IMS Tool Interoperability

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Functionality Mashup in a Learning Context
2. In epistolās canonicas

Bodington LMS

Identity
Roles
Storage

GuanXi
SAML
Waffle Bus

Enterprise Data
Approaching Functionality Mashup Standards and Technologies

Standards are critical to making functionality mashup something we can commonly use to assemble applications.
Functionality Mashup Technical Needs

Aggregating System

Discovery
Preferences
Identity
Context
Roles/Attrib
Markup
Storage
Services
Provisioning
Placement
Run-time

Tool / Capability / Code
Functionality Mashup Technical Needs

Aggregating System

Provisioning  Placement  Run-time

Tool / Capability / Code

Discovery  Preferences  Identity  Context  Roles/Attributes  Markup  Storage  Services

IMS 1.0  TI  JSR 168 2  SAML  JSR 286  IMS T.I. 2.0

Tool / Capability / Code
IMS Tool Interoperability

- Focus is on making tools portable between systems (Sakai, WebCT, and Blackboard)
- Established to further the discussion with commercial and other CMS/CLE providers
- Can be done “organically” – Web 2.0 style
- IMS Tool Interoperability Version 1.0
  - Uses web services and IFRAMES
  - Roughly based on WebCT PowerLinks
  - Does not require tools to be written in Java
  - Currently in contrib space in Sakai
- IMS Tool Interoperability Version 2.0
  - Work is underway – significant increase in scope
How IMS Tool Interoperability Works

1. Sakai
2. Sakai IMS Proxy
3. External Tool
4. Application Code
5. Sakai APIs
6. IMS TI Outcome Request
7. Session And Services Bootstrap

LMS System

Sakai, Blackboard, WebCT, Angel
OXIDATIVE PHOSPHORYLATION

The enzymatic phosphorylation of ADP to ATP coupled to electron transfer from a substrate to molecular oxygen. Oxidative phosphorylation has the following attributes:

- occurs in the mitochondrion and some other compartments
- electrons are passed down the electron-transfer chain
- redox reactions of the electron-transfer chain move protons to the intermembrane space
- phosphorylation of ADP is coupled to re-entry of protons into the matrix through the enzyme ATP synthase
Implementations

- Sakai Tool (Anthony)
  - Fully compliant
  - Multiple tools per placement
  - Rich persistence

- JSR-168 Portlet (Chuck)
  - Does not support Outcome Request
  - Users JSR-168 preferences as persistence
  - Portable between Sakai and Portals
  - Extensions
    - IMS TI Lite – SOAP Lite
    - Load Descriptor from URL
Tools Interoperability Version 2

• co-Chair: Annie Chechitelli Wimba / Chris Moffatt Microsoft
• Focus on Run-time Environment
• Hoped for scope: Web services for
  • User and Course
  • Mail
  • Calendar
  • Assessment
  • Gradebook
  • File Manager
• Would like to borrow inspiration from WebCT PowerLinks
• I would like to make it *possible* to do TI without iframes using WSRP – hard task