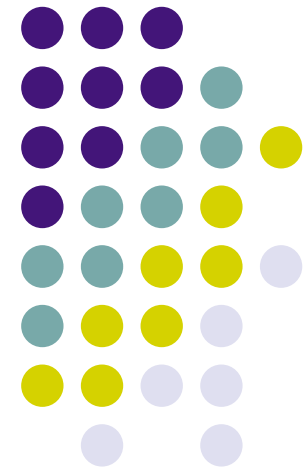


Future Directions for Assurance of Self-Adaptive Systems

A discussion seeded by some provocative remarks from a panel of experts

David Garlan (moderator)



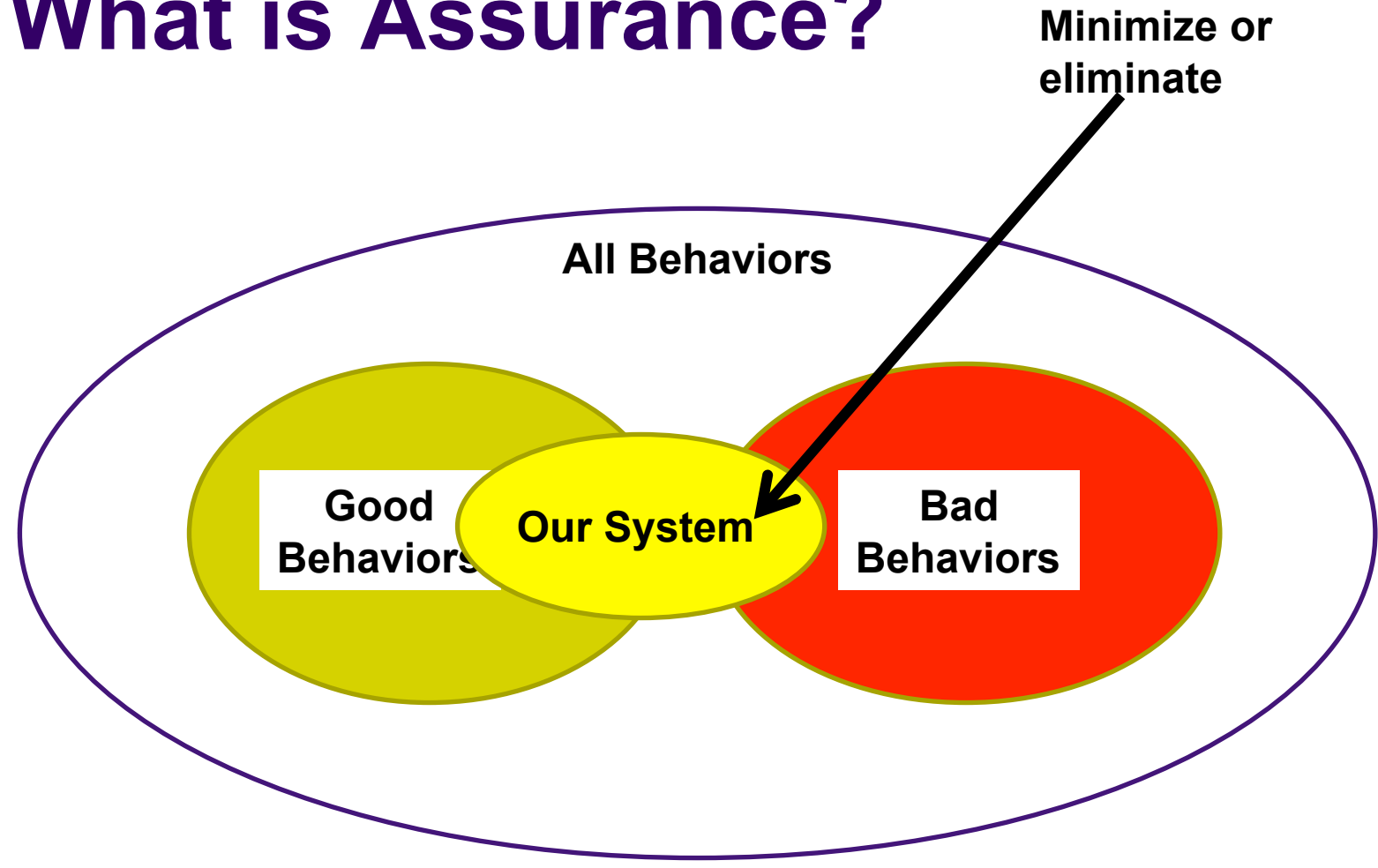


Goals

- The Nature of Assurance for Self-Adaptive Systems (SAS)
 - What are the fundamental challenges?
 - How does assurance for SAS differ from traditional forms of assurance?
- Paths towards a solution
 - What are promising techniques that might be used to address these challenges?
 - What are likely to be dead-ends and non-starters?

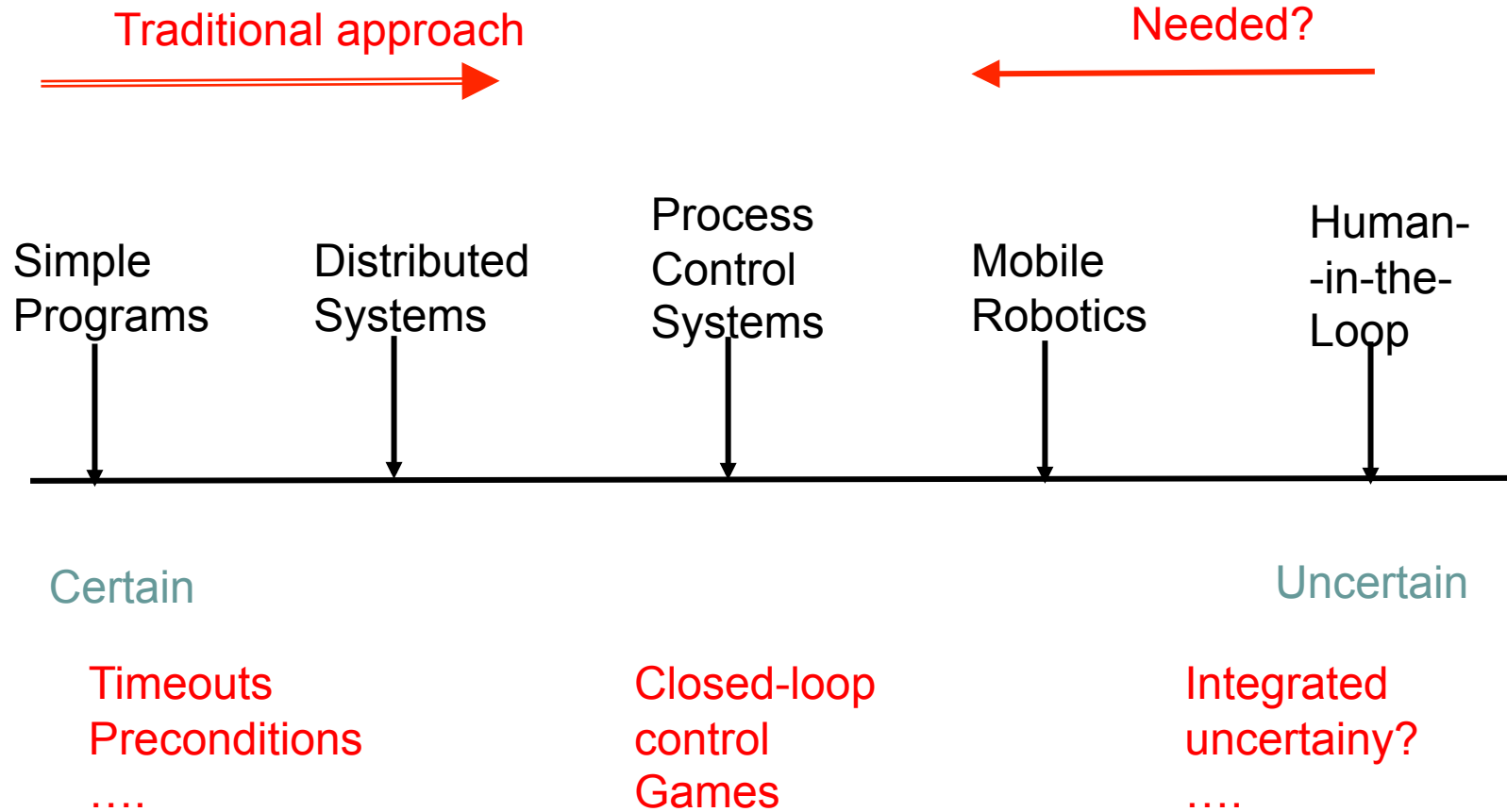


What is Assurance?



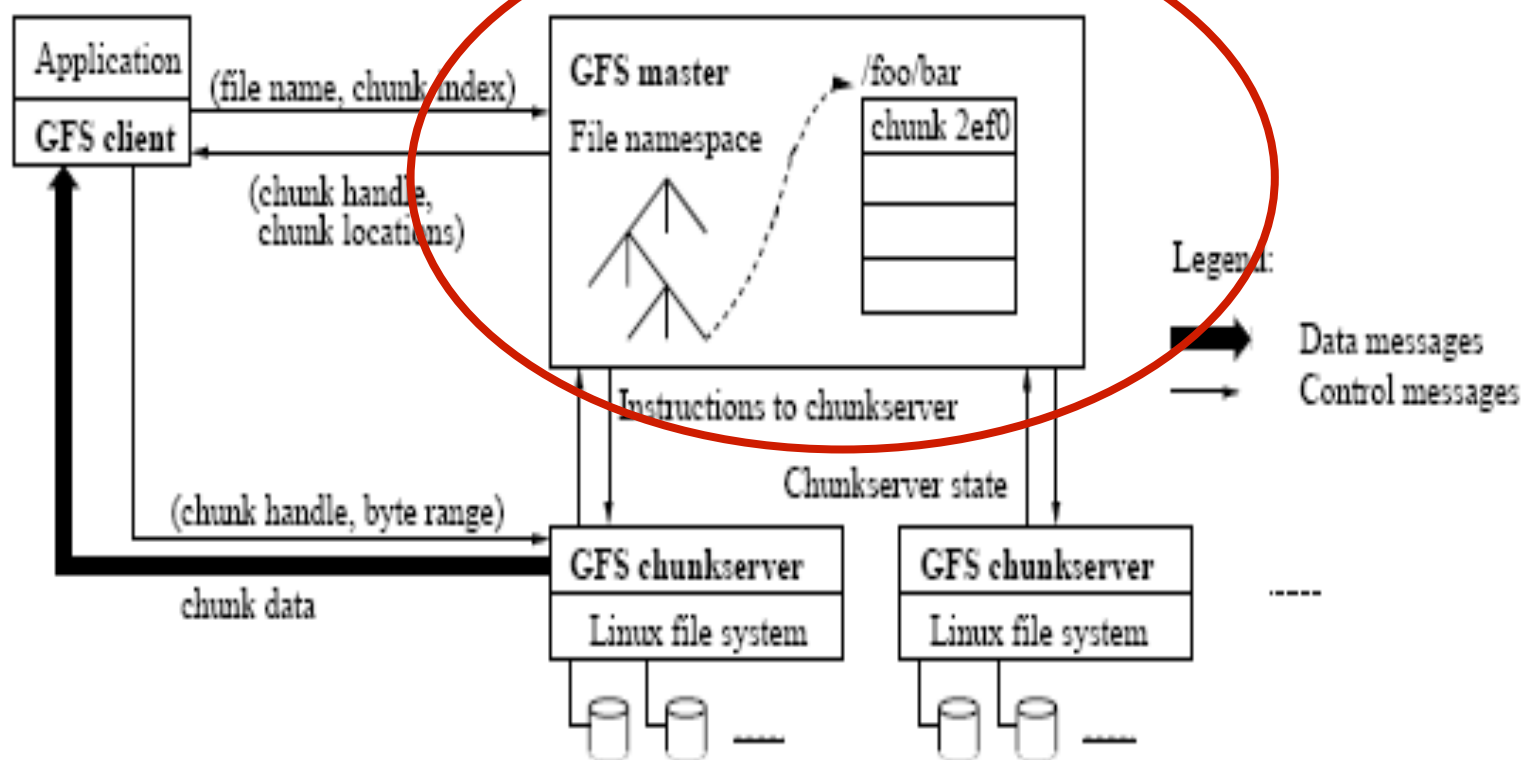
Has this changed?

A Spectrum of Uncertainty



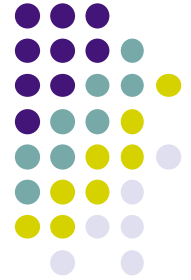


Example: Google File System



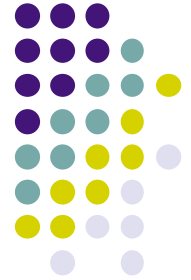
Source: "The Google File System" Sanjay Ghemawat, Howard Gobioff, and Shun-Tak Leung. SOSP 2003.

Figure 1: GFS Architecture



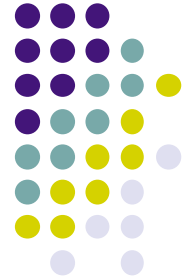
Paths?

- Control theory
- Multi-agent systems
- Planning
- Stochastic analysis
- Biological models



The Panel

- Betty Cheng
- Paola Inverardi
- Jeff Magee
- Andreas Zeller



Format

- Each panelist gets 10 minutes to generate controversy/inspiration (40 minutes)
 - Audience responds
- Open discussion (15 minutes)
 - Questions for the panel in general, or for a particular participant