Revolutionizing Software Development

Robert L. Martin
Lucent Technologies
Bell Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974

Abstract

Starting with the NATO 1968 Software Engineering Conference, answers to the following key questions continue to elude professionals around the world:

1. Why is software hard?
2. What has changed in the last 25 years to make it easier?
3. What could improve quality and productivity by:
   a) Up to a factor of 2
   b) Between a factor of 2 to a factor of 10
   c) Greater than a factor of 10

This talk will address each of these questions and describe initiatives at Lucent Technologies which are targeted towards answering them, and thus resulting in dramatically improved software quality and productivity. Topics to be discussed include:

1. The 6-year long Silver Bullet experiment which was targeted towards quantifiably becoming expert in software process development and deployment.
2. The approach being taken by Lucent to systematically improve software quality and productivity by continuous measurement and the deployment of standard software engineering assets.
3. Technology and processes targeted toward systematic reuse in targeted application domains.
4. Revolutionary portable network application development environments and languages (inferno).

Finally, based on the Lucent experiences, the talk will propose challenges for the software industry that will be centered around a series of experiments in several key areas surrounding the technology and processes in systematic reuse.