The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
Oracle Fusion Middleware 11g: Next-Generation Platform for Oracle Applications

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Director Product Management
Oracle Fusion Middleware

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Enterprise Architect
Oracle

Purna Pidaparti
Staff Manager, Corporate IT
Qualcomm
Agenda

- FMW 11g
  - FMW 11g – new features for Apps
  - Oracle Apps – enhancements that FMW can leverage

- FMW 11g Solution Patterns with Oracle Apps

- FMW 11g @ Qualcomm
Fusion Middleware 11g for Oracle Applications

Nishit Rao
Oracle Fusion Middleware

- User Interaction
- Enterprise Performance Management
- Business Intelligence
- Content Management
- SOA & Process Management
- Identity Management
- Application Grid

Development Tools

Applications
Middleware
Database
Infrastructure
Drivers for FMW adoption in Apps

New Features
• Same features used to build Fusion Apps, available now.
• Takes lessons from Apps tech stacks – Approval, Rules, Scheduler
• Adds Standardization, Reusability and multi-modal support (e.g. ADF Mobile)

Productivity
• Easy to learn (not complex J2EE)
• Drag & Drop Assembly
• Pre-built solutions (e.g. AIA, BI Apps)

Interoperability
• Web Services & Portlets
• Certified configurations
• Embedded components (e.g. BI Publisher)

Strategic
• Future-proof – Align your technology with Oracle’s strategic platform

Fusion Middleware Solutions for Apps Unlimited
## Apps Unlimited Adoption of Fusion Middleware

<table>
<thead>
<tr>
<th>Key Technologies</th>
<th>E-Business Suite 11i+</th>
<th>Peoplesoft PeopleTools 8.48+</th>
<th>Siebel v7.8, 8.0, 8.1.1</th>
<th>JD Edwards E1 Tools 8.98+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOA and BPM</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adapter or Native Web Services Support</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
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<tr>
<td>Oracle Service Bus</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
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</tr>
<tr>
<td>Oracle BPEL Process Manager</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
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</tr>
<tr>
<td>Oracle Service Registry</td>
<td>Supported</td>
<td>Supported</td>
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<td>Supported</td>
</tr>
<tr>
<td>Oracle Enterprise Repository</td>
<td>Evaluating</td>
<td>Evaluating</td>
<td>Evaluating</td>
<td>Evaluating</td>
</tr>
<tr>
<td>AIA Foundation Pack / PIP</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
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<tr>
<td>Business Activity Monitoring (BAM)</td>
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<tr>
<td><strong>BI and EPM</strong></td>
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<tr>
<td>Oracle Data Integrator</td>
<td>Supported</td>
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<tr>
<td>Oracle BI Publisher</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported (8.x)</td>
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<td>Oracle BI EE</td>
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<tr>
<td>Oracle BI Dashboards</td>
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<tr>
<td>Oracle BI Applications</td>
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<td><strong>E2.0 : ADF, WebCenter, and ECM</strong></td>
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<tr>
<td>Re-design Home Page (ADF/WebCenter)</td>
<td>Evaluating</td>
<td>Roadmap</td>
<td>Supported</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Portlet support in WebCenter</td>
<td>Evaluating</td>
<td>Supporting</td>
<td>Evaluating</td>
<td>Roadmap</td>
</tr>
<tr>
<td>Universal Content Management</td>
<td>Evaluating</td>
<td>Supporting</td>
<td>Supporting</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Imaging and Process Management</td>
<td>Evaluating</td>
<td>Supporting</td>
<td>Evaluating</td>
<td>Supporting</td>
</tr>
<tr>
<td><strong>Manageability: EM, Identity, OS</strong></td>
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<tr>
<td>Oracle Enterprise Linux</td>
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<tr>
<td>Oracle Virtual Server</td>
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<td>Supported</td>
<td>_supported</td>
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<tr>
<td>Oracle HTTP Server and Oracle OC4J</td>
<td>Supported</td>
<td>Supported OHS</td>
<td>Supported (OC4J only)</td>
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<tr>
<td>Oracle Identity Management</td>
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<td>Enterprise Manager Plugin (EM)</td>
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<tr>
<td>Secure Search Adapter (Secure Search)</td>
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<td>Roadmap</td>
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<tr>
<td><strong>Weblogic</strong></td>
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<td>Weblogic</td>
<td>Evaluating</td>
<td>Supported</td>
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</tr>
</tbody>
</table>
New Approach to Solutions on Oracle Applications

OLD Model

- Application
- Customizations
- P2P Interfaces (Batch)

Model with FMW

- Integr. Platform (real time)
- Extensions
  - Web Services, Portlets
  - ADF
  - WebCenter
  - ECM
  - BI
  - SOA
# ADF for AppsUnlimited

<table>
<thead>
<tr>
<th>New 11g capabilities</th>
<th>Apps customer benefits</th>
</tr>
</thead>
</table>
| **ADF Faces (Rich AJAX UI)** | • Rich UI  
• Prebuilt Drag and Drop Assembly.  
• Reusable, Extensible, Standards based |
| **ADF Task Flows** | • Apps Tasks Automation (Pick, Pack, Ship)  
• Declarative/ 4GL approach  
• Reduces need for J2EE  
• Easy to link with Business Process |
| **ADF Mobile** | • Define once, deploy anywhere  
• Highly efficient |
| **ADF Data Controls** | • Embedded Analytics meets Rich UI.  
• Separate UI from Data Sources using standards (JSR 227)  
• Go against Data, Web Services, BI, Essbase. |
### FMW 11g SOA for AppsUnlimited

<table>
<thead>
<tr>
<th>New 11g capabilities</th>
<th>Apps customer benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCA</strong></td>
<td>• Single design-time, runtime, Management</td>
</tr>
<tr>
<td>• Single design-time, runtime, Management</td>
<td>• Easier to build complex apps use cases</td>
</tr>
<tr>
<td><strong>Rules</strong></td>
<td>• Decision Tables UI</td>
</tr>
<tr>
<td>• Decision Tables UI</td>
<td>• Runtime changes via Composer</td>
</tr>
<tr>
<td><strong>Human Workflow</strong></td>
<td>• Mix of EBS AME and Psft Workflow features.</td>
</tr>
<tr>
<td>• Mix of EBS AME and Psft Workflow features.</td>
<td>• Complex Approval Hierarchies</td>
</tr>
<tr>
<td><strong>BAM (J2EE-based)</strong></td>
<td>• Common tech stack across application and FMW component</td>
</tr>
</tbody>
</table>
Support for Complex Approvals in Human Workflow

Serial / Parallel Approval

Approval Hierarchies

Rich contextual data for email approval
Business Rules for Decomposing Order

Decision Tables to for Complex Rules
# Why is now a good time for FMW?

<table>
<thead>
<tr>
<th>Application</th>
<th>FMW Interoperability/ Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBS</td>
<td>• EBS interfaces now natively exposed as web services (12.1) with ISG.</td>
</tr>
<tr>
<td></td>
<td>• PL/SQL and Business Events supported.</td>
</tr>
<tr>
<td>SEBL, PSFT, JDE E1</td>
<td>• Already well service-enabled in recent versions; no need for adapters</td>
</tr>
<tr>
<td></td>
<td>• JDE Tech Foundation (&quot;Red Stack&quot;) includes limited use license of BPEL</td>
</tr>
<tr>
<td>PSFT</td>
<td>• Pre-built BPEL Process Templates in CRM 9.0</td>
</tr>
<tr>
<td></td>
<td>• BPEL AppClasses for process invocation in Peopletools 8.48+</td>
</tr>
<tr>
<td>EBS, PSFT, JDE E1</td>
<td>• WSRP Portlets (PSFT Tools 8.48+, Portlet Generator planned for EBS12.x, FDA Portlets as WSRP for JDE Tools 8.97+)</td>
</tr>
<tr>
<td>SEBL &amp; older</td>
<td>• WebCenter integration via ADF Web Service Data Controls</td>
</tr>
<tr>
<td>versions EBS, PSFT, JDE E1</td>
<td></td>
</tr>
</tbody>
</table>
# Extending Oracle Apps with FMW

## Architecture

### Multi Channel UI
- UI Layer
  - ADF
  - WebCenter

### Automate IT and Human Tasks
- Process Layer
  - BPEL
  - Rules
  - Human Workflow
  - BAM

### Connect, Route, Transform, Integrate, Secure
- Service Layer
  - Service Bus
  - ODI
  - AIA
  - Adapters
  - OER

## Products

### UI Layer
- ADF
- WebCenter

### Process Layer
- BPEL
- Rules
- Human Workflow
- BAM

### Service Layer
- Service Bus
- ODI
- AIA
- Adapters
- OER

## Usage
- Rich UI over Apps Data.
- Collaborate with Wikis, Blogs, Group Spaces
- Mashup Application Portlets, Content….
- Deploy UI to Browsers, Mobile devices.
- Automate IT and Human Tasks
- Externalize Rules
- Create Dashboards for transactional data.
- Integrate Applications
- Connect via native web services or adapters
- Virtualize application end points as services
- Secure Services
Fusion Middleware 11g Solution Patterns for Oracle Applications

Vebhhav Singh
Standard Based Integration with Oracle Applications

**Application Integration Architecture (AIA)**

- Reduces your risk
  - Certified with Oracle Applications
  - Integrated Flows

- Pre-Built SOA
  - Avoid Point-To-Point
  - Application agnostic

- Business Process approach
  - Alignment - Business vs. IT

- Reduces your integration cost
Extending Oracle Applications

Web Center and ADF

- Meet new Business Functionality
- Better Customer Experience
- Built on open standards
- Certified with Oracle Applications
- Standard for Fusion Applications
Extending Oracle Applications

Please refer to travel compliance procedures and guidelines before submitting a travel authorization request.

- Team travel@Acme

<table>
<thead>
<tr>
<th>Description</th>
<th>Ticket for SFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>1/3/2005</td>
</tr>
<tr>
<td>Type</td>
<td>Airfare</td>
</tr>
<tr>
<td>Amount Without Exception</td>
<td>4000</td>
</tr>
<tr>
<td>Authorized Amount without Exception</td>
<td>10000</td>
</tr>
<tr>
<td>Airfare difference</td>
<td>6000</td>
</tr>
<tr>
<td>Traveller name</td>
<td>James Frost</td>
</tr>
</tbody>
</table>

**Accounting - by line item**

- Company: M1, Seattle Manufacturing Plant
- Cost Center Approver: JYOUNG, MIKG
- Activity: ACHIA, BTZBAZ, JYOUNG, MIKG
- Inter Company: MLAUSBCHER, NGERGAY
Optimize Application Upgrades with SOA

Loosely Coupled Systems

Create Order Web Service

Create Order API

Oracle SOA Suite

Get Quote Web Service

Get Quote API
End-To-End Business Visibility – Oracle BI Applications

*Complete, Pre-built, Best Practice Analytics*

- Sales
- Service & Contact Center
- Marketing
- Procurement & Spend
- Supply Chain & Order Management
- Financials
- Human Resources

Source adapters: [Oracle BI Suite Enterprise Edition Plus](#)

Order Management Analytics
Oracle Sales Analytics
Supplier Performance
Financial Analytics

and Other Operational & Analytic Sources
Real-Time Action and Business Visibility

**Leverage SOA**

**ACTION LINKS – “INSIGHT TO ACTION”**

Seamless navigation from analytical information to transactional detail

**INTEGRATED WORKFLOW**

Intelligence-driven business processes

- BPEL, ESB
- Oracle BI

**INTEGRATED WITH PLANNING AND EPMS**

View performance “in-context” with budgets and plans
Automatic User and Responsibilities Mgmt
‘Single Global Instance’ of All Users

Oracle Identity Manager

On-board, Transfer, Update, Off-board Users
Add and Remove EBS Responsibilities
Password Update and Synchronization
‘Certified’ EBS Integration

1. Pull lists of Who is in each system
2. Periodically Check for Rogue Identities
3. Remove Identities and/or Entitlements

HR & Biz Applications
‘Event-Driven’ Identity Management

Other Sources Flat Files Databases Directories

Oracle Database

User Account and Entitlements Created/Modified

Applications

Directories

Databases

Leverage Extend Automate Protect
Fusion Middleware 11g @ Qualcomm

Purna Pidaparti
Agenda

- Introduction to Qualcomm
- Relevance of FMW to our needs
- Business Case Studies
- Other FMW 11g Projects in the Pipeline
- Q&A
Introduction to Qualcomm

- San Diego based Technology company with 15k+ employees and over $11billion in revenues (2008)
- Pioneer/Leader in CDMA wireless technologies
- On Fortune’s “Most Admired Companies” since 2002, “100 Best Companies” since 1998
- Computerworld’s “100 Best Places to work in IT” since 2004
- Strong Oracle foot print
  - Applications: EBS, Agile, Hyperion (conversion from PeopleSoft, planned deployment in 2010)
  - Technologies: FMW -- ADF, SOA suite, OBIEE, WebLogic, OWSM etc.
Relevance of FMW to our Needs

ADF:
- Need to embrace 4GL → J2EE, without needing to be J2EE experts; remove as much low-level programming as possible
- Provide consistent page design
- Need to quick development of CRUD Apps on top of Oracle ERP
- Preference to leverage pre-built Apps & Frameworks

SOA Suite:
- Cross-application integrations need a hot-pluggable integration tool in Jdeveloper (BPEL meets this need)
- Need a user-facing operational monitoring tool (BAM)

OBIEE:
- Need for enterprise level reporting tool for both Operational and Analytical reporting requirements
Business Case Study #1: The beginnings!
Interactive Qualcomm (iQ)

- iQ was built in 2000 and converted to ADF 10g in 2007 (we were one of the early adopters)

- Extranet facing Application to provide business specific enhancements on top of Oracle EBS

- Customers use iQ to create/track Sales Orders, RMAs, Provision devices etc.

- Close integration with Oracle EBS’ O2C implementation; Most integration with EBS is based on out-of-box APIs
Business Case Study # 2: Qualcomm EDF Project

- EDF = Equipment Data File. Contains data related to each phone that needs activation

- EDF data must be transmitted to a wireless service provider, prior to the phone being activated

- Used mainly for prototype phones used by Engg and R&D

- For devices built outside standard manufacturing systems, data accuracy can be poor
  - Results in project delays and lost potential business opportunities

- Significant inefficiencies in the manual process
Business Case Study #2 contd …
IT’s Proposed Solution -- using FMW 11g

- Reduce IT involvement in the equipment provisioning process
- Facilitate user self service through ADF 11g application
- Users can submit their own data
- Application data validates against known business rules
- Provide embedded reports on the data
- Ability to track/audit user submissions
ADF 11g Solution Architecture:
*AppServer* - WebLogic/Linux, *Database on Oracle 10g*
## Solution Choice Considerations: ADF 11g vs OA Framework (OAF)

<table>
<thead>
<tr>
<th>ADF 11g</th>
<th>OAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built on forward looking technologies for Fusion Apps. Uses advanced, open source based standards.</td>
<td>Provides seamless integration with the EBS Apps through AOL menus, security, look and feel, flexfields, attachments, etc.</td>
</tr>
<tr>
<td>Great for building standalone Apps and integrate with EBS using the other FWM tools.</td>
<td>Great for minor extensions of EBS (particularly in self-service Apps), particularly if the needs are closely tied into EBS functionality.</td>
</tr>
</tbody>
</table>

**Commonality:** Business Components for Java (BC4J) becomes ADF Business Components (ADF BC). Tip for OAF dev: Business logic, validations etc. in BC4J objects makes it easy to move to Fusion; avoid too much code in the Controller layer.
Solution Choice Considerations:
ADF 11g vs ADF 10g

• Significantly Enhanced Feature Set in 11g
  – Significantly enhanced ADF Faces components
  – Page Templates
  – ADF Task Flows
  – Skinning
  – Oracle Metadata Services – runtime personalization
  – Etc.
General Solution Design Considerations in ADF 11g

- Declarative development - The goal was to not use managed beans
- Do ADF the way ADF was intended to be done
- Create re-usable components whenever possible
  - Extendable base classes
  - Page templates
  - ADF task flows
  - => Reusable .jars
Development Effort

Resources:
- 2 FTEs (Java, PL/SQL and little Web Design skills)

Effort:
- Design/Development*/Testing/Deployment → 3/10/3/2 weeks
- *Development includes the learning curve

Project Mgmt Methodology:
- Used Agile Scrum’s iterative Project Mgmt Methodology

Deployment Architecture:
- 2 Clustered Apache HTTP servers - these route requests to the WLS cluster
- 2 Clustered WLS 11g App servers running on Linux
- JRE is JRockit 1.6
- Novell’s eDirectory for authorization and authentication
- JNDI datasource for DB connection management
Development Lessons Learnt

- Expect steep learning of 6-8 weeks. Budget time to learn; engage with an experienced solution partner
- Start with the Oracle ADF 11g Manual
- Do things the ADF way
  - Need to learn to think ADF, not try to relate ADF to what you might already know
- Scrum development methodologies worked well with ADF in this case
- Read the deployment guidelines carefully, particularly around security and App Module parameters
Other FMW 11g Projects in Pipeline

- Enhance the ‘EDF’ application to integrate with EBS and the wireless service provider, using Oracle SOA Suite

- ADF 11g application for hand held scanners -- to do Inventory Issues in Stock Rooms

- Light-weight ADF 11g application for Automated Order Entry

- OBIEE implementation projects

- BPEL/BAM deployments projects
ADF 11g Application for Hand-Held Devices (WIP)

Login: Authenticated w/ LDAP

Setup: User specifies txn params
- Location (drives Subinv and Locator)
- Project
- Issue to dept or emp.

Issue: User enters item and qty

Notes:
1. Device is a Motorola MC55 running on wifi
2. Device runs Windows Mobile 6.1
3. Pages developed using Trinidad components
Summary

- FMW 11g has a breadth of features to create extensions and integrations to existing Oracle Applications

- Features are in use by Oracle Dev to create new packaged apps

- Key Solutions with 11g are
  - SOA/Integration
  - Rich UI extending Oracle Apps
  - Composite Apps and Mashups.
  - Weblogic Server Consolidation
Q&A

Contacts

Nishit Rao  nishit.rao@oracle.com
Vebhhav Singh  vebhhav.singh@oracle.com
Purna Pidaparti  purnap@qualcomm.com
<table>
<thead>
<tr>
<th>Topic</th>
<th>Date and Time</th>
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<tr>
<td>SOA 11g with EBS R12.1 (with ISG)</td>
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<td>BPM with Peoplesoft</td>
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<td>Wed, Oct 14, 1:15 – 2:15 PM</td>
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<td>IDM with EBS &amp; Peoplesoft</td>
<td>Mon, Oct 12, 11:30 – 12:30 PM</td>
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<td>Tue, Oct 13, 11:30 – 12:30 PM</td>
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<tr>
<td>AIA with EBS</td>
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<tr>
<td>WebCenter with Peoplesoft</td>
<td>Tue, Oct 13, 2:30 – 3:30 PM</td>
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<td>SOA 11g with Siebel</td>
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<td>SOA 11g with Peoplesoft</td>
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<tr>
<td>ADF with Peoplesoft</td>
<td>Thu, Oct 15, 10:30-11:30 AM</td>
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</table>
**Getting Started**
- Service Enabling Oracle E-Business Suite with Oracle Fusion Middleware - 10 minute replay
- Oracle Fusion Middleware - A Crash Course for Oracle E-Business Suite Developers

**How-To Tutorials (Oracle By Example's)**
- BI-PUBLISHER: Creating Reports in Oracle E-Business Suite Using BI Publisher
- BPEL: BPEL for Oracle E-Business Suite
- ESB: Propagating E-Business Suite Business Events with Enterprise Service Bus
- WEBCENTER: Integrating Oracle E-Business Suite in a WebCenter Application

**Articles**
- BI-PUBLISHER: BI Publisher Standards [Mar-08]
- BPEL/BAM: Developing an Error Handling Framework [Sep-08]
- BPEL: Searching BPEL Processes using Custom Business Key [Feb-09] NEW
- BPEL: Using R12 TOA Business Object APIs with BPEL Process Manager [Mar-09]
- BPEL: Business Event Subscriptions with Custom Payloads [Mar-09]

**Blogs**
- Oracle Fusion Middleware for Oracle E-Business Suite

**Find Best Practice Centers online**

```
Best Practice Center EBS JDE Siebel Peoplesoft
```

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