A Design Approach to Bridge DevOps and Business Automation

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May 2, 2017

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Background

BPM And DevOps Share Founding Fathers?!?

- Walter A. Shewhart
    - Statistical Process Control
- W. Edwards Deming
    - Lean Manufacturing & 14 Points (Out Of Crisis)
- Jack Welch
    - Six Sigma & Quality Movement
- Peter Drucker
    - Decentralized Decision Making & The Knowledge Worker
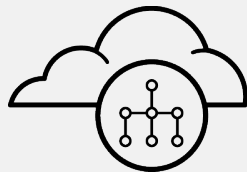- Melvin Conway
    - Conway's Law

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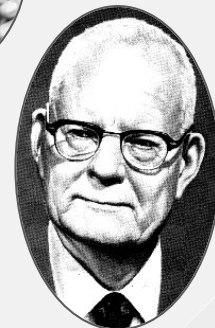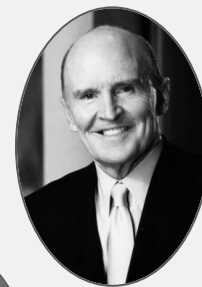
Two Paths, Same Goals

High Quality Software at a Low Cost
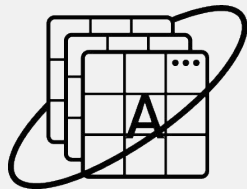Through Continuous Improvement

Business Automation

CI/CD & DevOps

Modern Application Development

Cloud Native

- Easier to develop
- Requires fewer skills
- Requires less time
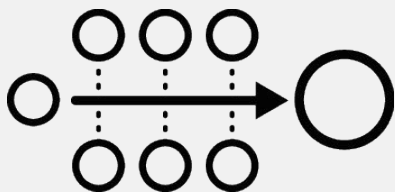- Easier to change

Microservices

- Easier to change
- Less expensive to operate

Containers

- Easy deployment
- Repeatable deployment
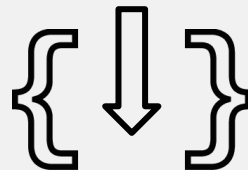
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Modern Business Automation

Orchestrate

- Between systems of record
- Collaboration between knowledge workers

Automate

- Manual Tasks
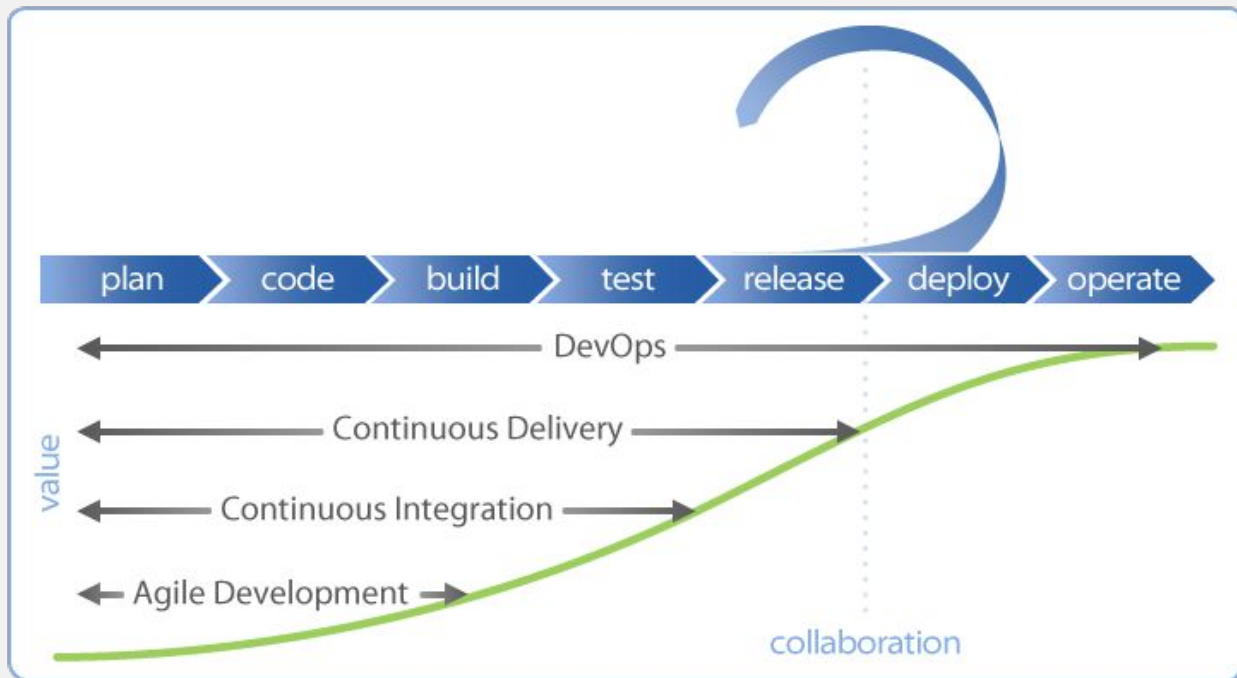- Decisions
- Intelligence

Enable

- Business users to develop applications (low-code app-dev)

DevOps Stages

Business Automation Stages
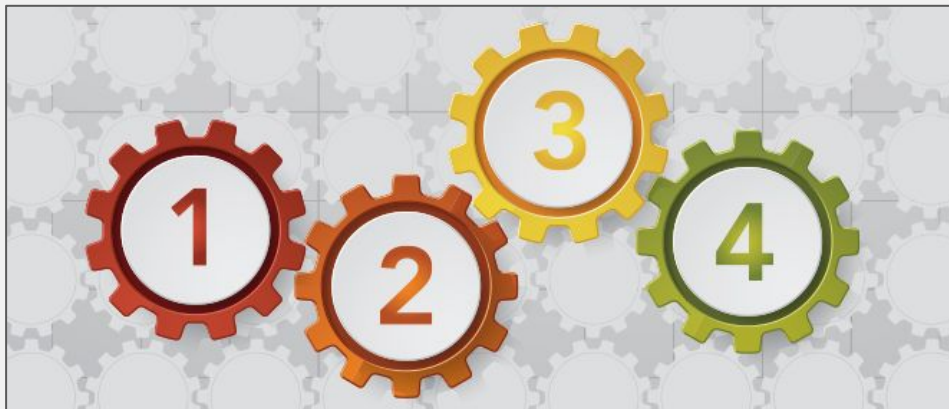
1. **Ad hoc** - undefined processes/decisions
2. **Defined** - repeatable, manual processes/decisions
3. **Automated** - efficient processes/decisions but static
4. **Intelligent** - evolving and customized processes/decisions

Modern Approach

Modern Approach: Design Model

Apply the best practices from modern software development (agile, CI/CD, etc) to business automation can help organizations add rigorous engineering practices while eliminating additional risk.
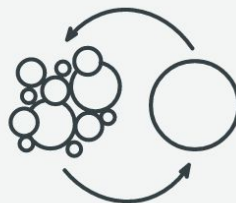
MODEL · VERSION · BUILD · STORE · DEPLOY · EXECUTE

Design Choices

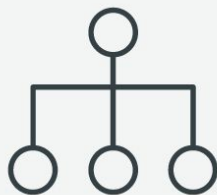| MODEL BUSINESS LOGIC	VERSION ARTIFACTS	BUILD PACKAGE	STORE PACKAGE	DEPLOY PACKAGE	EXECUTE BUSINESS LOGIC
Guided editing	Central version control	Central build server	Central binary repository	Management console	Short-lived embedded sessions
Integrated development environment (IDE)	Standalone version control	Standalone build server	Standalone binary repository	Application resources	Short-lived remote sessions
Document-based generation				Push runtime	Long-lived embedded sessions
Spreadsheets				Polling runtime	Long-lived remote sessions

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Collaboration Across The Business and IT
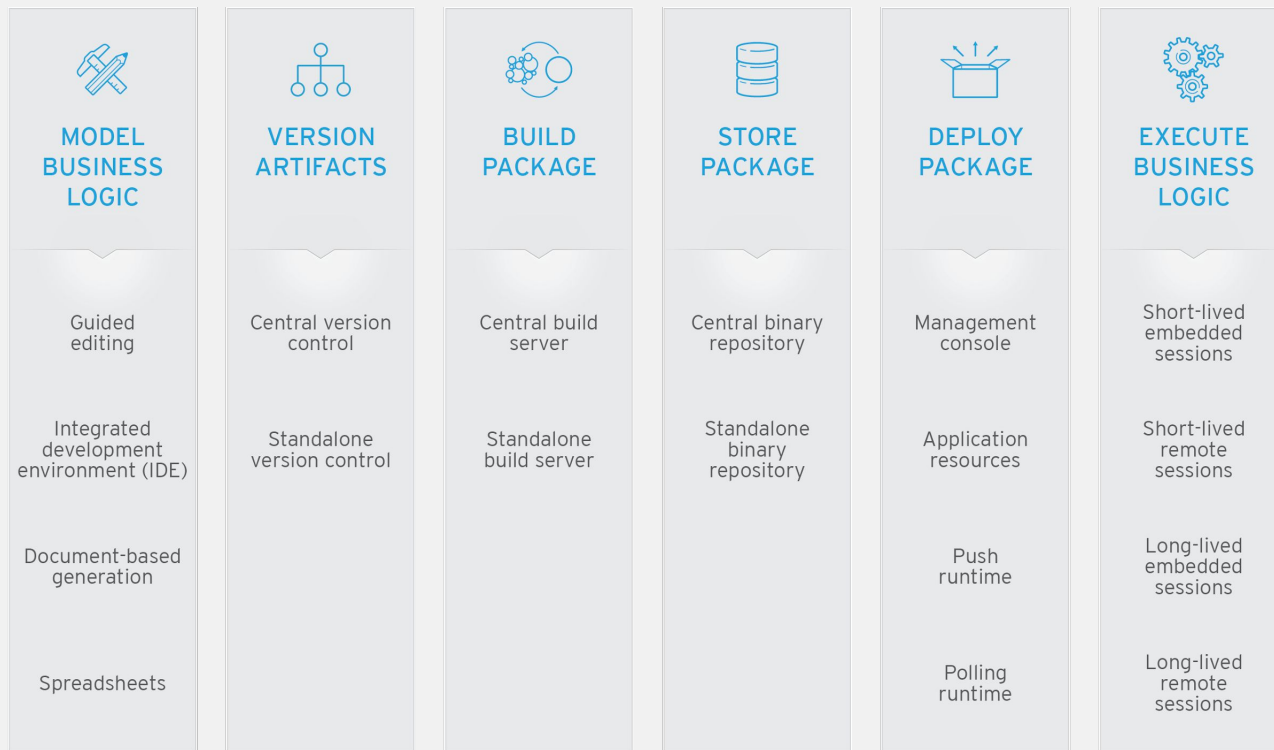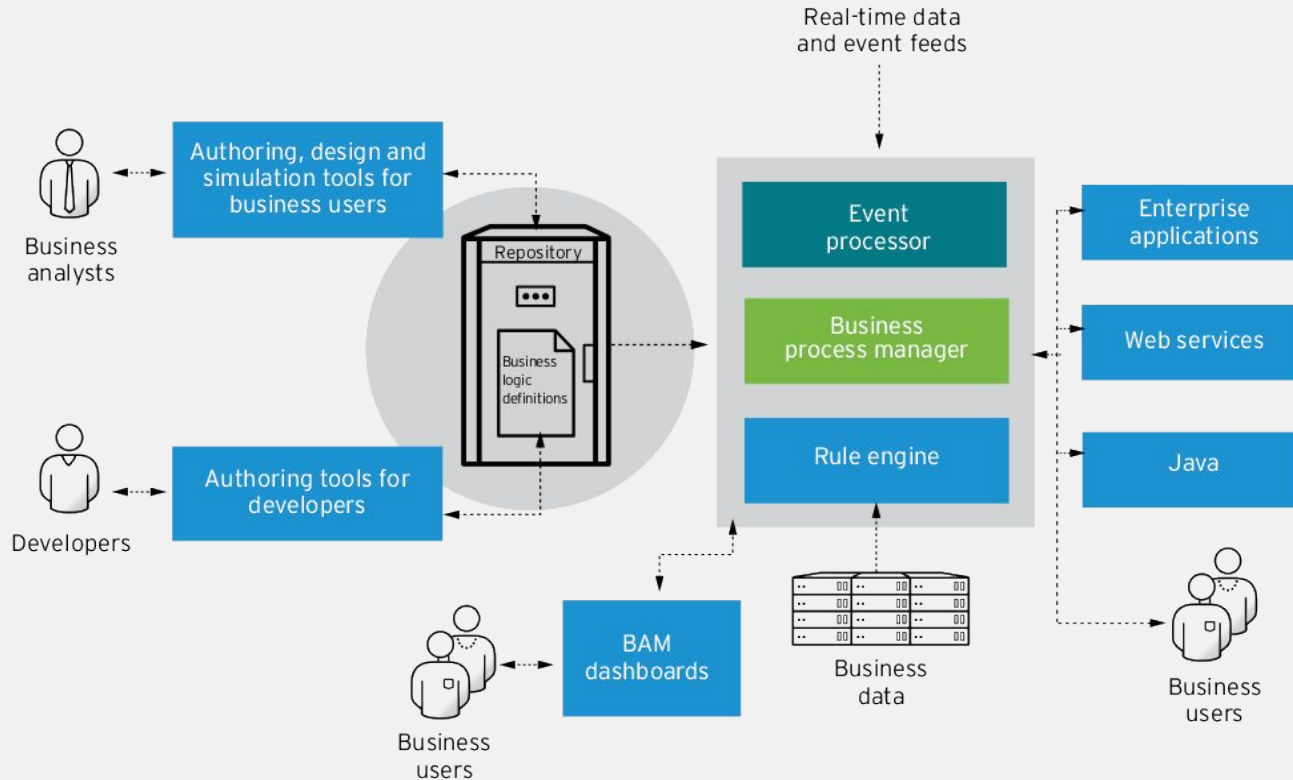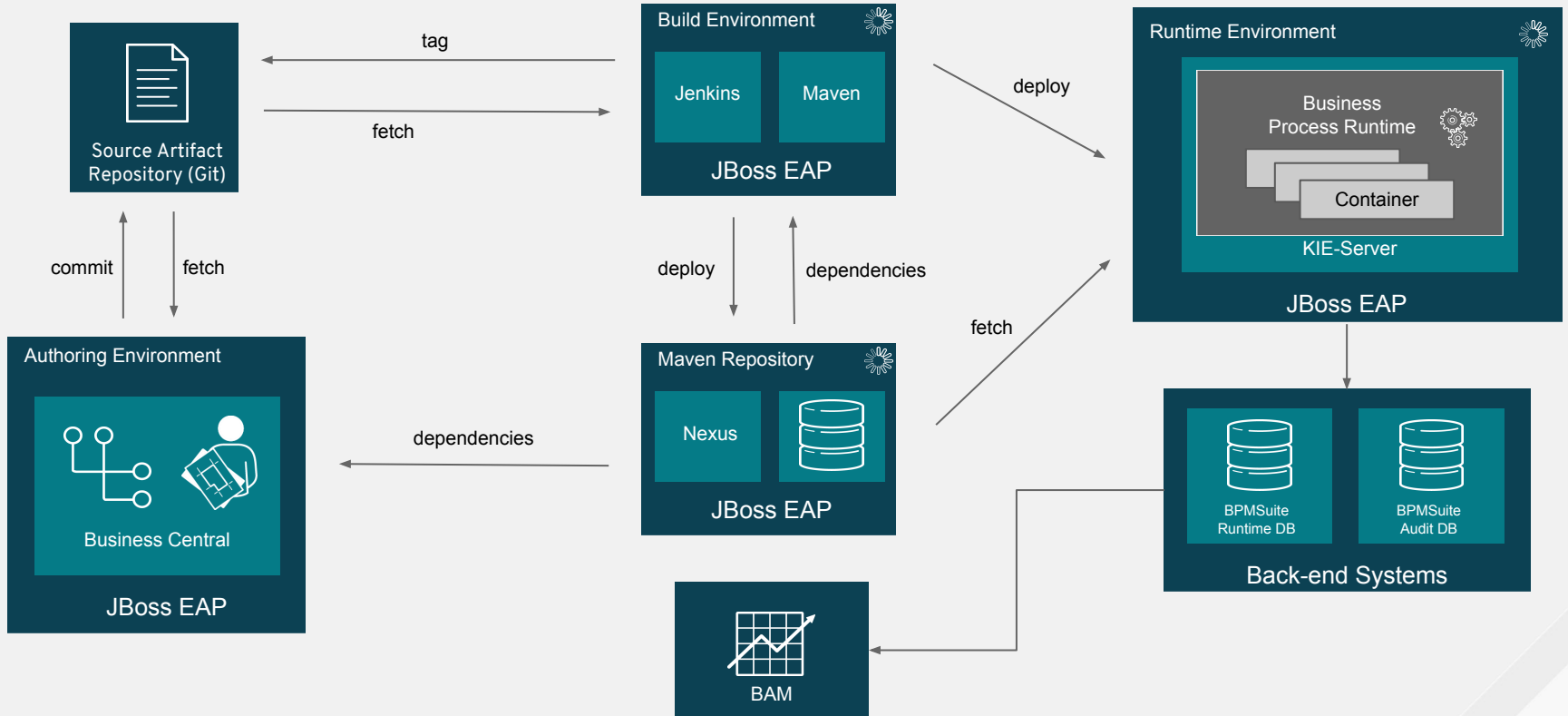
Example Architecture

When Can I Use It?

Endless Use Cases Across All Industries

Banking

Loan Organization
Credit Decisioning
Sales Advisory
Payments
Accounting

Insurance

Claims Processing
Underwriting
Quoting
Rating
Commissioning

Capital Markets

Automated Trading
Trade Order Mgmt
Accounting
Compliance KYC/AML

Public Sector

Claims Processing
Entitlement Calc.
Benefit Calc.
Fraud Detection
Screening

Telecom

Offer Configuration
Order Mgmt
Fraud Detection
Loyalty Programs
Network Monitoring

Transportation

Promotions Mgmt
Loyalty Programs
Customer Service
Billing
Contract Mgmt

Retail

Recommendations
Campaign Mgmt
Order Mgmt
Pricing

Manufacturing

Order Mgmt
Billing
Contract Mgmt

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Solid Business Automation Foundation

Red Hat technologies cover processes, decisions, complex event processing, and resource constraints.

Red Hat JBoss BPM Suite

Business Process Management

Business Resource Planning

Business Rules Management

Complex Event Processing

Red Hat JBoss BRMS

ON-PREMISE

PRIVATE

PUBLIC
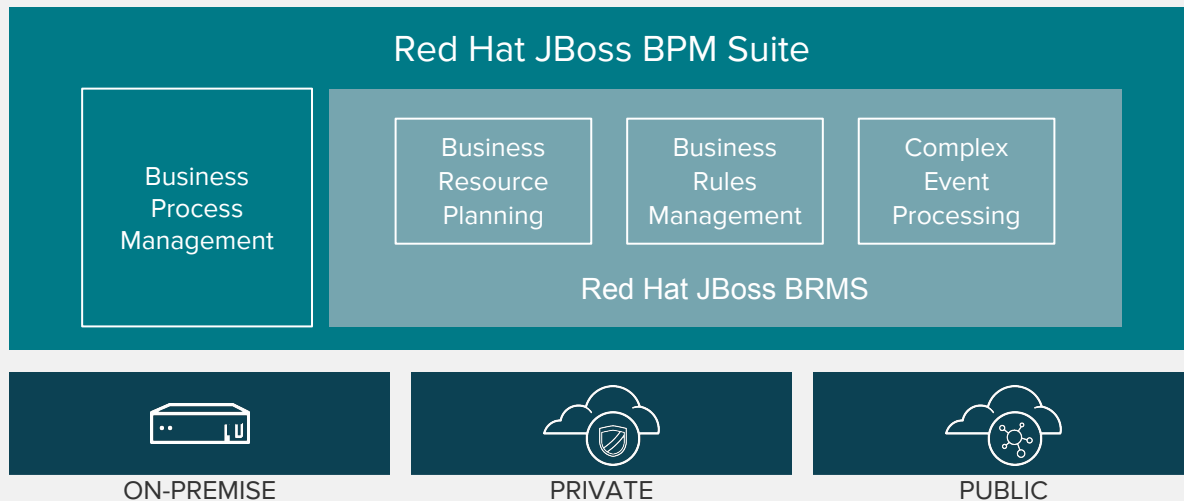
Intelligent Applications

Take things to the next level!

- Data Analytics
- Data Mining
- Process Mining
- Machine Learning
- Robotics
- Neural Networks
- Optimization (OptaPlanner)
- ...
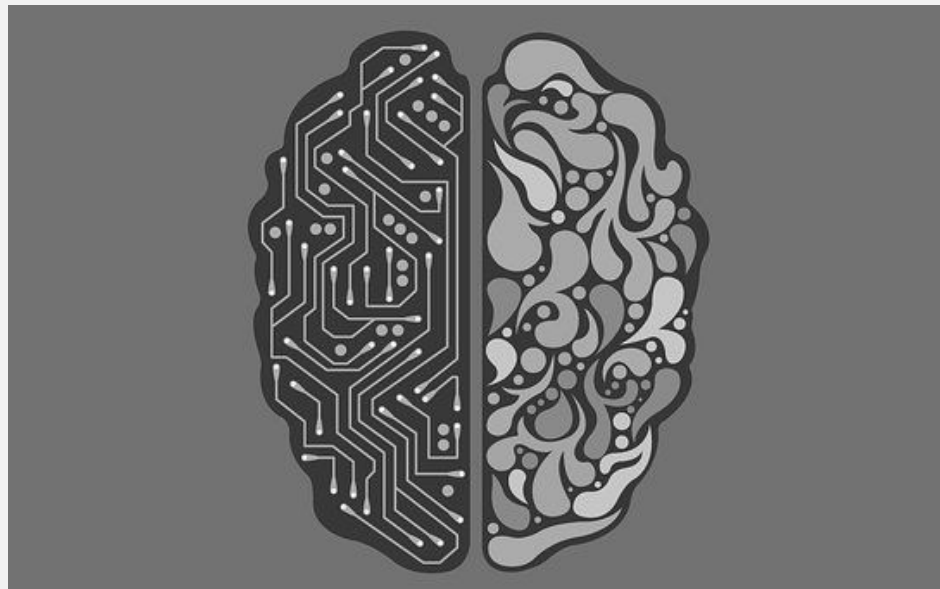
Self Learning Human Task

- Can work with decision tasks
    - Attributes of the process support the decision
    - Known set of decision results or numeric result
- Learns over time
- Once threshold is met the machine learning model takes over
- Ongoing training with random examples

Automated Audit Selection

- Instead of hard-coded rules
  - Reduce unneeded audits
  - Transactions slip through just under the line
- Use clustering
  - Common transactions flow through
  - Unusual transactions get caught

Self Learning Business Rules

- Automatically determine the importance and values of facts
- Have a feedback loop to indicate if a rule is less effective in its environment

Example: Automated financial application approval

BPM in a Microservices World

- Traditionally, business process management (BPM) programs have focused on standardization and continuous improvement—programs that require discovery, modeling, and analysis prior to implementation, which can result in long lead times. Today, businesses are less tolerant of long implementations and need to react quickly to changing customer expectations.
- Red Hat® JBoss® BPM Suite can be integrated into a microservice architecture to support frequent deployments, multiple concurrent versions, and flexible scaling. This helps businesses quickly react to disruptive technologies and social changes—and avoid outdated business models that can become obsolete in months rather than decades.
- Webinar:
  https://www.redhat.com/en/about/events/business-process-management-microservices-world

How Do I Get Started?

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Red Hat Discovery Session!

Free half-day to day long interactive session with Red Hat Subject Matter Experts.

CAPTURE your vision, challenges, and, opportunities

IDENTIFY relevant solutions and approaches

CREATE an action plan for success

Recommended Summit Sessions

Wednesday

- 10:15am - Thyssenkrupp: Workforce Optimization with Business Resource Planner and OpenShift
- 10:15am - Preview BPM Suite 7 And meet the brains behind it
- 11:30am - Migrating TD Bank's monolithic Java EE application to a microservices architecture
- 3:30pm - End to End BPM: From process modeling to execution with Signavio and Red Hat
- 4:30pm - Deep dive on case management
- 4:30pm - Decisions at a fast pace: scaling to multi-million transactions/second at Amadeus

Recommended Summit Sessions

Thursday

- 10:15am - How business automation is driving operational transformation at Citi
- 10:15am - Case management applications with BPM
- 11:30am - Advanced Drools
- 11:30am - Using BPM Suite in a reactive architecture with microservices deployed in Docker containers and managed in Amazon ECS (EC2 Container Service)
- 3:30pm - Dawn of the citizen developer: Low-code application development made easy in JBoss BPM Suite & BRMS 7

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