

My Agenda

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Sun, June 3

**8:00 AM IMG-1253 IBM Research Global Technology Outlook**

Location: Southern I - Dolphin

Sun, June 3

**9:15 AM IMG-1082 Smarter Systems Engineering How Analytics are Transforming the Role of Today's Systems Engineers**

Location: Southern I - Dolphin

Sun, June 3

**10:30 AM IMG-1148 Optimized Software and Systems Delivery through Collaborative Analytics**

Location: Southern I - Dolphin

Sun, June 3

**11:45 AM IMG-2219 Weaver Advanced Development/Test Platform for Integrated Infrastructure Development**

Location: Southern I - Dolphin

Sun, June 3

**1:30 PM IMG-1034 Living with Legacy**

Location: Southern I - Dolphin

Sun, June 3

**2:45 PM IMG-1119 Imagine Clear Diagnostics on a Cloudy Day**

Location: Southern I - Dolphin

Sun, June 3

**4:00 PM**    **IMG-1174 Exploiting Application Assets: Using Legacy GUI Test Scenarios for Quantitative Usability Testing**  
Location: Southern I - Dolphin

## IMG-1253 IBM Research Global Technology Outlook

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 8:00 AM

**End Time:** 9:00 AM

**Speakers:** Gabi Zodik, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

Since 1992, IBM Research has marshaled the unique capabilities of its global community of 3,000 scientists to create the Global Technology Outlook (GTO). The GTO is a comprehensive analysis that looks 5-10 years into the future and considers the cultural and business contexts in which new technology will be used and the impacts it will have on IBM, its customers, and the world. In the past, it has predicted trends such as autonomic computing, the implications of pervasive connectivity, and the potential of nanotechnology in systems development. Inside IBM, the results of the GTO are used to determine areas of focus and investment. Externally, it is shared broadly with a range of IT influencers, including clients, academics, and even competitors, through education and client briefings. Throughout the process of creating the GTO, IBM Research takes an unflinching look at trends that often extend well outside of IBM's own offerings. Attendees get an unvarnished view of the GTO.

## IMG-1082 Smarter Systems Engineering How Analytics are Transforming the Role of Today's Systems Engineers

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 9:15 AM

**End Time:** 10:15 AM

**Speakers:** Amit Fisher, IBM; Asaf Adi, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

When designing the complex systems of tomorrow, systems engineers have to deal with a vast number of subsystems and components. These systems require large teams of engineers working years to conceive, design, implement, and maintain them. The engineering processes have become extremely expensive and complex, and regularly exceed the capacity of human processing. The role and importance of the modern systems engineer is rapidly changing from design as an art to computational engineering, in which advanced technologies are applied to address the complexity, multi-domain, and multi-scale challenges of 21st century systems. This talk provides an overview of leading-edge research directions and client projects in this area. Presenters highlight new methods and algorithms to allow systems optimization, simulation, verification, validation, and testing. Early results from research projects with UTC, Airbus, and IAI are shared with the audience.

## **IMG-1148 Optimized Software and Systems Delivery through Collaborative Analytics**

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 10:30 AM

**End Time:** 11:30 AM

**Speakers:** PERI TARR, IBM; EVELYN DUESTERWALD, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

Today's software and systems involve unprecedented complexity. Developing and delivering these systems involves creative but measurable activities. To do these activities well, organizations require early, actionable insight into development and delivery, with collaboration support to enable the appropriate stakeholders to work together to achieve the best possible outcomes. This presentation describes a joint project between IBM Rational and IBM Research to explore how collaboration, analytics, and optimization techniques can be combined to improve technical and business outcomes in organizations delivering software and systems. Presenters illustrate the challenges in driving development using measures at both the technical and business levels. Next, they present the solution using a detailed scenario to describe the capabilities they are exploring. Finally, they discuss the progress to date and present a maturity roadmap for customers who want to begin adopting these approaches.

## **IMG-2219 Weaver Advanced Development/Test Platform for Integrated Infrastructure Development**

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 11:45 AM

**End Time:** 12:45 PM

**Speakers:** FLORIAN ROSENBERG, IBM; Tamar Eilam, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

The industry has a pressing need to streamline software delivery to reduce cost and time to market. However, inefficiencies in IT operations lead to extraordinary long release and low quality. This is rooted in the misalignment incentives between development and operations teams (maximize function versus maximize uptime). DevOps is an industrial trend approach to better align the practices, methods, and tools for software development and IT operations. In this session, presenters describe the basic IBM DevOps capabilities and the advanced IBM Research capabilities. The advanced capabilities developed as part of the Weaver project include an approach for adding semantics to the application and infrastructures models by providing a higher-level domain-specific language (DSL). The available semantics enables impact analysis and pre- and post deployment validation checks to reduce the number of potential problems that can occur during deployment.

## **IMG-1034 Living with Legacy**

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 1:30 PM

**End Time:** 2:30 PM

**Speakers:** Jonathan Bnayahu, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

This talk showcases key IBM Research projects aimed at helping enterprises discover, manage, evolve, and transform legacy software. The talk includes short demonstrations of various capabilities in IBM Rational products that are based on IBM Research's work, as well as prototypes of recent projects.

## **IMG-1119 Imagine Clear Diagnostics on a Cloudy Day**

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 2:45 PM

**End Time:** 3:45 PM

**Speakers:** Erik Altman, IBM; Matthew Arnold, IBM; Peter Sweeney, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

IBM Research has developed a cloud-based tool for performance diagnostics in cloud and other environments. The tool is Whole-system Analysis of Idle Time, or "WAIT" for short. Indeed WAIT helps find critical places where enterprise workloads wait unnecessarily and harm performance. WAIT has been used internally in IBM for more than 2.5 years by more than 700 IBMers on six continents. WAIT is seamless to use: it requires no changes to other software, no particular versions of software, and no changes to deployment scripts or command line options. Despite WAIT's low touch and fast time-to-value, WAIT can diagnose many common problems, including lock contention, memory leaks, file I/O, database bottlenecks, and too many or too few CPUs in an elastic cloud. From the high-level problem, WAIT has many drilldowns, including to code stacks, thread pools, and who wrote problem code. WAIT reports can be shared via the URL.

## **IMG-1174 Exploiting Application Assets: Using Legacy GUI Test Scenarios for Quantitative Usability Testing**

**Date:** Sun, Jun 3, 2012

**Location:** Southern I - Dolphin

**Start Time:** 4:00 PM

**End Time:** 5:00 PM

**Speakers:** BONNIE E. JOHN, IBM; Peter Santhanam, IBM

**Session Code:** IMG

**Stream:** The Rational Network

**Track:** Imagine

Only a small percent of business applications are developed from a clean slate. So, developers must find ways to improve an existing application through its many versions to meet the increasing user demands and competitive pressures. Presenters outline a method and tooling for quantitative evaluation of an existing application user interface by exploiting the legacy GUI test scenarios captured by tools such as IBM Rational Functional Tester. They perform an automatic UI-model extraction from the screens touched by a test scenario and create storyboards and a usability model. From an analysis of the model, they infer alternative task paths beyond the original test scenario. Quantitative metrics produced from the usability model can be used for competitive evaluation or to evaluate proposed design ideas versus the existing version. Preliminary feedback from designers reveals that the approach resonates well with a key pain point in real-world software application development.