Safe Harbor Statement

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Middleware as a Service: Converged Solution for Administrators and DevOps

CON8091

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Product Manager, Oracle Enterprise Manager

Ronald Clanton
Middleware Architect, 7-Eleven

Gebhart Herget
IT Architect, Bundesagentur Fur Arbeit
Program Agenda

1. Middleware PaaS with Enterprise Manager 12c
2. Ronald Clanton - 7-11
3. Gebhart Herget - Bundesagentur fur Arbeit
72% “expecting to adopt PaaS next five years**”

27% “current PaaS adoption”

Source: Computerworld Strategic Marketing Services, February-March 2014 Cloud Survey
**Source: GigaOM Research and VC North Bridge
Challenges facing IT, DevOps and Developers

- Time consuming install and configuration procedures
- Slow and error prone
- Slow company processes
- Complex automation
- High learning curve
- Lost productivity & Wasted Time
- Increased time-to-market
- Inefficient use of resources
Total Cloud Control

Complete Cloud Lifecycle Management

Expanded Cloud Stack Management

Superior Enterprise-Grade Management

Agile, Automated  |  Optimized, Efficient  |  Scalable, Secure
EM12cR4 Private PaaS Management

Consolidation Planning and Real App Testing
Service Provisioning incl’ REST APIs
Elasticity

Service Governance: Access Controls, Compliance, Quota, Showback, etc
Ongoing Operations and Performance Management

Middleware Private Cloud (MWaaS)
- Java App
- Weblogic
- SOA /OSB

Database Private Cloud (DBaaS)
- Dedicated Databases
- Schemas
- Pluggable Databases
- Clones

Runs on any Infrastructure: Physical, Virtual, Engineered Systems

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Solving the administrator and DevOps challenges
FMW provisioning and WLS Self Service

Provisioning

- Mass deploy standardized images
- Run database configuration or use existing or cloned database
- Create new domains, clusters and managed servers

Self Service

- Lifecycle operations
- Resource configuration monitoring
- Pre and post provisioning scripts
- Instance scaling-up/down with elasticity
- Chargeback and metering
SOA/OSB Cloning
Cloning of complex EDG topologies

- Rapid cloning of EDG compliant topology with content
- Automation for cloning FMW content and seamless integration with DBaaS
SOA and OSB Self Service
Self-serve SOA and OSB

- Provisioning of applications and composites
- Self service driven provisioning of complex SOA topologies
- DBaaS integration for content, hydration
Complete REST API for Automation or Custom Portals

Scripting tools
(Shell, Puppet, Chef ...)

POST: /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Authorization: Basic c3lzbfuOnN5c21hbg==
Payload:
{
  "name": "restTemplate",
  "serviceFamily": "MWAAS",
  "serviceType": "PhysicalWLS",
  "description": "Template created through REST",
  "poolIds": ["10729BD1A3B12FA254232EE4F84CB71B"],
  "roles": [{"name": "SSA_USER_ROLE1"}]
...

Custom Portals
JVM Diagnostics as a Service

- Exposes JVMD functionality in self-service manner and manage all their JVMs within web-based portal
- Enable JVMD on all JVMs, regardless of JVMs being targets in EMCC
- Easy set up -> Set quota!
- Quotas are set to Roles and are in terms of number of monitoring JVMs
- Integrated with the Self Service portal
Integrated with industry leading DBaaS

- Seamless integration with DBaaS for FMW database needs
- Support for dedicated databases, schemas as well as 12c multitenant
- Shared, standardized database platform used as a Data Source
- Single pane to monitor Database and Fusion Middleware Pools
Centralized Management and Monitoring

- Manage all domains centrally
- Graphical heat maps
- Predefined metrics and metrics extensions
- Log file monitoring
- Real-time monitoring
- Historical monitoring for trending and reporting
Ongoing Lifecycle Management

Advise

- Patch Advisories via MOS
- Upgrade Advisories from MOS
- Configuration Policy Violations

Audit

- Automatic Change Reconciliation
- Compliance Standards and Frameworks
- Reporting

Act

- Patch
- Upgrade
- Corrective actions
- Configuration drift reconciliation

Analyze

- Topology guided Impact Analysis
- Config Comparison for Drift Analysis
- Patch Conflict and PreReq Analysis

Core

- Automated Discovery
- Dependencies and Relationships
- Inventory, Search
- Out-of-box collection with extensibility support
Summary

• Truly **Infrastructure independent** Middleware PaaS
• **Seamlessly Integrated** with industry’s leading DBaaS solution
• The **most complete** Cloud Lifecycle Management solution - all the way from initial provisioning, ongoing maintenance to end-of-life
• Dramatically **improve speed** of innovation & time-to-market by accelerating application development & release cycles
• **Fully leverage** existing skill sets & eliminate learning curve for IT and development teams to adopt cloud
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Hardware and Software
Engineered to Work Together
7-Eleven’s Journey to Service

Ron Clanton
Program Director, FMW Architect
7-Eleven
Sept 2014
7-Eleven Journey: Digital Guest Experience

World’s largest convenience store chain; over 53,000 locations in 16 countries serving ~60 million guests every day

• Digital Guest Experience (DGE) objective

  Create a holistic cross channel digital experience leveraging connected devices for our guests so they are able to find needed products and services, connect with the 7-Eleven brand, access targeted promotions and interact with other guests ...

  ...whether they are on the go, at home, or in any of the 10,000+ 7-Eleven locations in the US and Canada.

• The primary goals of our Digital Guest Experience program are

  – Create the best digital experience for our guests
  – Establish an ongoing relationship that allows us to listen and respond to our guest’s needs
  – Enable multiple channels of connectedness
Digital Guest Experience IT Success Criteria

- Manage the digital technology ecosystem
- Create and thread together digital channels
- Create and manage digital products
- Provide data for actionable insight
- Establish one view of the Guest across 7-Eleven
- Present one view of 7-Eleven to our Guests
- Establish a foundational platform that can support a wide variety of service needs across 7-Eleven
## 7-Eleven Challenges and Solution Approach

<table>
<thead>
<tr>
<th>7-Eleven Challenges</th>
<th>Solution Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Focus on customer experience</td>
<td>• Embark Customer to Cloud Journey</td>
</tr>
<tr>
<td>• Create best digital experience for guests to drive customer loyalty, revenue</td>
<td>• Self-service</td>
</tr>
<tr>
<td>• Establish on-going relationship with customers</td>
<td>• Policy-based resource mgmt</td>
</tr>
<tr>
<td>• Establish multiple channels for connectedness</td>
<td>• Service elasticity</td>
</tr>
<tr>
<td>• Establish multiple channels for connectedness</td>
<td>• Resilient services</td>
</tr>
<tr>
<td>• High Application Provisioning Time</td>
<td>• Automation</td>
</tr>
<tr>
<td>• Lack of Standardization</td>
<td></td>
</tr>
<tr>
<td>• High Infrastructure Provisioning Time</td>
<td>• MWaaS Rapid Start Service Offering</td>
</tr>
<tr>
<td>• New to SOA Suite</td>
<td>• EDG Compliant Golden Profile</td>
</tr>
<tr>
<td>• Unknown Performance Benchmarks</td>
<td>• Runbooks and custom IaaS Scripts</td>
</tr>
<tr>
<td>• “Loyalty at the speed of convenience”</td>
<td>• Set up SOA Governance</td>
</tr>
<tr>
<td>• Initial Benchmark in Oracle Consulting Lab using OATS (create Snapshots)</td>
<td>• Monitoring and Dynamic Provisioning</td>
</tr>
</tbody>
</table>

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7-Eleven’s Progress in Private PaaS

Established a path to PaaS that both the business and IT agree provide the best chance for long term success

- **2012 & previous**

- **2013**
  - PaaS with:
    - Internal Services: OAG, WLS/OWSM, OSB, SOA, Security

- **Today**
  - PaaS with:
    - Multiple Internal & External Services
    - Real-time and batch

Legacy, Siloed Middleware
Shared Private PaaS
Tech Stack

- Exalogic
- Exalogic Elastics Cloud
  - Exalogic Cloud Optimizations
  - OTD
- SOA Suite
  - OSB
  - SOA Suite
- OAG
- OER
- OEM 12c
- Exadata
Results of 7-Eleven PaaS

• Operational
  – Provisioning SOA Suite environments in less than a day
  – Complete configuration control
  – Visibility with out of the box and customized Enterprise Manager reports

• Business
  – Customer response to DGE offers exceed expectations!
  – The next 6 large projects at 7-Eleven will utilize our new PaaS services
PaaS with Oracle Fusion Middleware
A long and rocky way gone
Bundesagentur für Arbeit – Who we are

BA (Bundesagentur für Arbeit) = Federal Employment Agency
• Largest provider of labor market services in Germany
• Social insurance, social welfare
• Network of more than 700 agencies and branch offices nationwide

Germany’s largest governmental authority
• Revenue 2014: 43.30 Billion $

IT of Bundesagentur für Arbeit
• 160,000 clients, 11,500 self-information-desks
• 10,000+ servers
• 1,800 locations, 20,000 network-components

Monthly output
• 50 Million printed pages
• 17 million money transfers, 8 Billion Euros
• 35 Million EMails
Bundesagentur für Arbeit - Main Duties

High degree of visibility due to services for about 80 Mio. customers

- Placement in training places and workplaces
- Vocational guidance
- Employer counselling
- Promotion of vocational training and further training
- Promotion of professional integration of people with disabilities
- Benefits to retain and create workplaces and
- Compensations for reduced income, e.g. unemployment benefit or insolvency payments
- Child benefit
- Largest provider of labor market services in Germany
## IT Landscape in 2009 - Silos

<table>
<thead>
<tr>
<th>Subject</th>
<th>Situation</th>
<th>Ledged To</th>
</tr>
</thead>
</table>
| Governance            | Only few IT standards established              | • High degree of diversity and complexity requires special skilled staff for each silo  
                             |                                                   | • A nightmare for integration and LCM                                                       |
| Application Landscape | Most applications custom build from ground up   | Time to market for new IT-solutions: about 3 years and more                                                                          |
| Platform              | Different departments maintain their own IT-Silo | • Almost no scaling effects  
                             |                                                   | • Different ecosystems needed to be maintained  
                             |                                                   | • Many contracts with different vendors  
                             |                                                   | • Knowledge transfer not effective  
                             |                                                   | • Different look and feel of UI                                                             |
# Steps of Implementing Oracle Fusion Middleware

<table>
<thead>
<tr>
<th>Phase</th>
<th>Activities</th>
<th>Results</th>
</tr>
</thead>
</table>
| 2009/2010 basic platform: | • Definition of the Architecture together with ORACLE for WebLogic and OSB  
• Migration of 60+ business applications and services  
• Development of a Configuration Management Tool | • Architecture Blue Print approved by ORACLE  
• Governance established and accepted  
• OSB established  
• Provisioning semi-automated by own tools |
| 2011/2012 SOA and BPM | • Consistent further development of the architecture blue print  
• Development of a business application to learn how to leverage the platform and provide guide lines for software development | • First application with SOA-Suite, BPM-Suite and ADF – showcase  
• Defining ADF as the standard framework for UI development |
| 2013/2014 WebCenter Suite | • Migration of online services  
• Intensive leveraging of Enterprise Manager functionality | • www.arbeitsagentur.de successfully migrated  
• ORACLE Access Manager deployed for Internet services  
Enterprise Manager established for monitoring, graphing, reporting and patching of the entire stack |
## ORACLE Supports our Core Business

<table>
<thead>
<tr>
<th>Business purpose</th>
<th>Name</th>
<th>Key figures</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="www.arbeitsagentur.de">www.arbeitsagentur.de</a></td>
<td>Portal</td>
<td>2.5 Mio. Pagereq./day</td>
</tr>
<tr>
<td>Master Data Management</td>
<td>STEP</td>
<td>75,000 Concurrent User</td>
</tr>
<tr>
<td>Placement, counseling and information system (CRM)</td>
<td>VERBIS</td>
<td>70,000 Concurrent User</td>
</tr>
<tr>
<td>Payment system for long term unemployment benefits (CRM)</td>
<td>ALLEGRO</td>
<td>60,000 Concurrent User</td>
</tr>
<tr>
<td>Payment system for unemployment benefits</td>
<td>COLIBRI</td>
<td>30,000 Concurrent User</td>
</tr>
<tr>
<td>eFile Management System (paperless desktop)</td>
<td>EAKTE</td>
<td>700,000 new Docs/day (soon 2 Mio Docs/day)</td>
</tr>
<tr>
<td>Child benefits (CRM)</td>
<td>KIWI</td>
<td>5,000 Concurrent User</td>
</tr>
</tbody>
</table>
Expansion of the Platform, From IaaS to PaaS

Introduction of a platform and reduction of customer code leads to a faster time-to-market and more efficiency in development and operations.

Before 2009
- Infrastructure
  - Hardware
  - Operating System
  - Network

Until 2012
- PaaS with
  - WLS/OWSM
  - OSB
  - SOA

Today
- Customer Code
- Vendor Stack
- PaaS with
  - Portal
  - Mobility
  - Content Management
  - Access Management
  - Security Components
  - Platform Management
What we have achieved so far (1/2)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture and Governance</td>
<td>• All non-functional requirements accomplished</td>
</tr>
<tr>
<td></td>
<td>• Platform meets our ambitious expectations</td>
</tr>
<tr>
<td></td>
<td>• Established and accepted by customers, operations, software development and</td>
</tr>
<tr>
<td></td>
<td>management</td>
</tr>
<tr>
<td></td>
<td>• OFMW-Lifecycle driven by operations</td>
</tr>
<tr>
<td>Operations and service quality</td>
<td>• No unplanned outage within 5 years caused by OFMW</td>
</tr>
<tr>
<td></td>
<td>• Dramatic simplification of management</td>
</tr>
<tr>
<td></td>
<td>• High level of automation</td>
</tr>
<tr>
<td></td>
<td>• Most management tasks covered by Enterprise Manager</td>
</tr>
<tr>
<td>Saving: examples</td>
<td>• Economies of scale: Platform driven by a team of 16 staff</td>
</tr>
<tr>
<td></td>
<td>• ALLEGRO: reduction of 310 to 48 servers</td>
</tr>
</tbody>
</table>
## What we have achieved so far (2/2)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Achievements</th>
</tr>
</thead>
</table>
| GUI and mobile                    | • Standardization with ADF  
• Build-in adaptive capabilities                                                                                                               |
| Deployment                        | • About 6000 managed server, 1500 in production  
• Platform provisioning of one virtual data center within 3 days compared to weeks or month without PaaS |
| Systems Management with Enterprise Manager | • Enterprise Manager as central monitoring, graphing, reporting and patching tool for the entire stack  
• Supports ITIL  
• Delivers a single pane of glass and a holistic view not only for all operational disciplines but also for development and test |