FSE Workshop Proposal:
Sixth International Workshop on Software Engineering and Middleware (SEM 2006)

1 Workshop Theme and Goals

Software is becoming pervasive thanks to the increasing availability of computing power on many different devices, each with different capabilities in terms of display, storage space, mobility, and operating system. A driving vision is collaboration and cooperation among multiple devices, each with tasks tailored to their users and device capabilities. Realizing this vision introduces complex issues such as scale, heterogeneity, dynamicity, and composability. One viable solution for aiding developers in the management of this complexity is the development of stable middleware frameworks.

Middleware consists of a set of services and resources located between applications and the underlying communication infrastructure. Even though there is no generally agreed definition of the precise borders there is general consensus on the existence and the importance of middleware: to facilitate the design, implementation and deployment of distributed systems.

The first conceptualizations of middleware originated with research in distributed operating systems in the late 1970s. Later, distributed object technologies led to the development of environments, such as CORBA, DCOM, and J2EE, which are commonly referred to as middleware, enabling seamless object interactions across hosts. Another middleware approach, message oriented middleware (MOM), focuses on communication among components by means of a publish/subscribe message broker or message queuing mechanism. More recently, standard protocols and formats such as SOAP, WSDL, and UDDI support integration of existing applications even across the boundaries of a single organization.

Complex distributed applications benefit from middleware support, but only if the middleware itself is complex enough to address and deal with the environment. As such, middleware must incorporate the research results from areas such as distributed computing, software architecture, object-oriented and aspect-oriented programming, security, etc. Such a combination introduces new challenges to the middleware developers.

Software engineers are thus challenged to support the development of new middleware and to support the new development practices for those writing applications on top of middleware.

SEM is the premier workshop that brings together the research and practice community of software engineering working in both areas. SEM 2006 is the sixth international workshop on software engineering and middleware of the EDO/SEM workshop series. Previous workshops of this series were held in 1999, 2000, 2002, 2004, and 2005. SEM 2006 will be held in Portland as a workshop associated to the FSE 2006 conference.

2 Targeted Audience

The targeted audience includes researchers and practitioners from two distinct levels of the middleware process. First are the researchers and developers of the middleware itself. These individuals will bring to the table the software engineering practices developed and employed during the development of the middleware itself. Second are the developers of applications built on top of middleware. They are expected to bring the user-perspective, specifically the software engineering techniques employed during this unique form of application development.

3 Workshop Format

We plan for the workshop to span two days, each day following a similar schedule. Each day will have three sessions of 3 twenty-minute paper presentations. The sessions will be organized topically by related papers. Following the paper sessions will be a discussion session, organized into break-out groups. Break-out group topics will be solicited
by the workshop organizers from participants both before and during the workshop based on emerging themes. During the discussions, the groups will arrange their notes into bulleted slides to be presented as short presentations at the end of the second day.

4 Participant Solicitation, Selection Process, Publicity Strategy

Attendance at the workshop will be open to all interested parties. Submissions will be solicited through both email and mailing lists. Email will be targeted to previous SEM participants as well as colleagues of the program chairs and program committee members. Mailing lists will include SEWORLD, DBWORLD, and possibly others more general to distributed computing.

Papers to be discussed at the workshop will be reviewed and selected by members of a program committee, overseen by the program chair. Selection will be based both on originality of the idea as well as its ability to generate productive discussion.

Past instances of this workshop have had approximately 30 people in attendance. We anticipate similar numbers, no more than 40.

5 Background of Organizers

Eric Wohlstadter (PC Chair and Co-organizer) is an Assistant Professor of Computer Science at the University of British Columbia. He received his Ph.D. from the University of California, Davis. Eric is the organizing chair of the International Conference on Aspect-Oriented Software Development (AOSD) 2007 and was co-organizer of the Workshop on Aspects, Patterns, and Components for Infrastructure Software 2005. He has served on the program committee for several conferences including the Working Conference on Software Architecture 2005 and the posters and demonstration committee for ICSE 2006. Eric’s publication record includes papers at ICSE 2001, 2003, 2004 and AOSD 2006. His research interests include architectural modeling and programming language technology for multi-tier, web-enabled applications and services.

Charles Zhang (Co-organizer) is a Ph.D. student in the Middleware Systems research Group at University of Toronto working with supervisor H. Arno Jacobsen. His research has been published at Middleware 2005, OOPSLA 2004, AOSD 2003, and IEEE Transactions on Parallel and Distributed Systems. He primarily focuses on studying aspect oriented software architectural methodologies in the context of distributed systems. The related research effort includes both the program analysis of legacy software systems and the construction of novel middleware architectures that are highly versatile and customizable. Prior to his graduate study, he worked as a software engineer at Motorola and a Silicon Valley startup.

5.1 Contact Information

• Eric Wohlstadter
  Department of Computer Science
  University of British Columbia
  351-2366 Main Mall
  Vancouver, BC V6T 1Z4
  wohlstad@cs.ubc.ca

• Charles Zhang
  Department of Electrical and Computer Engineering
  University of Toronto
  10 King’s College Road
  Toronto, ON M5S 3G4
  czhang@eecg.utoronto.ca

6 Date Preferences

We anticipate SEM to fill two full days, ideally on 10 and 11 November, the two days after the main FSE program.
7 Required Equipment

No special equipment should be necessary, only a projection unit and chairs. Web pages will be hosted at the home institution of one of the organizers.

8 Preliminary Call For Papers

The preliminary version of the call for papers follows on the next page. We have included a tentative list of people we intend to contact for the program committee but these selections have not been confirmed. They will be selected to cover the range of potential workshop topics. They will represent both industry and academia as well as multiple countries. We hope to publish the proceedings through Springer LNCS, as has been done with past SEM workshops.
Software Engineering and Middleware
(SEM 2006)

10-11 November 2006
Co-located with FSE 2006, Portland, Oregon
Workshop web site: TBA

Software is becoming pervasive thanks to the increasing availability of computing power on many different devices, each with different capabilities in terms of display, storage space, mobility, and operating system. A driving vision is collaboration and cooperation among multiple devices, each with tasks tailored to their users and capabilities. Managing the complexity creating this vision naturally leads to the development of stable middleware frameworks to help developers address issues such as scale, heterogeneity, dynamicity, and composability.

Middleware can be roughly characterized as support for object oriented systems (e.g., CORBA, DCOM, J2EE), support for message oriented systems (Publish/Subscribe), support for application service integration (SOAP, WSDL, UDDI), or other modalities tailored to specific environments. Complex applications benefit from the abstractions of middleware, but only if the middleware itself is complex enough to address and deal with the environment. Therefore, middleware must incorporate the research results from areas such as distributed computing, object-oriented design methods, programming languages, security, etc. Such a combination introduces new challenges for middleware developers.

Software engineers are thus challenged to support the development of new middleware and to support the new development practices for those writing applications on top of middleware.

SEM is the premier workshop that brings together the research and practice community of software engineering working in both areas. SEM 2006 is the sixth international workshop on software engineering and middleware of the EDO/SEM workshop series. Previous workshops of this series were held in 1999, 2000, 2002, 2004, and 2005. SEM 2006 will be held in Portland as a workshop associated to the FSE 2006 conference.

The program committee seeks papers related to all aspects of middleware and its relationship to software engineering. Topics include, but are not limited to:

- Software Architectures for MW
- MW Interoperability
- MW and Component-based SE
- Testing of MW-Based Apps.
- MW for Mobile Environments
- MW Issues: Performance, Reliability, Security, Heterogeneity, Scalability
- MW-Based Applications: Modeling and Specification
- SW Development methods for MW-based Apps.
- Automatic Reasoning of MW
- Aspect-oriented Programming and MW
- MW for Ubiquitous Systems
- MW for Extreme Environments
- MW and Web Tech. Integration
- MW for Service-Based Systems
- Submissions must be original and must not have been submitted for publication elsewhere. Papers must be submitted electronically from the workshop web site. SEM will publish post-proceedings with LNCS, therefore submissions must use LNCS format, be no more than 15 pages, and be in English. Selection will be based both on originality of the idea as well as its ability to generate productive discussion.

IMPORTANT DATES (tentative)

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<thead>
<tr>
<th>Event</th>
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<tr>
<td>Submission deadline</td>
<td>1 August 2006</td>
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<tr>
<td>Acceptance notification</td>
<td>15 September 2006</td>
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<tr>
<td>Pre-proceedings deadline</td>
<td>1 October 2006</td>
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<td>Post-proceedings deadline</td>
<td>20 December 2006</td>
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