MIGRATION TO
RED HAT JBOSS MIDDLEWARE:
EASY, PREDICTABLE, PROVEN

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MODERN BUSINESS CHALLENGE
BUSINESS WANTS MORE WITH LESS

- Increased expectations from business to deliver new functionality faster.
- Pressures from the business to reduce cost.
- How can we do more with less?
WHY CHANGE?
BUSINESS EXPECTATIONS BECOME I.T. CHALLENGES

100% of I.T. resources

70% to maintain current infrastructure

30% to invest in innovation, differentiation
MODERN BUSINESS CHALLENGE
PACE OF CHANGE & MARKET DISRUPTION INCREASING
Industry disruptors either:

- Are **greenfield** and do not have legacy challenges.
- Have **re-tooled** to be competitive in 2016 landscape.
THE THEORY OF CONSTRAINTS
ELIYAHU GOLDRATT, THE GOAL

GENE KIM, THE PHOENIX PROJECT
WHY CHANGE?
SOLUTIONS FOR TODAY AND THE FUTURE

- RE-BALANCE MAINTENANCE & INNOVATION
- REDUCE / AVOID VENDOR LOCK-IN, LICENSE MODELS
- BECOME MORE PRODUCTIVE WITH LIGHTWEIGHT TECH
- REMOVE TECHNICAL DEBT & RISK
- ADOPT AGILE METHODOLOGIES, DEVOPS, OR CLOUD
CORE MIGRATION
SOURCE & TARGET PLATFORMS

**Application Server Migration**
- IBM WebSphere, Oracle WebLogic, JBoss Upgrades, Community to Enterprise
- JBoss EAP

**ESB & Integration Platforms Migration**
- TIBCO, WebMethods, JCAPS, IBM Message Broker, Oracle ESB
- JBoss Fuse, JBoss Data Virtualization, JBoss A-MQ, BPMS

**Application Infrastructure Migration**
- Mainframe to Linux/Java, Unix/Solaris/Windows to Linux, Virtualization, Storage
- RHEL, RHEV, OpenShift, Ansible, CloudForms, Ceph
MODERNIZATION INITIATIVES
ENHANCING PLATFORMS & PROCESSES

Modularization, APIs, Microservices
Application Lifecycle Management, CI & CD
PaaS, Private Cloud, Hybrid Cloud, Containers
DevOps
WHY MIGRATE?
JBoss Migration Benefits

Benefits experienced moving from IBM WebSphere and Oracle WebLogic to Red Hat JBoss EAP included:

- **39% shorter development time** for new applications
- **43% gain in developer efficiency**
- **89% less application development related downtime**
- **79% less expensive** than legacy platform
- **509% ROI** over 3 years, payback of initial investment in less than 10 months after deploying the platform

Study available at [https://engage.redhat.com/jboss-eap-idc-s-201508032204](https://engage.redhat.com/jboss-eap-idc-s-201508032204)
WHY MIGRATE?
RED HAT JBOSS MIGRATION CUSTOMERS

NYSE Euronext
50-60% cost savings; increased performance, deployment speed, streamlined processes; faster development cycles, improved security

Lufthansa Cargo
Saved 50%+ by migrating
Gained flexibility, accommodate new customer requests faster
Free from HW and SW lock-in

UnionBank
Replaced aging and costly IT infrastructure. Scale to growth and respond agilely to changing market dynamics. Improved reliability and scalability, cut costs, new financial services and products to market faster

Sprint
Saves $4 million annually in licensing and maintenance fees, improved developer productivity, reduced time to market

CenturyLink
More flexibility at lower cost, better separation of Dev and Ops considerations, save time deploying, provisioning, managing. WebLogic to JBoss EAP

Roche
Reduced cost, developer workload and time-to-market, faster provisioning, optimized operations, high automation. Approx. 600 Java applications. EAP, Data Services, OpenShift (POC).
WHY MIGRATE?

https://www.youtube.com/watch?v=gjRGHarnCL0
SO WHY AREN’T YOU MIGRATING?

CEO
- Solution must modernize the organization – rarely approves major expenditures that only lower maintenance costs

CIO
- Limited budget
- Business does not see the cost/benefit
- Vendor locked with IBM/Oracle EULA
- Perceived risks
- Continued existence takes priority over new initiatives
- Solution must modernize the organization – rarely approves major expenditures that only lower maintenance costs

DEV MANAGER
- Perceived risks
- Lack of in-house skills
- No known predictable/automated process
- Legacy applications don’t adhere to J2EE standards

OPERATIONS MANAGER
- No known predictable process
- Continuous system enhancement reduces window
- IT operations disruption
- Concerned that migration costs will be higher than expected
MIGRATION CHALLENGE
PROBLEM: ASSESSING LARGE SCALE MIGRATION FROM WEBSPHERE

Understand Cost & Assess Technical Debt
Understand Schedule & Conflicts
Predict Return on Investment
Minimize Risk
Minimize Disruption
MIGRATION CHALLENGE
MANUALLY ASSESSING COST FOR ONE APPLICATION

40 HOURS:

CHECK OUT the sources from version control

DETERMINE vendor-specific code

DETERMINE vendor-specific configuration files

DETERMINE provided/consumed services

FIND resource references:
- Databases
- Queues
- JMX resources
MIGRATION CHALLENGE
MANUAL ANALYSIS DOES NOT SCALE

20 APPLICATIONS  250 APPLICATIONS

40 HRS/APPLICATION  40 HRS/APPLICATION
800 TOTAL HOURS  10,000 TOTAL HOURS

20 WEEKS  5 YEARS - ANALYSIS?!
MIGRATION CHALLENGE
5 YEARS TO ASSESS COST & TECHNICAL DEBT

- Understand Cost & Assess Technical Debt
- Understand Schedule & Conflicts
- Predict Return on Investment
- Minimize Risk
- Minimize Disruption

THERE MUST BE A BETTER WAY.
THERE IS A BETTER WAY.
RED HAT’S APPLICATION MIGRATION & MODERNIZATION APPROACH
MIGRATION METHODOLOGY
ADDRESS: PEOPLE, PROCESS, TECHNOLOGIES

Migrate Middleware and Applications

Application Infrastructure Transformation (Automation, CI/CD, Private Cloud, DevOps)

Processes and Skills
MIGRATION METHODOLOGY
ITERATIVE, MANAGED SERVICE, FACTORY SCALE UP

DISCOVER
- Explore
  - Discovery Session: Discuss options

DESIGN
- Analyze
- Prove
- Pilot
- Plan
  - Define Migration Strategy, Prove Technology and Business Case

DEPLOY
- Migrate in Iterations
  - Scale & Execute

- Knowledge Management
- Quality and Risk Management
- Project Governance and Communication
MIGRATION METHODOLOGY
ITERATIVE, MANAGED SERVICE, FACTORY SCALE UP

- Methodology follows repeatable framework
- Scale up with partners or internal staff
- Standardized but flexible
- Step by step: no “big bang” approach
- It all starts with a Discovery session

Discovery Session: Discuss options
Define Migration Strategy, Prove Technology and Business Case
Migrate in Iterations
Scale & Execute
**METHODOLOGY & PROCESS: DISCOVERY**

**DISCOVER**
- **Explore**
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**DISCOVERY SESSION**

**HOW & WHAT:**
- Typically on-site - ½ day to 1 day.
- Client participants: decision makers from business and IT, lead Architects, Development lead, IT operations.
- Understand current state, business drivers, migration & modernization needs and requirements
- Explore possibilities for modernization, identify scope and priorities
- Interactive future architecture / impact / benefits discussion

**WHY:**
- Alignment across all stakeholders, clarity on goals and priorities. Go/no-go decision to begin next step.
- Agree on scope for Analysis
METHODOLOGY & PROCESS: DESIGN

ANALYZE - DESIGN WORKSHOPS

HOW & WHAT:

- On-site engagement. Duration may vary depending on scope and complexity (application, infrastructure). Typically between 10 days (small environments) and 6 weeks (large scale environments, hundreds of apps).
- Analyze architecture & dependencies, infrastructure, process & governance, knowledge. Perform automated application code analysis using Windup - catalog and assess, rationalize application portfolio.
- Very interactive - meet with all teams and assess as-is and to-be state.
- Present comprehensive documentation/report to client stakeholders.

WHY:

- Outline migration strategy, initial effort estimation, initial plan. Identify any risks upfront.
- Lay foundation for the next steps - define proof and pilot.
## METHODOLOGY & PROCESS: DESIGN

### ANALYZE

#### METHODOLOGY & PROCESS: DESIGN

### ANALYZE & CATALOG

#### ANALYZE - TECHNOLOGY

### ASSESS & RATIONALIZE

#### ASSESS & RATIONALIZE

### ORGANIZE & PLAN

#### ORGANIZE & PLAN

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### TABLE

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Grouping</th>
<th>Documentation Location</th>
<th>Source Control Location</th>
<th>Development Environment</th>
<th>Testing Environment</th>
<th>Production Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Customer Web App</td>
<td>A/B/C</td>
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<td>[repository]</td>
<td>[environment]</td>
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METHODOLOGY & PROCESS: DESIGN
ACCELERATE ANALYSIS WITH TOOLING

**ANALYZE - ACCELERATE WITH TOOLING**

- Proprietary libraries
- Proprietary configurations
- Service locators
- Web services
- EJB descriptors
- Deprecated Java code
- Transaction managers

- Injection frameworks
- Thread pooling mechanisms
- Timer services
- WAR/EAR descriptors
- IP addresses
METHODOLOGY & PROCESS: DESIGN
ACCELERATE ANALYSIS WITH TOOLING

ANALYZE - ACCELERATE WITH TOOLING

- Estimate migration effort
- Identify possible project risk
- Discover dependencies
- Upgrade/standardize frameworks
- Find deprecated code and resources
- Create organizational standards
- Migrate to non-proprietary code
- Make your applications cloud ready
ANALYZE - ASSESS

- Determine **processes** that make your organization successful.
- Determine the **tools** that the operations team uses to support the applications in production.
- Determine current **test** coverage and procedures.
- Determine the **skills** you will need to maintain the new environment and a process to obtain those skills.
**METHODOLOGY & PROCESS: DESIGN**

**ANALYZE: RATIONALIZE PORTFOLIO**

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**ANALYZE - ASSESS NON-TECHNICAL DEBT**

- Determine **processes** that make your organization successful.
- Determine the **tools** that the operations team uses to support the applications in production.
- Determine current **test** coverage and procedures.
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**METHODOLOGY & PROCESS: DESIGN**

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**PROVE**

**HOW & WHAT:**
- Based on analysis, prove high risk items are solvable (e.g. non-standard things that have no equivalent in JBoss Middleware, integration with 3rd party APIs, items with unknown effort)
- Sometimes small infrastructure proof-of-concepts or demos such as CI/CD, infrastructure automation, HA, cloud deployment, ...

**WHY:**
- Mitigate project risk – find and crack the hardest nuts first. Prove high risk items can be done, and how.
- Quantify effort for issues with unknown effort.
- Ensure complexities and unknowns are addressed
- Refine plan and define Pilot
**METHODOLOGY & PROCESS: DESIGN**

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**PILOT**

**HOW & WHAT:**
- Finalize the target infrastructure
- Adjust estimates based on assessment and windup information and outcomes from Proof phase
- Take a small set of representative applications and drive them through the migration process, moving them through the full lifecycle.

**WHY:**
- Results from Pilot migration helps to make much more accurate effort estimations and minimize risks.
- Prepare for the large-scale migration (infrastructure, processes, documentation)
- Opportunity for client to become familiar with the new environment
METHODOLOGY & PROCESS: DESIGN

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**PLAN**

**HOW & WHAT:**
- Based on outcomes from prove phase and Windup analysis: compare initial effort estimation, refine and adjust plan, size target environment
- Define the migration execution & rollout strategy - phases, order, teams, docs, code infrastructure, processes.
- Enablement / coaching / mentoring / training plan
- Determine financial and non-financial benefits

**WHY:**
- As accurate as possible effort and cost estimation, lay foundation for the migration execution at scale
- Prove the business case of the migration / modernization - upfront
- Only limited investment necessary to prove the business case.
QUICK COMPARISON
DIY VS. USE RED HAT METHODOLOGY

20 APPLICATIONS
40 HRS/APPLICATION
800 TOTAL HOURS

20 WEEKS

3-4 WEEKS
+ YOU HAVE A PLAN IN PLACE
+ TECHNICAL RISKS HAVE BEEN IDENTIFIED AND TESTED
METHODOLOGY & PROCESS: DEPLOY

**DISCOVER**
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### MIGRATE IN ITERATIONS

**HOW & WHAT:**
- Based on execution strategy and rollout plan: enter “factory mode” and execute the migration at scale
- Migrate in iterations (typically two weeks), document findings to improve next sprint
- In parallel: coaching/mentoring/skills
- Continuously validate against plan.

**WHY:**
- No “Big Bang”, but deliver incremental value with each sprint
- Minimize project execution risk
- Iterative model in combination with migration tooling inherently increases speed in each iteration
METHODOLOGY & PROCESS
DEPLOY PHASE: ITERATIVELY DIVIDE, SCALE & DELIVER

DEPLOY

CENTER OF EXCELLENCE

KNOWLEDGE BASE

MIGRATION TEAMS (1...N)

CHALLENGE BACKLOG

Red Hat experts, Customer’s SMEs, Project Management, Migration team leads

Migration Factory partners and/or customer team
RECAP
RECAP
APPLICATION MIGRATION & INFRASTRUCTURE MODERNIZATION

IT CHALLENGES
RECAP
APPLICATION MIGRATION & INFRASTRUCTURE MODERNIZATION

IT CHALLENGES

WHY MODERNIZE?
RECAP
APPLICATION MIGRATION & INFRASTRUCTURE MODERNIZATION

IT CHALLENGES

WHY MODERNIZE?

METHODOLOGY

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RECAP
APPLICATION MIGRATION & INFRASTRUCTURE MODERNIZATION

IT CHALLENGES

WHY MODERNIZE?

WHAT IF YOU COULD...

- shorten development time for new applications by 40%
- gain 40% in developer productivity
- save 50-60% total cost vs. existing application infrastructure
- innovate more vs. maintain costly legacy
- and what if the payback was less than a year?

METHODOLOGY
RECAP
APPLICATION MIGRATION & INFRASTRUCTURE MODERNIZATION

IT CHALLENGES

WHY MODERNIZE?

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LET’S TALK
redhat rhsummit
HOW CAN YOUR ORGANIZATION BENEFIT?

NEXT STEPS

- 1:1 webinar
- Discovery session
- Assessment

Contact your Red Hat representative or e-mail thartwig@redhat.com
APPLICATION MIGRATION & MODERNIZATION AT RED HAT SUMMIT

● **Sessions:**
  ○ Application Modernization with to Red Hat JBoss Middleware—easy, predictable, proven
  ○ Automated migration from proprietary integration platforms to Red Hat JBoss Fuse
  ○ Migrating from TIBCO to JBoss Middleware
  ○ From 6 weeks to 6 minutes - how the Dutch Ministry of Education provisions their IT environment in rapid time

● **Hands-on Lab:**
  ○ Red Hat JBoss Migration Toolkit for Java migrations

● **Exhibition booth - JBoss Migration Toolkit and Methodology**
  ○ meet and discuss with our migration experts
THANK YOU. QUESTIONS?
# Application Details Report

**Number of incidents:**
- 45 Potential Issues
- 20 Optional
- 48 Mandatory
- 113 Total

**Number of incidents:**
- 45 Potential Issues
- 17 Optional
- 46 Mandatory
- 108 Total

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**Archives shared by multiple applications:**
- WebLogic 2.0 EAR
- Eclipse XML
- Apache License 2.0
- WebLogic 2.0
- Apache License 2.0
- WebLogic 2.0
- Maven XML
- Properties
- Unknown License
- Web XML 2.4

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**Application Details Report**

- 84 story points
- 80 in shared archives
- 4 only in this app

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**Duplicate EAR Test 2.ear:**

- 84 story points
- 80 in shared archives
- 4 only in this app

---

**Duplicate EAR Test 3.ear:**

- 81 story points
- 67 in shared archives
- 14 only in this app

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**Source Report**

- 16 Technology Categories

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**Report Index**

- This report provides summary information about findings from the migration analysis, as well as links to additional reports with detailed information.