Portraits in Practice

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Abstract

Portraits in Practice invites companies with technically advanced software-engineering practices and intriguing research challenges to discuss them with the ICSE 2007 participants. The sessions in this track let researchers hear industrial practitioners describe their projects and concerns in some detail, and they let other practitioners hear what technologies these companies recommend. The track provides an open discussion and blunt assessment of future needs with experts from these leading industries. The goal is to encourage and foment improved communication between leading companies and academic researchers.

1. Introduction

Portraits in Practice is a new track at ICSE 2007 to showcase select regional and multi-national firms with technically advanced software-engineering practices and intriguing research challenges to the software-engineering community. It serves as a forum to let researchers hear practitioners describe their projects and concerns in some detail, and to let developers hear what other practitioners have found to actually work.

Each session features several speakers invited from a single company to describe the practical, technical, software-engineering issues that they face in their organization and discuss potential solutions with the audience. The presentations include accounts of software-engineering tools or technologies that have been successfully applied in the speakers' experience, and that the speakers would recommend for technology transfer. The presentations also include technical descriptions of the company's typical projects and of the decisions taken, explained so that both developers and researchers can understand what worked and why. Each session concludes with a panel discussion with opportunity for the audience to "ask the experts."

Portraits in Practice consists of three sessions. The first session is "Enterprise Architecture for Legal-Research Publishing at Thomson West" led by Mick Atton, vice president and chief architect. This session describes the enterprise software architecture approach in use at Thomson West, a large legal-research publisher based in Eagan, Minnesota.

Thomson West provides integrated information solutions to its customers, involving legal, regulatory and business information and the technological tools to manage that information

The applications built by the West Technology group are not traditional back-office functions. Rather, they are a wide stream of new products and thus are active contributors to West revenue growth. West's development teams must balance multiple, sometimes conflicting goals, such as timely-delivery, scalability of incoming dataflow and active connections, "five 9s" reliability, highly customized workflows and non-traditional data sources.

The Technology group has chosen to use a strong enterprise architecture focus to bring clarity to its software development. The presentations by Mick Atton, Dave Hendricksen, architect, and Bob Sturm, architect, cover topics such as application partitioning, standards adoption and compliance, design artifacts captured, organizational alignment and development methodologies employed.

The second session, "Software Engineering Practice and Research at Siemens Corporation," led by Brian Berenbach, technical manager of the requirements engineering program, focuses on some recent projects and upcoming challenges.

Siemens is one of the largest companies in the world, with revenues of $110 Billion in 2006. Its products include transportation systems, power-generation equipment, medical equipment and software, and automotive, communication and lighting products. Siemens Corporate Research (SCR) is part of Siemens Corporate Technology, the research arm of Siemens. Headquartered in Princeton, New Jersey,

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SCR provides research and consulting services for the various Siemens business units worldwide.

Juergen Kazmeier, department head for software engineering, describes the organization of Corporate Technology, SCR and some present and future software engineering research projects.

Mr. Berenbach provides a glimpse into the many issues, best practices and research in requirements engineering at Siemens AG, briefly describing some of the challenges and ongoing research in specific domains such as automotive, transportation and health care.

Daniel Paulish, distinguished member of the technical staff, reports on the Global Studio research project which simulates the hub-and-spoke software development model. The hub is the central team of student interns working at SCR in Princeton orchestrating the effort. The spokes are the remote teams consisting of students from different universities at geographically disparate locations from SCR.

Finally, Marlon Vieira, manager of the software testing program, describes the SCR testing program, which focuses on collecting and analyzing best testing practices and deploying those practices throughout Siemens divisions. He shares lessons learned while spreading testing automation in the Siemens industrial context. The talk explores the challenges of successfully implementing automated testing, looking at common automation strategies (advantages and drawbacks) and non-technical issues involved in adopting those strategies for Siemens mega-projects.

The third Portraits in Practice session is "Open-Source Software at IBM Rochester," led by Sam Ellis, software technology manager, Blue Gene and Stream Processing, IBM Rochester. In this session, the presenters discuss their practical experience, including success and pitfalls, with Open Source in the Software Development environment. By participating in Open Source Software (OSS) projects, IBM is working to enable collaboration in many new environments with customers, business partners, and academia world-wide.

The other speakers from IBM Rochester are Marybeth Markland, advisory software engineer, SMB Development; Jeffrey Scheel, senior technical staff member, High Performance Computing; and Tony Wells, WebSphere application server development manager, Software Group.

IBM's facility in Rochester, MN has a rich heritage of business computing innovation and client satisfaction and plays a key role in the company's business strategies. Over 4000 regular employees representing more than 30 IBM divisions work together to provide innovative business solutions to clients around the world. Although the site has a wide diversity of skills, its predominant mission is the development, manufacture and support of IBM's collaborative business systems and products including the IBM System i and System p and the Blue Gene/L supercomputer.

OSS has been embraced by IBM as a valuable and strategic aspect of their business. IBM's use generally falls into three categories: (1) Contributions to existing open source communities like Linux and Apache, (2) Use of OSS in their development environment and products (e.g. openssh, openssl, gcc, glibc, and a variety of other applications/tools), and (3) Creation of new solutions using an open source development paradigm with the intent of eventually releasing the software under an OSS license.

The speakers will discuss how these three environments challenge IBM's traditional "Cathedral" environment [cf. Eric Raymond, The Cathedral and the Bazaar] in several areas: the development process (waterfall vs. iterative prototype), the handling of intellectual property (pedigree, patents, licensing), and the planning and management of product releases (open innovation while maintaining brand integrity).

Before closing, I thank the speakers for their participation and insightful presentations. I also thank the Portraits in Practice program committee members, Dan Berry (University of Waterloo), Martin Feather (Jet Propulsion Laboratory/Caltech), and Jane Hayes (University of Kentucky), for their help with the sessions.

The goal of the Portraits in Practice is an honest, open discussion with the audience about challenges faced and overcome in innovative ways, and of forthcoming, technical challenges that researchers need to be investigating now. Our hope is that the presentations in this track enrich that discussion.