



Experts Present Views on 21ST Century

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CrossTalk

Software engineering research moves the industry forward. Some of this research was presented recently at the International Conference on Software Engineering (ICSE) in Orlando, Fla. This article reports on keynote talks at the ICSE 2002.

Technology continues to shrink our world. Today's customers know everything about products; almost every business has a Web storefront, said Jim Cassell, group vice president at Dataquest Research at the 2002 International Conference on Software Engineering.

Global competition causes business to become very customer centered, said Cassell, including operating and responding in real time to customer desires. "We have to have dynamic, interactive, collaborative interaction in the supply chain to have zero latency enterprise (ZLE)," he said. While ZLE technology is in place, the decision-makers in business have not adopted it, he noted. "There is no standard of communication among parties in the supply chain ..."

Ubiquitous computing is the solution, according to Cassell. "Operators are looking to operate 24 hours a day, seven days a

week. They must be able to accept a wide variety of computing supplies, including laptops, phones, palm pilots, etc.," he said. "We need to reduce inefficiencies by 'virtualizing' resources, setting standard operating parameters, switching workloads, and resource management."

Meanwhile, 21st century systems engineering demands robust use of the systems approach, said Donna H. Rhodes, director, Process and Quality at CSG Systems. Given the challenges of this century, Rhodes said, systems engineering must be an essential engineering discipline. As it becomes a more integral part of product development, the character of the systems engineering discipline expands, and the associated research agenda takes new shape, she said. While software engineering and systems engineering share many methods and practices, each has a different world view.

Bob Balzer, chief technical officer of Teknowledge Corporation said researchers should focus more on commercial off-the-shelf (COTS) and on assisting users vs. developers. Opportunities include wrappers to add user functionality and safety, he said. New tools or add-ons understand what the user is doing within a COTS tool, and infer user goals in order to provide usage guidance and scripting assistance, he said.

Balzer cited user-programmable extensions like Safe-Email in which each opened attachment spawns a new process that is wrapped for safety, and Editor, which allows users to make late authorization decisions by transparently redirecting operations to a virtual system. He also mentioned integrity-marked documents that build a history of all changes made to a document. "There is a lot of opportunity to make use of the COTS function that is out there." ♦