



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 Examples

The image displays a collection of various web widgets:

- 3D Surface Plot:** A 3D visualization of a surface with a color gradient from blue to red.
- Reflection Widget:** A control panel for a 3D object, including options for Perspective, Image/Object, Misc, and Script.
- Weather Network Widget:** A weather forecast for Calgary, AB, showing a current temperature of 21°C and a 5-day outlook.
- Stock Market Widget:** A list of stock prices including DJI, NASDAQ Composite, YHOO, PIXR, ADBE, and SBUX.
- SearchSAP.com Widget:** A navigation menu for SearchSAP.com with a list of news items related to SAP.
- SHOP.companion Widget:** A product listing for 'Lava lamp' with search and department filters.
- Transmeta Corp. Widget:** A stock price chart for Transmeta Corp. (TMTA) showing a price of 1.17.
- Activometer Widget:** A utility widget showing system information like 'Other applications', 'Mozilla Firefox', and 'Yahoo! Widgets'.
- IBEX 35 Day Widget:** A stock price chart for the IBEX 35 index.
- News Widget:** A news feed with a 'NEWS BITS LOCAL SEARCH' header and various headlines.
- Map Widget:** A map of Switzerland with city names like Basel, Bern, Luzern, and Chur.
- Market Data Widget:** A widget showing exchange rates and market indices like CAC 40, 1 €, and Oil.

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?



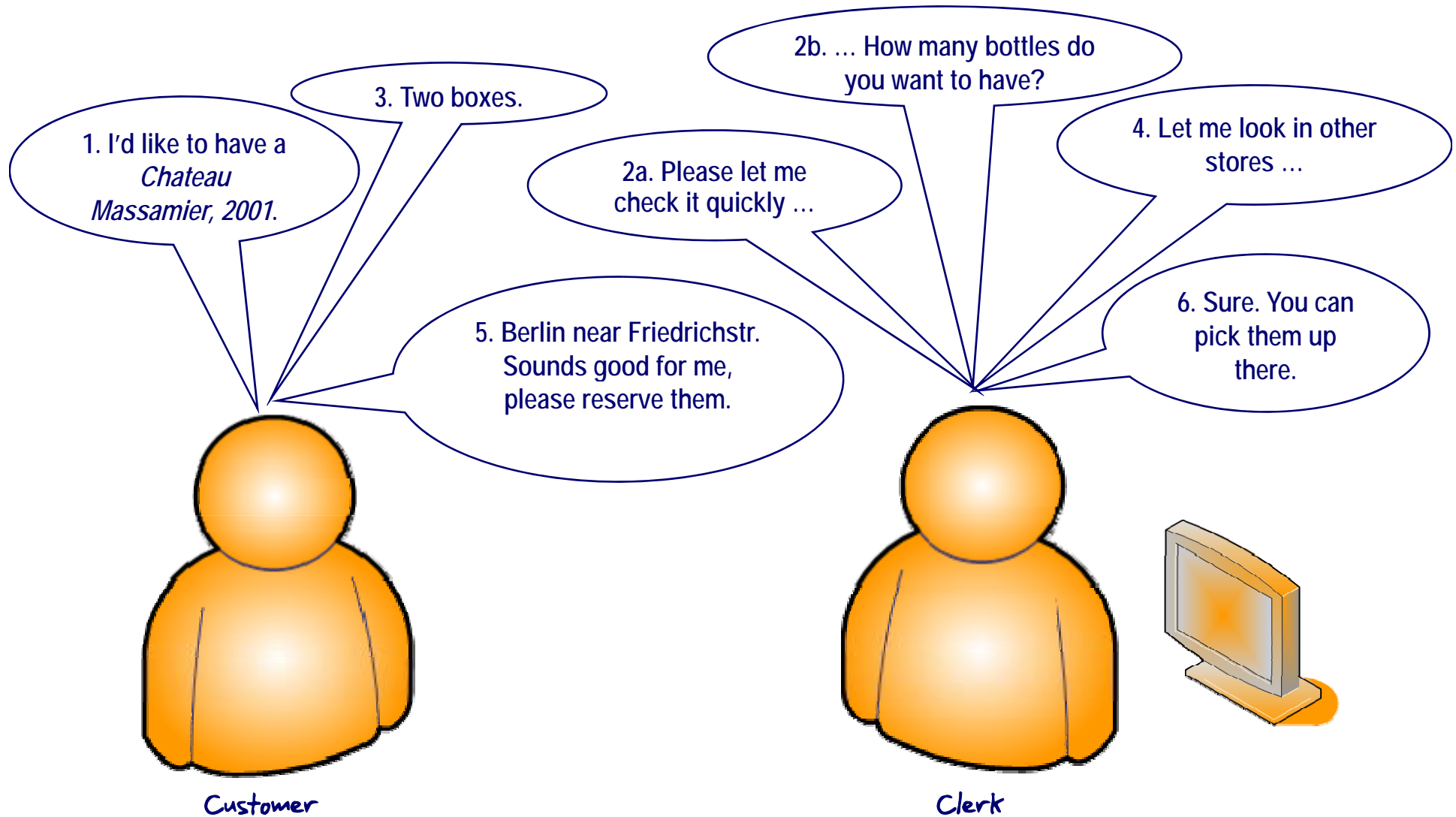
Available-to-Promise – The Solution

- **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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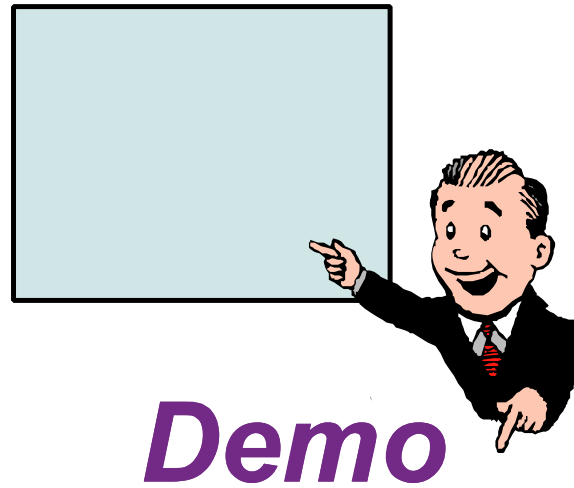
Demo – Widgets



Demo – Widgets (cont.)

- 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 – Widgets (cont.)

1. Product Search



2. Search Results



Demo – Widgets (cont.)

3. Integrated ATP check and shop details

The screenshot shows the SAP interface with a search for 'chateau ma merl'. The main table lists the following items:

Item Name	Quantity	More
Chateau Massamier, Merlot Reserve, 2000 ID: HPI-W-18	0.0	more
Chateau Massamier, Merlot Reserve, 2001 ID: HPI-W-19	0.0	more
Chateau Massamier, Merlot, 2001 ID: HPI-W-20	60.0	more
Chateau Massamier, Merlot, 2002 ID: HPI-W-21	100.0	more

On the right, a pop-up window shows shop details:

Shop Name	Quantity	Book
Der Weinladen	62.0	<input type="text" value="0"/> book
Tuks Weinladen	50.0	<input type="text" value="0"/> book
Habel's Weinscheune	82.0	<input type="text" value="0"/> book

Below the shop details is a map showing the location of the shops in a city street grid.

4. Placed reservation for 12 bottles

The screenshot shows the SAP interface with a search for 'chateau ma merl'. The main table lists the following items:

Item Name	Quantity	More
Chateau Massamier, Merlot Reserve, 2000 ID: HPI-W-18	0.0	more
Chateau Massamier, Merlot Reserve, 2001 ID: HPI-W-19	0.0	more
Chateau Massamier, Merlot, 2001 ID: HPI-W-20	60.0	more
Chateau Massamier, Merlot, 2002 ID: HPI-W-21	100.0	more

On the right, a pop-up window shows shop details with a reservation for 12 bottles:

Shop Name	Quantity	Book
Der Weinladen	62.0	<input type="text" value="0"/> book
Tuks Weinladen	38.0	<input type="text" value="12"/> book
Habel's Weinscheune	82.0	<input type="text" value="0"/> book

A notification banner at the top of the pop-up window reads: "Wine successfully booked!". Below the shop details is a map showing the location of the shops in a city street grid.

What We'll Cover ...

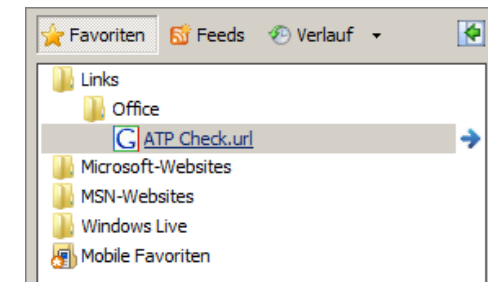
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What Are the User's Problems?

- 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

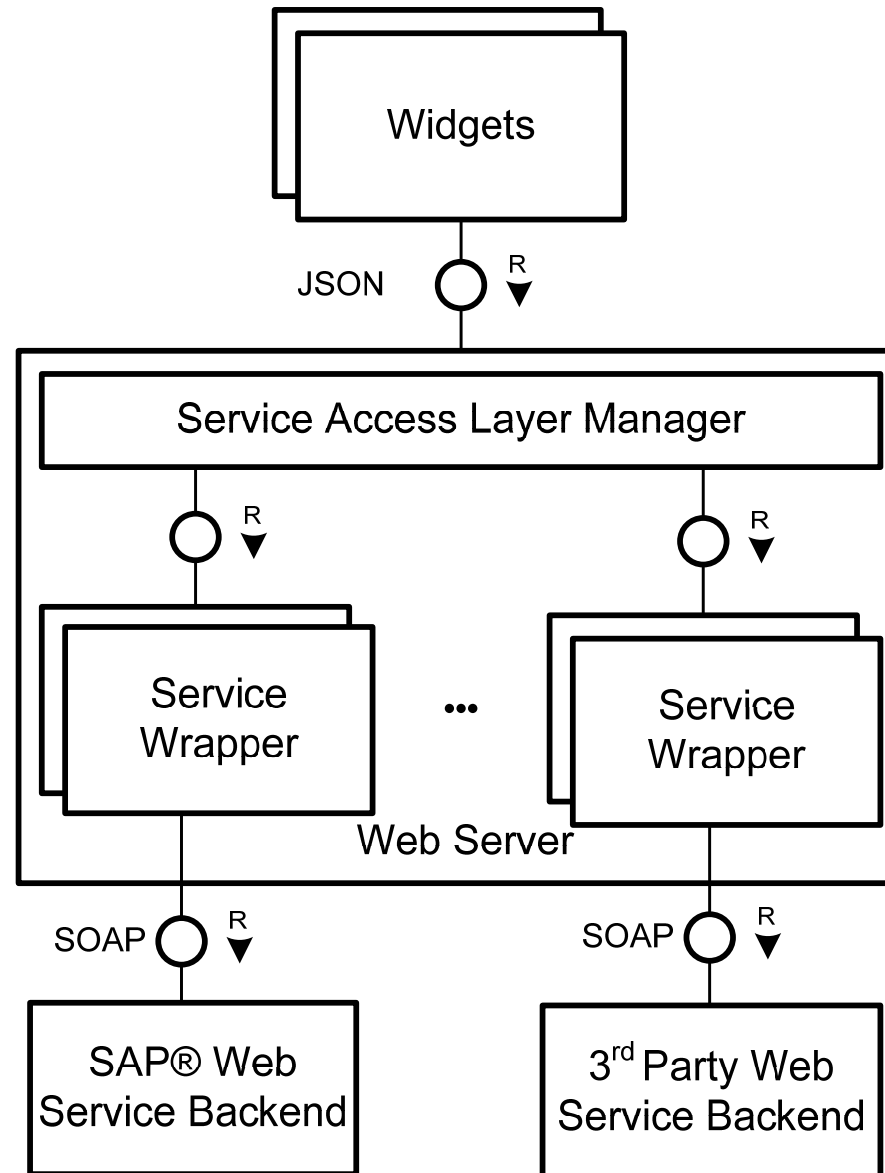
Deployment

- **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



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 application-specific 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

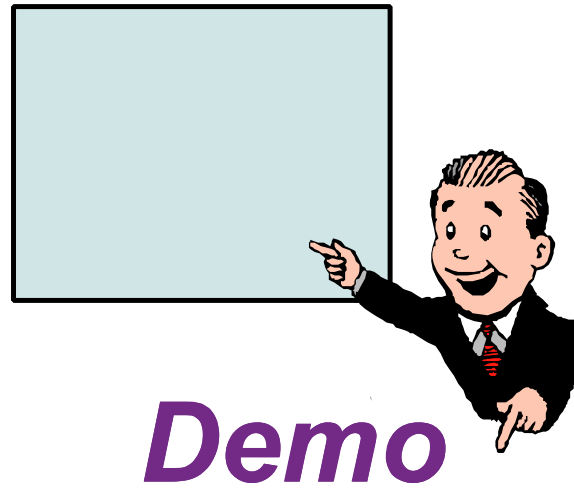
Widgets vs. Browser Solutions

Criteria	Widget	Browser
Deployment	Automatic installation by the Yahoo! Widget Engine	Regular refreshes of deployed archives on the application server
Development time	Fast prototyping improves development time	Complex development lifecycle
Application size	Small	Large
Output generation	Data is consumed, application logic and output are processed on client side	Application server creates complete output directly, only rendering is performed on client side

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 – Widgets

1. Product Search



2. Search Results



Demo – Widgets (cont.)

3. Integrated ATP check

Search query: Chardonnay 2002

Results for: Chardonnay

Ch. Saint Martin (2002) 0 in stock

Ch. Saint Martin, Chardonnay, 2002 other shops

Domaine Perrin (2002) 0 in stock

Domaine Perrin, Chardonnay Reserve, 2002 other shops

22.4 km	Wine World	94
8.9 km	Der Weinladen	100
27.3 km	Habel's Weinscheune	60
3.7 km	The Wine Shop	100
741 m	Tuks Weinladen	100

4. Placed Reservation

Search query: Sauvignon Blanc 1990-2003

Results for: Sauvignon Blanc

Ch. Saint Martin (2003) 100 in stock

Ch. Saint Martin, Sauvignon Blanc, 2003 other shops

Chateau Massamier (1999) 89 in stock

Chateau Massamier, Sauvignon Blanc, 1999 other shops

Chateau Massamier (2003) 97 in stock

Chateau Massamier, Sauvignon Blanc, 2003 other shops

Cart check out

Domaine Perrin (2002)

Der Weinladen (100) 10

– please select location –

Ch. Saint Martin (2003)

Tuks Weinladen (100) 16

Der Weinladen (100)

Habel's Weinscheune (100)

Wine World (100)


The Wine Shop (100)

Demo – Widgets (cont.)

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/esoa/
- **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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