX!

# Oracle Application Express (APEX)

## Rapid web application development framework



Develop web-based apps,  
deliver via desktop or mobile



Visualize and maintain  
database data



Leverage common SQL skills,  
industry-leading database  
capabilities

# Oracle Application Express

## No cost feature of the Oracle Database

- No-cost fully supported feature
  - Any number of developers, apps, & end-users
  - Specialized Oracle Support Team
  - 11gR1, 11gR2, 12c
  - All DB editions: EE, SE, SE1, XE
- Included with Oracle Cloud Services
  - Schema and PDB services 5, 20, 50 GB
  - Dedicated DBaaS services
  - No cost evaluation <http://apex.oracle.com>
- Easy to install
  - Included by default with all editions of Oracle database
  - Download latest release from <http://otn.oracle.com/apex>



# Oracle Application Express (APEX)

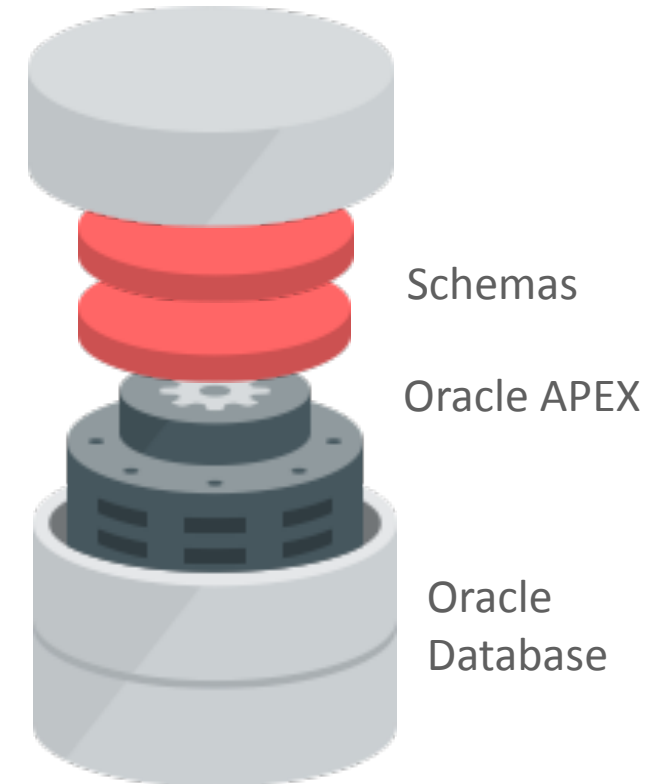
## 3 Tier Architecture



Browser

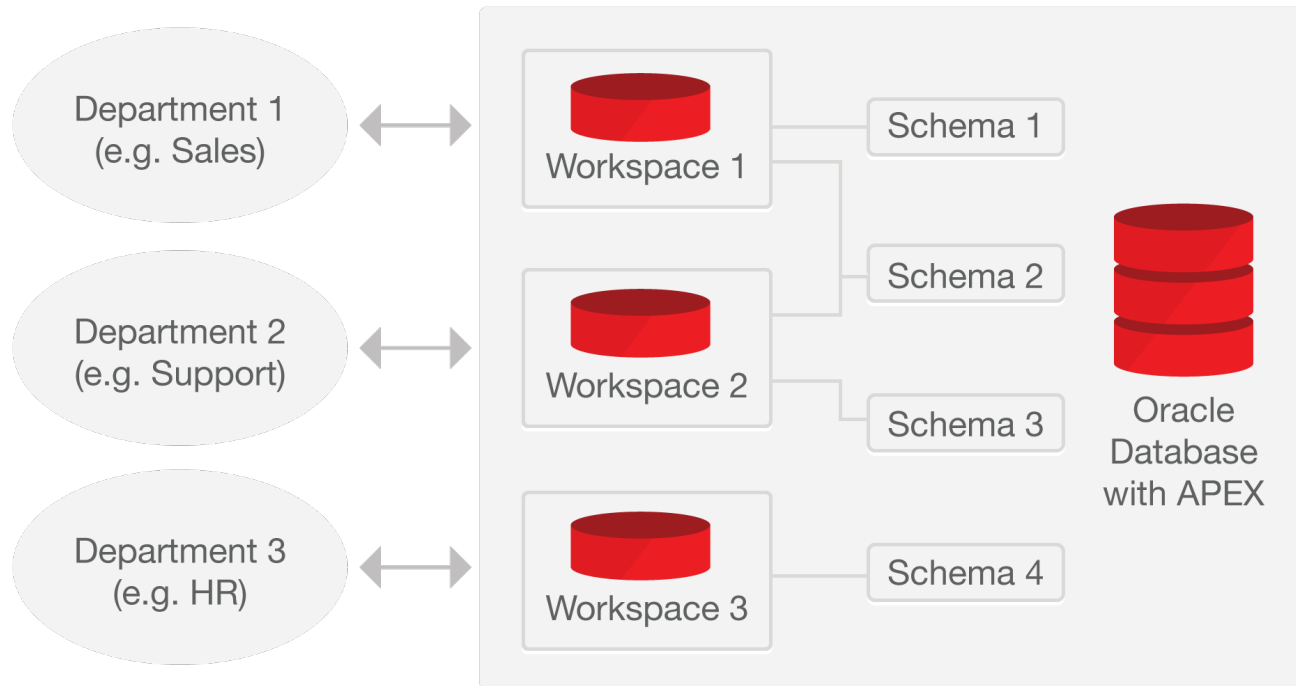


Mid Tier



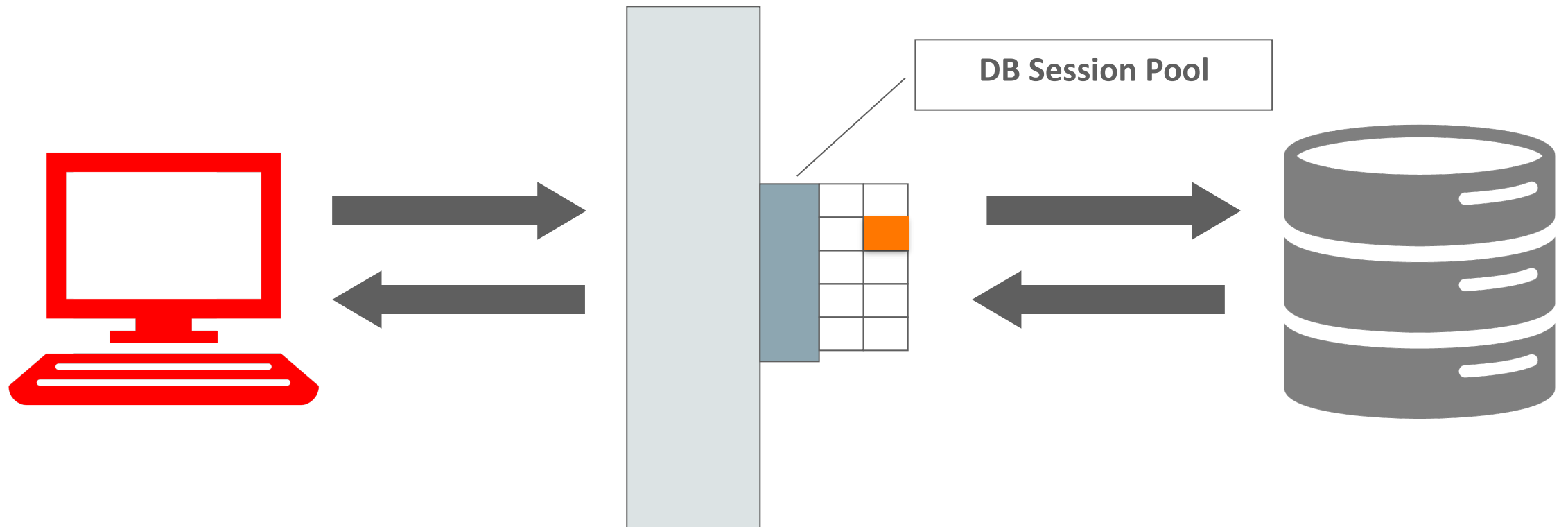
Database Tier

# Single Database Instance / Multiple Workspaces



- Workspaces used to define application definitions / Schemas hold data
- Typically 1-to-1 relationship between Workspaces and Schemas
- SQL is parsed with the roles and responsibilities of the workspace schema (DB user)

# Simplistic Overview of an APEX Request



# Task # 1: Monitor Sessions

- Monitor the sessions and current activity in a database
- GV\$SESSION

DB Monitor Log Out

Home  
Sessions  
Tablespaces  
Users  
Metrics  
Table Statistics

Q  Go Actions

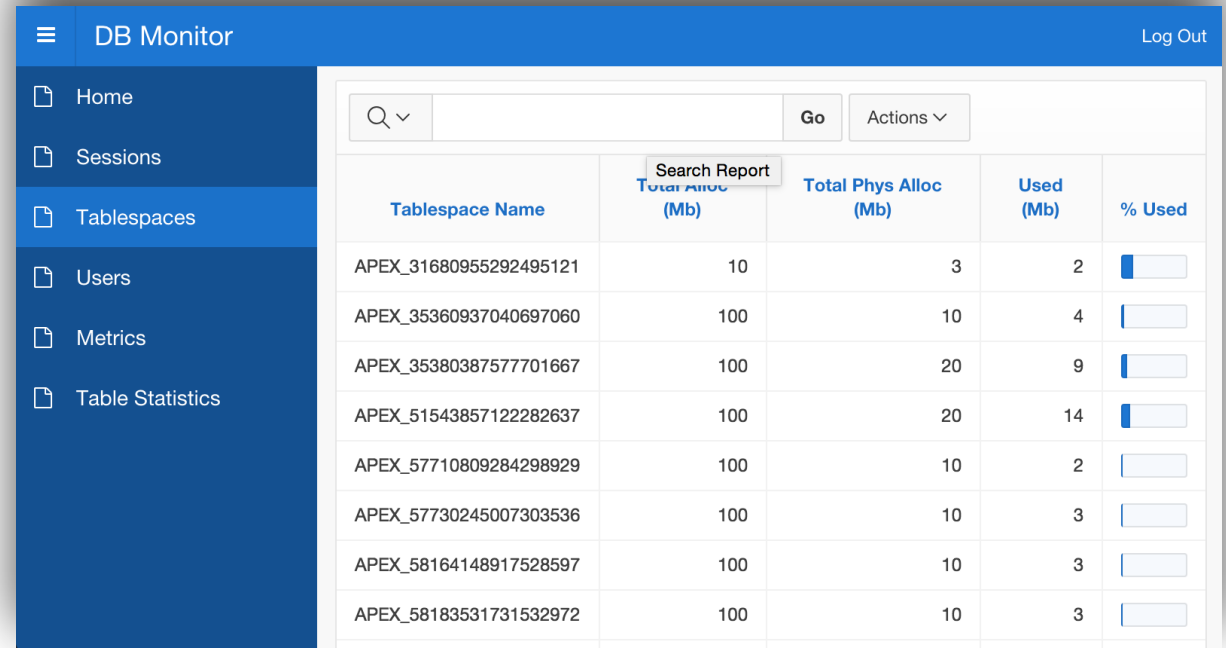
Username is not null  x

Username	Status	Machine	Program	Client Identifier	
APEX_PUBLIC_USER	ACTIVE	jkallman-linux6	APEX Listener	JOEL:1153176776984	AP 12
APEX_LISTENER	INACTIVE	jkallman-linux6	APEX Listener	-	AP
APEX_REST_PUBLIC_USER	INACTIVE	jkallman-linux6	APEX Listener	-	AP

1 - 3

# Task # 2: View Available Space

- Determine the amount of storage consumed and available space in the tablespaces
- DBA\_DATA\_FILES  
DBA\_SEGMENTS



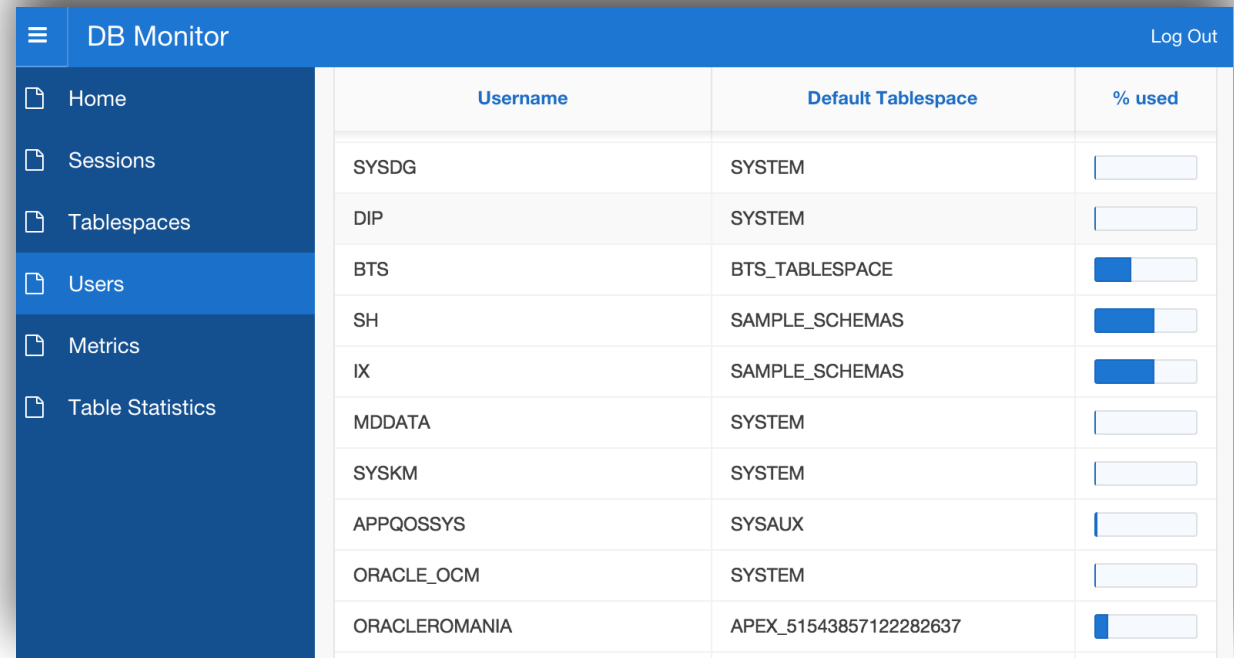
The screenshot shows the Oracle DB Monitor interface. On the left is a navigation menu with options: Home, Sessions, Tablespaces (selected), Users, Metrics, and Table Statistics. The main area displays a table of tablespace usage. The table has columns for Tablespace Name, Total Alloc (Mb), Total Phys Alloc (Mb), Used (Mb), and % Used. Each row includes a progress bar representing the percentage of space used.

Tablespace Name	Total Alloc (Mb)	Total Phys Alloc (Mb)	Used (Mb)	% Used
APEX_31680955292495121	10	3	2	<div><div style="width: 20%;"></div></div>
APEX_35360937040697060	100	10	4	<div><div style="width: 4%;"></div></div>
APEX_35380387577701667	100	20	9	<div><div style="width: 9%;"></div></div>
APEX_51543857122282637	100	20	14	<div><div style="width: 14%;"></div></div>
APEX_57710809284298929	100	10	2	<div><div style="width: 2%;"></div></div>
APEX_57730245007303536	100	10	3	<div><div style="width: 3%;"></div></div>
APEX_58164148917528597	100	10	3	<div><div style="width: 3%;"></div></div>
APEX_58183531731532972	100	10	3	<div><div style="width: 3%;"></div></div>



# Task # 3: View Database Users

- View database users, and the amount of storage left in their default tablespace
- DBA\_USERS

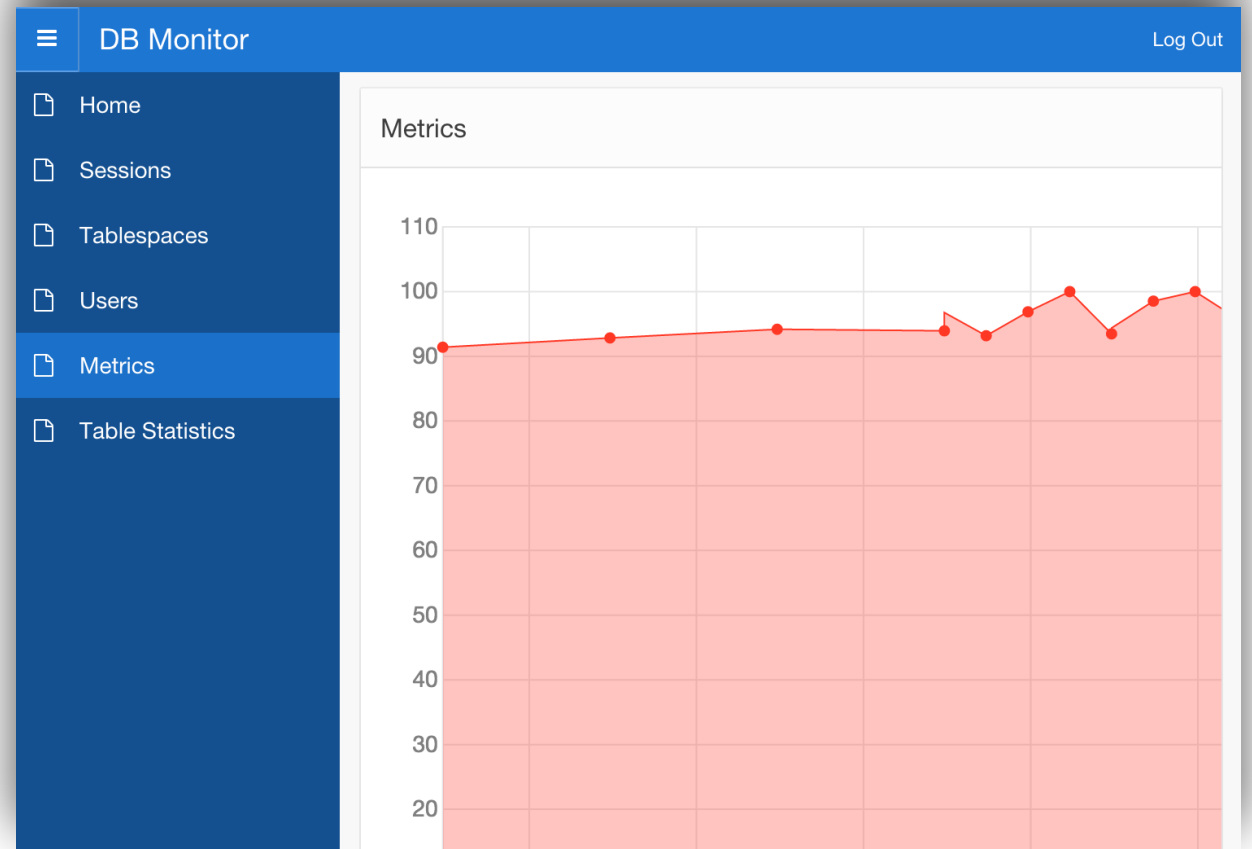


The screenshot shows the Oracle DB Monitor interface. The left sidebar contains navigation options: Home, Sessions, Tablespaces, Users (selected), Metrics, and Table Statistics. The main content area displays a table with the following columns: Username, Default Tablespace, and % used. The table lists several users and their storage usage percentages.

Username	Default Tablespace	% used
SYSDG	SYSTEM	<input type="text"/>
DIP	SYSTEM	<input type="text"/>
BTS	BTS_TABLESPACE	<input type="text"/>
SH	SAMPLE_SCHEMAS	<input type="text"/>
IX	SAMPLE_SCHEMAS	<input type="text"/>
MDDATA	SYSTEM	<input type="text"/>
SYSKM	SYSTEM	<input type="text"/>
APPQOSSYS	SYSAUX	<input type="text"/>
ORACLE_OCM	SYSTEM	<input type="text"/>
ORACLEROMANIA	APEX_51543857122282637	<input type="text"/>

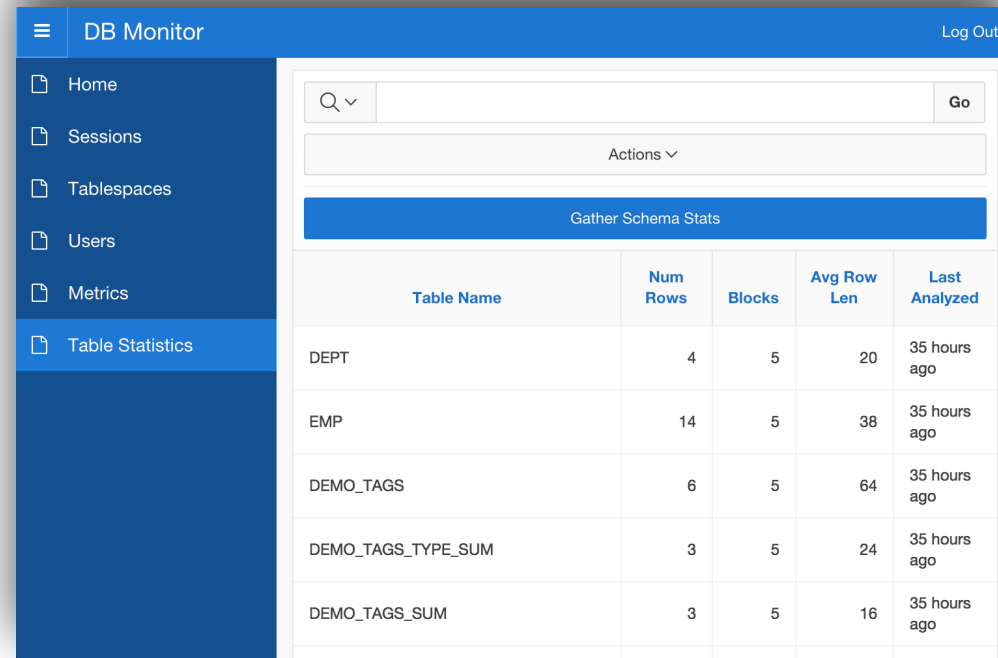
# Task # 4: View Database Metrics

- Examine various performance statistics about your database
- `GV$SYSMETRIC_HISTORY`



# Task # 5: View Table Statistics

- Display query optimizer statistics for tables
- USER\_TAB\_STATISTICS



The screenshot shows the Oracle DB Monitor interface. The left sidebar contains navigation options: Home, Sessions, Tablespaces, Users, Metrics, and Table Statistics (highlighted). The main content area displays a table of statistics for the DEPT schema. The table has columns for Table Name, Num Rows, Blocks, Avg Row Len, and Last Analyzed. A 'Gather Schema Stats' button is visible above the table.

Table Name	Num Rows	Blocks	Avg Row Len	Last Analyzed
DEPT	4	5	20	35 hours ago
EMP	14	5	38	35 hours ago
DEMO_TAGS	6	5	64	35 hours ago
DEMO_TAGS_TYPE_SUM	3	5	24	35 hours ago
DEMO_TAGS_SUM	3	5	16	35 hours ago

# And a Bonus...

- Not only are you now a Web developer....

# Oracle Application Express

## Why?

- Provide custom dashboard to a database
- Develop simple custom user interface to complex database functionality (e.g., DBMS\_NETWORK\_ACL\_ADMIN)
- Provide limited access to database without providing full access to Enterprise Manager
- Provide interface to performance views of database using any authentication method

# Oracle Application Express

## Summary

- Every DBA knows SQL and uses SQL to monitor, diagnose, and administer a database.
- Every DBA can exploit their knowledge and skills in Application Express.
- Custom user interfaces can be easily created to help manage and monitor these databases.

# Next Steps

## Contacts, Collateral, Resources



- Oracle Technology Network
- Oracle Learning Library
- APEX trial/evaluation site
- Oracle Cloud

<http://otn.oracle.com/apex>

<http://www.oracle.com/oll>

<http://apex.oracle.com>

<http://cloud.oracle.com>





# **Hardware and Software Engineered to Work Together**

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