

***Dependable computing:
transversal research area
or just a niche?***

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Some questions

- What do we mean by new/emerging dependability research topics?
 - ◆ Just new ideas for papers or for PhD proposals?
 - ◆ Long standing research line that will originate new sessions in future DSN editions?
- What makes an emerging challenge new from the point of view of dependability research?
 - ◆ New contexts to use classic dependability techniques/methods?
 - ◆ Really new problems never solved yet in any context

Facts + more questions

- Computer systems dependability has never been so relevant.
- The number and variety of threats have never been so large (and dangerous).
- Computer system failures have never been so visible to the users.
- Computer failures have never had such a costly impact.
- Why new research topics are not evident?
- Why do we feel that new research topics are needed?
- Why the number of submissions in DSN, EDCC, PRDC, LADC is decreasing?
- Why is so difficult to attract new PhD students?

DSN papers?

- *“Precise Memory Leak Detection for Java Software Using Container Profiling”*
- *“Time Will Tell: Fault Localization Using Time Spectra”*
- *“Early Prediction of Software Component Reliability”*
- *“Using Components for Architecture-Based Management: The Self-Repair Case”*
- *“Executable Misuse Cases for Modeling Security Concerns”*
- *“Temporal Dependency based Checkpoint Selection for Dynamic Verification of Fixed-time Constraints in Grid Workflow Systems”*
- *“Static Detection of Cross-Site Scripting Vulnerabilities”*
- *“An Empirical Study of the Effects of Test-Suite Reduction on Fault Localization”*

Presented at ICSE 2008 - International Conference on Software Engineering (15% acceptance rate)

The trend...

- More and more dependability research work is being done outside our community:
 - ◆ software engineering
 - ◆ real-time systems
 - ◆ embedded systems
 - ◆ databases
 - ◆ distributed systems
 - ◆ web services
 - ◆ grid
 - ◆ human computer interaction
 - ◆ programming languages and paradigms
 - ◆ etc...

Are these researchers
reinventing the wheel?

Dependability as niche research area

- Look at emerging research issues that basically represent new instances of our old fetishes:
 - ◆ Fault tolerance mechanisms
 - ◆ High dependable computer architectures
 - ◆ Some reliable communication protocols
 - ◆ Some security mechanisms
 - ◆ Methods to assess dependability
 - ◆
- Find them new clothes to give them a modern look and mix them with opportunistic research/financing paths.

Dependability as transversal research area

- The transversal nature of dependability research is an asset of our community → **But we are not managing this asset!**
 - ◆ Rephrase (redefine?) the scope of dependability research to make the transversal nature evident to others.
 - ◆ Change (manage) the topics of interests of our conferences (DSN, EDCC, PRDC, LADC)
 - ◆ Interact directly with people from other communities that are doing research on dependability issues.
- Fault tolerance, intrusion tolerance, etc are beautiful → **But we should not forget fault avoidance related topics**