ACHIEVING HIGH RELIABILITY FOR UBIQUITOUS INFORMATION TECHNOLOGY

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Abstract Emerging information technology promises to take us from the wired web to a wireless "hive mind". This talk considers how can we achieve the necessary reliability. Some lessons from testing object-oriented systems and my work in advanced automated testing are presented. A strategy to apply these lessons to new technical challenges concludes the talk.

Outline:

- What is ubiquitous information technology?
 - New applications, new technology
 - "Five nines": why should you care?
- What have we learned about achieving high reliability?
 - Object-oriented systems
 - Distributed systems
 - Usage versus bugs
 - Testing and verification strategies
- New challenges for 21st Century systems
 - Scope and complexity
 - Components -- the good, the bad, and the ugly
 - Risks to the public
- Strategies for high reliability
 - The elusive optimal development cycle
 - Testing as a requirements process
 - User simulation and system behavior models
 - Automated testing

The original version of this chapter was revised: The copyright line was incorrect. This has been corrected. The Erratum to this chapter is available at DOI: [10.1007/978-0-387-35497-2_31](https://doi.org/10.1007/978-0-387-35497-2_31)

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