



Program Highlights and Articles from SEI SATURN 2013

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// The SATURN Conference is an international forum for software engineers and anyone else interested in software architecture. SATURN regularly partners with *IEEE Software*, a relationship that continues to offer strong content on both sides. //

THE SOFTWARE ENGINEERING

Institute (SEI) Architecture Technology User Network (SATURN) Conference series has an international audience of practicing software architects, industry thought leaders, developers, technical managers, and researchers, all sharing their ideas, insights, and experiences about effective architecture-centric practices for developing and maintaining software-intensive systems. As 2013 technical program chairs, we're fortunate to work with this outstanding group of people. Here, we describe last year's conference and the two articles from it that we're highlighting in this issue of *IEEE Software* magazine.

SATURN 2013

Last year's conference, SATURN 2013 (www.sei.cmu.edu/saturn/2013), took place in Minneapolis, Minnesota, from 29 April to 3 May and was the most attended SATURN conference to date with more than 200 participants. Conference themes covered the topics of front- and back-end architecture, methods and tools, and technical leadership. Three keynote offers offered multifaceted insight into the software architecture field—"15 Years of SOA at Credit Suisse: Lessons Learned and Remaining Challenges" (Stephan Murer; this was accepted for publication in *IEEE Software* and will be published soon), "Word-Press.com and the Future of Work" (Scott Berkun), and "Learning to Surf" (Mary Poppendieck). Philippe Kruchten gave an *IEEE Software*

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and reuse, an open space event, and lightning talks.

Presentation Program Highlights

The program committee selected 33 presentations out of 80 submissions from more than 40 companies and organizations across three continents. Exemplary presentation titles included “An Architecturally Evident Coding Style,” “An Emerging Set of Integrated Architecture and Agile Practices That Speed Up Delivery,” “Architecting Long-Lived Systems,” “Test-Driven Non-Functionals? Test-Driven Non-Functionals!,” and “All Architecture Evaluation Is Not the Same: Lessons Learned from More Than 50 Architecture Evaluations in Industry.”

Particular conference highlights were the two sessions on cloud computing and Web architectures. The first session kicked off with an experience report on BestBuy.com’s cloud architecture. Next was an SEI presentation on automated provisioning of cloud and cloudlet applications, followed by a report on a rich set of cloud computing patterns harvested from multiple projects and organizations. The second session on cloud computing and Web architectures featured a reusable Web design space as well as a NoSQL platform evaluation based on the architecture tradeoff analysis method. The session closed with the discussion and adaptation of a rather novel architectural style, service-oriented front-end architecture.

Other sessions covered architectural aspects of mobile computing such as context awareness and experience with traditional and novel methods elements. The session on architectural evaluation contained a presentation about leveraging simu-

invited talk entitled “Games Architects Play: On Reasoning Fallacies, Cognitive Biases, and Politics.”

The conference also featured 10 three-hour tutorials that covered the entire spectrum of conference themes:

- principles and patterns of RESTful Web services;
- a practical guide to techniques for successfully coaching an architecture team;
- a risk- and cost-driven approach to architecture design;
- a pattern-driven approach to architecture recovery and discovery;
- key concepts of NoSQL data-

bases from an architect’s viewpoint;

- design alternatives for cloud computing solutions;
- in-depth looks into the lean mindset;
- a simple yet powerful approach for sketching software architecture diagrams;
- release-planning simulations; and
- a new extension of the attribute-driven design method.

The SATURN program was rounded out by interactive elements such as a birds-of-a-feather session on architectural decision capturing

lations in agile embedded software engineering. The remaining sessions focused on other agile practices, method tailoring, and governance and education. The 33 conference presentations can be found in the SEI Digital Library at <https://resources.sei.cmu.edu/library>.

Collaborating with *IEEE Software*

As in previous years, the conference was held in collaboration with *IEEE Software*. Two attendee-selected awards, sponsored by the magazine, went to Simon Brown and Darryl Nelson for their noteworthy presentations. Brown received the Architecture in Practice Presentation Award for “The Conflict Between Agile and Architecture: Myth or Reality?” and Nelson received the New Directions Presentation Award for “Next-Gen Web Architecture for the Cloud Era.” The Architecture in Practice Presentation Award goes to the presentation that best describes lessons learned in applying architecture-centric practices. The lessons and ideas described can be applied by others and help them improve their use of architecture-centric practices. The New Directions Presentation Award goes to the presentation that best describes ideas on the horizon where architecture-centric practices can assist innovation and change in today’s practices to deliver better systems faster.

A technical committee invited five conference presenters to submit articles for consideration to be published in *IEEE Software* following the conference. The technical committee included representatives from the magazine, the SATURN 2013 program committee, and the SEI architecture-centric engineering

ABOUT THE AUTHORS



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group. This team selected presentations based on their relevance to the *IEEE Software* audience, relevance to architecture practice, content presented, and attendee feedback. Both the articles highlighted in this issue were vetted by at least three peer reviewers, followed by additional technical writing support from shepherds familiar with the magazine’s writing style.

In the first article, “BestBuy.com’s Cloud Architecture,” Joel Crabb reports on experiences in designing a hybrid cloud at BestBuy.com. Crabb describes how the e-commerce site dealt with bursty, growing workload characteristics without compromising other qualities. Specifically, his article highlights architectural patterns and decision-making criteria for the design of cloud-based solutions in light of challenging business goals. The experiences shared in this article contribute to the cloud computing body of knowledge and can help other practitioners creating similar

systems. The advice helps in building more sustainable cloud systems and ties back to *IEEE Software*’s November/December 2013 special issue on architecture sustainability.

In the second article, “Simulation-Based Embedded Agile Development,” Jason Ard, Kristine Davidsen, and Terril Hurst report how they combined agile and simulation practices to their mutual benefit at Raytheon Missile Systems. Specifically, the authors point out that flexibility and time-to-market gains justify the investment in establishing and validating simulation software in the context of embedded software engineering. In their application domain, physical prototypes are difficult to develop during early development stages; therefore, it’s hard to assess how software design decisions affect overall system qualities. Simulating the hardware parts of a system allows, for example, checking performance properties beforehand and getting feedback on the feasibility of proposed designs.

This can avoid expensive refactorings and increase the overall system's long-term sustainability.

The 10th SATURN Conference will be held in Portland, Oregon, from 5-9 May 2014, with IBM's Michael Keeling serving as the technical program chair. The themes and topics will be similar to those of SATURN 2013, with an additional format included for participatory sessions. These 90-minute facilitated sessions will dedicate at least 50 percent of their time to hands-on, active learning activities with attendees, such as writing code or practicing techniques.

Software architects of all kinds have the chance to learn a lot at SATURN 2014. They can exchange their experiences and ideas with front- and back-end architects, cloud aficionados, method evangelists, and technical program managers coordinating myriad development and education efforts. We encourage readers with an interest in these themes and topics to check the conference website, the SATURN blog (<http://saturnnetwork.wordpress.com>), and related social media for news on keynote speakers, registration, and so on. We hope to see you there! ☺

 Selected CS articles and columns are also available for free at <http://ComputingNow.computer.org>.

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