

Extendable Web Technologies



focused on JAVA Technology

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What means extensibility?

„...**extensibility** means that the system has been architected that the design includes all of the hooks and mechanisms for expanding/enhancing the system with new capabilities without having to make major changes...

[Wikipedia]

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Types of extensibility?

- 1) Development time
 - OO patterns, component definitions (JavaBeans, ActiveX, J2EE)
- 2) Deployment time
 - EJB, Managed components (Spring, Pico), OSGi bundles, WebServices
- 3) Runtime
 - Portlets, Plug-Ins

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Why do we need it?

- Very fast change in business
 - Especially in E-Business
- Multi site development
- Application platform
- Clients for Service Oriented Architecture
 - Application platforms
 - Product families

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Examples

- Portals:
 - <http://www.yahoo.de>
 - <http://www.cnn.com>
 - <http://www.google.de/ig>
- Communities
 - <http://sourceforge.net/>
- Workplace software
 - SAP
 - Rational ClearQuest
- Oracle Administration Tools

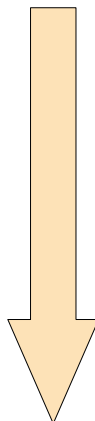
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JAVA Web technologies

- Servlets (WAR Files)
- Applets
- JSP
- Webframeworks
 - Struts
 - Tapestry
 - WebWork
 - WebFlow
- Portals / Portlets
- JSF
- Portlets 2.0

1995 / 98



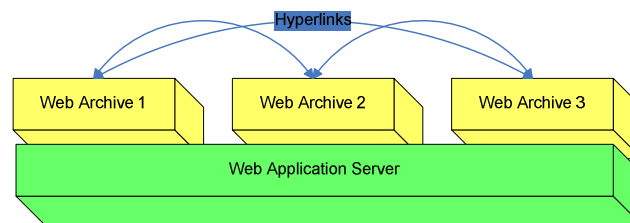
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Web Archives and Servlets

- Extension by adding new applications
- Need to change existing applications to integrate them
- No defined communication interfaces



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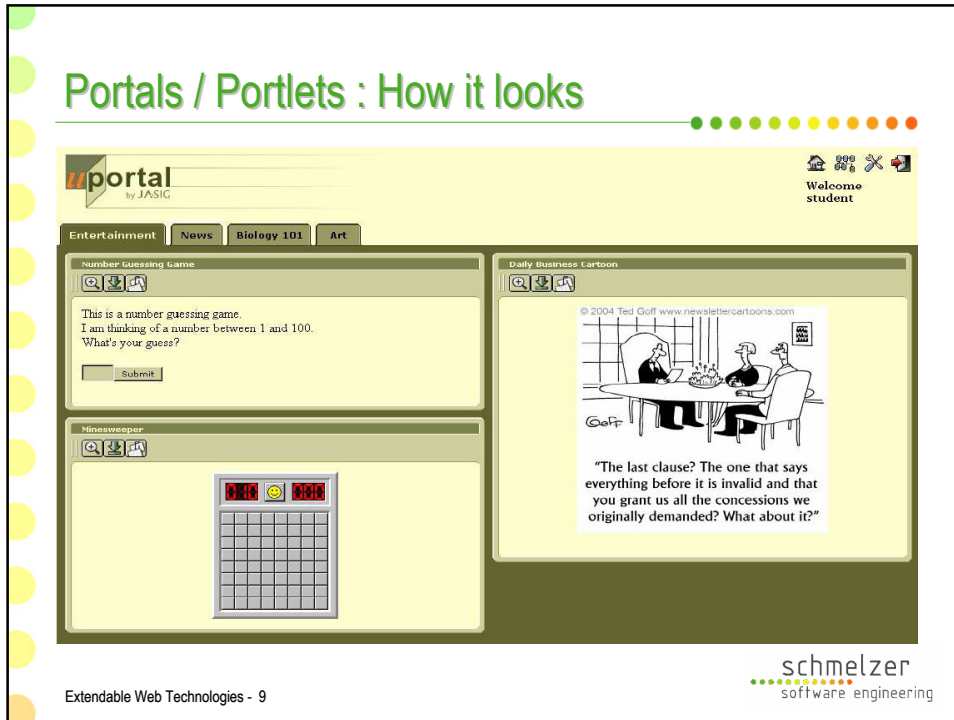
Webframeworks / JSP / JSF

- Separation through modules and splitting of configuration
- Components for reuse and extensibility
- Factories, Conventions, Reflection for dynamic loading

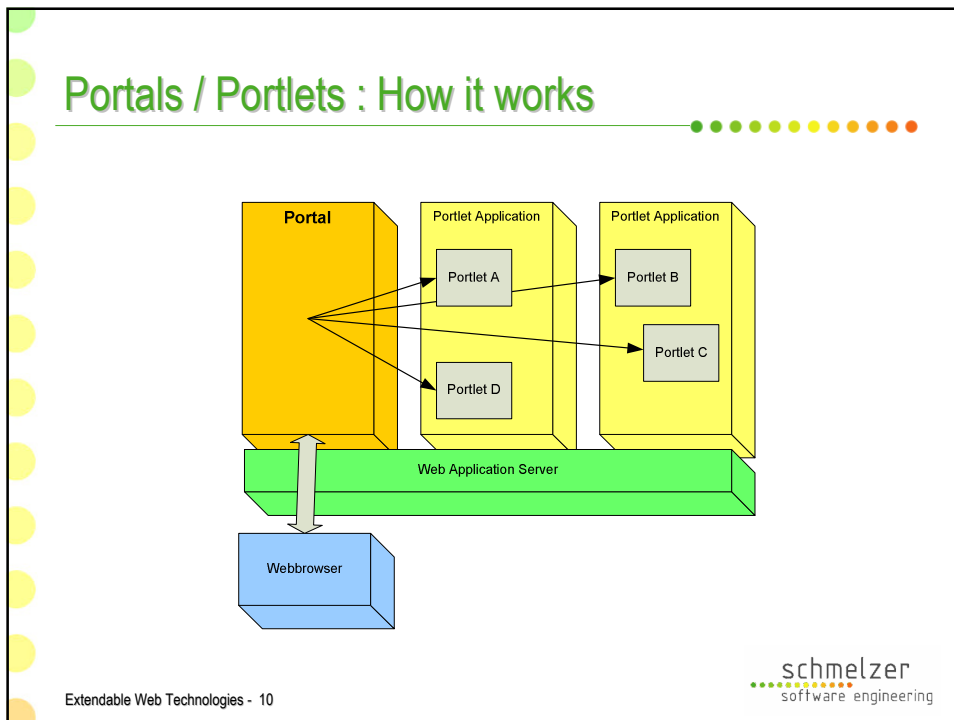
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Portals / Portlets : How it looks



Portals / Portlets : How it works



Portals / Portlets

- Based on JSR-168 Portlet Specification
- First technology with extension at runtime and reusability
- But integration into the portal must be done manually!
 - Portal Administrator
- Problems:
 - No inter portlet communication
 - Not self contained
 - No restriction what is in a portlet

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Plug-Ins: The concept

The screenshot shows the Yahoo! German homepage with several annotations:

- New Link:** Points to the 'Web-Suche' button in the search bar.
- New Tab:** Points to the 'Mein Yahoo!' and 'Mein Mail' links in the top left navigation area.
- New Item:** Points to the 'Alle Y! Services' link in the left sidebar.
- New Portlet:** Points to the 'Top Messenger Plugins' section on the right side of the page.

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Plug-Ins: The idea

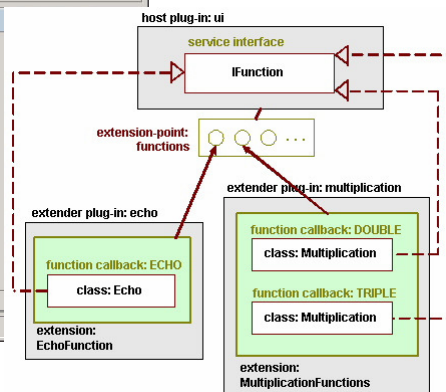
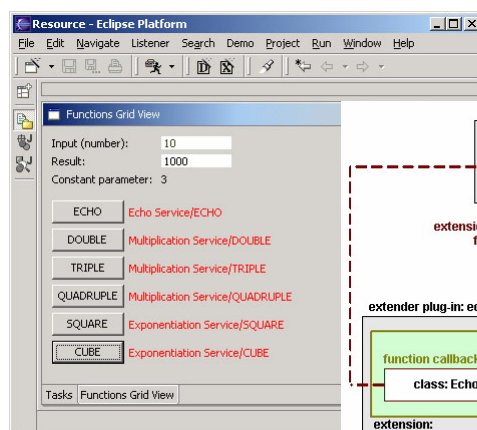
- Well defined contract
 - Interface
 - the “socket”
 - Eclipse: ExtensionPoint

- Anyone implementing the interface can connect
 - the “plug”
 - Eclipse: Extension

- More than one plug



Plug-Ins: The example



Plug-Ins

- Do not integrate me – I will integrate myself
 - Reversal of responsibility
- Defined points of flexibility and extensibility
 - An application concept is needed
- Well defined dependency and communication possibilities
- Loosely coupling through interfaces

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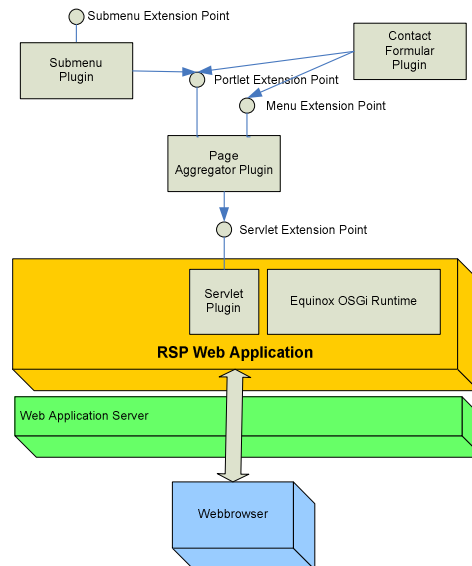
Pluggable Web : The technology

- OSGi
 - The OSGi™ specifications define a *standardized* , *component oriented* , computing environment for *networked services*
- Equinox is the Eclipse OSGi implementation
- “Using Eclipse in the web server”
- Rich Server Platform

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Pluggable Web : The realization



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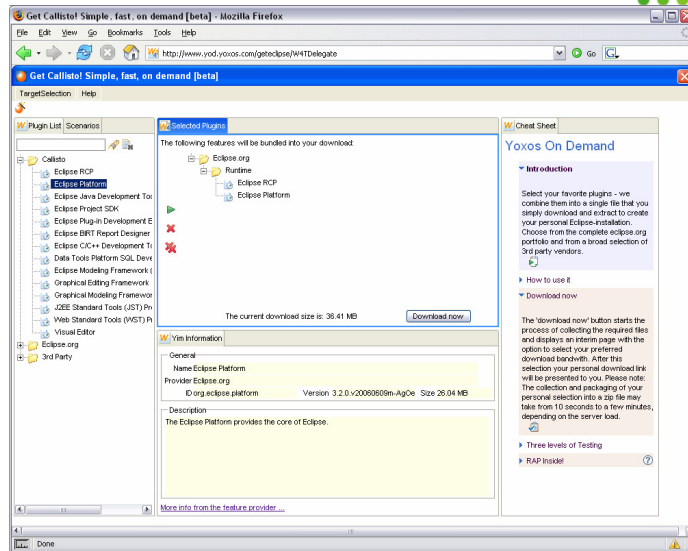
Outlook

- Portlet 2.0
 - Interportlet communication with eventing
 - AJAX
- RAP (Rich Ajax Plattform)
 - Provide a SWT like programming model with Web 2.0 features
 - <http://www.innoopract.com/index.php?bsID=480>
- OSGI based Web server
 - HTTP implementation as an OSGi Bundle

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Outlook



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References

- JSR-168 Portlet Specification
 - <http://developers.sun.com/prodtech/portalserver/reference/techart/jsr168/index.html>
- RSP
 - <http://www.infonioia.com/en/content.jsp?d=inf.05.07>
 - <http://www.eclipse.org/equinox/incubator/server/>
- Slides
 - <http://www.schmelzer.cc/content/view/23/37/>

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