Case Study: Streamline ATP Checks with HPI Smart Enterprise Widgets

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What We’ll Cover …

• Warm-up

• Available-to-promise process

• Demo: Widgets

• User-centered design process

• Yahoo! Widget Engine

• Development and implementation details

• Demo: Browser-based ATP check

• Wrap-up
Hasso Plattner Institute – Facts and Figures

- Hasso Plattner Institute belongs to the University of Potsdam, founded as a public private partnership in 1999
- Ranked fourth in “CHE” and Karriere Magazine
- 340 B.Sc. and M.Sc. students, 10 professors, 50 PhD students
Chair of Prof. Dr. Hasso Plattner/Dr. Alexander Zeier

- Currently nine PhD students
- Research co-operations with Stanford and MIT
- Industry co-operations with SAP, Siemens, Audi, and others
- Research areas:
  - Main Memory Database Technologies
  - Design and User Experience
  - Enterprise Architecture Foundations
User Value of an Enterprise Service-Oriented Architecture

- Get students and start with a completely new idea
  + Combination of information from different sources
  + New process on top of exposed standardized enterprise services
  + Fast recombination of available information
  + Reduction of setup and waiting time

= Widgets!
Widgets …

- Are tiny JavaScript applications performing highly specialized user demands, i.e., no general purpose applications
- Reside omnipresent on the user’s desktop
- Can run without opening any Internet browsers
- Leverage seamless process integration directly to the user’s desktop
- Can be prototyped in a very short time
- Increase individual productivity by addressing especially your main business task
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Available-to-Promise – The Problem

• Retail stores for wine articles and accessories
  ◆ Stores are grouped as a chain
  ◆ No central order processing and logistics available
  ◆ Only small local product reserves in each store

• Problem:
  ◆ How do you satisfy customers asking for unavailable products?
Available-to-Promise – The Solution

• Customer should be able to:
  ◆ Check availability of products in other stores within the same chain
  ◆ Place a reservation for products in alternative stores
  ◆ Find information about the location of alternative stores
  ◆ Get contact details and addresses of other stores
  ◆ Collect reserved products without having a long waiting time
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1. I'd like to have a *Chateau Massamier, 2001*.

2b. … How many bottles do you want to have?

2a. Please let me check it quickly …

3. Two boxes.

4. Let me look in other stores …

5. Berlin near Friedrichstr. Sounds good for me, please reserve them.

6. Sure. You can pick them up there.
The screencast shows widgets in action

Availability of *Chateau Massamier, 2001* is checked

Product is reserved in a dedicated store of the chain

Done without opening any browser window or additional application

This check can be performed faster

- By eliminating the start-up time of additional applications
- Without the need of change in the existing SAP ERP system
- Only by optimizing front-end implementation
Demo – Widgets (cont.)

Demo
1. Product Search

2. Search Results
Demo – Widgets (cont.)

3. Integrated ATP check and shop details

4. Placed reservation for 12 bottles
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What Are the User’s Problems?

• What is the problem to be solved by widgets?
  ◦ Identify your individual main business tasks!
    ▶ How do you do this?

• Characteristics of your main business tasks
  ◦ Performed many times a day by a lot of your colleagues
  ◦ Highly standardized process
  ◦ Needs a relatively short time to be performed
Identify the User’s Pain Points

- Schedule a 1:2 interview (interviewee, interviewer, notes taker)
- Ask to be a part of his/her daily work routine for one day
- Identify his/her pain points – listen carefully!
  - Open a new browser window (~5 seconds)
  - Navigate and select appropriate bookmark
    - “ATP check” (~5 seconds)
  - Select appropriate settings, enter query, waiting time (~20 seconds)
  - At least 40% of the process is setup and waiting time!
Identify the User’s Pain Points (cont.)

• Take artifacts with you to develop empathy
  ◦ Photos
  ◦ Videos
  ◦ Record Voice
  ◦ Documents
  ◦ Post-Its
  ◦ Etc.

• Widgets significantly reduce the setup and waiting time of the implemented process!
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Yahoo! Widget Engine – Functions

- Technically, widgets …
  - Are packed ZIP-archives
  - Contain interpretable JavaScript code
  - Are installed by one click
  - Are maintained by Yahoo! Widget Engine

- Enhanced functionality to support
  - Access to OS functionality
  - Special function calls
  - Message exchange and communication
  - Etc.
Yahoo! Widget Engine – Requirements

• Execution environment for JavaScript desktop applications

• Binaries available for wide variety of systems (Oct. 2007)
  † Microsoft Windows XP, SP2
  † Microsoft Windows 2000, SP4
  † Microsoft Windows Vista
  † Mac OS X 10.3.9 and newer
Yahoo! Widget Engine

- Is an application platform that can be downloaded for free
- Contains an interpreter to run JavaScript applications independently without opening a browser window
- Is shipped with a set of widgets that are free to try
- Maintains a huge gallery of widgets freely available from its Web site; installable by one-click installation
- Contribution is free and can be submitted to the Web site by everyone; widget functionality is briefly checked
Deployment

• **Yahoo! Widget Engine**
  ‣ Has to be installed once per machine
  ‣ Uses group policies to deploy binaries once

• **Individual widgets**
  ‣ Integrate links to widgets within your enterprise portal
  ‣ One-click installation feature
  ‣ Automatic update check and installation by Yahoo! Widget Engine
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Widget Integration Architecture

- Widgets
- Service Access Layer Manager
- Service Wrapper
- Web Server
- SOAP
- SAP® Web Service Backend
- 3rd Party Web Service Backend
- JSON
Development and Implementation Details

- **Service Wrapper in the application server:**
  - Shields widgets from Enterprise Service implementation
  - Reduces code complexity in widgets
  - Creates serialized JavaScript Object Notation (JSON) stream to be consumed directly by the widgets
    - JSON is a JavaScript object stream that is natively interpreted from its serialized representation in the widget environment
    - No need to create objects on client side separately
    - Less code in the front end necessary to create applicationspecific program patterns
    - Performs better in terms of execution time
Development and Implementation Details (cont.)

- **Application server**
  - Offers a single point of maintenance for all widget clients
  - Is a tuning point, e.g., caching and configuration
  - Offers additional scalability, e.g., by shielding data access triggered by the widget from database
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Why Build Widgets Using the SOA Paradigm?

- Standardized way to acquire data from SAP solution
- Variation of different data sources, i.e., SAP SCM, RSS Feeds, Google Maps, etc.
- Technology-independent communication (abstraction from client machines)
- Flexibility to change implementation for same functionality on demand, e.g., browser-based alternative also possible
## Widgets vs. Browser Solutions

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Widget</th>
<th>Browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment</td>
<td>Automatic installation by the Yahoo! Widget Engine</td>
<td>Regular refreshes of deployed archives on the application server</td>
</tr>
<tr>
<td>Development time</td>
<td>Fast prototyping improves development time</td>
<td>Complex development lifecycle</td>
</tr>
<tr>
<td>Application size</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Output generation</td>
<td>Data is consumed, application logic and output are processed on client side</td>
<td>Application server creates complete output directly, only rendering is performed on client side</td>
</tr>
</tbody>
</table>
Browser-Based ATP Check

- **Scenario:** User looks for Chateau Massamier, Merlot Reserve, 2001
- Form a query to find availability of specific wine
- Find additional stores that supply this wine
- Place a reservation for the customer
- Get information on how to reach the store
- Process a reservation from your list and update status
Demo – Browser-Based ATP Check

Demo
1. Product Search

2. Search Results
Demo – Widgets (cont.)

3. Integrated ATP check

4. Placed Reservation
5. Order Confirmation

Confirmation

confirmation code:

b169a014a8af

You successfully made reservations for the following items:

position title: Chateau Massamier, Merlot, 2003
amount: 18 bottles
location: Tuks Weinladen
Marienstraße 11 10117 Berlin
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What Is the Value of Enterprise SOA?

- Enterprise SOA forces company-wide and industry-wide technology standardization
- Compatible interfaces
- Interoperability with solutions of different software vendors
- Combination of arbitrary potentials distributed, heterogeneous data sources
- Huge tool support available
- Helps to focus on processes instead of technology
- Offers various extension points for customer developments
Resources

- Hasso Plattner Institute
  - www.hpi-web.de
- Yahoo! Widget Engine and widgets for download
  - widgets.yahoo.com
- Enterprise SOA
  - www.sap.com/platform/esoal/
- Introducing JSON
  - www.json.org/
- User-centered design
  - www.stcsig.org/usability/topics/articles/ucd%20_web_devel.html
7 Key Points to Take Home

• Involve users in the design process by using user-centered design
• Enterprise SOA creates user value by combining information from different sources
• Integrate business processes directly in the user desktop with the help of widgets
• Create value by introducing new business processes on demand by implementing widgets
• Reduce the setup and waiting time of your main tasks by using enterprise SOA
• Reduce deployment costs for enterprise application with the one-click installation of widgets
• Optimize hardware usage by leveraging application logic directly to connected client machines
How to Contact Us

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