VINCA – A Visual and Personalized Business-level Composition Language for Chaining Web-based Services

Prof. Yanbo HAN

Institute of Computing Technology, Chinese Academy of Sciences

yhan@ict.ac.cn

2003.12

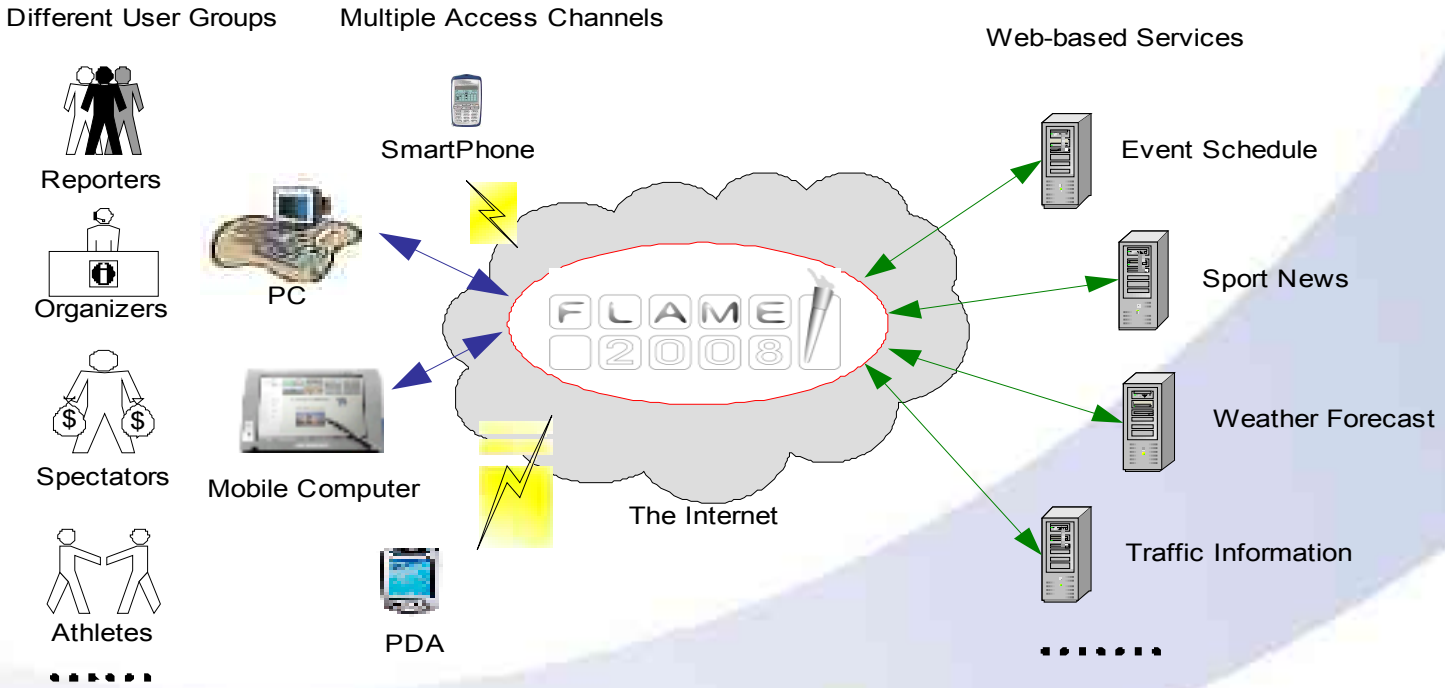
Outline

- Background
- Problems Addressed and Objectives
- System Architecture
- Language Design
- Implementation
- Application
- Conclusion and Future Work

Background

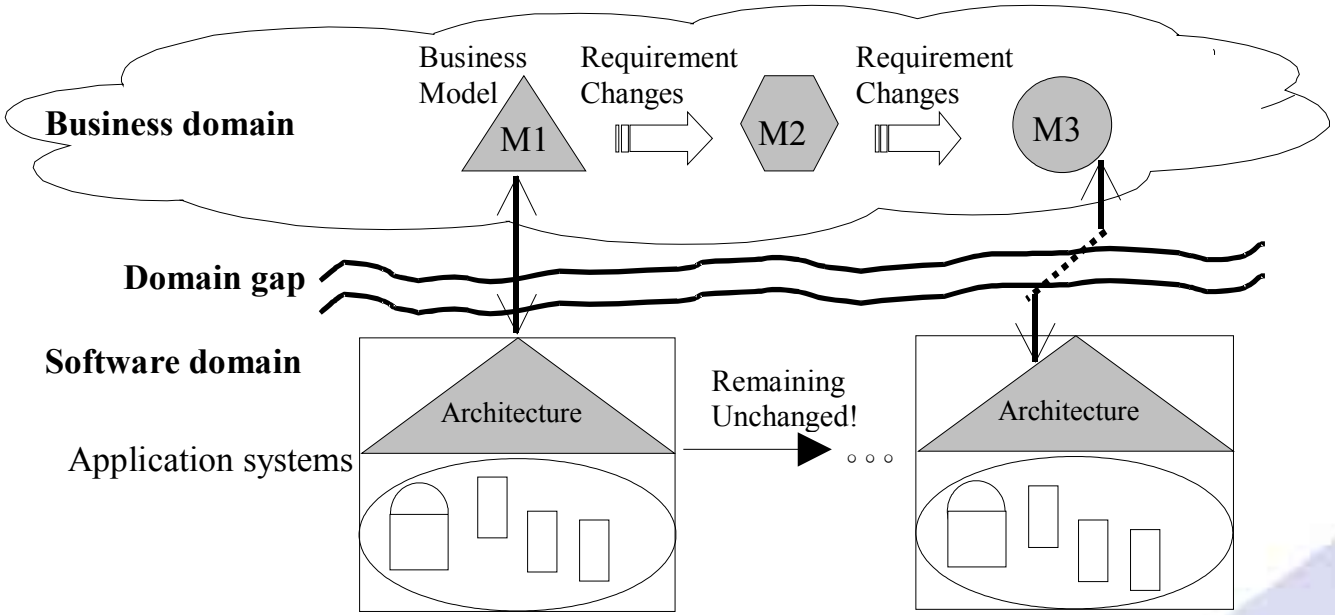
Part of the project "Personalized Web Services Mediation for the Olympic Games 2008 in Beijing"

The project started in March 2002, supported by MOST and BMBF, and is to provide enabling technologies and framework for mediating individual user demand and information services in a just-in-time and context-sensitive manner.



Problems addressed (1)

Model mismatches in the traditional way of information systems development



- **Convergent models – to narrow the gap**

Problems addressed (2)

To enable FLAME2008, we adopted a service-oriented architecture, and used Web Services/Grid Services as the basis. Research is focused on:

- **Semantic service community – to set up an enabling infrastructure**
- **Personalized service configuration (Business-end Programming) – to allow end users to "see" and "assemble" the services available to them**

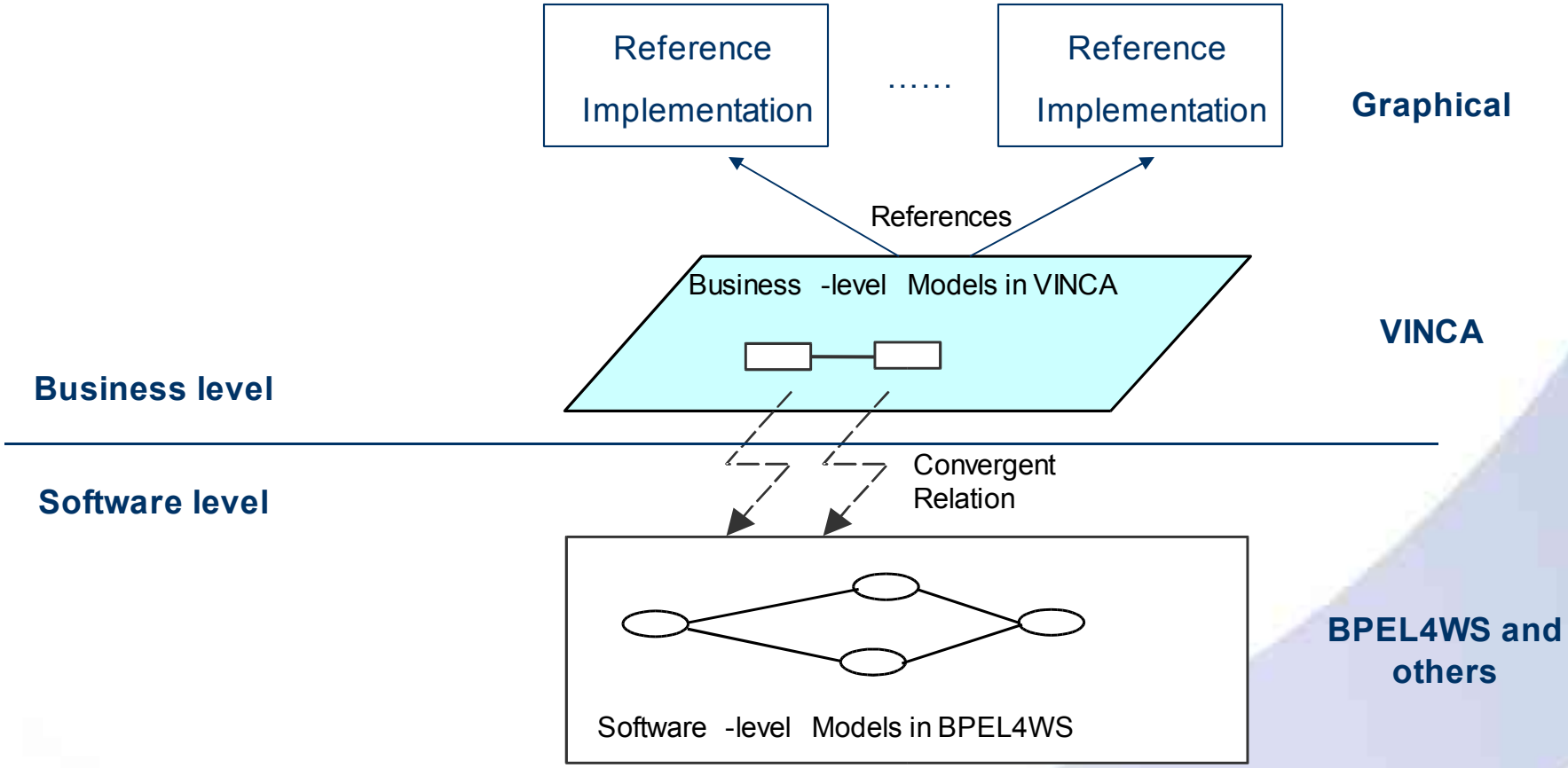
Objectives

The language VINCA came to life in order to add the following features to service composition language like BPEL4WS:

- **User programmability**
- **Context-awareness**
- **Dynamic (re)composition with QoS insurance**
- **Convergence of Business and Software Level Modeling**

Language Design

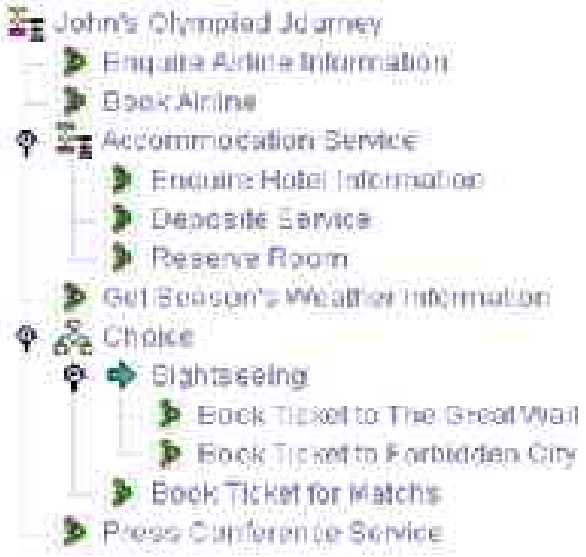
Three Abstraction Layers



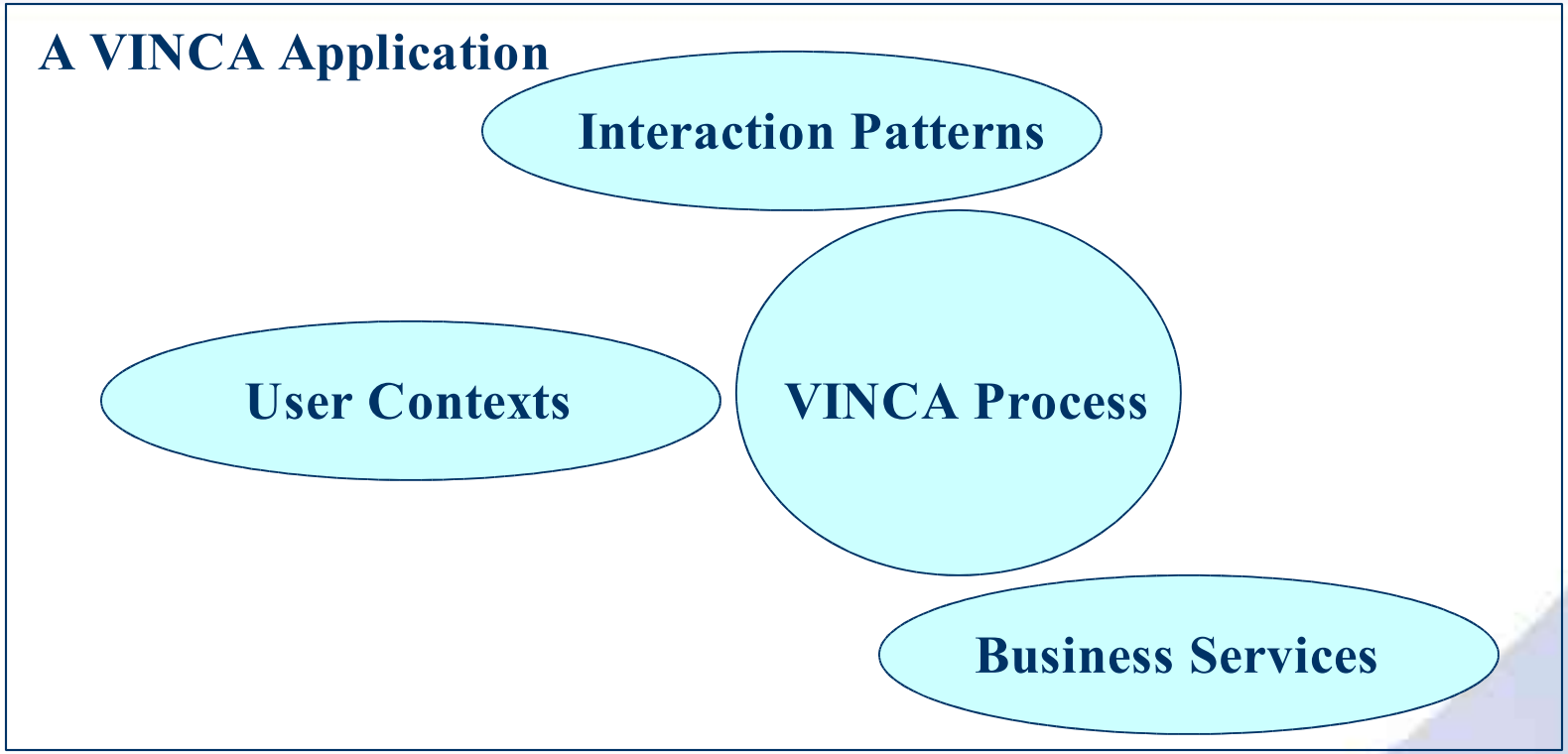
Language Design

Examples of Reference Representations

Icon	Name
	Atomic Business Service
	Composite Business Service
	Sequence Link
	Decision Point
	Concurrent Link
	Repeat

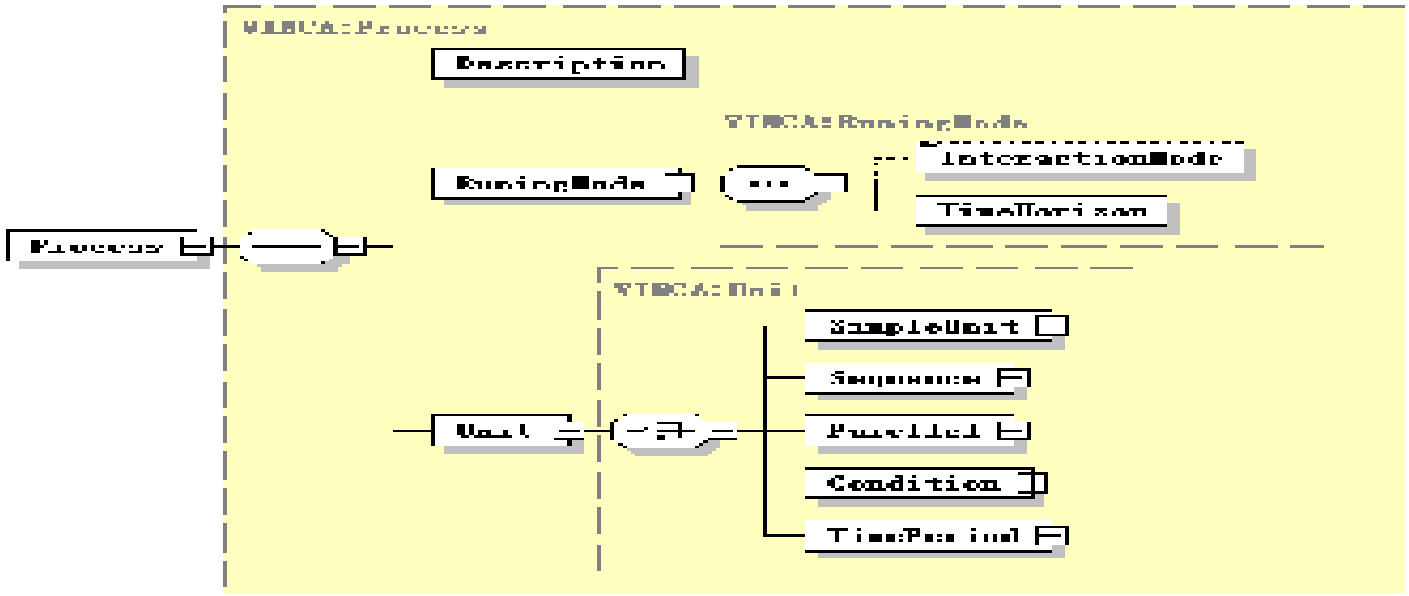


Language Design



.vinca “program” is a set of XML files, whose grammatical rules are defined by a set of schema specifications.

VINCA Process



Generated with XMLSpy Schema Editor www.xmlspy.com

Difference between VINCA process and BPEL:

- Block-structured with the dimension “time” first and then “logic”
- User context

•Dynamic Binding of Semantic Services that are semantic constructs bound to WSDL descriptions at runtime

User Contexts

User contexts serve as implicit inputs in decision-making and service activation

It is required in FLAME that:

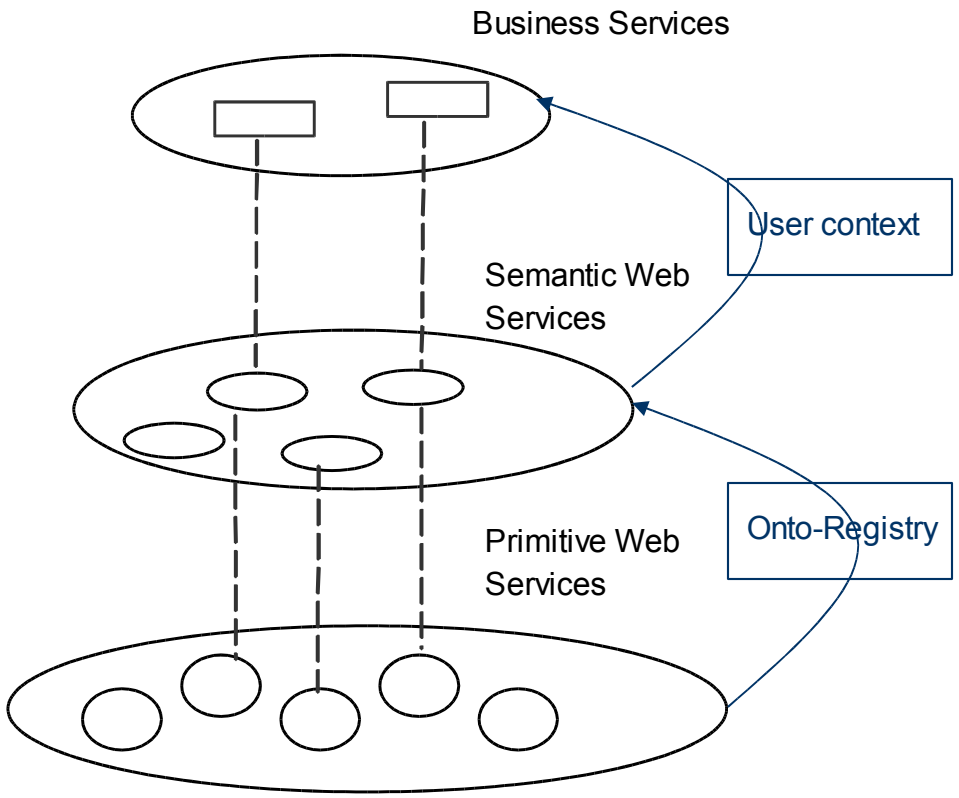
1) Context specification: flexible context structure with semantic support

2) Application of user contexts: context-aware process constructs

Current solution for context awareness:

- **Policies for service selection and invocation**
- **Overlay in service parameter matching**

Business Services

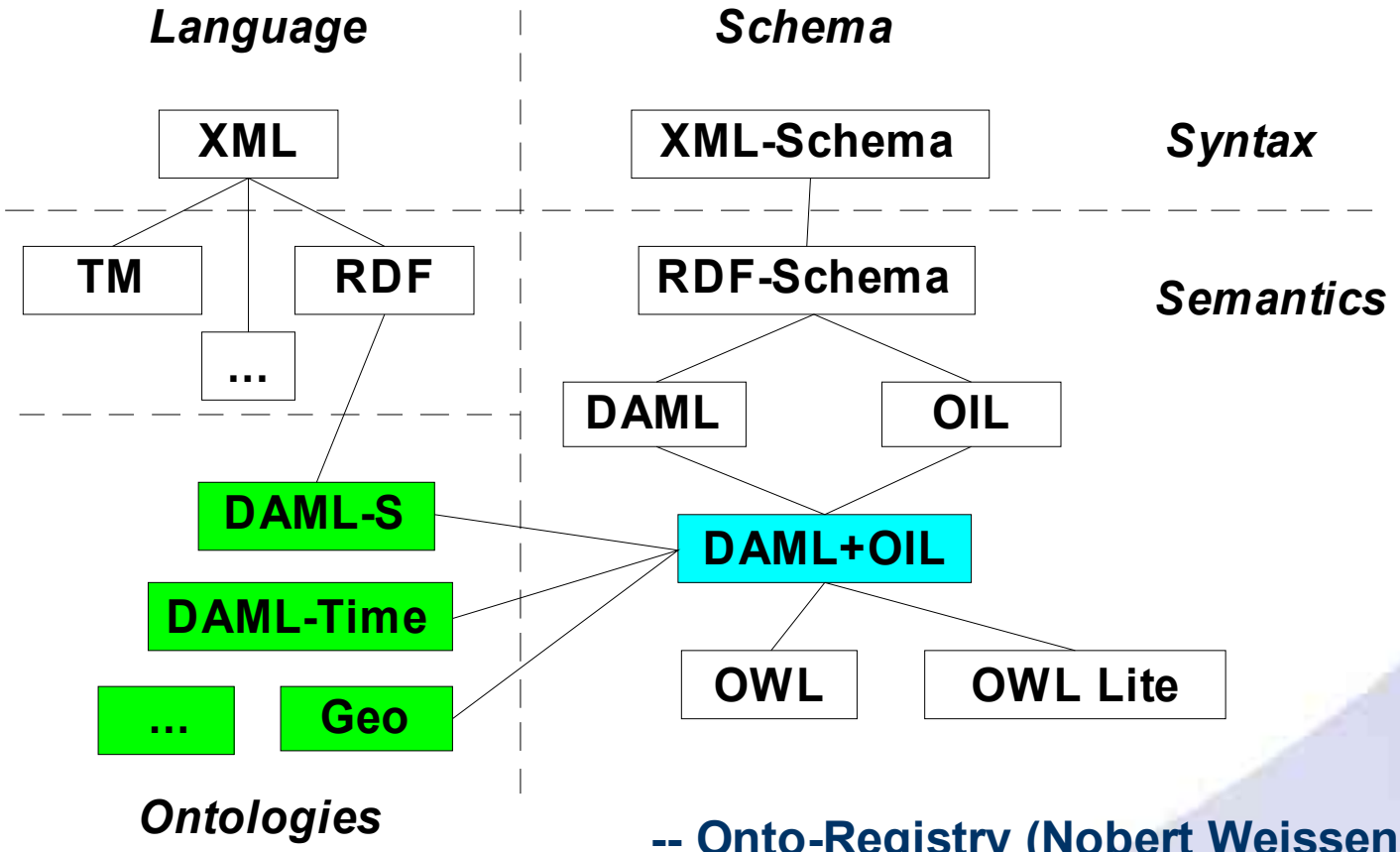


Visual Presentation according to user contexts

Refer to – Ontology-based semantic infrastructure

Web services / Grid services

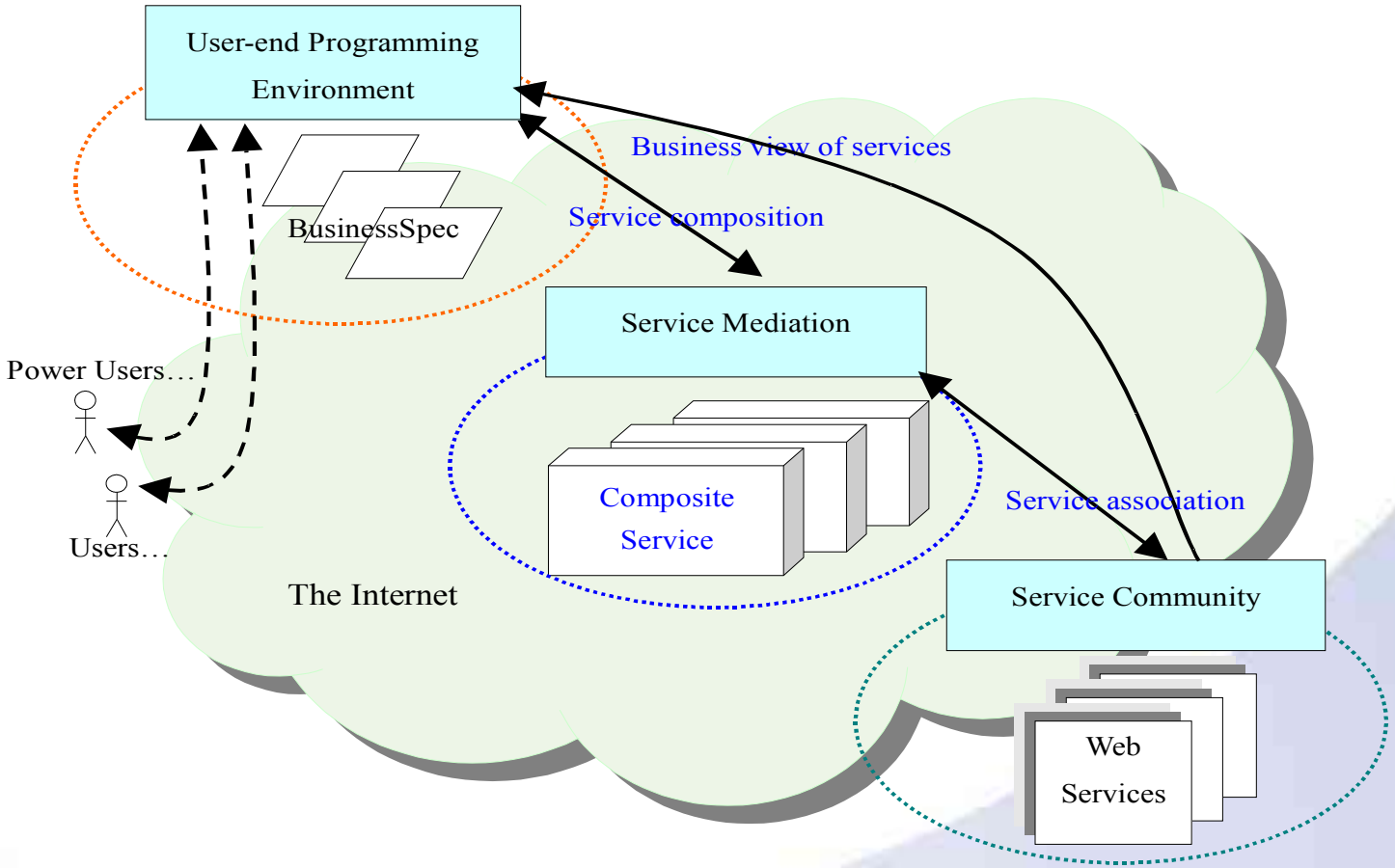
Semantic Infrastructure



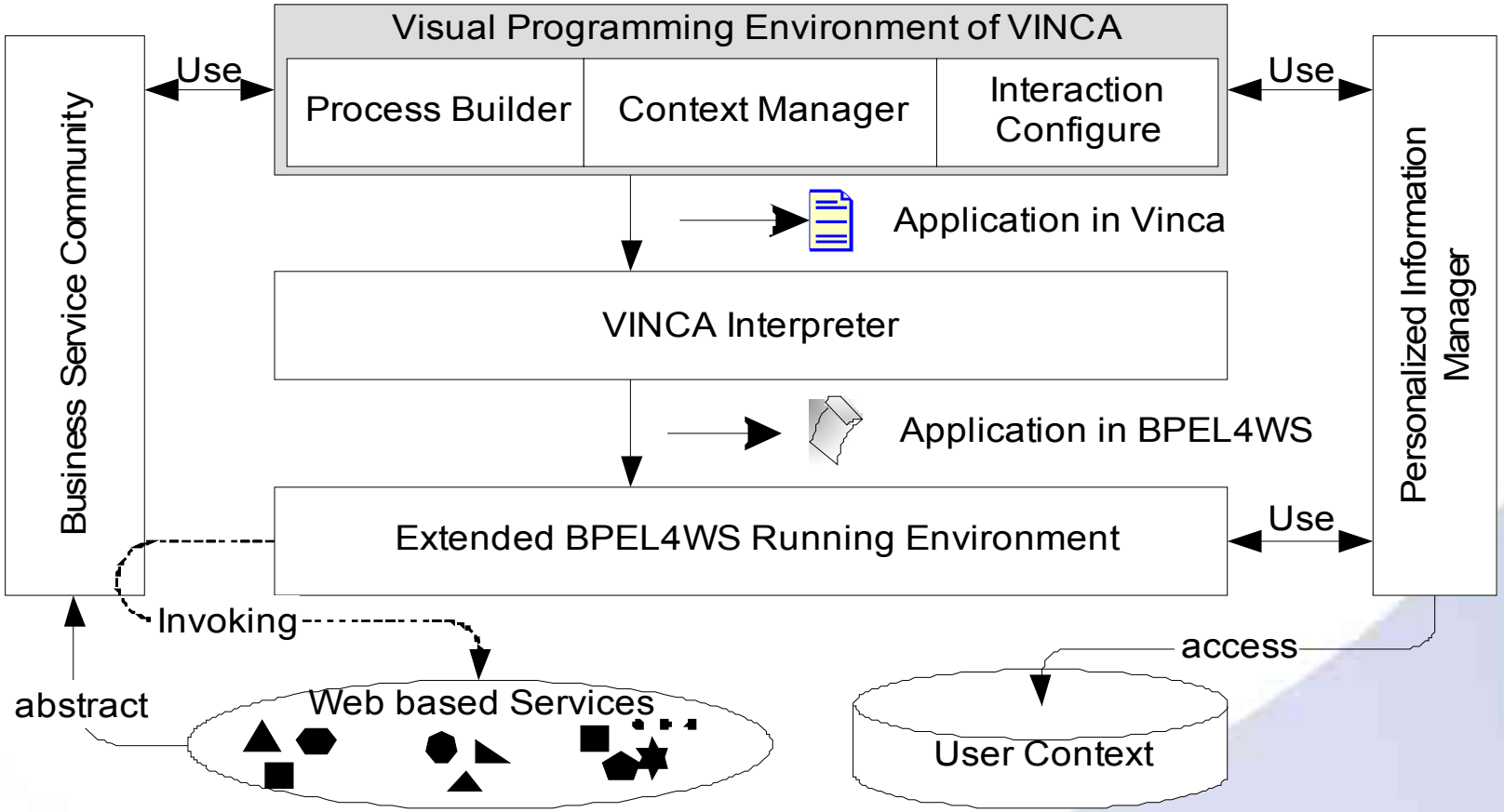
-- Onto-Registry (Nobert Weissenberg)

System Architecture

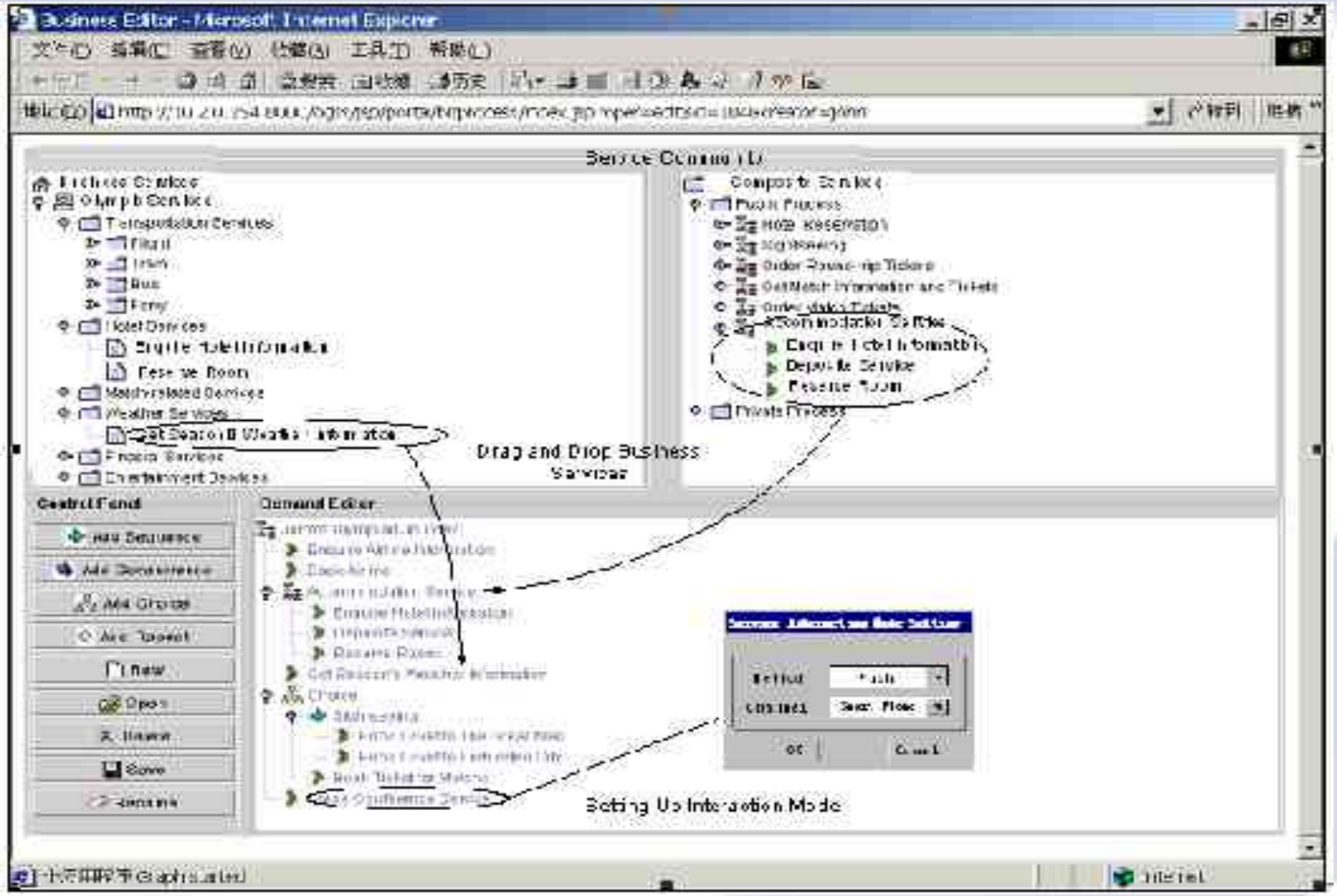
FLAME2008



Implementation



Application



Conclusion and Future Work

VINCA is driven by the project development of FLAME2008 and is still evolving, some observations and future work:

- Process Patterns and Reuse
- Trusted Service Space
- Service Roaming
- Fully Distributed Infrastructure for FLAME2008
- Personalized VO for scientific computing

Consortium for the digital Olympics initiative under the EU 6th Framework Program

Thanks!

Contact address: yhan@ict.ac.cn