ECLIPSE STARDUST – A BPM SUITE WITH 1,500+ WORLDWIDE INSTALLATIONS IN THE FINANCIAL INDUSTRY

Eclipse Banking Day
October 31, 2014

Dr. Marc Gille
Product Management SunGard Infinity
SunGard is a leading provider of services and systems for the financial industry.

Infinity Process Platform (IPP) is a 14-year old mature BPM product, based on the CARNOT Process Engine.

IPP is SunGard’s strategic platform for BPM, Workflow, Document Processing and Integration.

IPP is used in more than 60% of products/solutions of SunGard business units.

More than 1,600 production deployments worldwide

- > 10,000 users
- > 1,000,000 processes/day
- > 300,000 documents/day

Low-latency profiles with > 10,000 processes per second.

Ranked #2 in Vision in Gartner MQ for BPMS in 2007

IPP has been made available to the Open Source Community via Eclipse Stardust (www.eclipse.org/stardust).
OPEN SOURCE BPM
## LEADING OPEN SOURCE BPMS

<table>
<thead>
<tr>
<th></th>
<th>Stardust</th>
<th>jBPM</th>
<th>Bonita</th>
<th>Activiti</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lines of Code</td>
<td>2,244,289↑</td>
<td>2,197,294↑</td>
<td>2,080,210</td>
<td>367,563↑</td>
</tr>
<tr>
<td>Person Years</td>
<td>636</td>
<td>628</td>
<td>589</td>
<td>84</td>
</tr>
</tbody>
</table>

Source: http://www.ohloh.net/
(Now Open Hub, data from 10/22/14)
STARDUST ECOSYSTEM

Infinity Process Platform

- Development
- Contribution
- Consumption via Eclipse Public License (EPL)
- Git Synchronization

SunGard

- Maintenance or PaaS/Managed Services
- Consumption via SunGard-proprietary commercial license
- SunGard Customers

Eclipse Community

Contribution

SunGard Customers

Contribution

Consumption via SunGard-proprietary commercial license
STARDUST APPROACH
GENERAL SOLUTION SCENARIO

BPM Software Artifacts

- Service Call
- Web/REST Services, Java/Spring/EJB Endpoint
- Arbitrary technology connection point (e.g. File, Message Queue, Database, Socket, Mail, Excel)
- Data/Messages/Documents
- Integration Glue Logic (e.g. JavaScript, Python, Message Transformation, Rule Set)

Connectors/UI Building Blocks

- Legacy/Third Party System
  - e.g. Customer Management
- Legacy/Third Party System
  - e.g. General Ledger

New Component
- e.g. Big Data Analytics

Legacy/Third Party System
- e.g. Customer Management

Legacy/Third Party System
- e.g. General Ledger
FROM MODELING ...

- Input, e.g.
  - Incoming Messages or Files
  - Timers
  - Other Events

- Process Data-based Routing
  - AND/OR Splits/Joins
  - Conditions

- Data
  - Structure Modeling
  - Data Flow
  - In Memory Representation

- Services
  - Outgoing Messages (e.g. FIX, SWIFT)
  - Service Invocations (e.g. Web/REST Services)
  - Database/File Communication

- Organizational Hierarchy
  - Roles and Organizations
  - Conditional Performers (e.g. Maker/Checker)
  - Departments

- Interactive activities, e.g. for Human Intervention on Exceptions
... TO EXECUTION
A REAL WORLD SCENARIO
Sungard Investments in Connectivity

Normalized Services based on Web/REST Services, DB, File, Message Queues and Data Models are provided and maintained for all SunGard Systems.

Services and Data Models can be reused for Hapoalim Processes.

- SunGard is providing business logic, services, integration logic and integration expertise from one hand.
- SunGard will maintain services going forward.
- Integration strategy matches SunGard overall product and integration strategy.

Service Invocation

Use of Data Models
STARDUST USAGE SCENARIOS
INTERACTIVE WORKFLOW

Requirements
• Modeling of organizational structure
• Connectivity to User Management/Single Sign-On
• Configurable UI
• Large Number of parallel Users

IPP Solution
• Department Concept
• LDAP/SAML
• UI Mashups
• Custom Views/Skinning
• Reporting
• Simulation

Customer Examples
• CSS Versicherungen, CH
• Degussabank, Frankfurt
• Postfinance, CH
• Heineken, NL
• SEB, LIT
• CITIC Trust, China
• UMB, USA
• Commerzbank/Dresdner Bank
DOCUMENT PROCESSING

Requirements
• Document Storage
• Document Viewing
• Links between Processes and Documents

IPP Solution
• Document Repository
• TIFF-Viewer and Editor
• Server-side PDF-Viewer
• Document Types and Metadata
• Document Security

Customer Examples
• Schweizer Bundesbehoerde, CH
• Japan Post, Japan
• Japan Postal Bank, Japan
• State Street Bank, USA
• Key Bank, USA
• UMB, USA
• Liberty, South Africa
DATA EXTRACTION AND TRANSFORMATION

Requirements
• Receive request for data gathering from multiple systems
• Data retrieval from these systems
• Data transformation, normalization and merge
• Return data
• Possibly high record volume (~ 100,000)

IPP Solution
• Simple message transformations via drag & drop
• Complex message transformation with JavaScript
• Out-of-the-box connectivity to RDBMS, Files etc.
• Well-defined Connector structure to be used for custom connectors (e.g. to OMNI)
• Parallel data gathering via process topology

Customer Examples
• Citibank, USA
• UMB, USA
• Fidelity Investments, USA

e.g. Relational Database
MESSAGE PROCESSING

**Requirements**
- Connectivity to financial networks and protocols (FIX, SWIFT, XML)
- Grouping of messages
- Correlation of messages (e.g. for cancellation)
- Content-based routing
- Message Multicast
- Low(er) latency

**IPP Solution**
- FIX and SWIFT connectivity
- Message transformation to normalized format
- Caching and JMS channeling for sequencing
- Routing via transition conditions
- Transient processing/write-behind for highest throughput/lowest latency

**Customer Examples**
- SWIFT, Belgium
- Credit Suisse, Switzerland
EVENT PROCESSING

Requirements
• Different incoming market data streams (e.g. Market Map, Bloomberg, Reuters)
• Normalization of content
• Client push

IPP Solution
• FIX and SWIFT connectivity e.g. market data streams
• Correlation of messages arriving in time window via caching
• Message transformation to normalized format
• Rules for golden copy creation
• Client push via publish/subscribe via REST Push and HTML messaging

Customer Examples
• SWIFT, Belgium
• Credit Suisse, France
• Goldman Sachs, USA
BPM-AS-A-SERVICE
INFINITY ON DEMAND ECOSYSTEM

SunGard BU

Relius BA Team

Create and manage Solution

Payment Processing

Provisioning

SunGard FS Cloud

Customer Infrastructure

SunGard Customer ACME

ACME BA Team

ACME Payment Approval

Customers
(Legal Entity billed for Services)

Teams

Solutions
(Process Models, Rules Sets, Code etc)

Solution Instances
(= Managed IPP Runtime Environments)
SOLUTION CREATION AND PROVISIONING FLOW
Questions