

ORACLE®

Transitioning to Oracle Application Express 5.0

Marc Sewtz

Senior Software Development Manager

Oracle Application Express

Oracle America, Inc.

New York, NY

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Marc Sewtz

Senior Software Development Manager
Oracle Application Express / Database Tools

- Working for Oracle since 1998
- Joined Database Tools group in 2002
- Based on New York, NY
-  Twitter: **@msewtz**
-  APEX on Twitter: **#ORCLAPEX**
- Blog: <http://marcsewtz.blogspot.com>



Oracle Application Express

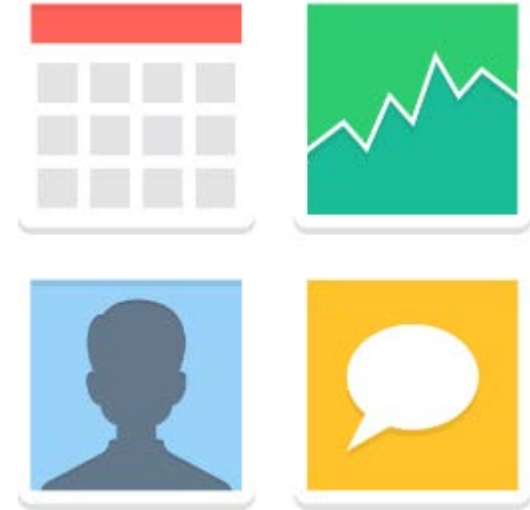
Overview

- Database-centric development tool for Oracle Database application development
- Develop Desktop and Mobile applications
- Targeted at developers who know SQL and PL/SQL
- 100% Browser-based Development, Deployment and Runtime
- Declarative framework for rapid application definition, and full application life cycle
- On premise, on laptop, on cloud, on RAC, any platform Oracle DB is available



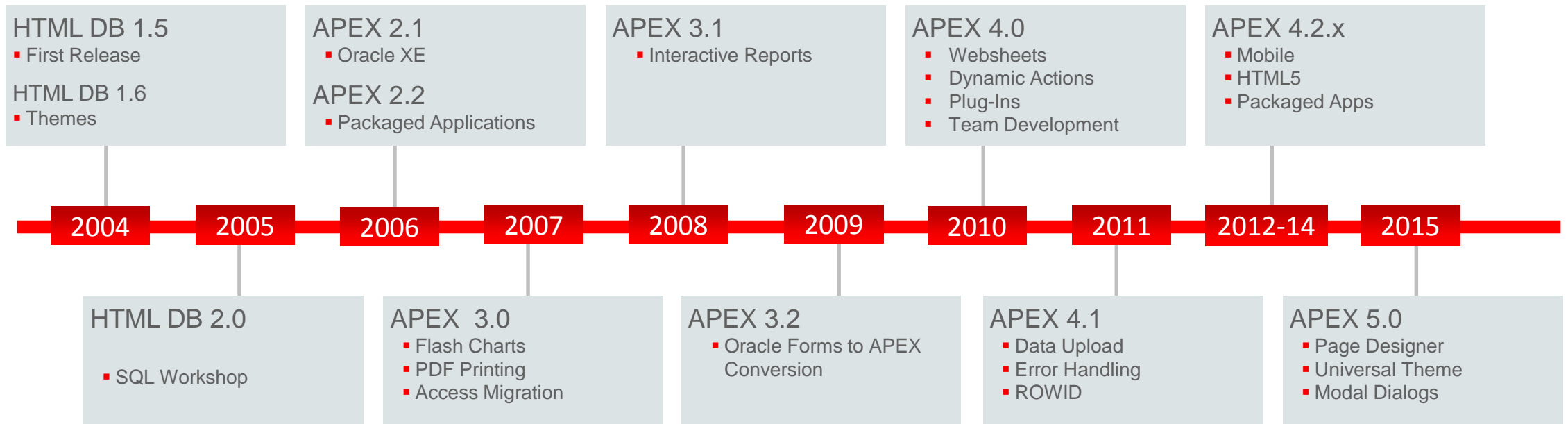
Packaged Applications

- Pre-Built Business Productivity Applications and Sample Applications
- Installable with only a few clicks using a browser based interface
- Production-ready applications including Project Management, Customer Tracker, Data Reporter, various Sample Applications
- Packaged Application Gallery and Administration interface can be configured as Packaged-App-only workspace



Oracle Application Express

History



Fully supported no-cost feature of the Oracle Database

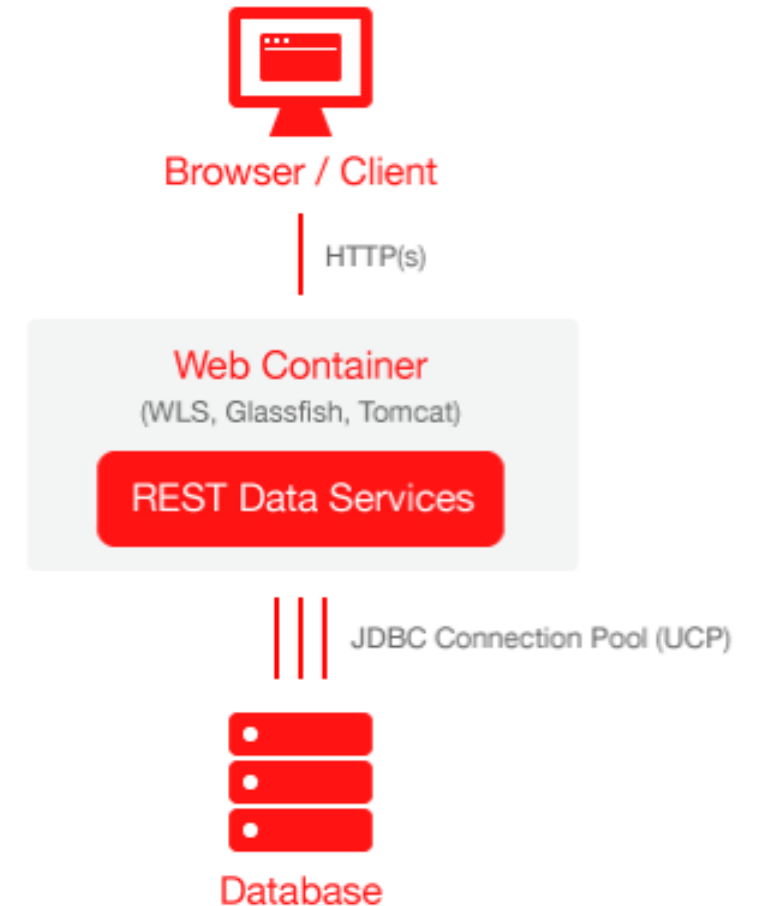


- Supported as a no-cost feature of the Oracle Database
 - Feature of database 10gR2 (10.2.0.4 +), 11gR1, 11gR2, 12c
 - Any number of developers, applications, any number of end-users
 - Specialized Oracle Support Team – Included with Database Maintenance Agreement
 - All database editions: EE, SE, SE1, XE
 - Exadata, ODA, RAC, Partitioning, Compression, InMemory, Multitenant...
- Distribution
 - Distributed with all editions of Oracle database 11g and 12c
 - Available as a download from [OTN](#)
- Oracle Cloud Services
 - “Oracle Database Cloud Service” (Database Schema Service) since October 2012. Sold as a fully managed service with 1GB free trial, and 5, 20, 50 GB paid services.
 - Available as “development only” customer evaluation service on <http://apex.oracle.com>

Oracle Application Express - Architecture

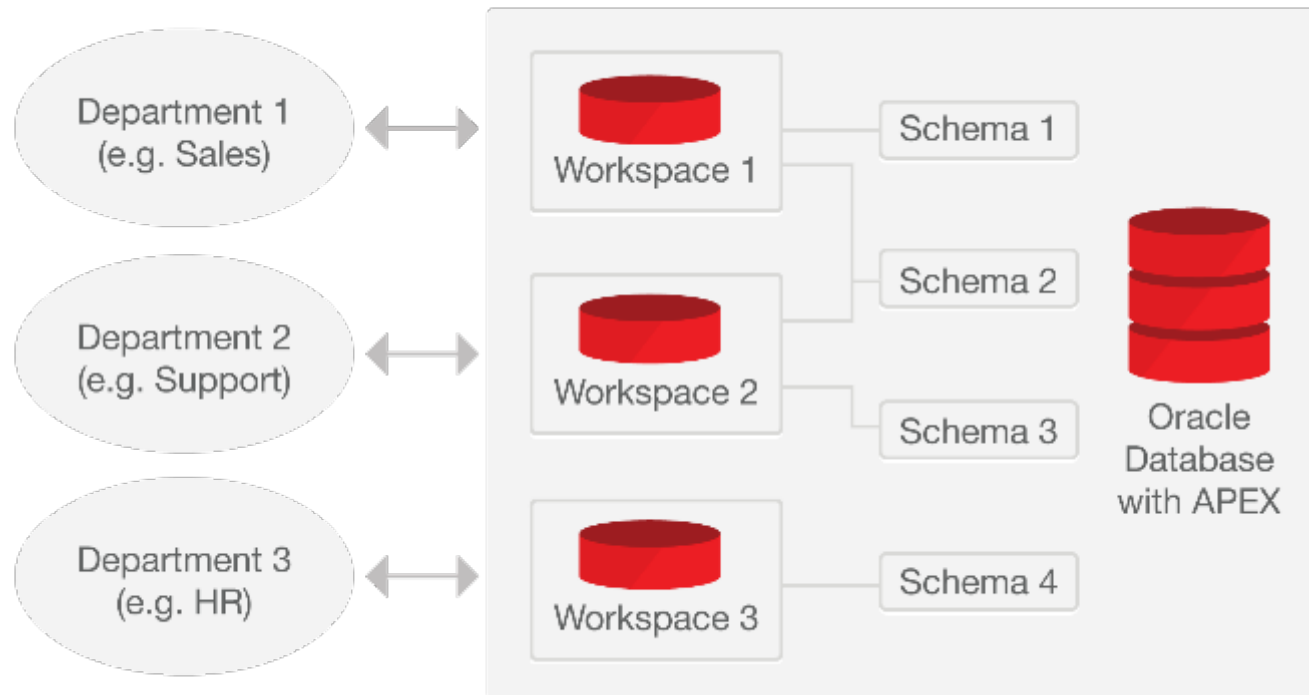
Simple 2-Tier Architecture

- Mid tier = Oracle REST Data Services
 - Directs calls to APEX Apps to the APEX run-time engine
 - Accepts RESTful Web Service call URIs and directs them to the appropriate SQL statement or PL/SQL block
 - Recommended mid tier for Oracle APEX.
 - Can also use Embedded PL/SQL Gateway (EPG) and Oracle HTTP Server (OHS).
- Application Meta Data stored in the Oracle DB
 - Oracle Application Express is written largely in PL/SQL
 - Pages dynamically rendered using database metadata
 - No code generation or file based compilation



Oracle Application Express - Architecture

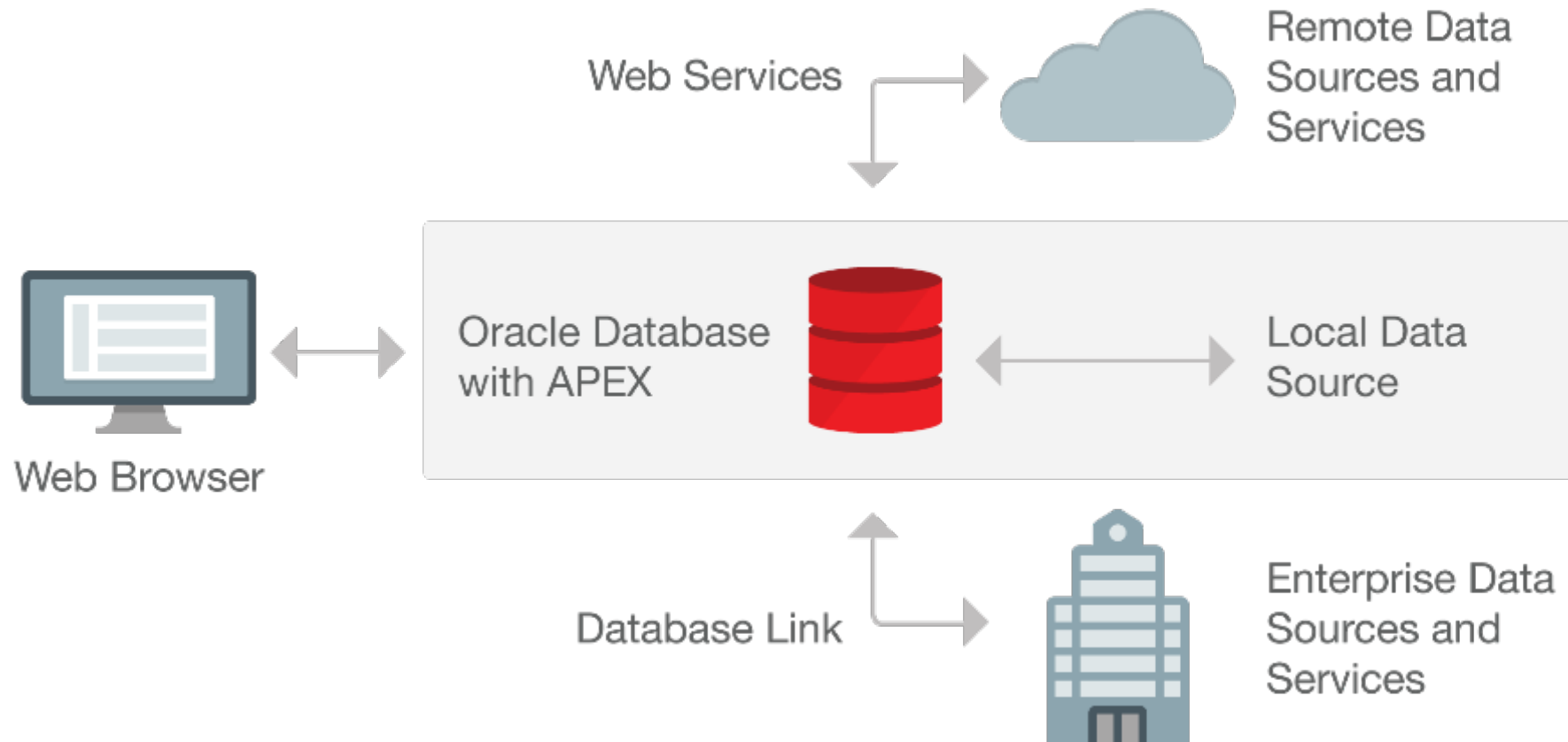
Single Database Instance serving Multiple Departments



- Optional self-service provisioning
- Workspaces used to define application definitions / Schemas hold data
- Many-to-many relationship between Workspaces and Schemas
- Instance Administrators manage the environment and schema access
- Departments can request more space, and access to a new schema
- For example, <http://apex.oracle.com> has over 20,000 Workspaces

Oracle Application Express - Architecture

Utilize the Oracle Database / Web Services



Oracle Application Express - Architecture

Development / Deployment Options



Local

- Install on stand-alone laptops using Oracle Express Edition (XE) or full database version
- Simply upgrade APEX to the required version
- Can work completely disconnected

On-Premise

- Typically run by the IT Department
- IT generally both production operations service, and a service provider
- Departments responsible for application development

Cloud

- Deploy Internet applications
- Leveraged for fast application development, user acceptance and training.
- Prototyping & Proof-of-Concept
- Consulting companies develop for deployment on customer premise

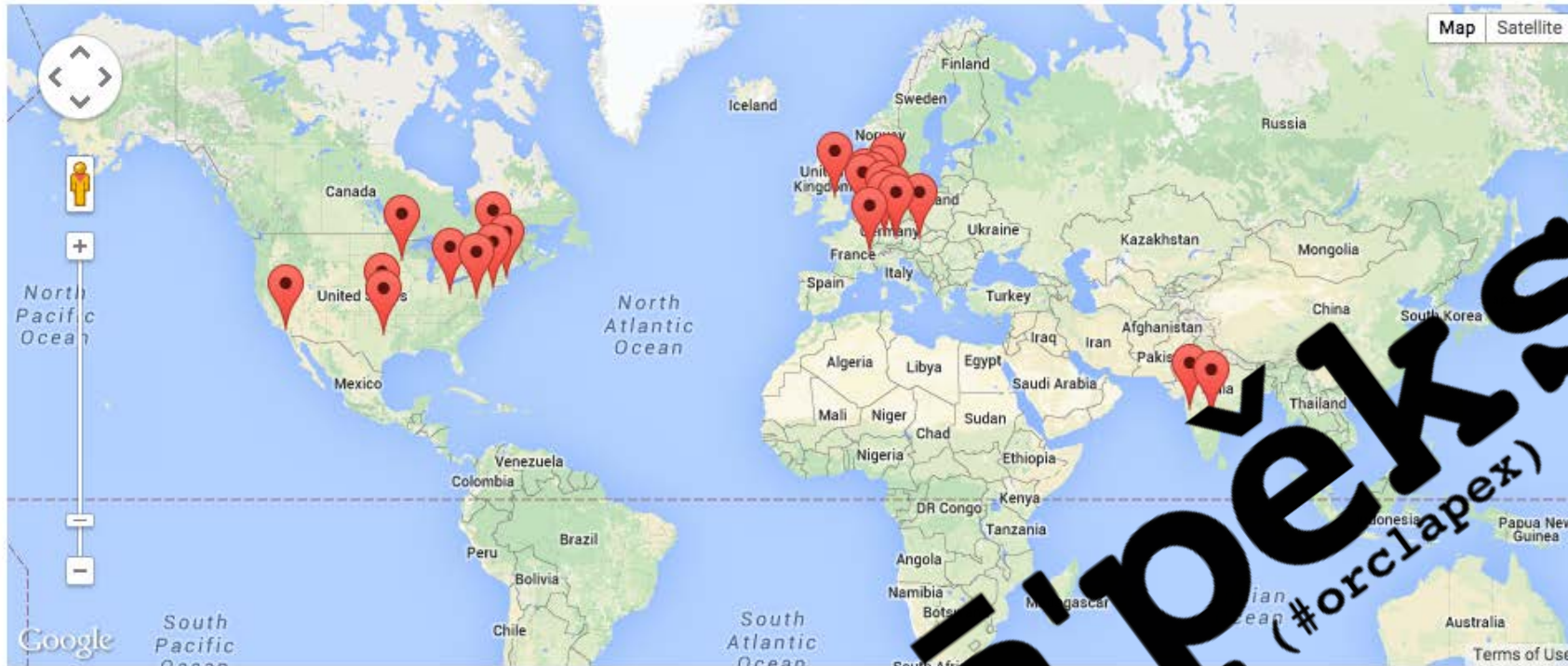
Oracle Application Express Development Community



- ~ 400,000 developers
based on developer downloads, support tickets, check for updates data
- 120+ consulting companies - See OTN Community Page
<http://otn.oracle.com/apex>
- 75+ active bloggers:
<http://www.odtug.com/apex>
- Very active Forum:
https://community.oracle.com/community/database/developer-tools/application_express
- Web sites dedicated to plug-ins:
<http://www.apex-plugin.com/>

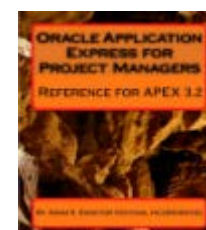
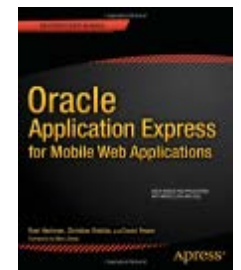
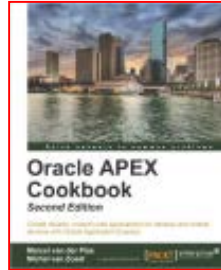
Oracle Application Express

#ORCLAPEX Meetups



- 23 Groups
- 735 Members
- **85 NYC Members**
- 48 Past Meetups
- 9 Planned Meetups

Oracle Application Express - Books



Oracle Application Express

Collateral, Resources & Hosted Services



- Oracle Technology Network
- Oracle Learning Library
- Hosted evaluation site:
- APEX 5.0 Early Adopter 3:
- APEX Cloud Service:

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

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

<http://apex.oracle.com>

<http://apexea.oracle.com>

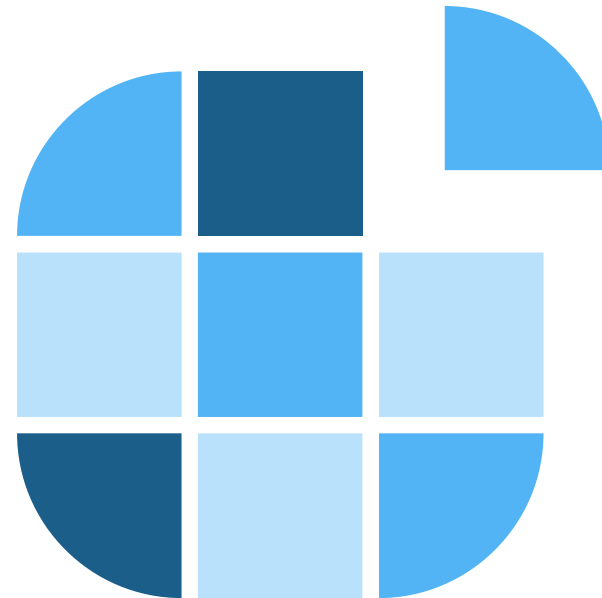
<http://cloud.oracle.com>

How to Modernize ... your Existing Applications

Page Designer

Overview

- Create and edit page elements within a single page design view
- No need for different edit screens to edit different components
- Highly configurable user interface:
 - Customize and refine view of page specific to current focus
 - Slideable panels
 - Hide / show groupings
 - Zoom



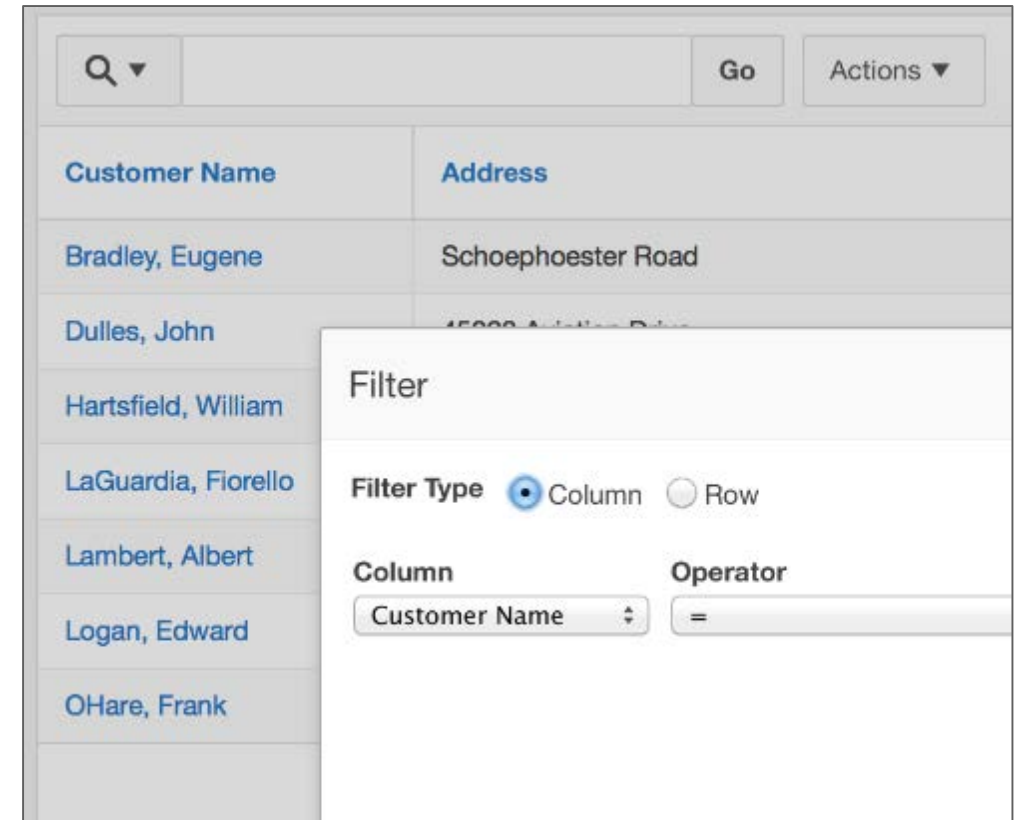
Modal Dialogs

- Replacement for old-style popup Windows
- A modal dialog is a stand-alone page and not a region on a page
- Any APEX can page be created as a dialog, which can be rendered modal and non-modal
- Support for all the functionality of a normal page, including computations, validations, processes, and branches

Interactive Report Enhancements

Multiple IRRs & UI Enhancements

- Create multiple Interactive Reports on a single page
- Modal dialogs replace “push-down” dialogs that were previously used for filters, formatting, save, export, etc.
- New HTML5 HTML structure – lighter weight and accessible
- Frozen filter-bar stays in place when scrolling



Navigation Menus

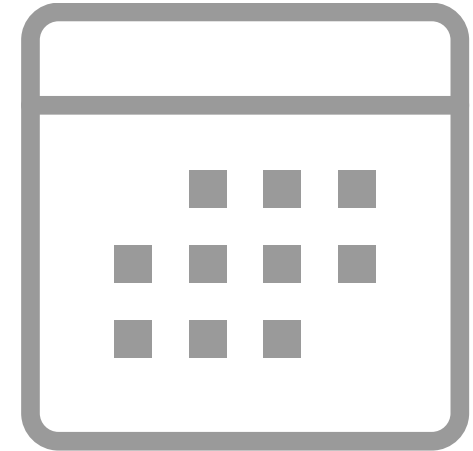
List-based navigation

- Alternative to using traditional tabs
- Available as top navigation menu and side menu
- Implemented as standard APEX lists
- Supports multi-level hierarchical menu structures
- Provides accessible pull-down menus
- Type of navigation determined by themes – Universal Theme uses lists
- Migration of older one-level tabs to lists when switching themes



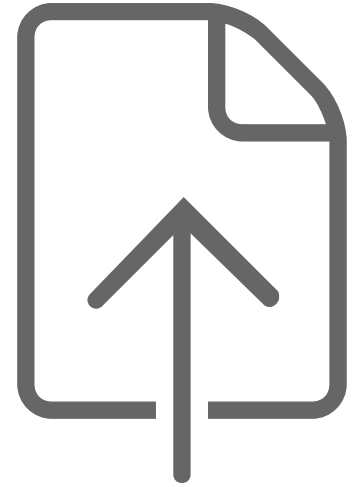
New Calendar

- New calendar region type
- Based on Full Calendar jQuery Plug-In
- Provides full-size calendar with monthly, weekly, daily and list view
- Support duration based events with start and end date
- Drag & drop capabilities allow for rescheduling of events
- Customization of look & feel through CSS



Static files / Relative URL references

- Upload application and workspace images into database
- Supports relative file URL references
- ZIP files automatically unzipped and placed in folder structure
- Supports versioning / Caching
- Can be used to store theme style CSS files and include in export



Universal Theme

Overview

- New default theme for APEX applications
- Uses responsive HTML5 templates
- Grid-layout for HTML forms
- Modern flat-look
- Ships with a variety of pre-built theme styles
- Older themes still available as legacy themes, and will remain part of the product for backwards compatibility

HTML



Universal Theme

Template Options

- Declarative CSS modifiers for HTML5 templates
- Enables developers to declaratively apply styles like borders, padding, icons, colors, size, etc.
- Uses easy-to-understand, descriptive names
- Available for most template types:
 - Page, Region, Report, Breadcrumb, List, Item, Button
- Significantly reduces the number of required templates for a theme



Universal Theme

Theme Styles & Theme Roller

- Theme Styles provide a variety of different color schemes and styles for a single theme
- Defined as CSS file that is included in addition to the theme's base CSS file
- Universal Theme includes several pre-built styles
- Additional styles can be easily generated using the built-in Theme Roller utility



Universal Theme

Theme subscriptions

- Extends existing templates subscription model
- Subscribes all templates and template options to a master theme
- Templates are read-only in subscribing themes
- Templates can be copied within a theme – local copies are editable
- When creating new applications, themes are subscribed to the base theme by default
- Ensures upgradeability of included base-themes in the future

Universal Theme

Theme Switching and Template Mapping

- Install Universal Theme into existing application
- Open Switch-Theme wizard
- Reset Region and Item Grid
- Do not use template class mapping
- Manually adjust mappings: use standard page and region templates in most cases, choose title bar region template for breadcrumbs
- Run application and perform post-switch upgrades



Mobile Development with APEX 5.0

Column Toggle Reports

- Selectively hide columns at narrower widths as a sensible default
- Offers a menu to let users manually control which columns they want to see
- Column Toggle popup contains a dynamically generated list of columns based on the table markup



The screenshot shows a mobile report interface. A column toggle menu is open, displaying four options: Rank, Year, Rating, and Reviews. The 'Rating' option is selected, indicated by a blue checkmark. Below the menu, a table lists movie titles and their corresponding ratings. The table has two columns: 'Movie Title' and 'Rating'. The movie titles are underlined and blue, and the ratings are percentages.

Movie Title	Rating
Citizen Kane	
Casablanca	97%
The Godfather	97%
Gone with the Wind	96%
Lawrence of Arabia	94%

Mobile Development with APEX 5.0

Reflow Table Reports

- Collapsing table into label/data pairs for each row
- Stacked presentation style default
- Media query used to switch to tabular style presentation above a specific screen width

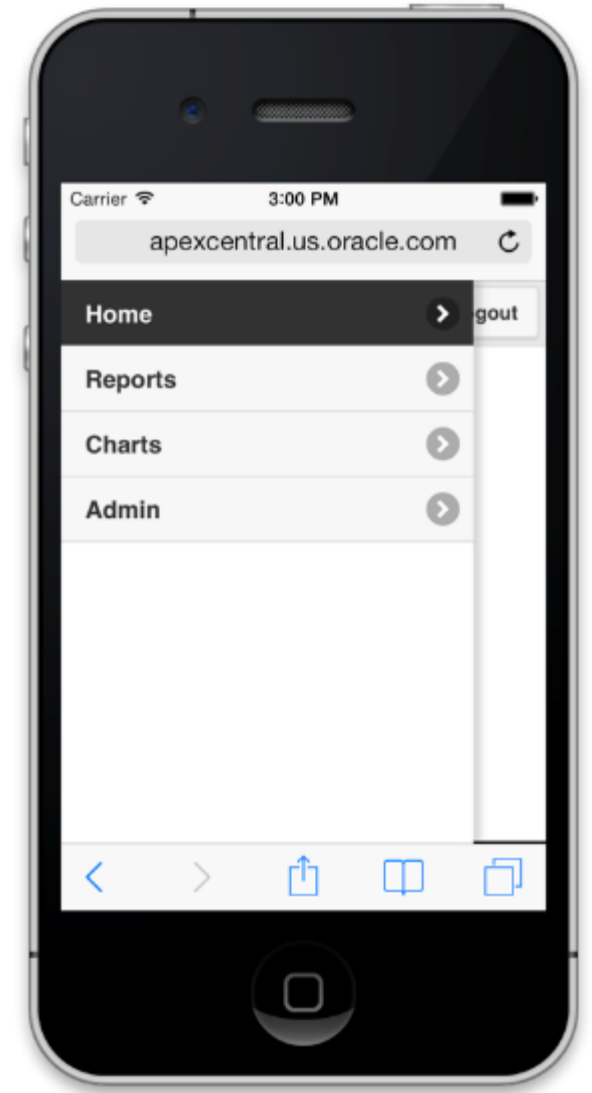
Rank	Movie Title	Year	Rating	Reviews
1	Citizen Kane	1941	100%	74
2	Casabl			64
3	The Go			87
4	Gone v			87
5	Lawren			87

Rank	1
Movie Title	Citizen Kane
Year	1941
Rating	100%
Reviews	74
Rank	2
Movie Title	Casablanca
Year	1942
Rating	97%
Reviews	64

Mobile Development with APEX 5.0

Panels

- Used for navigation, forms, inspectors and more
- Sibling to the header, content and footer elements
- Left and Right panels
- Display styles: Overlay, Reveal
- Application menu is generated as a left-side panel



DEMO

Q&A

Hardware and Software Engineered to Work Together

ORACLE®