Oracle Forms and Oracle APEX
"The Odd Couple"

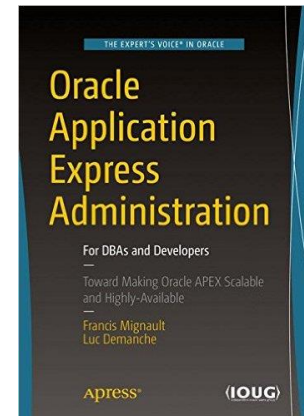**ORACLE**® Gold Partner

insum **Oracle** Specialists. **APEX** Experts.

About me

Francis Mignault

- CTO and Co-founder, Insum Solutions

- 30+ years with Oracle DB, 14+ years with APEX. (Forms 2.3 / Oracle 5)

- Books:
  - Expert Oracle Application Express
  - Oracle Application Express Administration

- Twitter : **@Fr4ncis** #orclapex

ORACLE Gold Partner

insum

Business needs change.
Make sure your applications keep the pace.

☐ Custom Development, Cloud, Forms Modernization, EBS Extensions
☐ Consulting, Coaching, and Team Augmentation
☐ Maintenance and Enhancement Service for apps built with APEX
☐ Committed to APEX Innovation & Best Practices
☐ Internationally recognized staff that includes Oracle ACEs

www.insum.ca

Deloitte.

2017 Technology Fast 500 Ranking
Recognizing growth

500™
Technology Fast 500
2017 NORTH AMERICA

Save $100, use Promo Code: INSUM

5

# Oscar and Felix. So different.

The Odd Couple

Forms, Forms, Forms…
What's missing?

Wouldn't it be nice if Forms could…?

- Easily consume and create webservices

- Quickly build nice Dashboards

- Have an easy way to do On-Line Live reporting

- Create mobile applications

- Export to Excel / PDF / Mail

- Really run on the web without jinitiator / java

- Integrate new technologies like Maps, JavaScript, etc…

- Use CSS and JavaScript (jQuery / Oracle Jet)

How does Oracle Forms work?

Oracle Forms
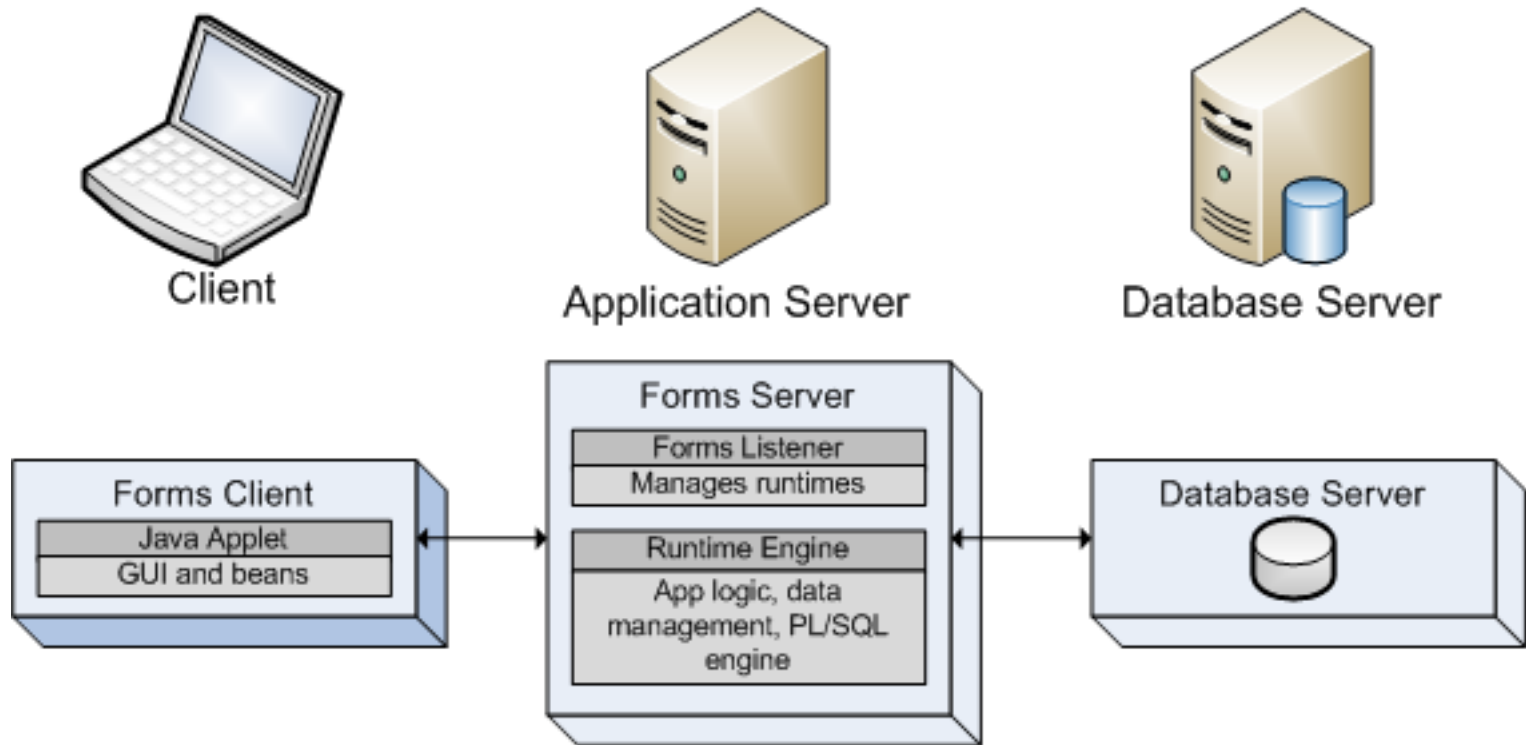
Yes, it's old but it still works

What Forms is made of:
- Triggers
- Windows
- Blocks
- Items with properties

- Database Driven
- Oracle Schemas

- Oracle user / Database Roles
- Dedicated connections

- PL/SQL

What is Oracle APEX?

Oracle Application Express

Database-centric web application development framework
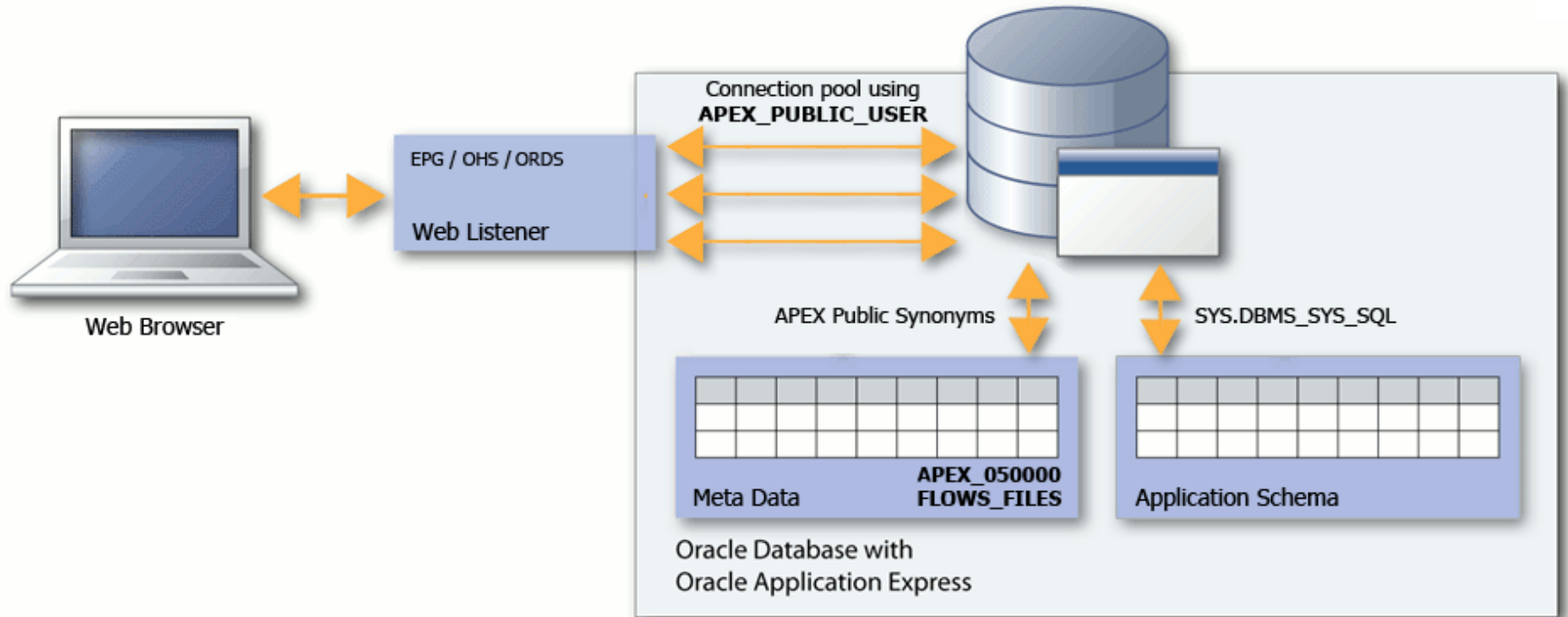
Develop desktop and mobile web apps
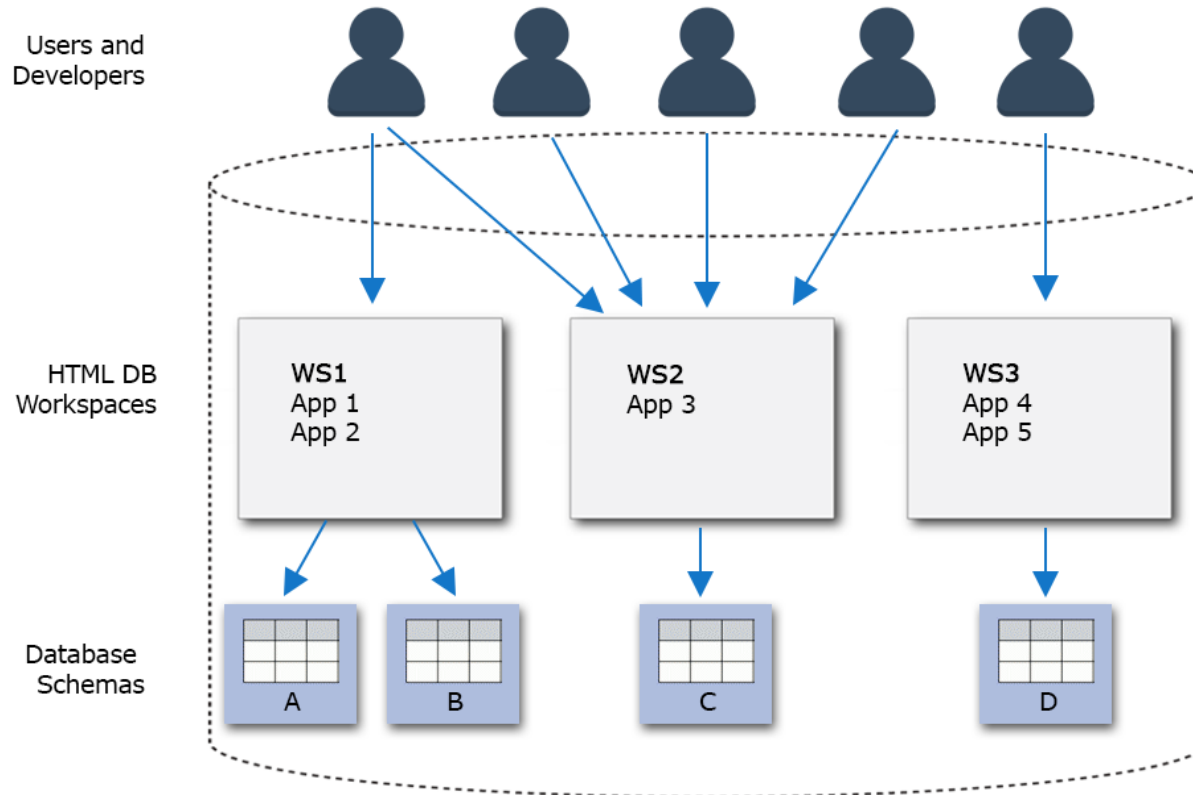
Visualize and maintain database data

Leverage SQL Skills and database capabilities

Oracle Application Express Installation

Application Users

Free! Yes, Free! No Catch.

- Already part of your Oracle Licences

- ORDS to Install
- APEX Schemas will be created

- You can use APEX NOW!

- **You have Oracle FORMS, You have ORACLE APEX.**

Co-Existence!

If it works, don't fix it!

Why replace when you can Extend!

- Forms functionalities that exist for a long time!
- Investment over time in Oracle Forms
- Logic in the Database
- Usage of Oracle features

- Business users are used to Forms
- Deployed .FMX (A lot!)

- Don't want to train everyone on a new technology
- No Big Bang approach will work, too expensive
- Want to evolve toward something modern

Old and New can work together!
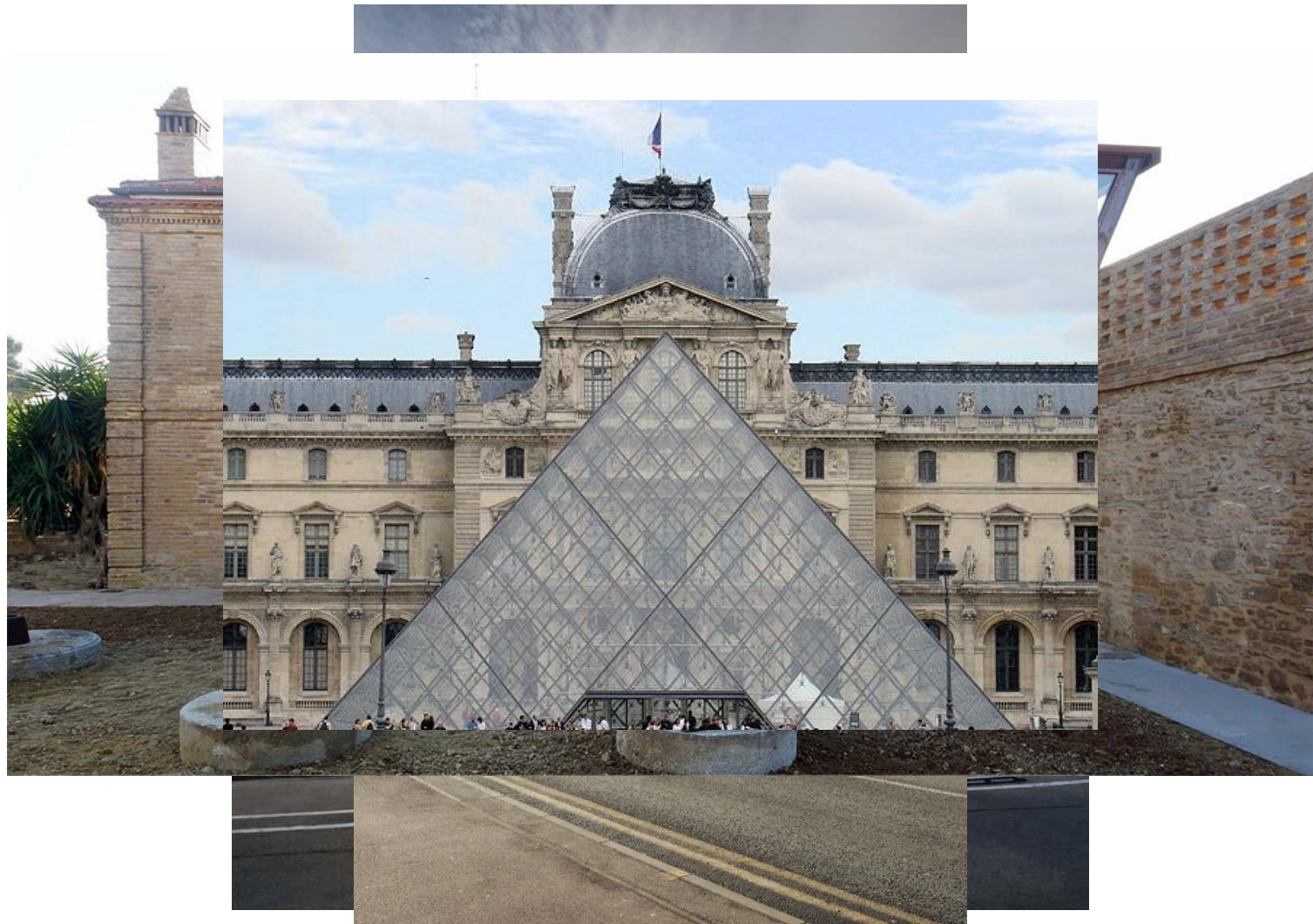
Not that different…

- Same Technology: Oracle, PL/SQL
- Procedures, Packages, Views, Tables, Indexes…
- Database centric / Data Model
- Procedural development approach

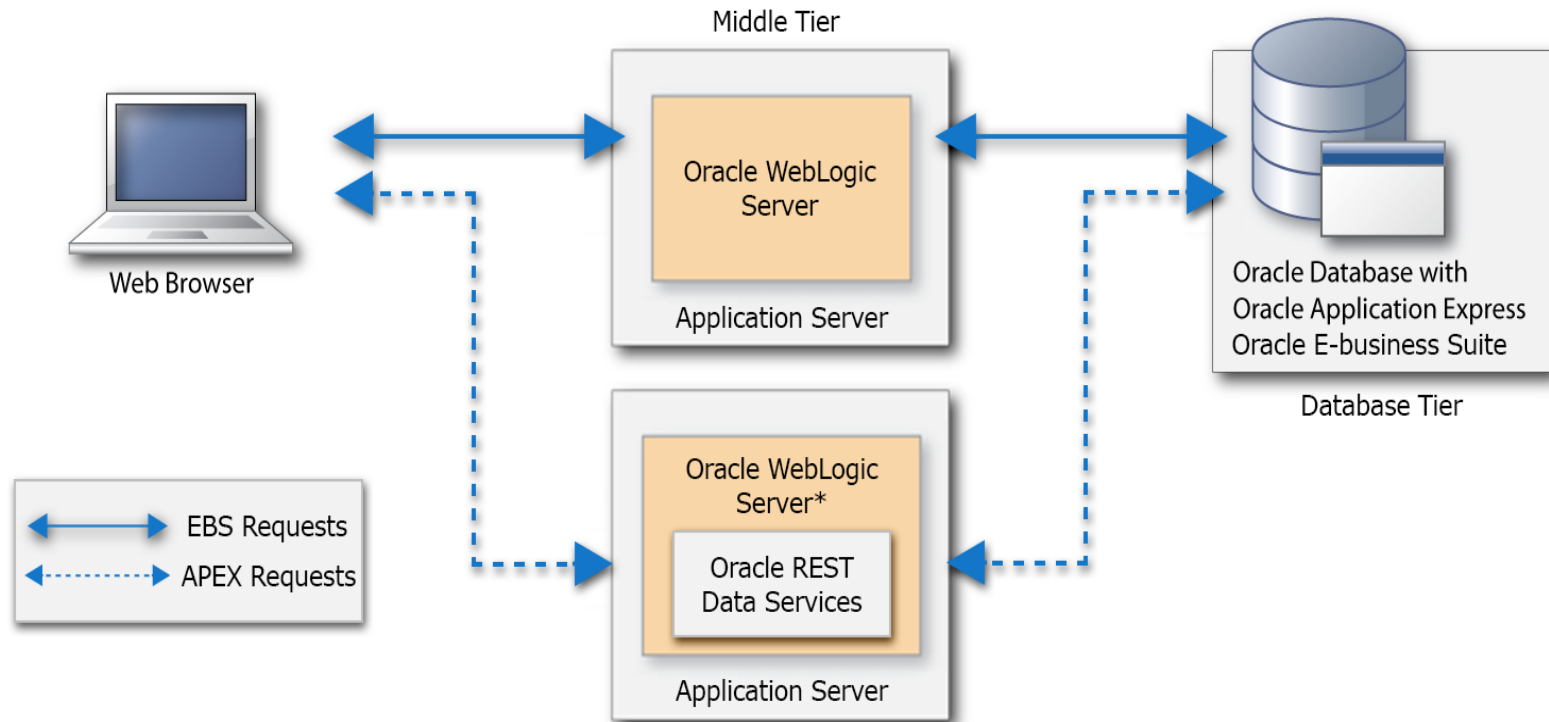- Blocks = Regions
- Triggers = Validations
- Navigation = Branching

Forms vs APEX

OPTIONS	FORMS	APPLICATION EXPRESS
4GL DECLARATIVE	Yes	Yes
4GL LANGUAGES	SQL and PL/SQL	SQL and PL/SQL
INTERFACE USER	Java	HTML
PAGE LAYOUT	Windows / Canevas	Pages / Regions
CLIENT CONTROL	Form triggers	JavaScript (jQuery) and AJAX
WEBSERVICES	Yes	Yes (better with ORDS)
GRAPHICS	BI Beans	HTML5 and Oracle Jet
LOCKING	Pessimistic, optimistic, customized	Optimistic
DB CONNECTIONS	Synchronous	Asynchronous (Connection pools)
CONCURRENT USERS	Connection maintained by Oracle users	Connection by page / request
ARCHITECTURE	3 Tiers	3 Tiers (App and DB together)

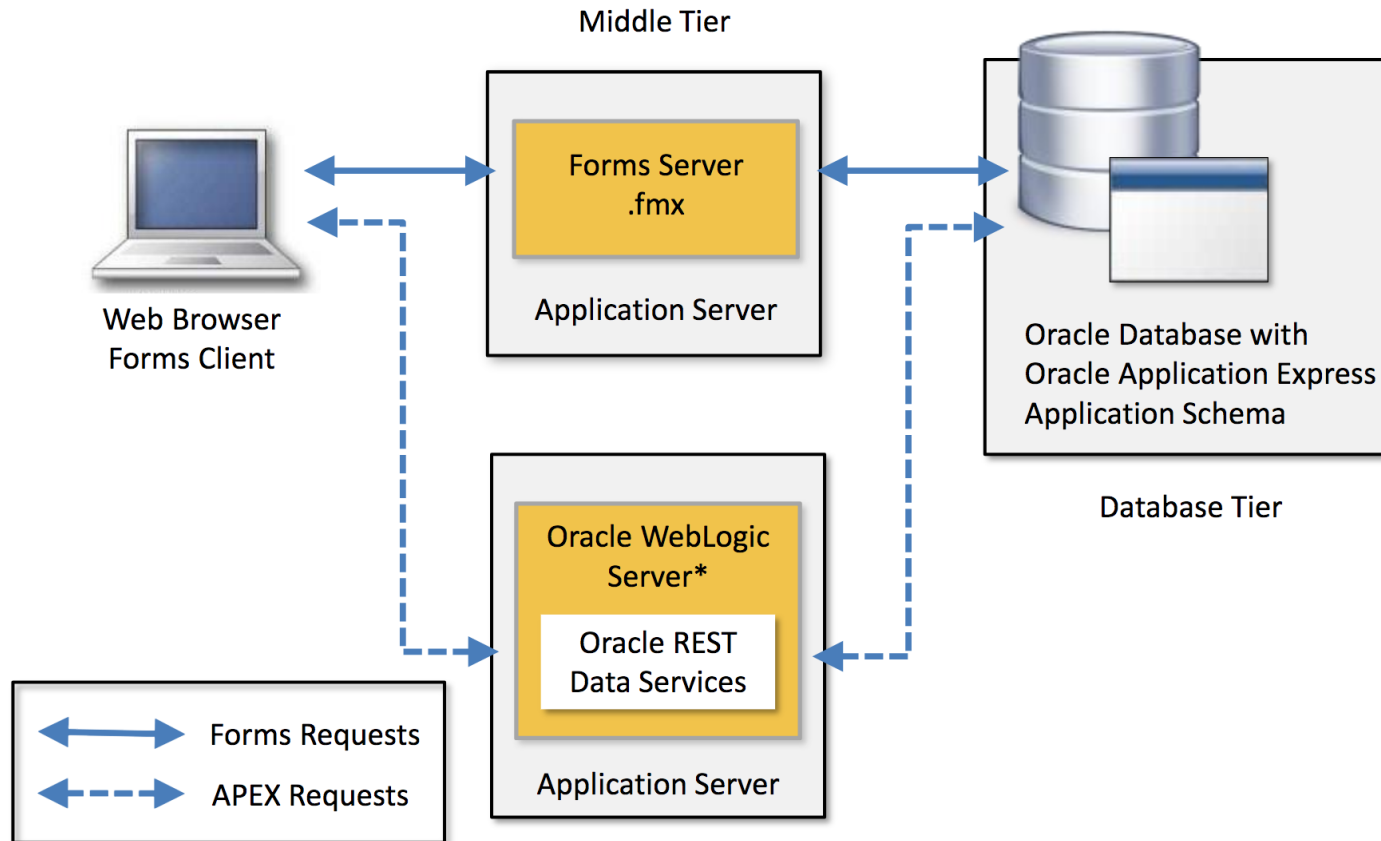# EBS Extensions… same thing.

- We do the same with EBS!

- Why?

  - Simplifies EBS deployments and upgrades

  - Adds new functionalities

  - Secured

  - Modernization

  - EBS built with Java and Forms

APEX EBS Integration

APEX FORMS Integration

Middle Tier

Forms Server
.fmx

Application Server

Web Browser
Forms Client

Oracle WebLogic
Server*

Oracle REST
Data Services

Application Server

Oracle Database with
Oracle Application Express
Application Schema

Database Tier

Forms Requests

APEX Requests

Apache Tomcat can be substituted for Oracle WebLogic Server

Bonus!

Easy for Forms Developers

- Learning APEX is easy for a Forms Developer

- Why?

  - APEX has a lot of similarities with Forms

  - APEX is Declarative, i.e. Web stuff can be easily created with wizards

  - APEX is PL/SQL-based

  - APEX uses the Oracle database

  - Re-use existing development experience

  - Fast Learning Curve: Able to start using APEX within weeks, not months

  - Procedural development. Not Object-Oriented. No Java.

- Easiest route to go from Client-Server to Web technologies

You can run APEX with Forms NOW !

APEX in a Forms database

- No need of integration ?

- Create webservices

- Create Dashboards

- Use the same database

- Modernize your application Now !

- What if I need more integration ?

How to Fully Integrate?

Two pieces for full integration

You can run APEX TODAY on your Forms Database. But, if you want a full integration you need :

Authentication

Who you are

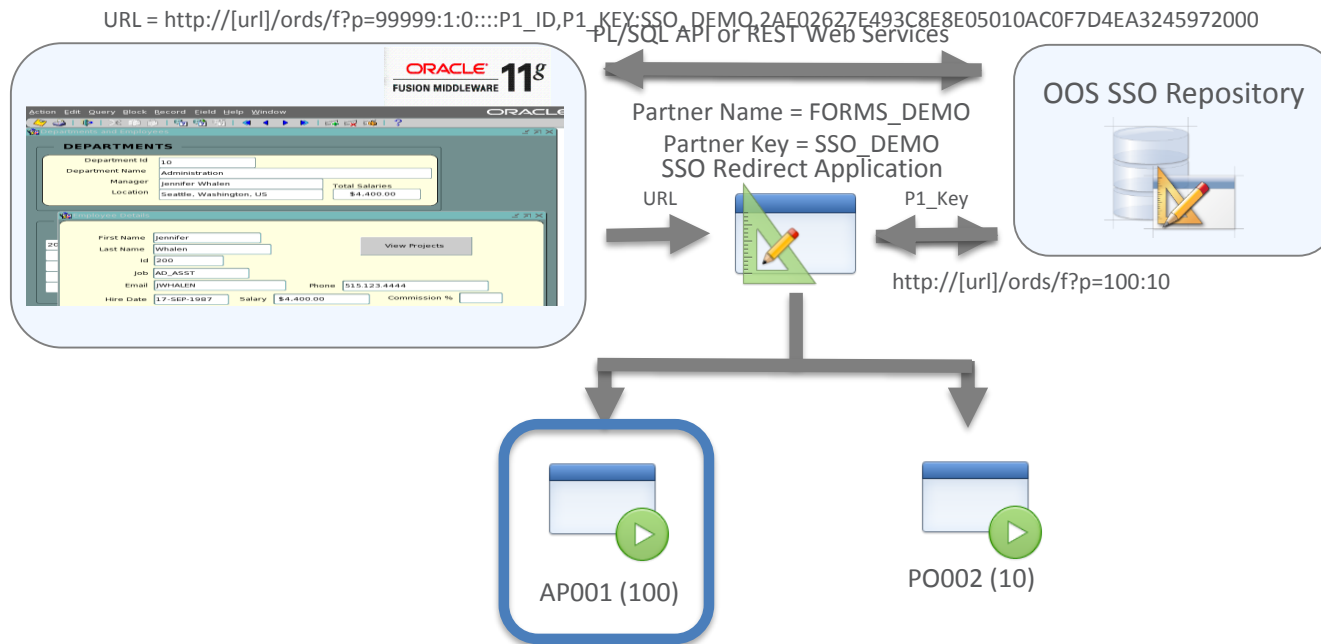**Authorization**

What you can do

Authentication i.e. SSO

Be authorized… seamlessly!

- Open the door, it's me!

- Go to APEX without having to Re-Login using the same username

- Two options for SSO:
  - Products on the market like Oracle Access Manager - OAM
  - Custom SSO

Insum SSO High Level Execution

URL = http://[url]/ords/f?p=99999:1:0::::P1_ID,P1_KEY:SSO_DEMO,2AE02627E493C8E8E05010AC0F7D4EA3245972000

PL/SQL API or REST Web Services

OOS SSO Repository

Partner Name = FORMS_DEMO
Partner Key = SSO_DEMO
SSO Redirect Application

URL

P1_Key

http://[url]/ords/f?p=100:10

AP001 (100)

PO002 (10)

Authorization i.e. User Roles

Security Access / User Roles

- Once in tha House (Authenticated via SSO), you have to check what the user can do and see.

- Possible to use existing custom authorization from Forms application (Table based)

- Authorization in Forms usually uses Database Roles

- For better integration and less changes, we can use DB Roles with APEX also.

Oracle 12.2 Real Application Security - RAS
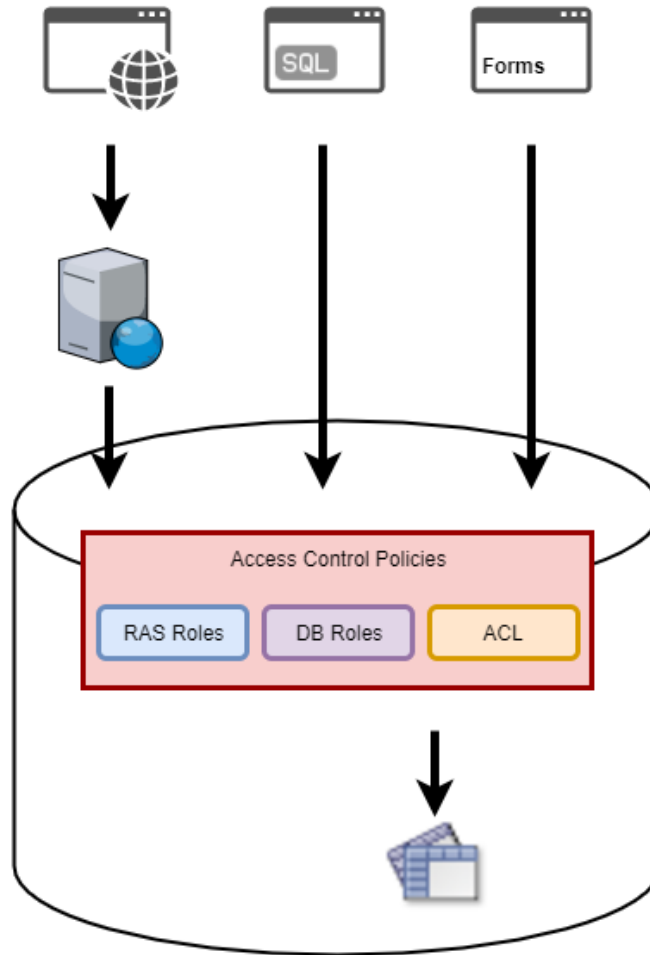
RAS Strategy

1. Move all application users' database accounts to RAS accounts.
2. Create a RAS role for each DB role.
3. Grant DB role to corresponding RAS role.
4. Grant RAS roles to RAS users.
5. Create additional RAS roles if necessary.

6. In APEX:
   a. Create an authentication scheme that uses database accounts
   b. Create authorization schemes on RAS roles.
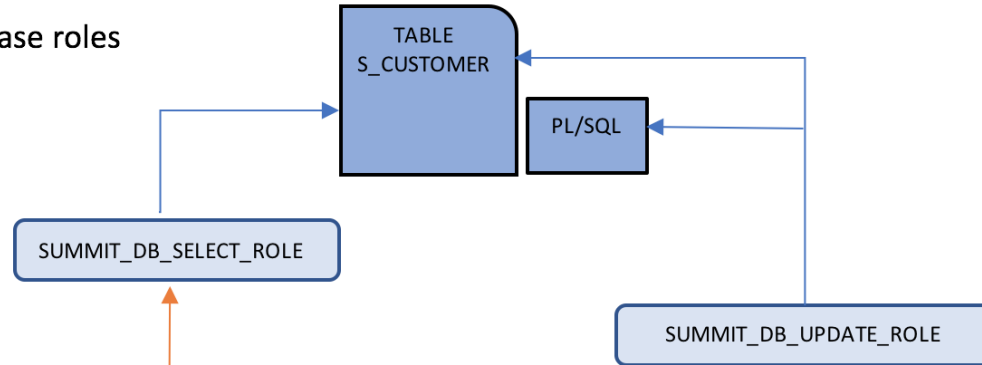   c. Access to data is managed using RAS roles.

RAS Strategy Benefits

- Maintains security at the data level

- The same set of policies are applicable regardless of how the application user accesses the data

- RAS ACLs allows fine-grained access (VPD)

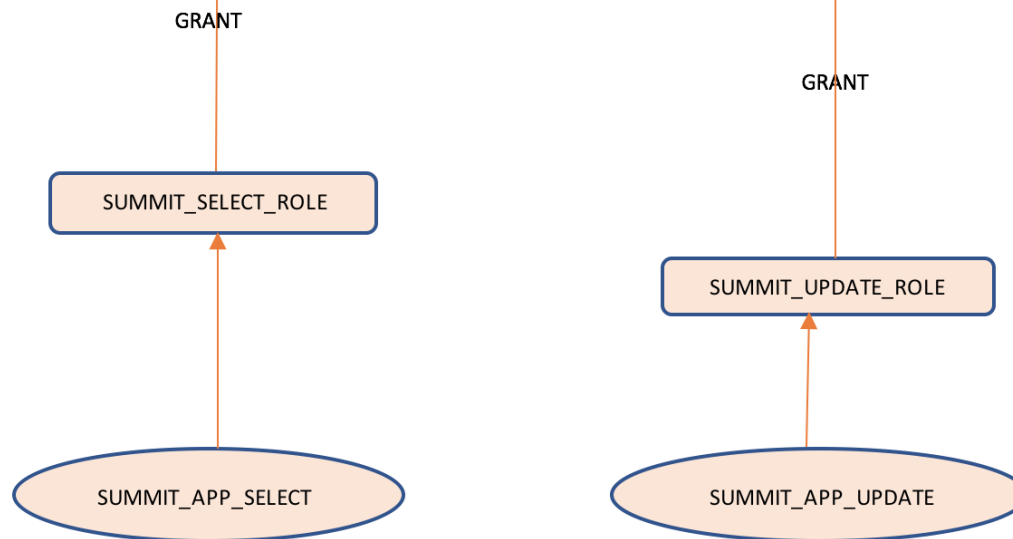- No Impact on existing Oracle Forms.

You won't believe your eyes!

DB Roles and RAS Roles

Security using database roles

TABLE
S_CUSTOMER

PL/SQL

SUMMIT_DB_SELECT_ROLE

SUMMIT_DB_UPDATE_ROLE

Security using RAS

GRANT

GRANT

SUMMIT_SELECT_ROLE

SUMMIT_UPDATE_ROLE

SUMMIT_APP_SELECT

SUMMIT_APP_UPDATE

RAS Script Example

```
- Create RAS roles
exec sys.xs_principal.create_role(name=>'summit_select_role',enabled=>true);
exec sys.xs_principal.create_role(name=>'summit_update_role',enabled=>true);

- grant the db role to the ras_role
grant summit_db_select_role to summit_select_role;
grant summit_db_update_role to summit_update_role;

- Create RAS users - summit_app_select
exec sys.xs_principal.create_user(name=>'summit_app_select',schema=>'summit');
exec sys.xs_principal.set_password('summit_app_select','summit_app_select');
exec sys.xs_principal.grant_roles('summit_app_select','xsconnect');
exec sys.xs_principal.grant_roles('summit_app_select','summit_select_role');

- Create RAS users - summit_app_update
exec sys.xs_principal.create_user(name=>'summit_app_update',schema=>'summit');
exec sys.xs_principal.set_password('summit_app_update','summit_app_update');
exec sys.xs_principal.grant_roles('summit_app_update','xsconnect');
exec sys.xs_principal.grant_roles('summit_app_update','summit_update_role');
```

Wow, it works!

- DEMO APEX Extensions

  - SSO

  - RAS

Odd Couple, but Good Friends!

Summary

- Why wait? **You have Oracle Forms, You have APEX !**
- Available NOW! No-Cost Option!
- Reuse your PL/SQL Knowledge
- Quickly add new functionalities
- Add reporting capabilities (IR, IG, Dashboards)

- Authentication (SSO)
- Authorization (Oracle 12.2 RAS / Database Roles)

- APEX Administration book (Apress.com)
- www.insum.ca/blogs
- Twitter: @Fr4ncis

Collaborate 18 Sessions
(Booth 1151)

- **APEX / EBS SIG (10335)**

4:15 PM Apr 23, 2018 Monday – Breakers B

- **Migrating Oracle Discoverer to Oracle Application Express (APEX)...Automagically (10458)**

8:30 AM - Wednesday - Banyan E

- **Mobile Application for E-Business Suite Made Easy With Application Express (10297)**

1:15 PM – Wednesday - Breakers E

- **What Every DBA Needs to Know about Oracle Application Express (APEX) (1450)**

4:15 PM - Wednesday - Palm A

- **Application Express and the Colors of Enterprise Resources Planning on the Cloud (10298)**

1:00 PM - Thursday - South Seas H

Thank You! Questions?

@Fr4ncis