Abstract

The Invited Industry Presentations (IIP) feature leading practitioners who present and discuss problems, critical issues, and best practices of the industrial software landscape. The topics of the ICSE 2001 IIP track include empirical studies of global software development, organizational models for distributing work over many sites, challenges faced by at start-up companies, remedies for the software performance and reliability bottleneck, technology drivers for e-business, mobile phone systems and web services, methodologies for enterprise component technologies, options analysis for reengineering, and architecture-driven usability solutions.

1. Global Software Development
The Bell Labs Collaboratory

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Abstract: Software development is a global enterprise for many large corporations. Searching for talent across national boundaries, and integrating groups thrown together by mergers and acquisitions are but two of the many forces conspiring to change the organizational context of software development (e.g., [1]).

For the past three years, a group of researchers from Bell Labs and the University of Michigan have been working to understand and address global development issues. The project has four concurrent threads of activity:

Empirical studies of global development. The problems of global development are varied. We conducted over 200 structured interviews at 14 sites on three continents, with people at all levels in the organization from developers to executives. In addition to the obvious problems of time zone, limited bandwidth connectivity, language and culture differences, we found the chief victim of global development to be speed [4]. Changes that cross sites take much longer than changes that are all at a single site. The difference appears not to be due to the size or complexity of cross-site changes, but rather to communication and coordination issues.

Most pressing among these communication and coordination issues [3] are 1) what we are calling issue resolution paralysis, induced by the inability to identify the right person, initiate communication, and have an effective interchange, and 2) a complete lack of informal “corridor talk” among people at different sites, which results in a surprisingly powerful impediment to the flow of information.

Collaboration tools for awareness and communication. In order to address these problems, we have developed several tools for collaborating over distance in software development. The tools include
- Experience Browser, which allows the user to explore data in the change management system through a visual interface to find people experienced in various parts of the code.
- Rear View Mirror, an instant messaging tool that supports persistent team chat rooms, a lightweight tool for informal conversation.
- CalendarBot, a web-based multi-user calendar tool that helps keep everyone informed of items such as travel and vacation plans.

All of these tools are currently in use within Lucent.

Organizational models for distributing work over sites. There are many possible ways to distribute development work over sites (see [2, 5]). For example, one might
- develop different subsystems at different sites,
- execute different process steps at different sites,
- develop a core product at a single site, and customize for different markets and customers at satellite sites,
- locate different maintenance releases at different sites.