Tutorial title:
Beyond Open Architecture: Issues, Challenges, and Opportunities in Open Source Software Development (OSSD)

Names and affiliations of the instructor(s)
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A description of the tutorial
This tutorial serves to introduce and educate software developers, system architects, project managers, program managers, and others in the state of the art in open source software development processes, work practices, and project community dynamics. The focus in to examine and review results from empirical studies of OSSD that have appeared in the past five or so years. These include studies that examine OSSD projects within both commercial and non-profit environments, as well as those that produce embedded or mission-critical applications, software development and dispersed teamwork collaboration tools. They also include review of recent government policies and initiatives within the DoD community that encourage the acquisition, development, and deployment of mission-critical software systems that embody "open architecture" (OA) concepts that include the integration of OSS systems/components. Overall, this introductory review will help establish a foundation for identifying issues, challenges, and opportunities that can arise when engaging OSSD processes, practices, and project communities.

The remaining topics for presentation and discussion on the proposed tutorial will be drawn from the following unordered list. In half-day format, the Tutorial will include two of the topics below, whereas in the full-day format, the Tutorial will include five topics in total.

1. Case studies in OSSD in commercial or non-profit environments
2. OSS collaboration tools and techniques for OSSD projects or traditional software engineering projects
3. OSSD versus software engineering, CMMI, and outsourcing
4. Understanding when OSSD is faster, better, and cheaper than software engineering, and vice-versa.
5. OSSD and software product lines
6. Composing OSS components and licenses into an OA with proprietary and/or legacy components
7. Observations on the evolution patterns of long-life OSS systems
8. Alternative OSSD business models and project management regimes
9. Developing a corporate strategy for OSSD
10. Areas for future R&D in applying OSSD in commercial environments

The GSAW Tutorial Program Committee can select and recommend the sets of topics they find most appropriate to GSAW participants. Covering all topics requires two full days of presentation, given the volume of topics and the depth of material, so that is not possible to present all of these topics, nor is it proposed for GSAW 2009.

Tutorial length: Either full day or half day (choice to be made by GSAW Program Committee)

What the participants should expect to learn

- the state of the art in OSSD processes, work practices, and project community dynamics, based on review of empirical studies of OSSD
- understand the roles and relationship of OA and OSSD

Description of intended participants and prerequisite knowledge

Intended participants for this tutorial include software developers, system architects, project managers, program managers, and others who anticipate the acquisition, adoption, implementation, or integration of OSS systems, components, processes, practices, or project communities in current/future system development efforts.

Expected/desired number of participants

20-40 (or more depending, on room size)

List of materials to be provided by the instructors

- Copy of presentation materials
- Access to electronic documents that supplement the Tutorial presentation materials

Biography of the instructor(s) (100-200 words)

Walt Scacchi is senior research scientist and research faculty at the Institute for Software Research, and also research director of the Game Culture and Technology Laboratory, both at the University of California, Irvine. He received a Ph.D. in Information and Computer Science from UCI in 1981, and was on the faculty at the University of Southern California from 1981-1998, where he created and directed the System Factory Project from 1981-1991, and the ATRIUM Laboratory from 1992-1998. He joined ISR in 1999. Dr. Scacchi research interests include free/open source software development, computer games and virtual worlds, acquisition and electronic commerce, software/business process (re)engineering, and computer-supported cooperative work environments. He is an active researcher with more than 150 publications. He has developed and directed more than 45 externally funded research projects, and has consulted for dozens of firms on a regional, national, and international basis. He currently serves as Principal Investigator on six research projects with funding from the National Science Foundation (three projects), Naval Postgraduate School (two projects), and Daegu Global R&D Collaboration Center (Daegu, South Korea).

Has this tutorial or an earlier version has been given before:

The introductory review of results from empirical studies of OSSD was presented as an invited, state of the art seminar at the 2007 European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering, Dubrovnik, Croatia, September 2007. Materials beyond the introductory review may have been previously presented at conferences or workshops on OSSD and OA, but not in tutorial form. Thus, the composition and presentation of the proposed Tutorial draws on either content that has been refined through

engagements with other audiences, or new content, but overall has not been previously presented in the form proposed for presentation at GSAW 2009.