

Component Frameworks

Bill Olivier
Director, CETIS



- Increase sustainability of funded projects
- support tools to access service frameworks in:
 - eLearning
 - eLibraries
 - eResearch



The intent of such component frameworks is to:

- enable component functionality to be assembled according to need
- increase the flexibility and adaptability of user-level applications
- provide a top integration layer to the service oriented architectures of the eLearning (and eLibrary and eResearch) Framework Programmes
- allow process support to be more easily tuned, adapted or changed
- increase the reusability of funded developments across a wider community
- allow smaller, more focused projects
- enable projects to assemble and build on components produced by others



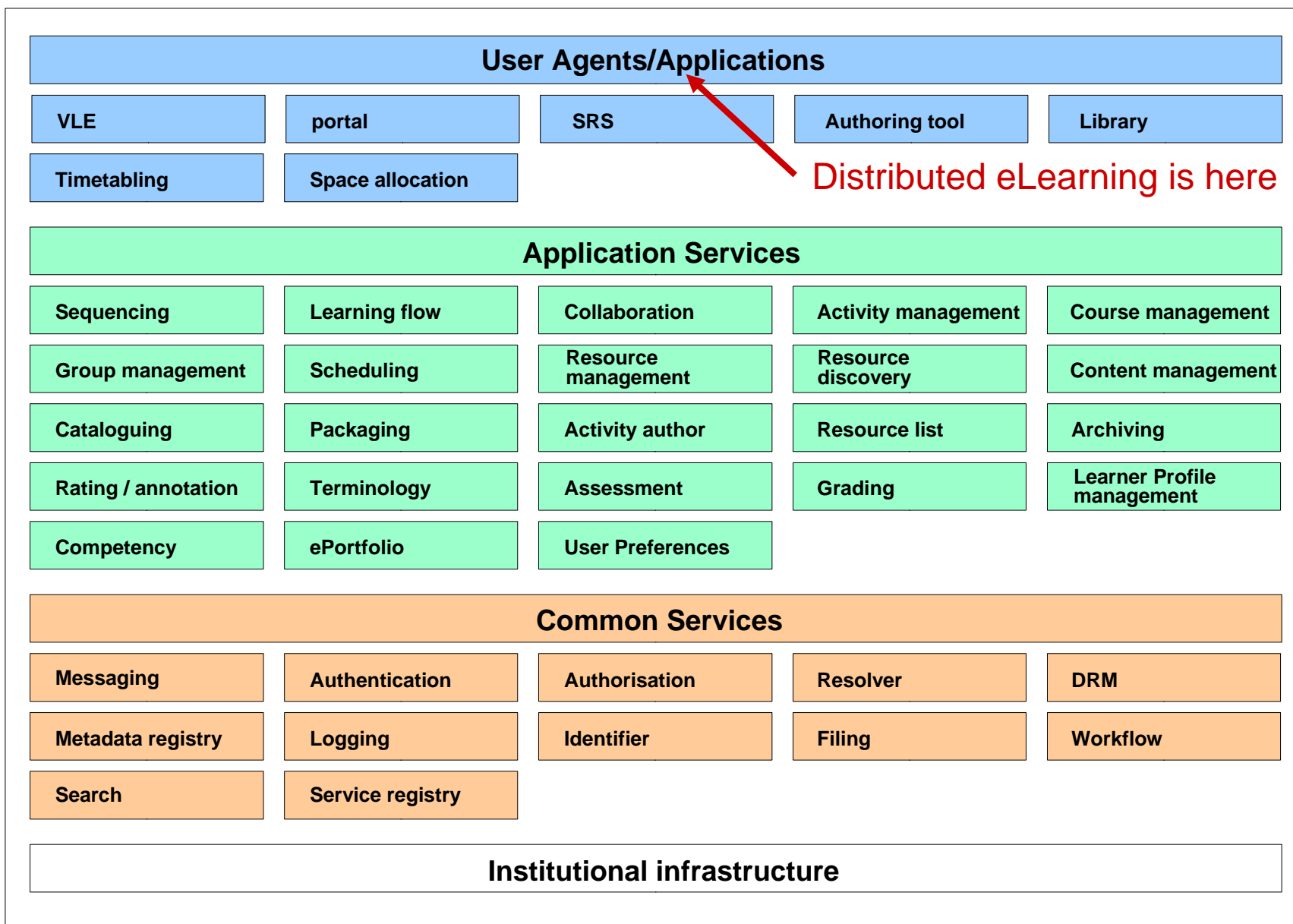
Web Server paradigm fails lifelong learners – How?

- Stateless browser – leaves no trace behind
 - To manage their learning they need their own records
- Lifelong learners attend multiple institutions
 - Over time, even at the same time
 - Have to learn a new environment at each
- Their record and portfolio is scattered
- They need a continuous connection for learning, but, if off-campus, this may be:
 - Slow, unreliable, expensive
- As eLearning becomes more complex, VLEs won't scale:
 - PLEs allows the learner's system to share the load
- PLEs & VLEs need to work together:
 - that means synchronisation standards



The JISC has programmes to develop frameworks for:

- eScience (GRID/OGSA Open Grid Services Architecture)
 - eLibraries (JISC IE Information Environment)
 - as well as eLearning (eLearning Framework)
- These are converging on the use of Web services
 - Seeking also to provide common services
 - Look first at the GRID and IE for needed services
 - Distributed eLearning Programme sits in the top 'application or user agent layer' that uses the other services





- SOAP provides the Web Service message protocol
- WSDL defines a SOAP interface
- Code can be generated from WSDL
- CETIS is providing a 'toolkit' for IMS Enterprise 2
- JISC is funding more WS toolkits under the Frameworks Programme
- A WS toolkit provides plug-in 'adapters' for both services and their clients
- The adapters have APIs Application Programming Interface
- Programmers write code that calls these APIs

Client Adapter



Service Adapter





Different platforms are used in UK F/HE, but mainly Unix/Linux, Windows & Mac

1. Cross Platform
2. Open eLearning, Web Service & other standards
3. Extensible Framework
4. Built in functionality
5. Open source
6. others: Reliable, Scalable, Modular, Adaptable, etc.



Two types of framework
for 'surfacing' services:

1. Portlet Containers
2. Desktop Frameworks



Two specifications are causing excitement in the portals world:

1. JSR 168
2. WSRP - Web Services Remote Portlet



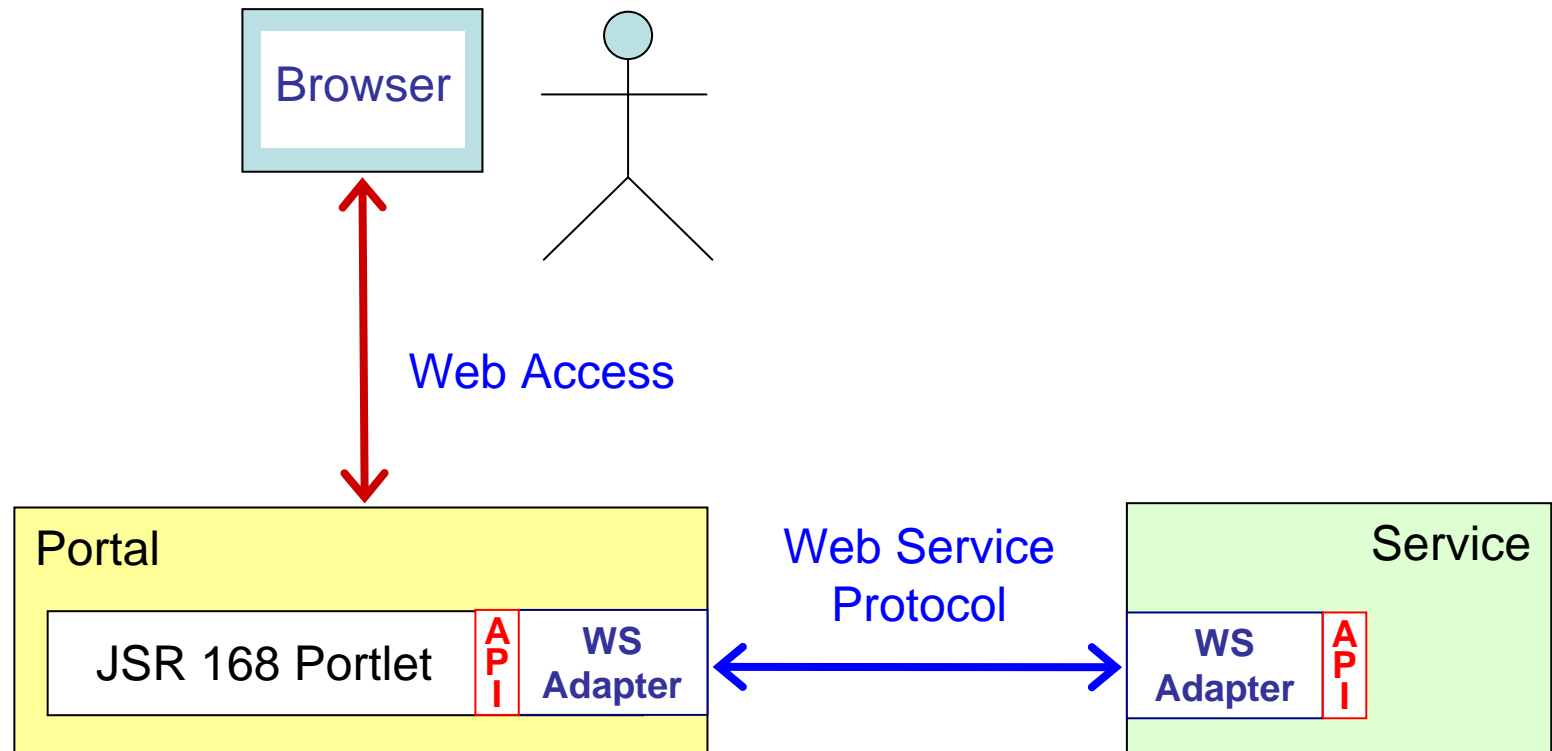
Many portals support portlets

But they do it differently
therefore portlets are hard to port

JSR 168 defines a standard Java way
to plug in portlets (many portals
use Java)

This enables portlets to be written
once and used in many different
(Java) systems

access to a Web Service using a Portlet





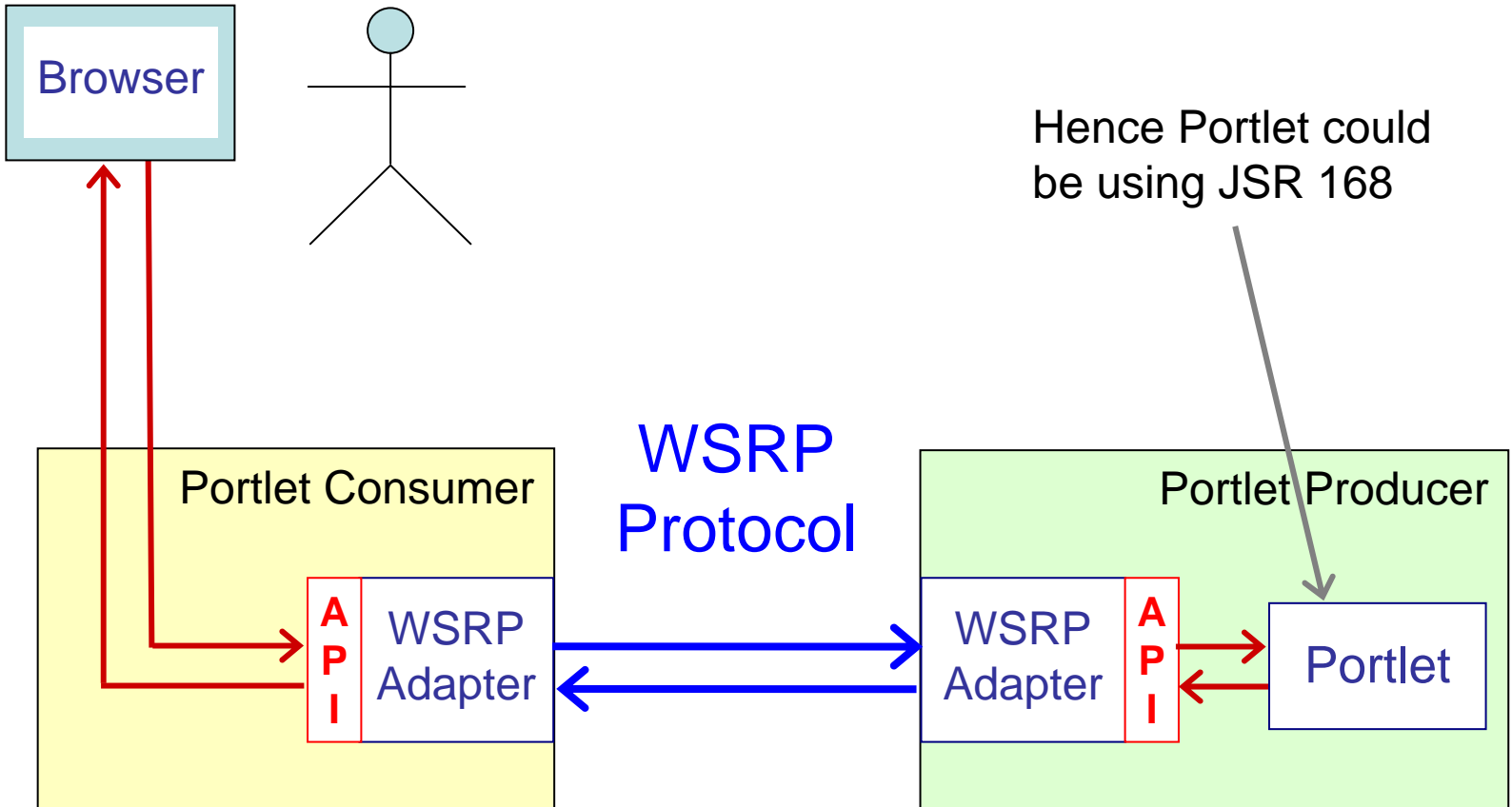
WSRP is complimentary to JSR 168

WSRP specifies how

a remote portlet producer

communicates with, and through,

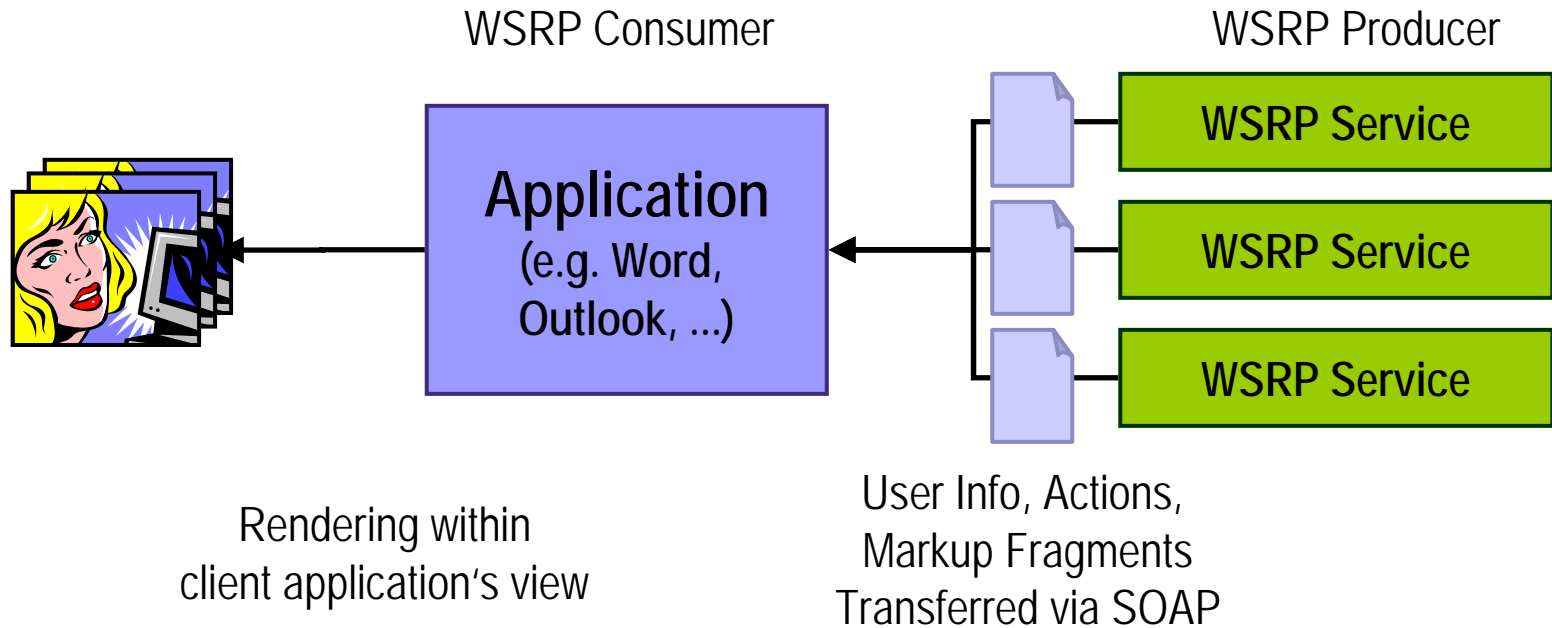
a portlet consumer



Hence Portlet could be using JSR 168

Portlet Consumer's task is greatly simplified

Portlet Producer can supply to any Portlet Consumer on any platform



- Applications may embed WSRP Services through plugin mechanisms, e.g. COM Components or ActiveX Controls
- In this case, the plugin in the client application adheres to the WSRP protocol and contracts as a WSRP Consumer

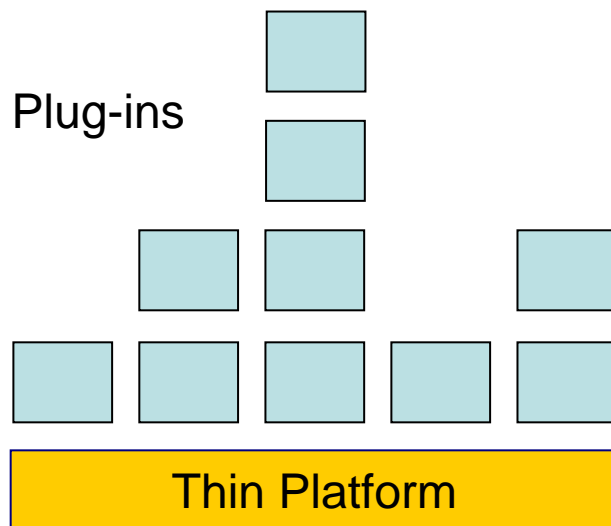


- Ideally we would like a standard tool plug-in framework
- But it doesn't exist!
- However there are a number of starting points:
 - NetBeans and Eclipse... and another JSR, JSR 198
 - Mozilla
 - Chandler
 - LionShare

for exploration... and possible integration



- NetBeans & Eclipse known as Java IDEs
- But the Java IDEs are plug-ins...
- ...to a generic 'tool' platform
- ...composed of sub-frameworks
- ...with well-defined extension mechanisms



Plug-ins can build on each other.

They can themselves also accept plug-ins



- Open source and commercial developers add tools
- But the plug-in interface is different for each
- JSR 198 seeks to provide a standard plug-in interface across (Java) tool platforms
- Due to be released this summer
- Wait to see how much commonality is supported in JSR 198



- Resulted from open sourcing Netscape
- Gone beyond browser, editor & email
- Now a X-platform development platform
- ... supporting rapid application development
- Many components and libraries. Main ones:
 - XUL (XML UI Language)
 - XPCOM (X-Platform Components)
 - RDF (W3C's Resource Description Framework)
- Platform for the Collaborative Web



- Main product of Open Source Applications Foundation (OSAF)
- A better, more general, shareable PIM
- A modular extensible framework in Python
- Mellon & Common Solutions Group funding extensions to Chandler for HE
- Planning to build on Jabber for IM, chat...
- XMPP now an IETF Internet Draft standard
- XMPP could make a big impact



- Another Mellon funded project
- User controlled sharing of resources
- P2P based on Gnutella Limewire
- Integrating federated search of institutional and cross-institutional repositories
- Built on a security framework using:
 - Kerberos for authentication
 - Internet2 Shibboleth for authorisation
- Plan to use Jabber & Chandler



CETIS Web Site:

- eLearning specs & standards
- intros, news, events
- SIG pages: events, activities, extensive information on particular specifications

<http://www.cetis.ac.uk>

JISC Programme Support:

- information & instant dissemination
- co-ordination between projects

<http://www.cetis.ac.uk:8080/frameworks>