



What is the Future in Architecting Critical Systems?

A breakout session in three chapters

1. to get to know each other

- ◆ what is architecting critical (dependable and secure) systems?

2. to bring forward experience

- ◆ what is the role of "architecting" in the development, deployment and evolution of critical systems?

3. to set up a vision for the area

- ◆ what is the future in architecting critical systems?



Experiences Learned

◆ Focus of WADS

- ◆ address dependability concerns at the architectural level and account for architectures when addressing dependability concerns

◆ Objectives of WADS

- ◆ bring together the international communities of dependability and software architectures
- ◆ clarify previous approaches
- ◆ promote new topical areas where the most promising research may lie
- ◆ avoid the reinvention of the wheel



Experiences Learned

- ◆ Approach taken
 - ◆ join major conferences from each of the two communities
 - ◆ PC members from both communities
 - ◆ keynote and invited speakers from “the other” community
 - ◆ for subsequent books invite submissions across communities

- ◆ Has it been successful?
 - ◆ kind of...



Experiences Learned

- ◆ Field is worth researching
- ◆ Promising approaches being developed
- ◆ Recognition of potential also from industry
- ◆ Overall area is being worked upon by several communities



Experiences Learned

- ◆ Cross fertilization between these two established communities is still a wish
 - ◆ quite often we have heard “it has been done!”
 - ◆ reluctance in understanding past achievements
 - ◆ dependability terminology
 - ◆ classification of the threats
 - ◆ well established terms and concepts
 - ◆ fault tolerance versus self-healing
 - ◆ patterns and tactics
 - ◆ principles well established in software engineering



Experiences Learned

- ◆ Similar works done from different perspectives
 - ◆ architectural reconfiguration as a means for fault handling
- ◆ Despite strong intersection in areas of concern and approaches taken, very small number of collaborations crossing communities boundaries
- ◆ The problems associated with cross-fertilization are not technical, but cultural



What is the Future in Architecting Critical Systems?

To get to know each other

- ◆ What does "architecting" mean to you?
- ◆ Give examples of "architecting" activities (and/or applications domains) you have been involved with.
- ◆ In your opinion, what is so special about dependability & security (criticality) compared with other QoS attributes?



What is the Future in Architecting Critical Systems?

To bring forward experience

- ◆ In your experience, what is the role of architectures when dealing with dependability and security attributes?
- ◆ Justification (during certification) that the system is indeed dependable and secure is fundamental when building critical systems. Is it possible to obtain all the necessary arguments from the system architectural representation?
- ◆ When dealing with the development, deployment and evolution of critical systems, what are the issues that should no longer be a problem?



What is the Future in Architecting Critical Systems?

To set up a vision for the area

- ◆ When building critical systems, should "architecting" be a precise science or should it also be based on experience?
- ◆ In your opinion, what are the major research challenges in the architecting of critical systems?