Research Directions in Web Systems Evolution V: Architecture

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Motivation

- It’s important to look backwards and to look forwards at periodic intervals
- Our community has lots of knowledge - let’s leverage it!
- What has happened since 2003 in software architecture research and practice as applied to web systems?
RWSE Events

- Various themes have been used in WSE:
  - Migration
  - Testing
  - Architecture (Amsterdam, 2003)

- The first BOF session on “Research Directions” took place at WSE 2002
RWSE Events …

RWSE I (2006)

- Four year later, it seemed prudent to re-examine key issues and research challenges
- Addressed the following question: *What are the top five research directions that the WSE community should address?*
- Sample topics: RIA (Ajax), security, testing, legal issues (IP), architecture
RWSE Events …

RWSE II (2007)

- Security is now a first-class quality attribute for all modern software systems
- Retroactively providing enhanced security is a common form of Web site evolution, but it is very challenging to do properly
- The introduction of new technologies, such as Ajax, offers increased functionality but also increased risk for rich Web applications
RWSE Events …

RWSE III (2009): Migrating to the Cloud

- Software-as-a-Service (SaaS)
- Grids, clusters, and other parallel and/or distributed computing environments
- Service-Oriented Architecture (SOA)
- Virtualization and dynamically scalable systems
- Net-Centric Computing (NCC) concepts, including Web browser-based thin clients
- Autonomic computing and self-managing adaptive systems
RWSE Events …

RWSE IV (2010): Migrating to the Cloud

- Service management: discovering and composing services
- Security and privacy of data
- Testing large scale distributed systems
- Vendor dependency
- Performance and availability
- Compliance
Topics

- The effects of architecture and architectural styles of Web systems on quality attributes such as testability, security, and accessibility
- The influence of system requirements, infrastructure constraints, and interoperability needs (e.g., use of standards) on the architecture of a Web system
- The role of modeling in Web system architecture R&D
- Education and training needs for software engineers to become adept at managing architectural concerns for large-scale Web systems spanning multiple tiers
- Tool support for Web systems architecture
Panelists
Discussion

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