



COLLABORATE17

TECHNOLOGY AND APPLICATIONS FORUM
FOR THE ORACLE COMMUNITY

Using Modern Web Development Technologies to Optimize WebCenter Portal Performance

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Session ID: 828

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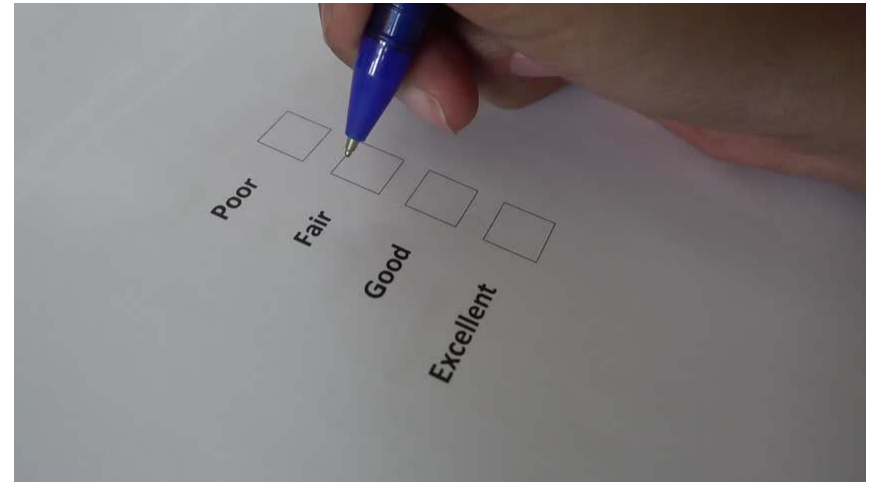
#C17LV

Agenda

- What causes poor portal performance?
- Technologies for portal optimization
 - Single Page Applications
 - Portal Solution Accelerator
 - Coherence
 - Redis
- Questions
- Contact info

Technologies Impacting WebCenter Portal Performance

- Identity Management / Security
- Oracle HTTP Server
- Integrations
- Database
- **Portal App Server**
 - ADF taskflows



ADF - Major Reason for Poor Performing Portals

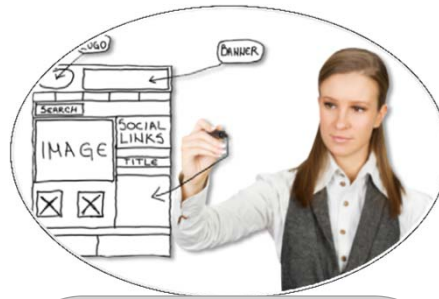
Pure ADF-based portals suffer from poor performance, limit front-end (UX) development, and are time and cost intensive



Performance

- Heavy Javascript libraries
- Backend overhead
- Server side rendering
- Sequential taskflow rendering

More users = more lag



Dev Limitations

- No control over HTML output
- New taskflows take weeks to develop
- 6 taskflows per page
- 3 to 6 month ramp up for new developers

More code ≠ Better UX



High Costs

- Frequent downtime due to Jdeveloper code testing
- Custom development to make mobile ready
- Lack of adoption
- Limited ROI

Pure ADF = \$\$\$



Technologies for portal optimization

Single Page Applications

Modular Single Page Application (SPA)

ADF Taskflows - Exposing Microservices



ADF Front End Issues

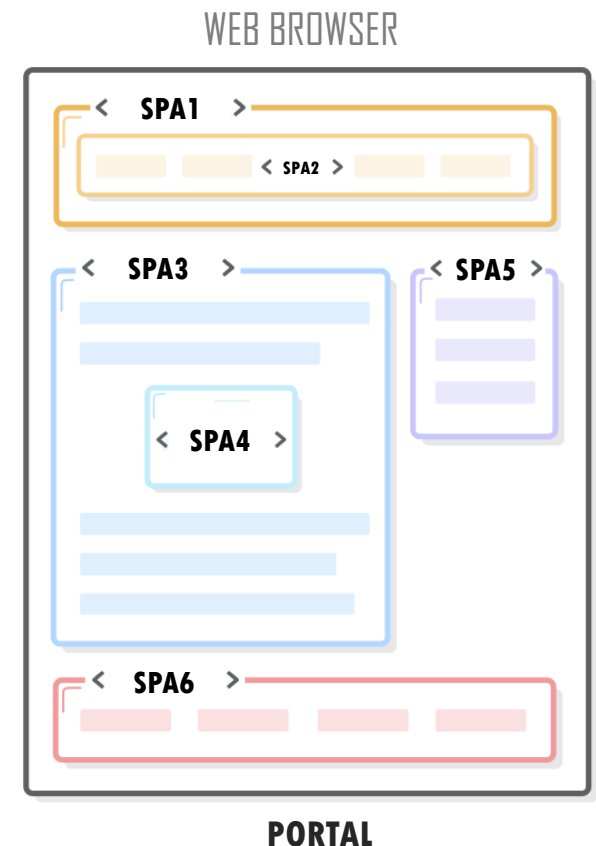
- Server Event driven architecture (Slow...)
- Partial Page Refresh (large server/client response)
- Difficult to customize OOTB UI to create complex visual elements (ADF Tag Lib)
- Developer ramp up time (3-6months)

What Is SPA?

- Self contained front end JS Application (JS, CSS, HTML resources)

Why use SPA design with ADF?

- Light JSON server communication
- UI Flexibility (html,css, javascript)
- Less server load (client side handled logic)
- Forget redeployments... (Simply upload and test)



ADF and Modular SPA Taskflows Coexistence

The screenshot displays a user dashboard for Jack Nicolas, Chief Tech Officer. The dashboard is divided into several sections:

- Left Sidebar (ADF Taskflow):** Contains user profile, 'My Wallet' (My links, My search, My documents), and 'My Private Portfolio' (Drop files here, Click here to browse, View Portfolio Workspace).
- Top Center (Webcast):** 'Next-Gen Enterprise Content Management in the Cloud' by Oracle.
- Recent Study Documents and Communications:** Lists various documents and communications with filters and 'View All' links.
- Marketing Dashboard:** Features a 'Revenue by Year' bar chart and a data table.
- Right Side (SPA Taskflow):** Includes 'Top Trending Videos', 'NEW INNOVATIONS', 'My Apps' (with icons for RACI, Muskie, Rave, CAR, ICONK, PSFT, Livelink, OMR, PeopleSoft, Livelink, jen, OpenAIR, Medidata CTMS, CRM, Medidata, Clinical Analyt..., FIRECREST), 'Events', and 'Announcements'.

Two blue arrows point to the right side of the dashboard: one from the 'ADF Taskflow' label pointing to the 'My Private Portfolio' section, and another from the 'SPA Taskflow' label pointing to the 'My Apps' section.

	2010	2011	2012	Grand Total
Biotech	827741.9	8163172.1	8759386.0	25500000.0
FunPod	7239998.0	7300893.0	7963107.0	22500000.0
HomeView	7966599.2	7239934.0	8777306.2	23900000.0
Total Products	23500000.0	23000000.0	23500000.0	70000000.0

Consume ADF taskflows and SPA taskflows on the same page

Configure SPA Module Taskflow Component Properties

Component Properties: Fishbowl Single Page Applicati...

Parameters | Display Options | Style | Content Style | Events

Enable Frontend Cache ▼

Enable Multilingual ▼

Frontend Cache GUID recentNews ▼

* Template MyComponent/recentNewsTpl.js ▼

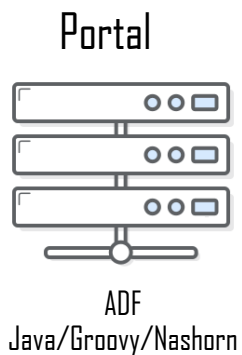
Template Parameters resultCount=10 ▼

Apply OK Cancel

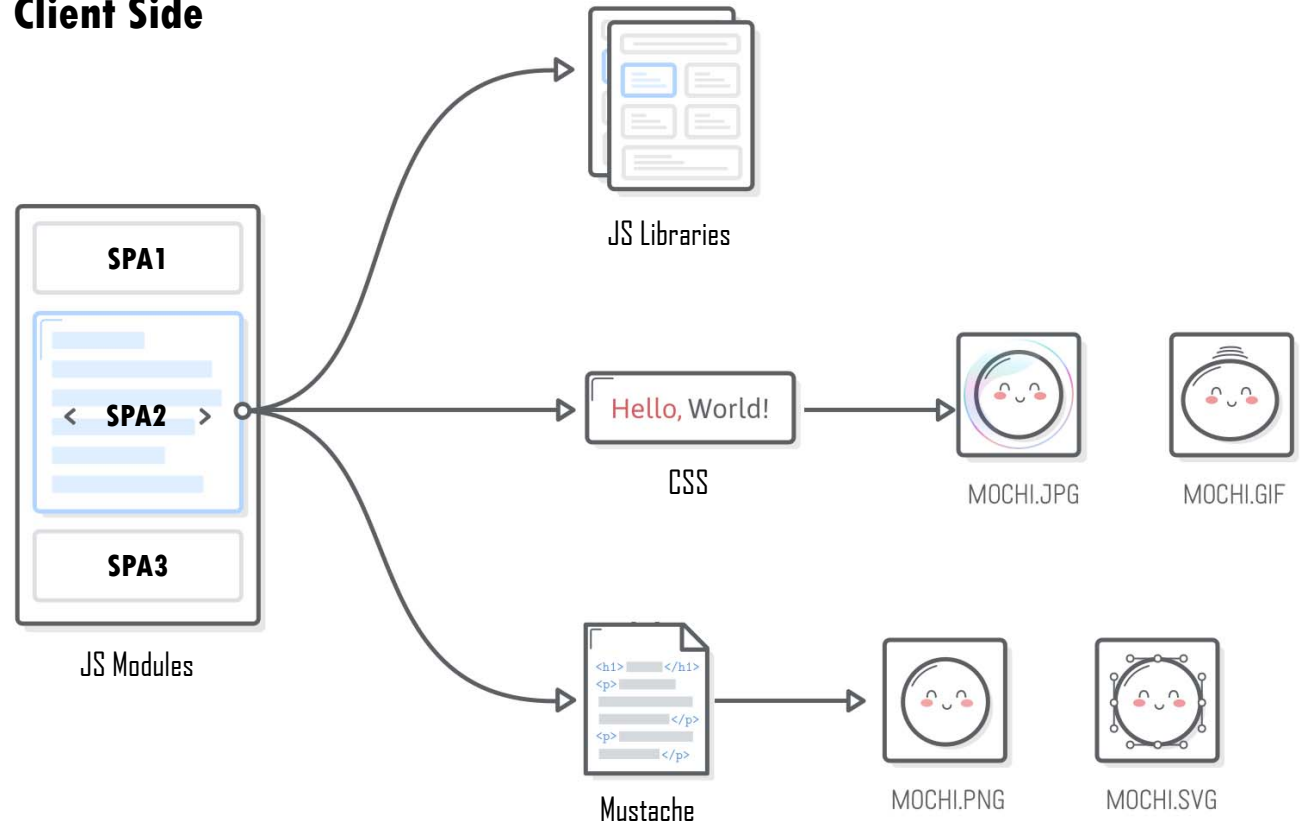
SPA Resource Loading Overview

ie - Recent News Module

Server Side



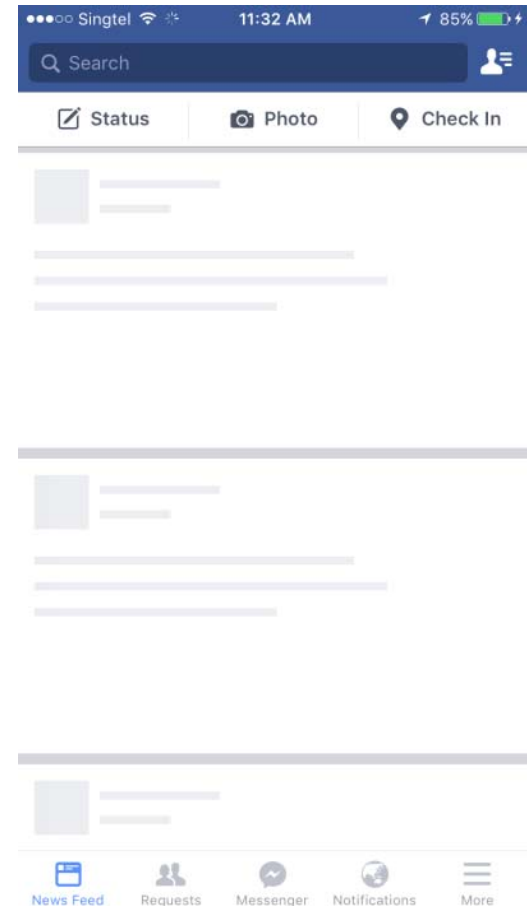
Client Side



Load Order – Skeleton Screens

Facebook, LinkedIn

- Instant page load (Framework 100ms)
- SPA Modules load in order
- Image assets, scripts only requested when viewport screen is in place
 - (Lazy Loading, Virtual DOM)
- Mobile First Design & Architecture Approach
 - cache UI & Refresh after generation



Pure ADF vs. Modular SPA

Pros/Cons Comparison

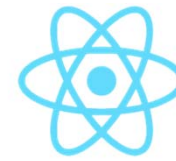
	Pure ADF	Modular SPA Taskflow
Pros	<ul style="list-style-type: none">• Declarative, drag and drop• Little front end development experience needed• Oracle standard• No UI cross browser device testing required	<ul style="list-style-type: none">• Full frontend HTML, CSS control• Fast client side generated templates• HTTP/2 support• Third party design agencies can easily manage and maintain code• Oracle supported isomorphic taskflow apps with nashorn• Frontend can be platform agnostic (microservices)
Cons	<ul style="list-style-type: none">• Serial rendering on server side causing longer initial page load• Longer development iterations• Very difficult for frontend developers and even regular Java developers	<ul style="list-style-type: none">• Intermediate – advanced JS, HTML, CSS knowledge• Modern browsers and IE 9+ support• Device + Browser testing required as developers have full frontend control

SPA for Oracle WebCenter Portal

Flexible Front End Integrations



- SPA framework allows for other front-end design platform integrations
 - Oracle JET
 - ReactJS – Facebook and Instagram
 - Angular 4.0
 - Bootstrap
 - Polymer
 - Material design



React



ANGULARJS
by Google



Bootstrap





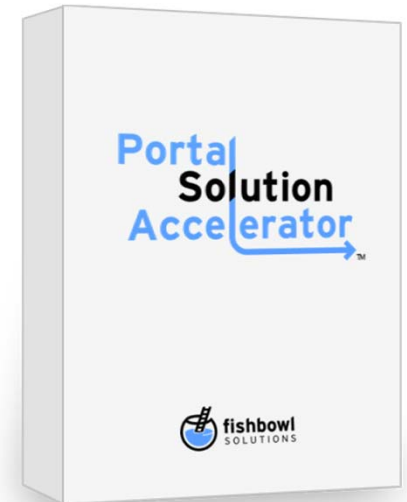
Technologies for portal optimization

Portal Solution Accelerator

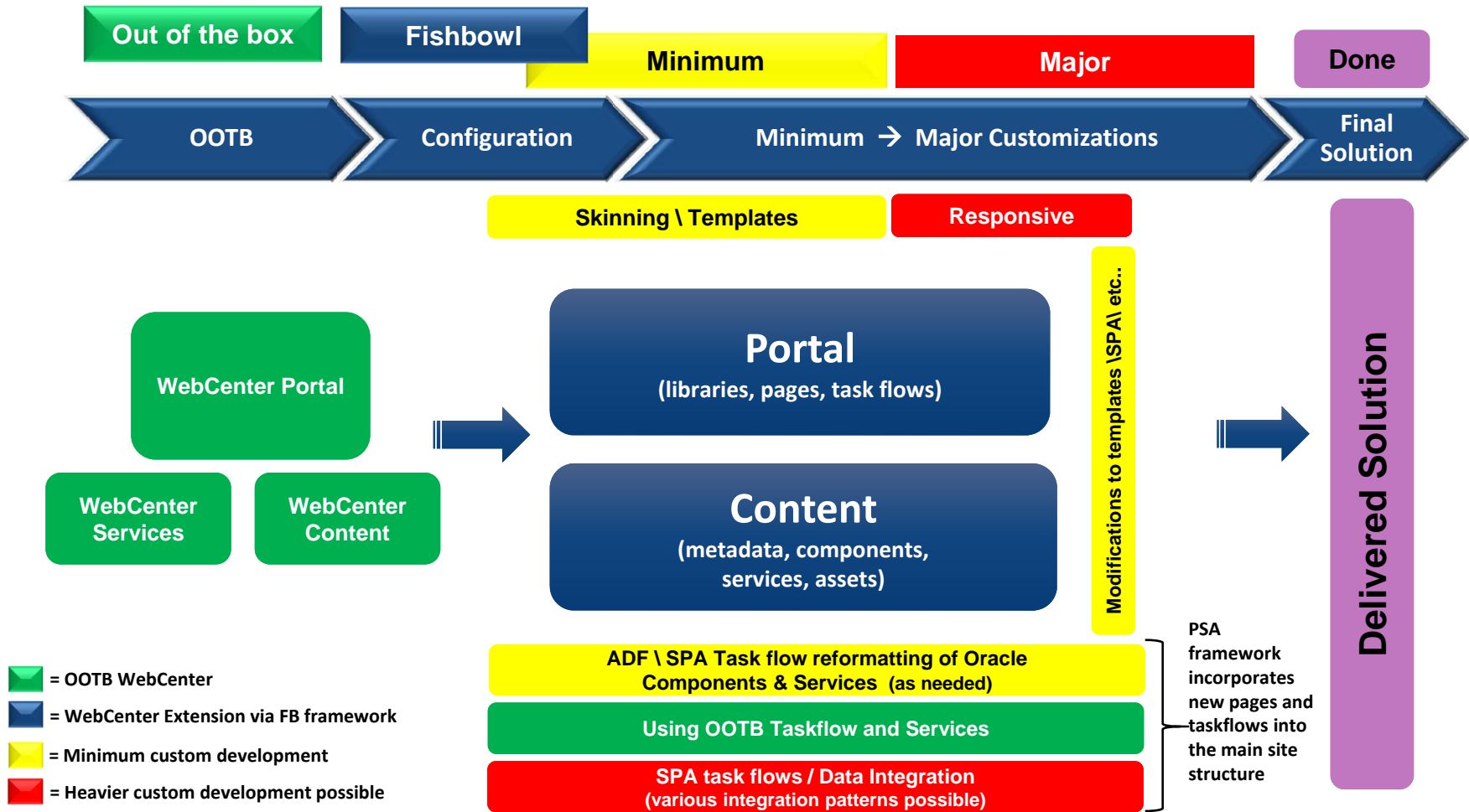
Portal Solution Accelerator

Software and services for rapid portal setup and deployment driven by user experience and content integration

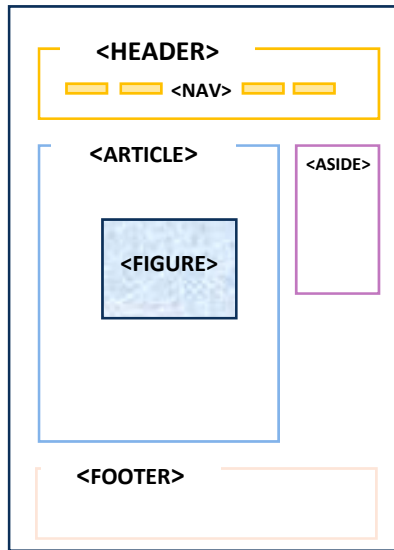
- Consists of a WebCenter Portal and content “bundles”
 - Collection of code, pages, assets, content and templates
- Content integration performed via Fishbowl single-page application task flows
- Built-in personalization
- Foundational benefits for any portal
 - Time-to-market
 - Speed/Performance
 - Web developer friendly
 - Reusability



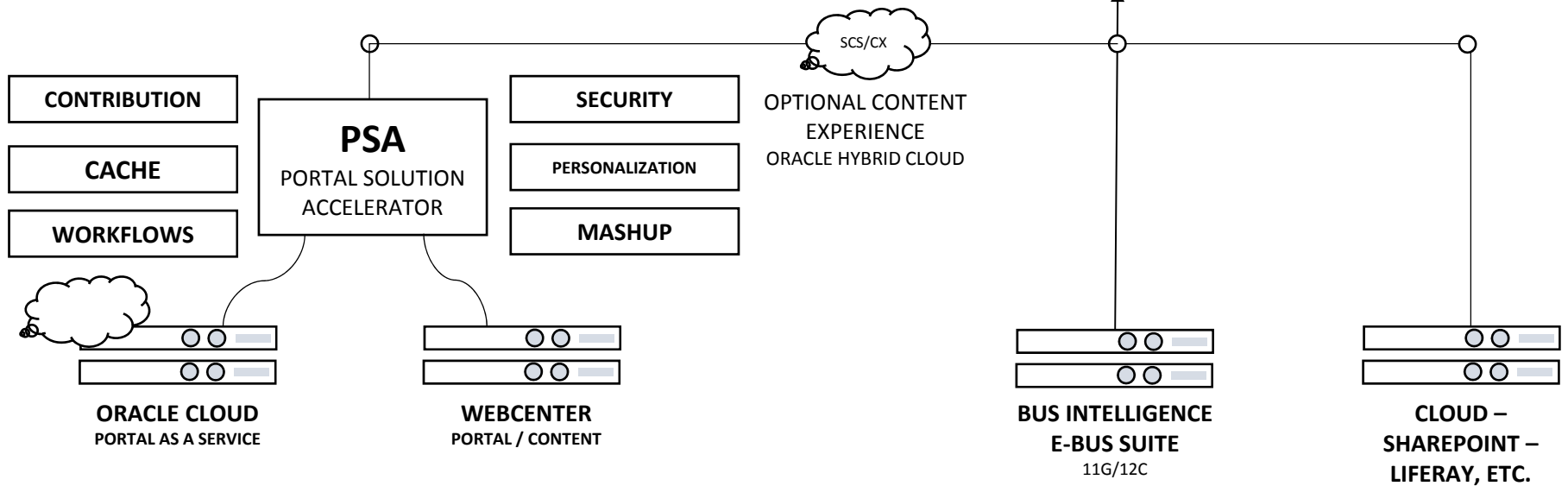
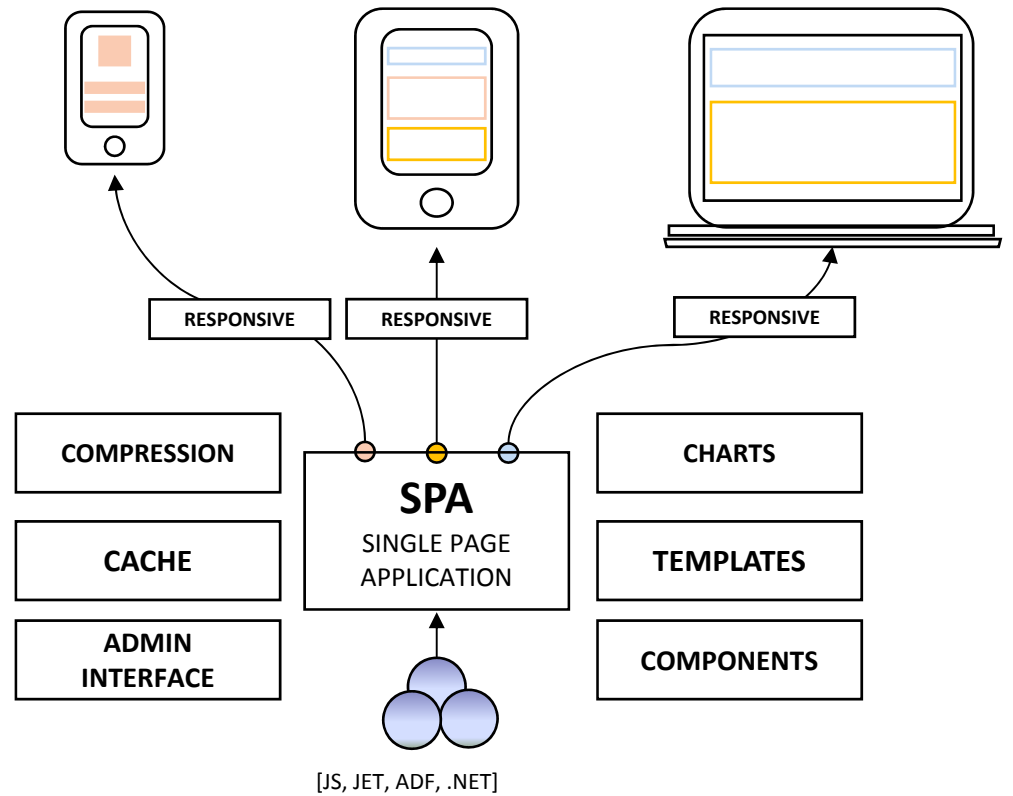
PSA to WebCenter Portal – Feature Mapping



SPA Architecture

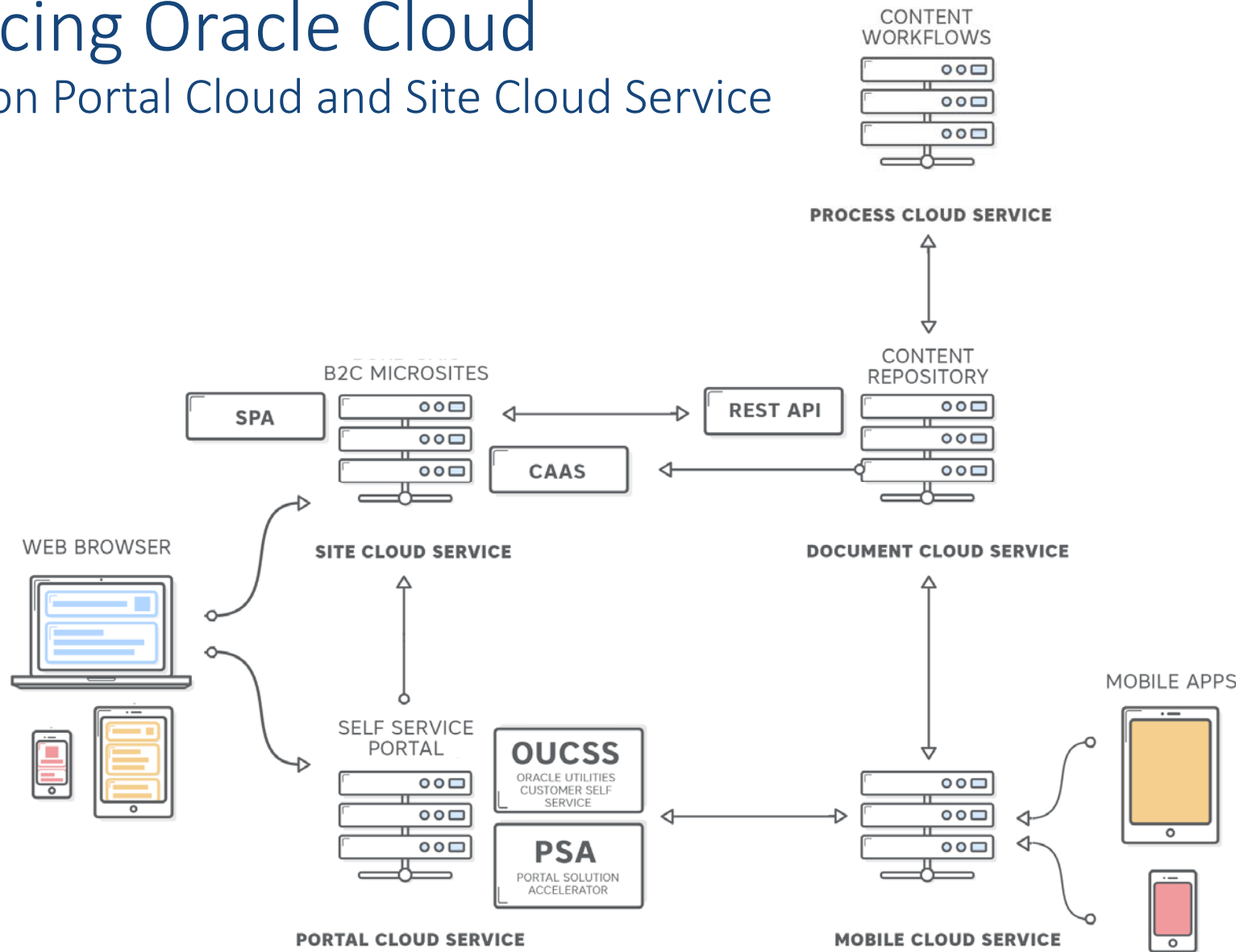


REUSABLE COMPONENT ARCHITECTURE



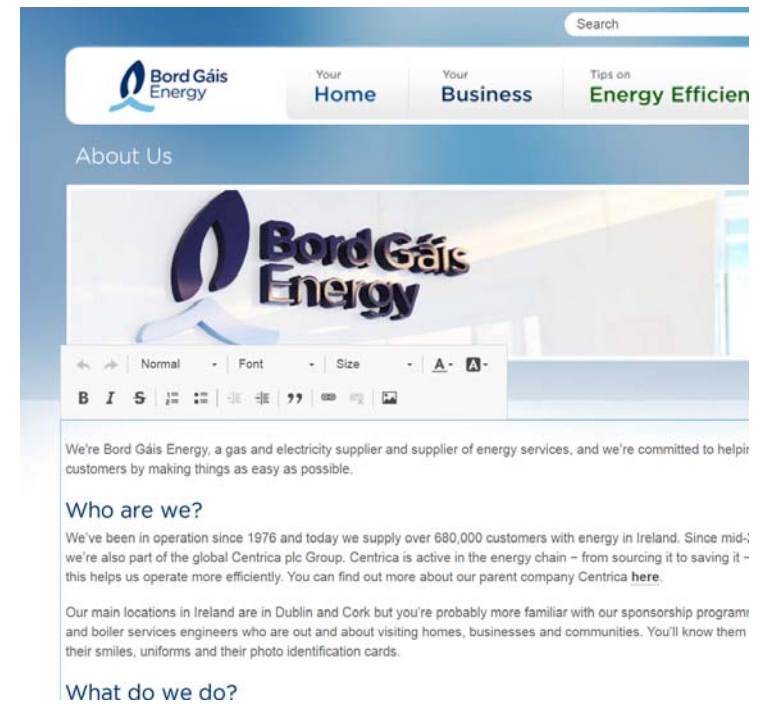
Enhancing Oracle Cloud

PSA/SPA on Portal Cloud and Site Cloud Service



Enhanced Content Management SCS Inline Contribution (SPA)

- Content Personalisation
- Multilingual Support
- Content Security
- Control who can edit content snippets (WYSIWYG)
- Drag Drop image upload
- Workflow – Review changes inline on site
- Email notifications on editable content
- Responsive Content
- Fixed content branding
 - (Headers, Paragraphs, Spacing, colour themes)
- Image Conversions
- Inline Video linking – Youtube, Vimeo



SPA for Oracle WebCenter Portal

Benefits



Developers

- Client/Server independence
- Multiple components dropped onto page
- Components are context aware
- More flexibility for responsive design
- Browser friendly
- HTML, Java, Groovy over ADF taskflows
- Minimal ramp up time – about 1 week



Business/Users

- Decreased time to market
- Better performance – happy end users
- Fluid – users pick apps to display
- Mobile ready
- Transform the interface – deploy across multiple platforms – maintain ADF backend



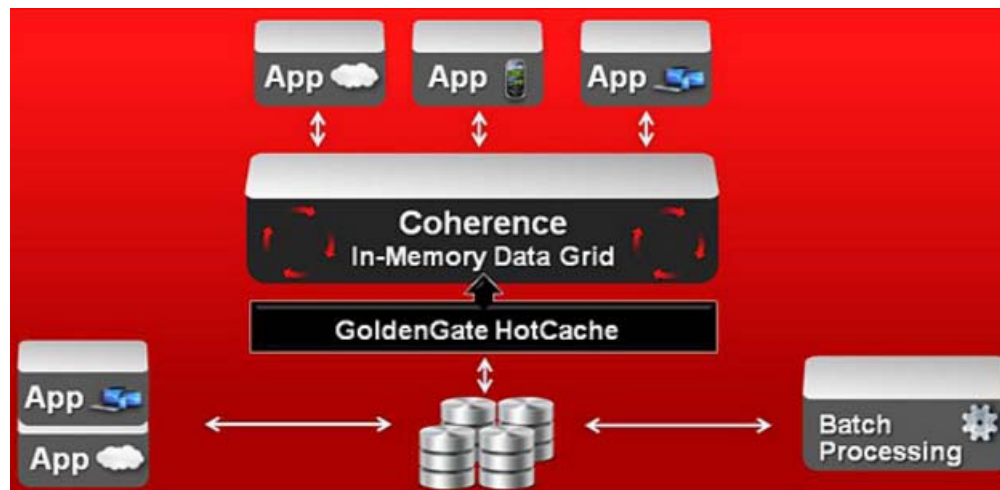
Technologies for portal optimization

Coherence & Redis

Oracle Coherence

- **Definition:**

- In-memory data grid solution
- Enables organizations to predictably scale mission-critical applications by providing fast access to frequently used data.
- Handle more data in real-time, offload over-burdened shared data services and provide availability guarantees



Coherence & WebCenter Portal

Local Cache Use Case

- Leverage local coherence in WebCenter Portal
- Select content profiles for enabling cache
- Manage and/or view cached items via portal UI
- Configuration updates made to support - *No limits and no expirations*

The screenshot displays the ShowMe portal interface. At the top, the 'ShowMe' logo is on the left, and the user 'Willie Weblogic' is logged in on the right. Below the logo is a search bar and a navigation menu with icons for chat, calendar, group, star, and share. The main content area is titled 'Cache Browser' and contains a table with the following items:

Item	Action
Load Profile to Cache Topic Link	Load Profile
Delete Cache by Name BlacklistedWordsCache	Delete Cache
Update by Content ID Content ID	Update Content
Load all profiles This will invoke a load all content into the cache on all nodes of the portal servers. This process will take time.	Load All

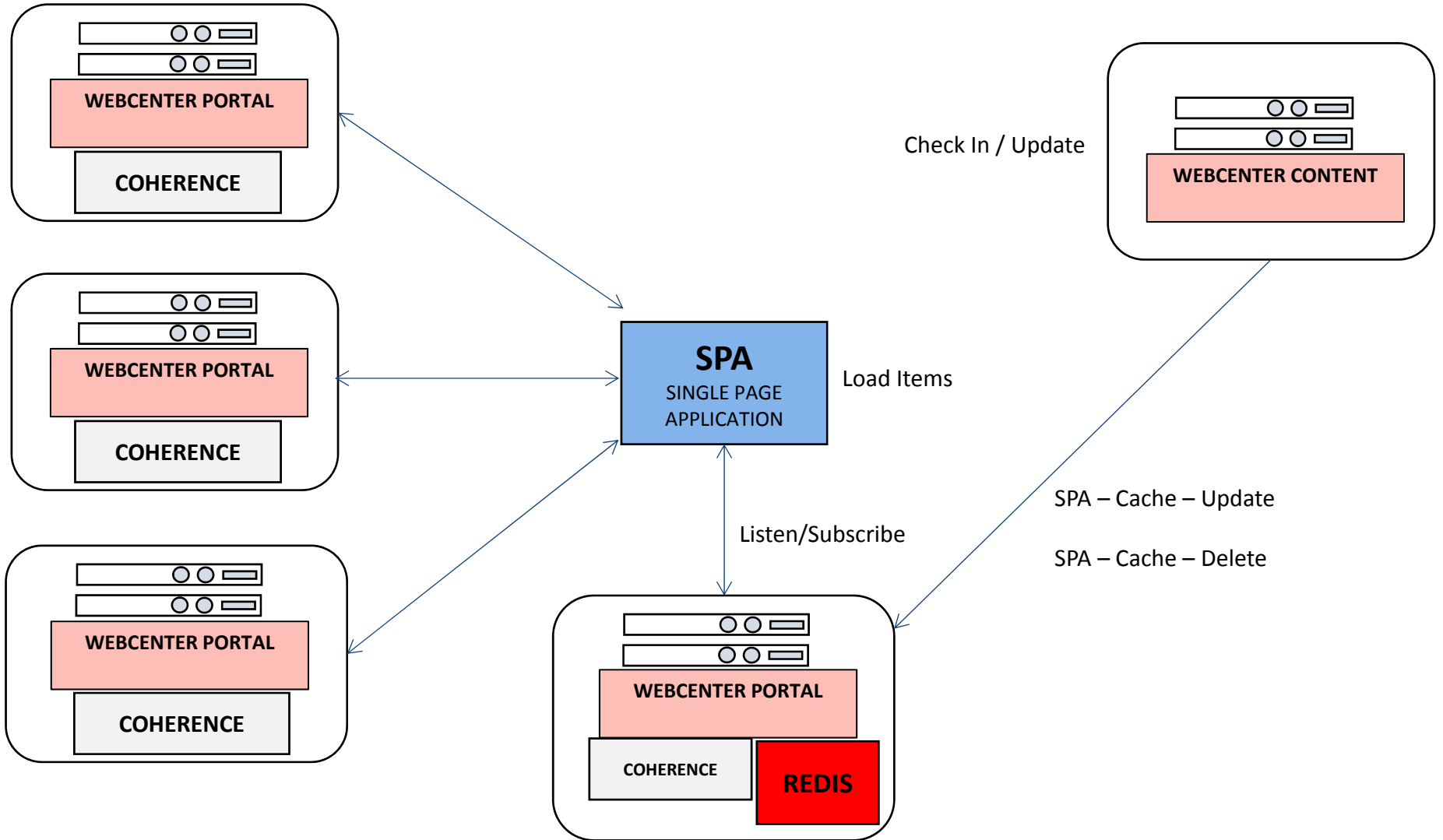
Redis

- **Use Case**

- Leverage Redis as a means to create a central publishing model for updated content to the cache
- Leverage Pub/Sub
 - Subscribe
 - Unsubscribe
 - Publish



Coherence & Redis Implementation



Customer Metrics

- **Company:** Communications company
- **Use Case:** Employee Portal
- **Environment:** (3 physical machines, with 3 portal nodes, 1 Portlet node and 1 content node for each physical machine)
- **Site stats:** 50 Static pages, 5 dynamic pages
- **Employees:** 80,000+

Concurrent Users Target	Login → Landing Page Time	Secondary Page Time
1,400	< 4.5 seconds	< 2.5 seconds
1,700	< 5.0 seconds	< 3.0 seconds

Summary – Portal Optimization Best Practices

- Modular SPA vs. ADF
- Dynamic vs. Static Pages
- Caching Model for Content and Data
- Personalization vs. Security or both
- One site vs. Microsites
- Web Asset Compression
- Responsive Design



Please Complete Your Session Evaluation

Evaluate this session in your COLLABORATE app.
Pull up this session and tap "**Session Evaluation**"
to complete the survey.

Session ID:



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Additional Resources

- **Booth:** #1113
- **Web:** www.fishbowl solutions.com
- **Email:** info@fishbowl solutions.com
- **Twitter:** [@fishbowlE20](https://twitter.com/fishbowlE20)
- **Facebook:** facebook.com/fishbowl solutions

Learn more about solutions for Enterprise Portals, Controlled Document Management and User Experience Design



Fishbowl Presentations

Monday, April 3rd

- Using Modern Web Development Technologies to Optimize WebCenter Portal Performance – Jerry Aber & John Sim
 - 12:00 to 12:30 PM
 - Jasmine B

Wednesday, April 5th

- Ryan Companies Realizes Knowledge Management Success with Oracle WebCenter Content – Mike Ernst & Kim Negaard
 - 9:15 to 10:15 AM
 - Jasmine A



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Q&A

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Thanks!

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