RLPTechnologies

JBoss innovation INNOVATOR OF THE YEAR 2006

RLPTechnologies: Customer Case Study
SOA Implementation on JBoss
JBoss World '2006: Las Vegas

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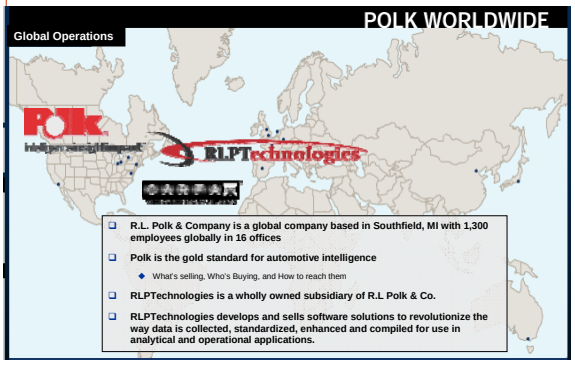
Director Enterprise Architecture

Overview

1. **Who We Are**
2. **Project Background**
3. **Solution Design**
4. **Key Results**
5. **Implementation Overview**
6. **The JBoss Difference**

R.L. Polk & Company



- R.L. Polk & Company is a global company based in Southfield, MI with 1,300 employees globally in 16 offices
- Polk is the gold standard for automotive intelligence
  - What's selling, Who's Buying, and How to reach them
- RLPTechnologies is a wholly owned subsidiary of R.L Polk & Co.
- RLPTechnologies develops and sells software solutions to revolutionize the way data is collected, standardized, enhanced and compiled for use in analytical and operational applications.

Polk's Data Assets

- **Polk manage complex set of online vehicle data to support the automotive industry**

~2.6 Billion Transactions	~500 Million Unique Vehicles	~250 Million Unique Households
		
• Titles • Registrations • Sales	• Passenger • Commercial	• Personal • Firms • Financial Institutions • Vehicle Manufacturers

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Collect Data From Over 240 Sources

- **Polk processes ~ 600M new transactions including vehicle registrations, title, sales and financial transactions annually from 240 data sources**

Primary Data Sources

- **Automobile Manufacturers**
- **Finance Companies**
- **State Governments**

Business processes → Services

- **Business process to Services: Alignment of business & IT goals !**
  - SOA is much more then implementing an "Integration bus" or any other software deployment.
  - SOA is a better way to do business integration
  - SOA helps migrate physical world processes to digital services.
  - SOA referees to services in the context of business services.
  - SOA success demands an understanding of existing business assets, processes and technical landscape.
  - SOA incremental change: Organic SOA.
  - SOA service classes
    - Infrastructure services.
    - Business services.

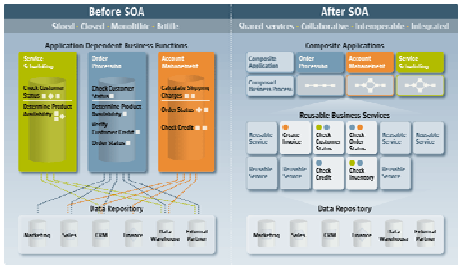
Business processes → Services

Moving to a Service mind-set : Paradigm shift !

- Services are not about technology
  - Services are about cost-effectiveness
  - Focus should be on what reusable functionality is needed
  - Technology issues are secondary
- Every interface isn't a service!
  - Services involve overhead, both at design and run-time
  - Granularity of work must outweigh the overhead
  - Must demonstrate potential for reusability (commonality)
  - Identify the multiple users of the service
  - Make sure that the functionality is, indeed, the same!

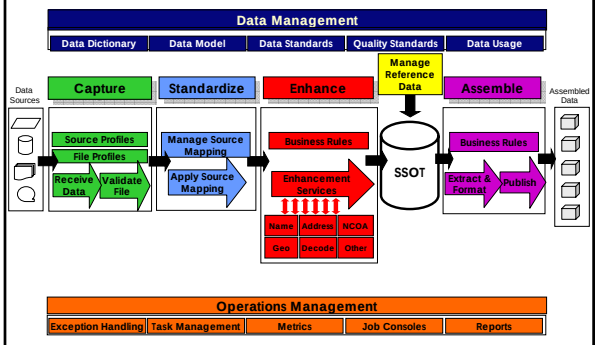
SOA Example

- **SOA: Example**



Reference: http://www.sun.com/products/soa

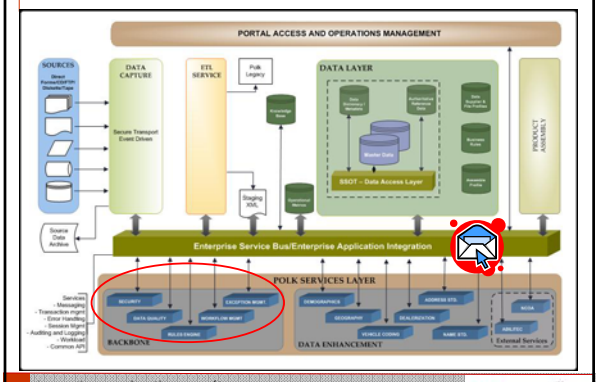
SOA Example: Enterprise Information Factory



SOA: Design & Platform

- **Service Design Tips**
  - Clear business purpose and usage
  - Determine and define META DATA & COMMUNICATION SCHEMA.
  - List service functions and function decomposition
  - Design Interfaces
  - Provide TEST interfaces
- **Infrastructure Services**
  - Common logging & error handling process
  - Security framework
  - Common transport and communication principals
  - Standardized recommended deployment platform i.e. Application server, DAL, Transaction handling, communication protocol and design principals

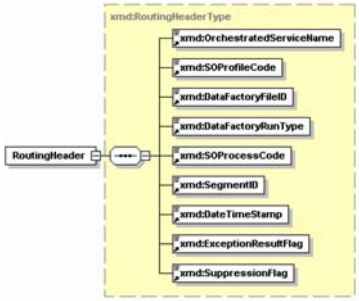
Conceptual Architecture: Backbone services



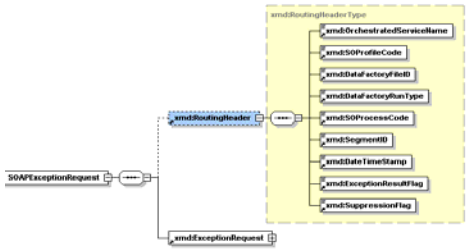
Transport mechanism: Overview

Figure 1. Service Transport SOAP Message Structure

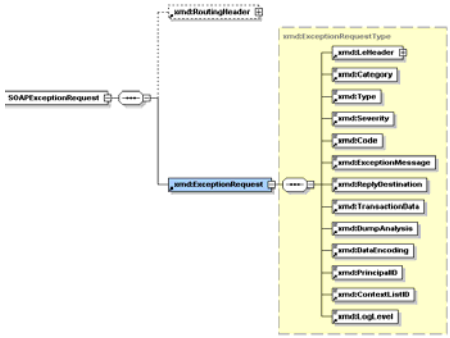
Transport mechanism: Overview



Transport mechanism: Overview



Exception & Error Handling: XSD Overview



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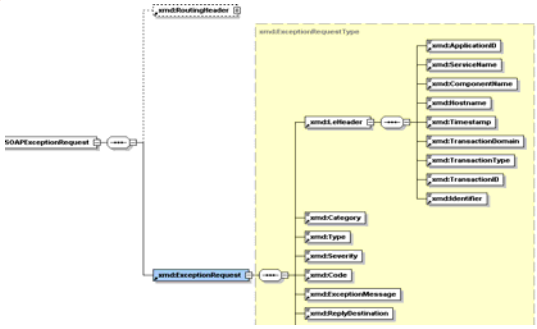
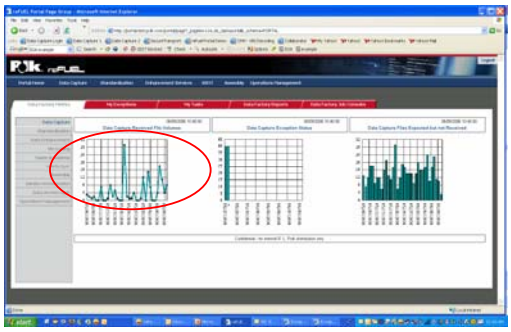


Operations management: Centralized exception handling & Logging



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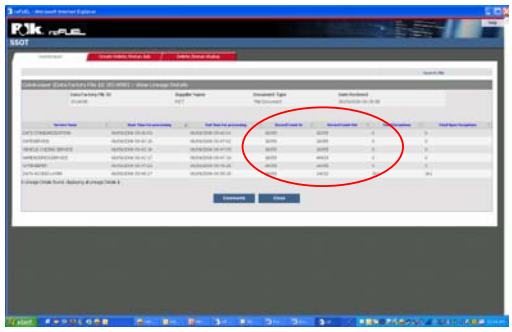
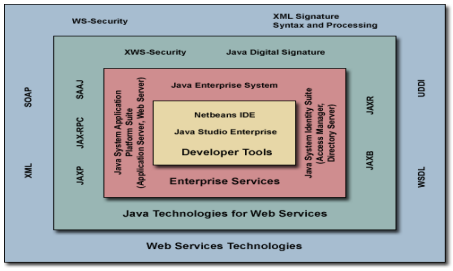


Service development and deployment platform



Enterprise Information Factory: Product Positioning

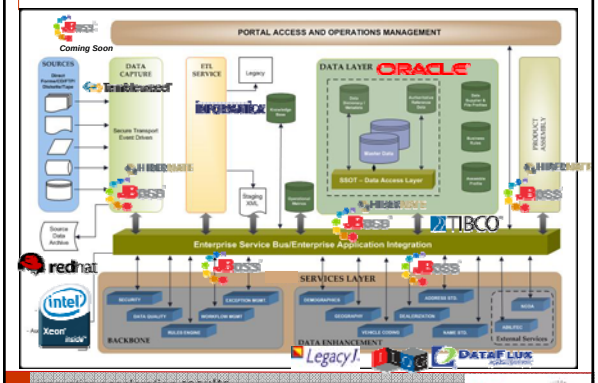
- **Business Intelligence Tools**
  - **Focus: On extraction, assembly & presentation.**
  - Oracle
    - Data warehouse builder
    - OLAP
    - Etc..
  - SAS
  - COGNOS
- **Converting Data → Valuable Business Information**
  - EIF: Enterprise information factory
  - Focus: Optimize data processing & enhancement processes to help store consistent high quality data in the Data Warehouse. Industry pioneer & leader in this space.

Technologies

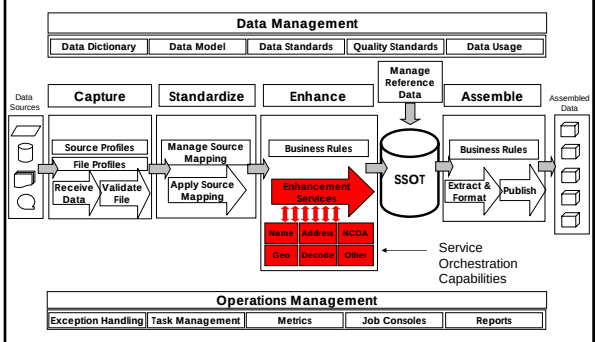
- JBoss
- Hibernate
- Oracle
- Oblix
- TIBCO
- Tumbleweed
- Informatica
- DataFlux
- iLog
- LegacyJ

- **OS & Hardware platform**
  - •Redhat LINUX
  - •INTEL XEON Grid
- **Architecture & Open Standards**
  - • SOAP & JMS
  - • XML
  - • J2EE

Enterprise Information Factory Conceptual Architecture



Connecting Value Added Services to Factory



Service Orchestration

- **Capabilities for Processing Very Large Volumes**
  - File-processor: Horizontal & Vertical Parsing of Large XML documents
  - Parallel Processing
- **Flexibility to Integrate New Services**
  - SOAP based calls to internal & external services
  - Service dependency tracking based on input & output data elements
- **Flexibility to Introduce New Data**
  - File processor: Pass through new & unused data elements downstream
- **Parallel Processing**
- **Capabilities for Processing Very Large Volumes**

The JBoss Difference

- Support
- Scalability
- Ease of use
- Cost
- COTS Supportability
- LGPL

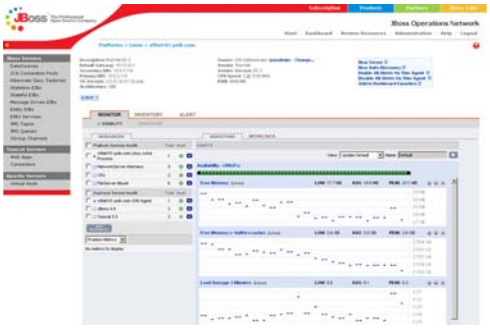
JBoss Portal

- RLPTechnologies has a long history using JBoss Application Server - JBoss Portal perfectly fits into our existing infrastructure
- JBoss Portal utilizes JBoss Application Server clustering which allows RLPTechnologies to develop extremely scalable solutions
- Performance and reliability
- JBoss' products are well supported

JBoss Portal

- Open source helps to understand the product better and solve problems faster
- JBoss Portal supports JSR168 that gives RLPTechnologies a freedom to use third-party portlets
- JBoss Portal provides JAAS interface
- Easy theme, layout, portlet, and page deployment
- WSRP (Web Services for Remote Portlet) support

JBoss: Operations Network



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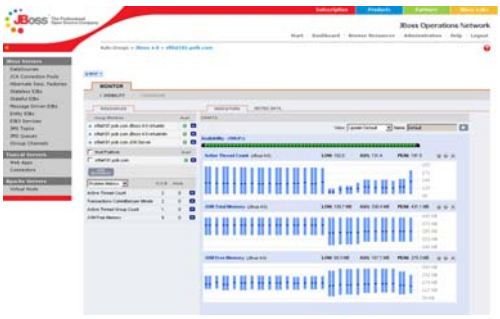
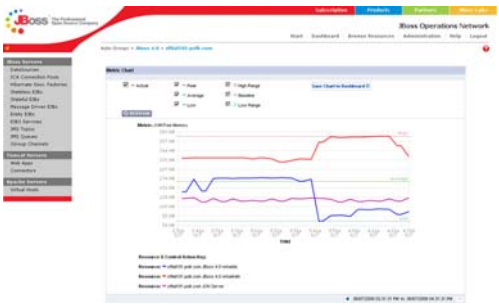


JBoss: Operations Network



EIF Security

Business Risks

Need for Asset Protection
- Intellectual Capital
- Maintain Privacy Data

Need for Brand Protection
- Maintain Customer Trust

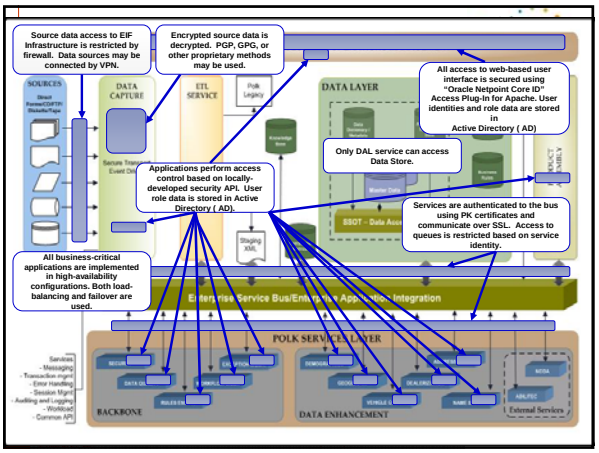
Need for Regulatory Compliance
- SOX
- GLBA
- HIPAA
- CA SB1386
- Avoid Litigation and Fines

Requirements

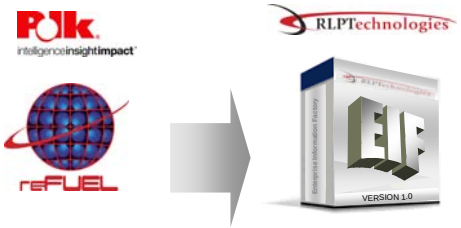
Confidentiality
- Establish strong access control for sensitive data.

Integrity
- Ensure data processed is valid, and originates from an approved source.

Availability
- Avoid outages in critical systems.



R.L. Polk Project Incubated a New Company & Product



PROJECT PRODUCT

The Enterprise Information Factory

Customer Case Study – EIF implementation at POLK

- **Process Change and Shifting Focus**
  - Provide an environment for future product & application developments efforts to focus on:
    - Incorporating new sources of data
    - Strengthening and developing new analytic & data mining solutions
    - Improving timeliness and availability of data for use in market intelligence applications

Customer Case Study – EIF implementation at POLK

- **Provided world-class data collection & compilation services**
  - Automated manual processes, enabling an environment supporting improvements in the ***timeliness and availability of data***
  - Significant productivity improvements of up to 70%
- **Enabled a Single Source of the Truth**
  - One logical view of comprehensive information assets
    - Eliminate redundancy and potential for inconsistencies
    - Enhance data to ***ensure accuracy and completeness***
    - Ensure ***industry-leading data quality***
- **Built a service oriented architecture for application development and orchestration of data and data enhancement services**
  - Protected legacy applications and extended functionality of key applications
  - Orchestration engine provides for ***flexibility for maximizing use of data***, and an environment to enable the introduction of new services (applications or enhancement routines)
- **Shifted to a grid based computing model to empower capacity on demand**
  - Flexible and open environment providing future computing power, at significantly reduced costs

2006 JBoss SOA Innovation Award

Congratulations to the entire RLPTechnologies team