

Integrating Peoplesoft Enterprise Campus Solutions with Sakai

Cris J. Holdorph
Unicon, Inc.
Michael Feldstein
Oracle, Corp.

2008 JA-SIG Conference
April 27 – 30, 2008



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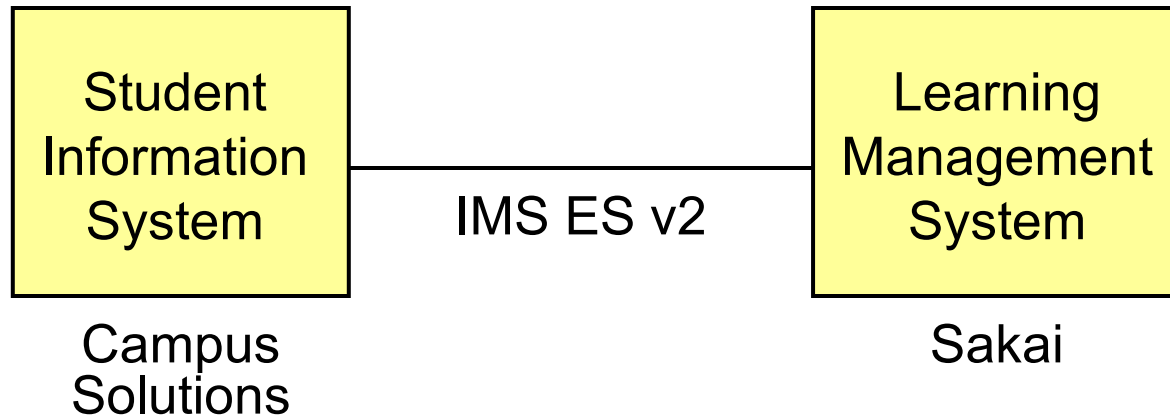
The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Agenda

- Introduction
- IMS Enterprise Services version 2
- Campus Solutions Implementation Overview
- Sakai Implementation Overview

Introduction

Introduction



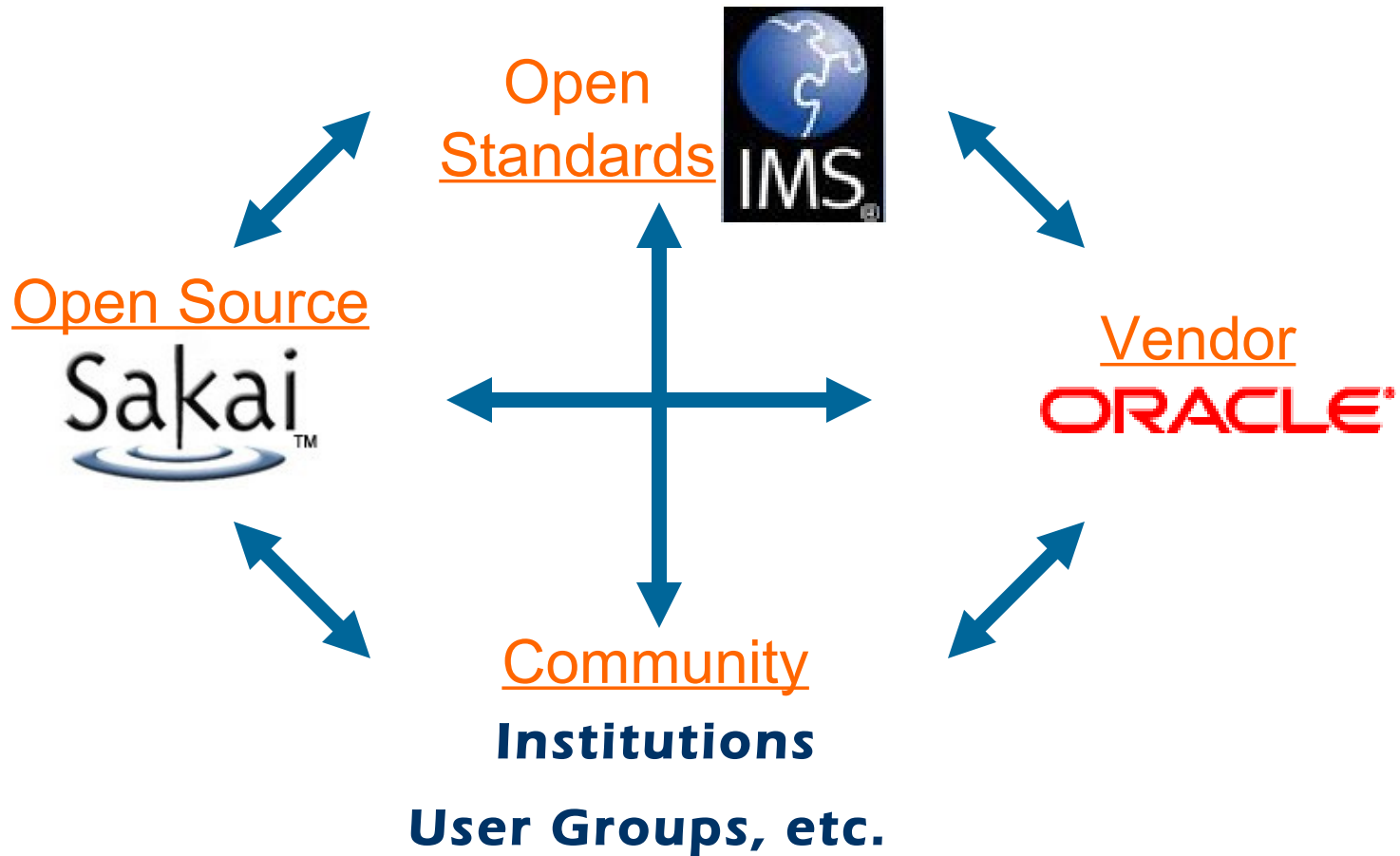
Unmet Needs in IMS Enterprise v1

- Standards that are...standard
- Course to course site mapping (multi-section and cross-listed courses)
- Near real time integration
- Lower and more controlled integration costs
- Final grade reporting
- Support for adjunct solutions (e.g., course evaluations, external wikis, etc.)

IMS Enterprise v2

- Currently in working group
- Co-chaired by AES Architect Linda Feng
- Significant changes and enhancements:
 - Relationships between courses/sections
 - Enhanced Grade/Outcome model
 - Better handling for multi-sectioned and cross listed courses
 - LDAP binding
 - ...and much more!

Cycle of Enrichment



Student Administration Integration Platform (SAIP)

- First product in the Academic Enterprise Solutions product category
- Platform for robust integration designed for lower cost of implementation and maintenance, greater ROI
- Supported integration solution for the entire academic enterprise

SAIP v1

- Focuses on Mission Critical Integration of SIS and LMS
- Online Functionality for Easy, Flexible Default and Ad hoc Scoping of Courses and Course to Course Site Mapping
- Web Services provide Flexible, Comprehensive Batch and Real Time Integration
- Inbound Final Grades/Outcomes
- LDAP Binding to Support Provisioning to Non-Services Based Solutions

Sakai

- Began in January 2004
- First stable release (1.5) was in March 2005
- Last stable release was Sakai 2.5.0, released on March xx, 2008
 - Sakai 2.5.0 has undergone more testing than any previous Sakai release
- Next stable release, Sakai 2.5.1, scheduled for May 19, 2008

Sakai – Tool Status

- Sakai is a collection of Framework services and tools
- Each tool or service is either *Core*, *Provisional*, or *Contrib*
 - Core
 - Included in the main Sakai distribution
 - Provisional
 - Included in main distribution, but turned off by default
 - Contrib
 - Not included in main distribution, but might be included in the future

Sakai Integration Status

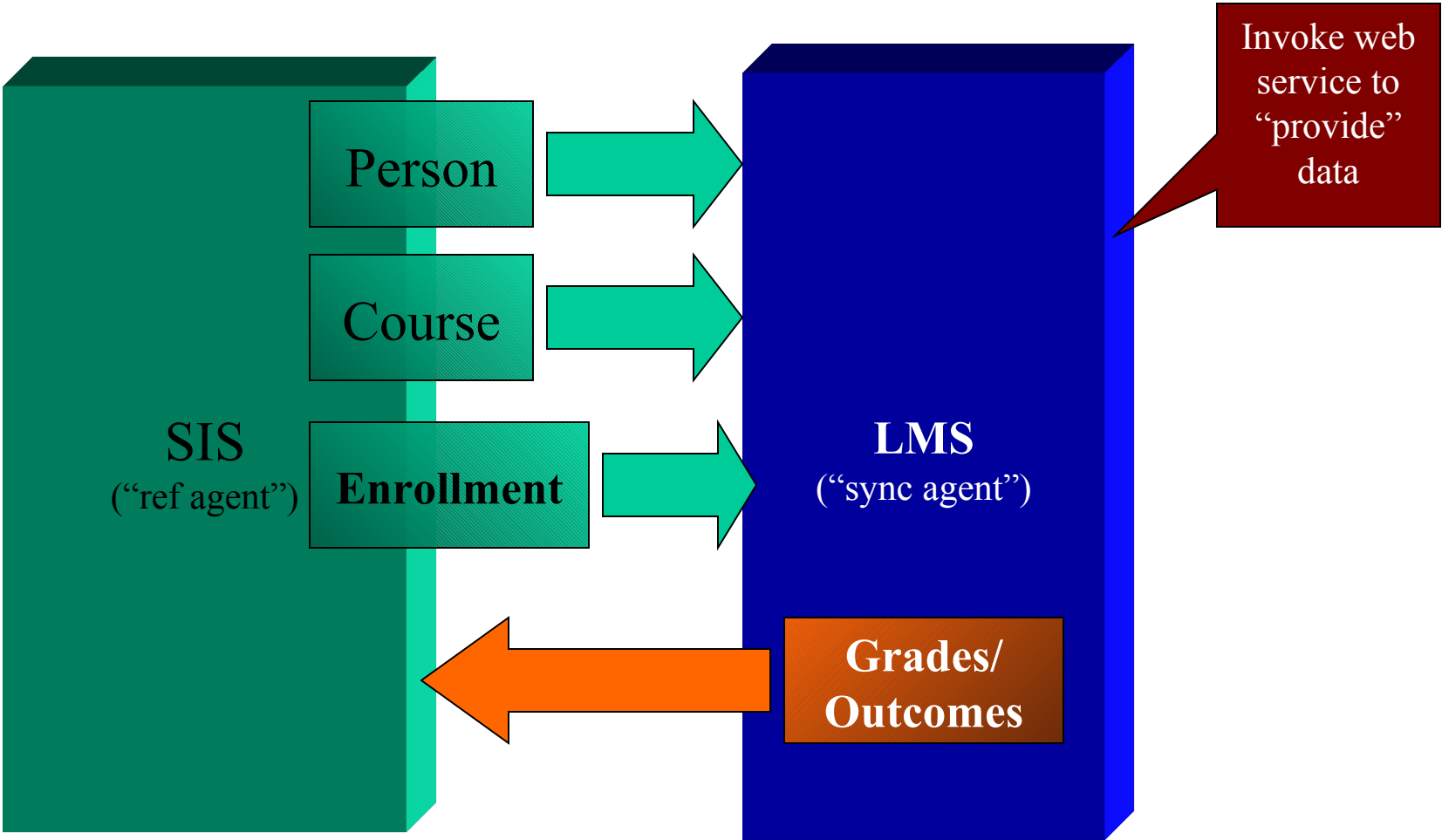
- Code is currently maintained at Unicon to better enable working with the Oracle product before release
- Code will be put into the Sakai Contrib area after an implementing Student Information System (e.g., Campus Solutions) is released

IMS Enterprise Services version 2

IMS V1 to V2 comparison

IMS V1	IMS v2
<ul style="list-style-type: none">• Person, Group and Membership only	<ul style="list-style-type: none">• Expanded Person to align with IMS Learner Information Profile (LIP)
<ul style="list-style-type: none">• No standard way to represent Courses	<ul style="list-style-type: none">• Added Course Management information model and service
<ul style="list-style-type: none">• No standard way to represent Course Hierarchy	<ul style="list-style-type: none">• Course Management information model supports course hierarchy
<ul style="list-style-type: none">• No standard way to represent multiple course sections rolled into a single learning management “course site”	<ul style="list-style-type: none">• Section Association allows multiple course sections to be expressed as an associated set for LMS “course site” mapping
<ul style="list-style-type: none">• No representation of lower level Outcomes	<ul style="list-style-type: none">• Added separate Outcome service to operate on lower level Outcomes

LMS-SIS Integration: Logical Architecture

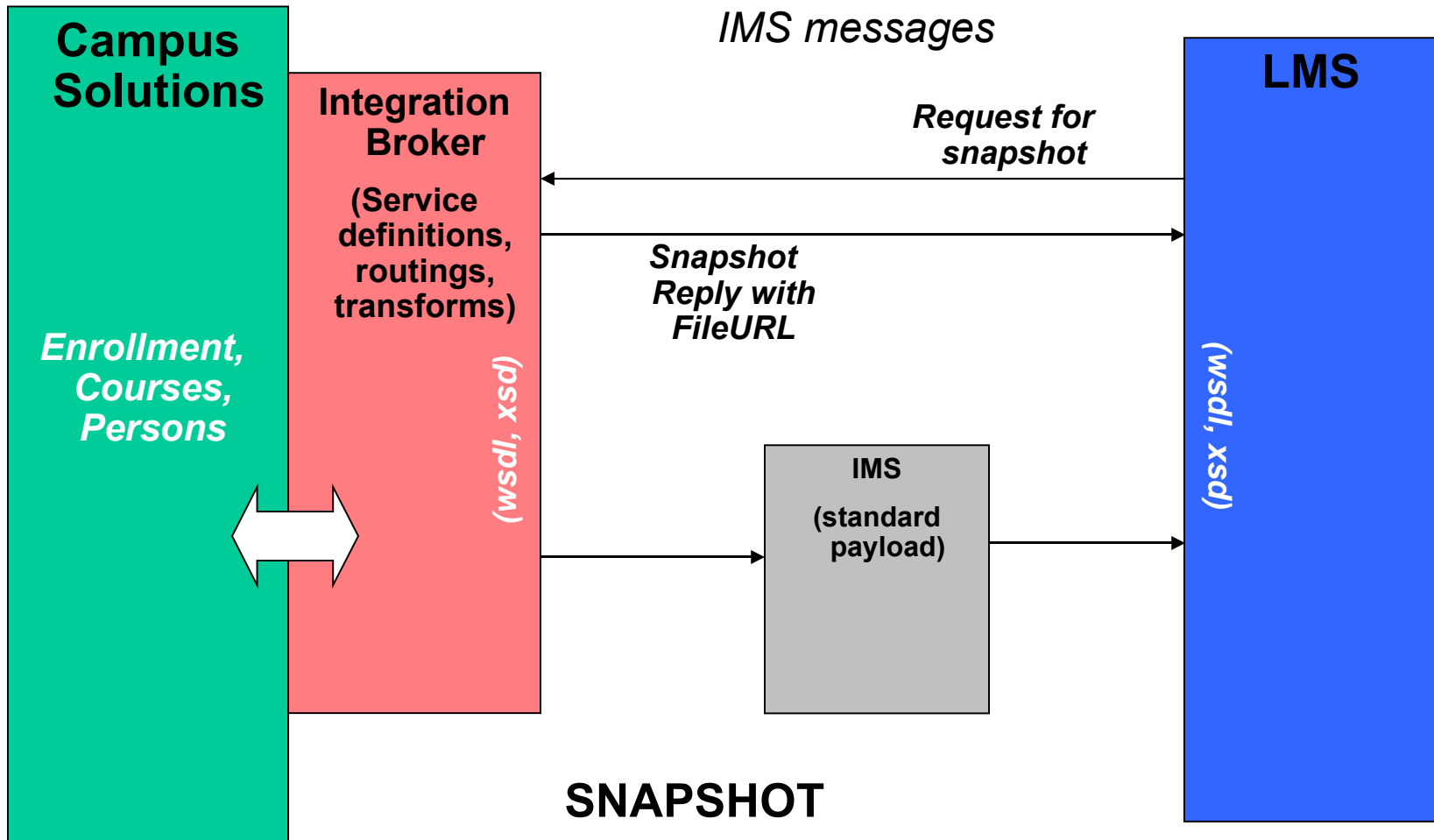


Outbound Integration

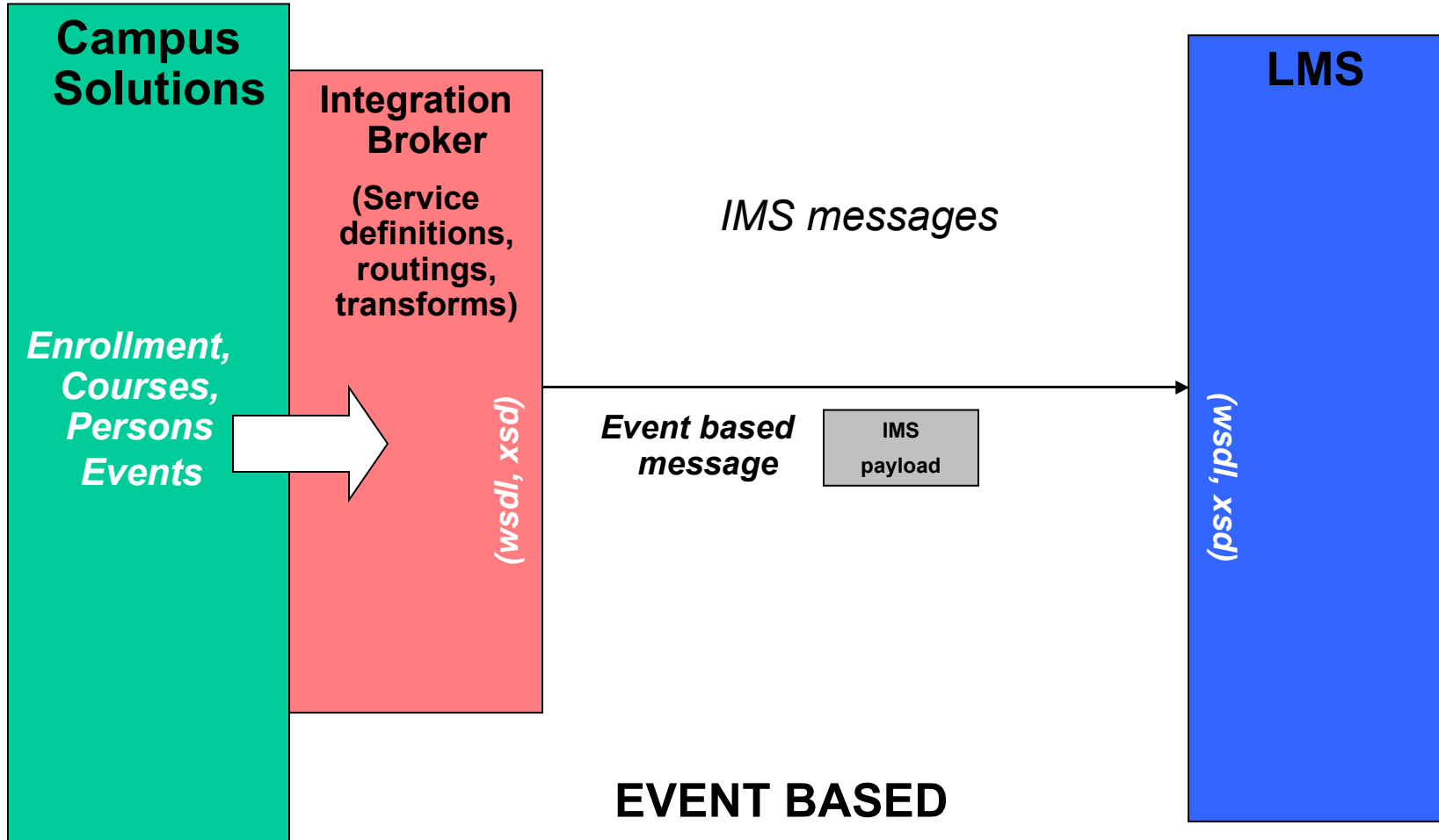
- Full Synch Snapshot: initialization/ resynchronization capability
- Incremental Snapshot: Scheduled process to capture effective dated changes and ensure no missed updates
- Event Driven Update: near real time update driven by embedded event triggers
 - Can be turned off at the Installation level in SAIP's case

Campus Solutions Implementation Overview

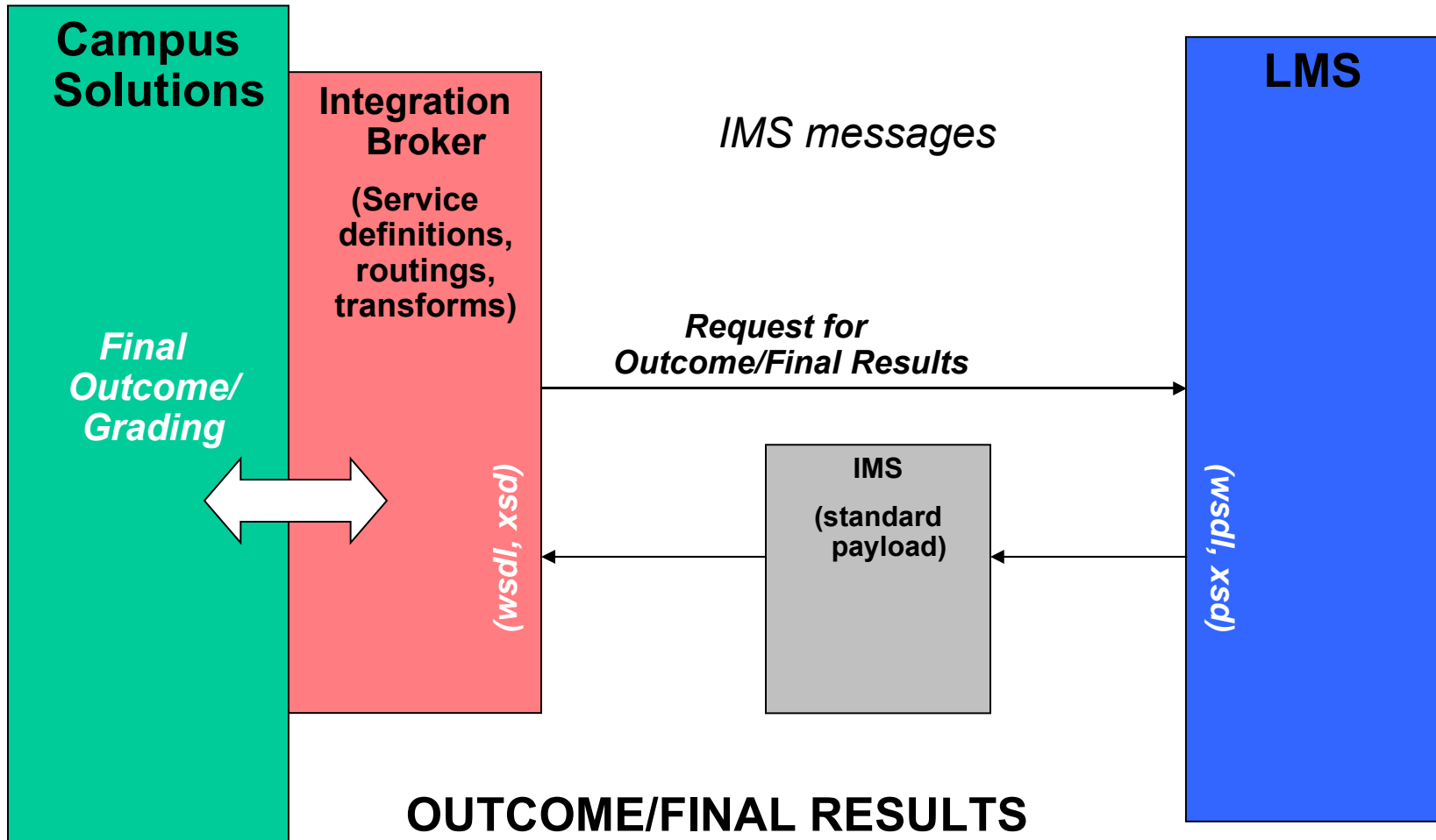
SAIP Integration Architecture: SNAPSHOT



SAIP Integration Architecture: EVENT



SAIP Integration Architecture: OUTCOMES



Sakai Implementation Overview

Integration Points

- Snapshot / Incremental support
- Event support
- Gradebook support

Sakai Technologies Used

- Course Management (CM) API
 - CM API Hibernate Implementation
- Messaging Service
- Job Scheduler

Java Technologies Used

- Spring Web Services
- Java Messaging Service (JMS) / Active MQ
- Quartz
- Hibernate

Sakai Course Management API

- CM API was introduced in Sakai 2.3
- Sakai Tools and Services Supported
 - Worksite Creation (Site Metadata, Participants)
 - Gradebook (Participant data, Course Metadata)
 - Roster (Participant data)
 - Section Info (Section data)
 - Resources Tool (Course Start/End dates)

Course Management API Implementations

- Sakai Course Management API is a series of Java Interfaces
- An implementation of the Sakai Course Management API must be chosen
- Default implementation that ships with Sakai is a Hibernate database storage implementation
- Two general strategies for implement CM API
 - Directly query the SIS database
 - Import data into Sakai database

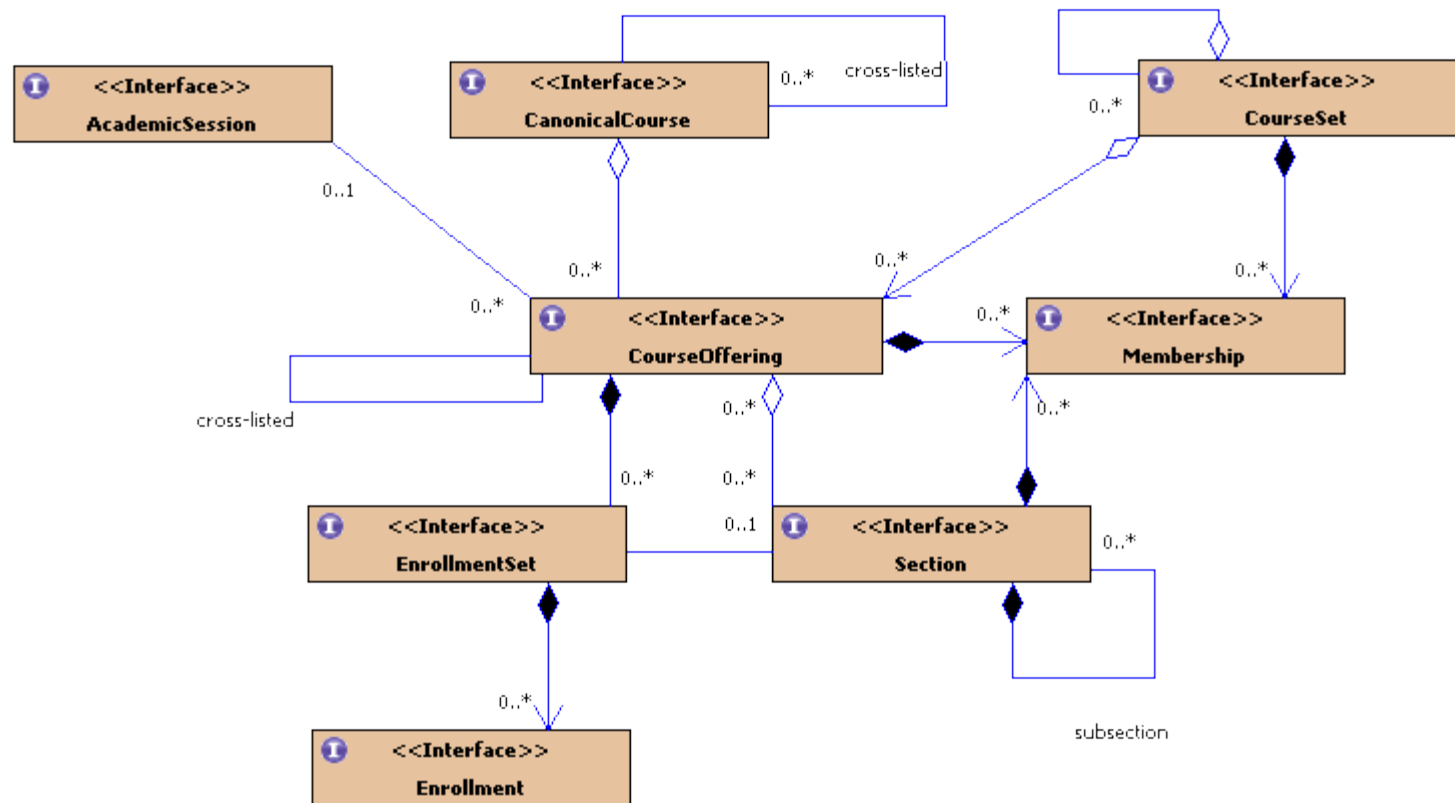
Sakai Course Management API

- Canonical Course
 - A general course that exists across sessions
- Course Offering
 - Occurs in a specific session and can have a grade type, status type, etc.
 - Can be thought of as a Canonical Course for a particular session
- Course Section
 - An instance of a course offering that has a schedule, location, roster, etc.
- Course Set
 - A group of canonical courses used to describe majors, departments or other high level collections of canonical courses
 - As implemented it may also be used to group course offerings

Sakai Course Management API

- Academic Session
 - A unit of time in which a course offering exists
- Enrollment Record
 - Describes participation of a person in a course, their role and status in the course
- Student
 - Is a participant in a course
 - Students will have enrollment status
- Leader
 - Leader of a course section, such as an instructor, lab or discussion leader

Sakai Course Management API



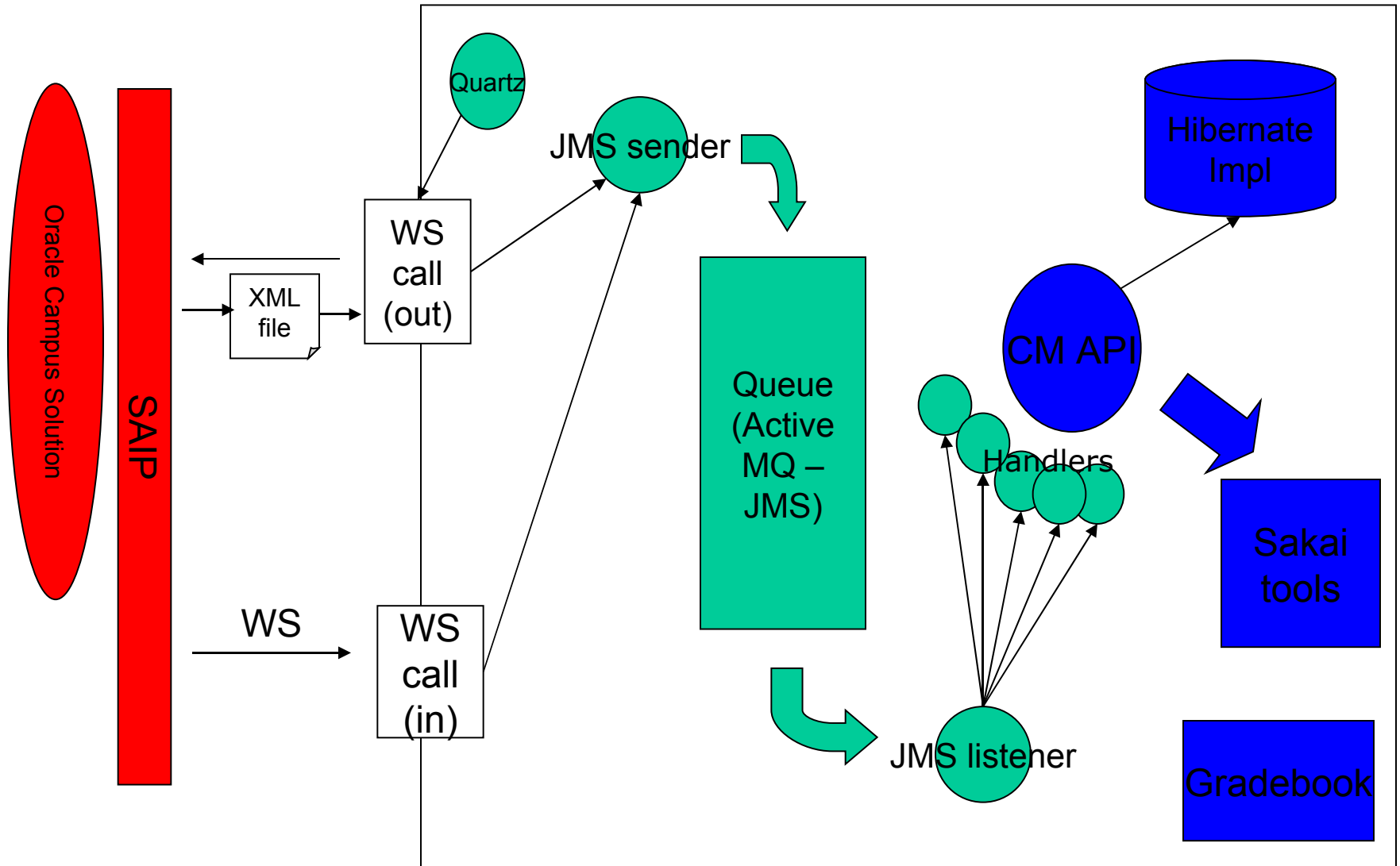
Sakai Messaging Service

- Created as a *contrib* project based on Sakai 2.5 branch
- Can be back ported and run in Sakai 2.4.x
- Original Goal was to provide a facility for
 - Event management (proof of concept complete)
 - Cluster services (proof of concept complete)
 - Chat (future idea)
- Apache ActiveMQ is the used in the initial implementation
 - Support for failover
 - Support for File System or Database persistence

Sakai Job Scheduler

- Graphical front-end to the management of a Quartz subsystem
- Jobs can be run
 - ***now*** – immediately
 - ***future*** – with cron like triggers

Sakai – Implementation Diagram



Message Handlers

- Handles one or more types of IMS ES messages
- Calls Course Management Hibernate Implementation Service Methods
- Opportunity to implement Institution specific business rules

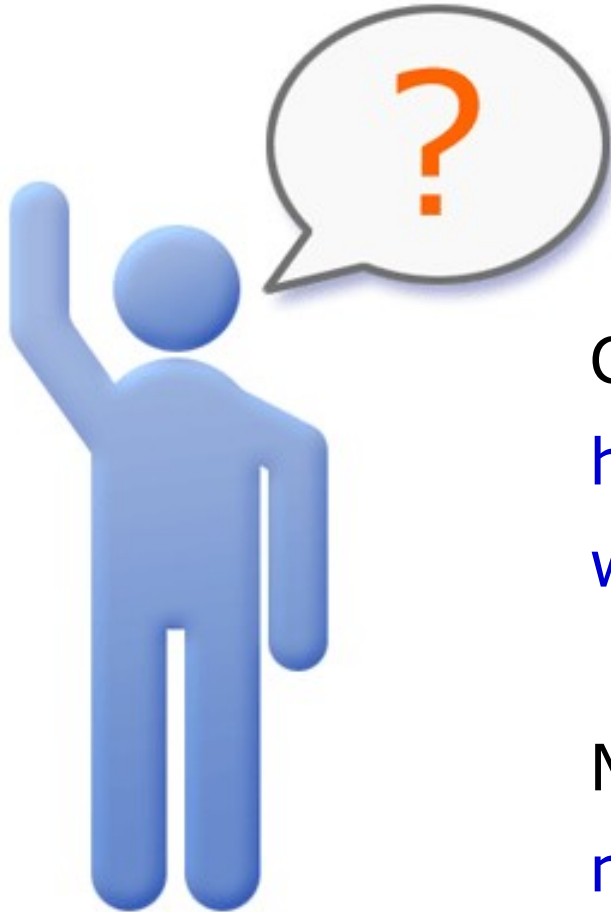
Sakai Future Directions

- Automated Worksite Provisioning from CM API data
- Support for *Section Association* like data in the CM API
- CM API data browser admin tool
- Support for the CM API built into more Sakai tools
- CM API support for enrollment status

More Information on Sakai

- Sakai conference
 - July 1-3, 2008 (Paris, France)
 - <https://sakai.educonference.com/paris/index.php>
- Sakai website
 - <http://www.sakaiproject.org/>
- Course Management Working Group
 - <http://confluence.sakaiproject.org/confluence/x/bU8>

Questions?



Cris J. Holdorph

holdorph@unicon.net

www.unicon.net

Michael Feldstein

michael.feldstein@oracle.com

www.oracle.com