Report on Session 1: Setting the Scene

Reporter:

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Open Source and Dependability

- Both presentations addressed this topic, distinguished by the following subtitles:
  - Some challenges and lessons learned – Jean Arlat
  - A problem or a solution – Paulo Verissimo

Jean Arlat:
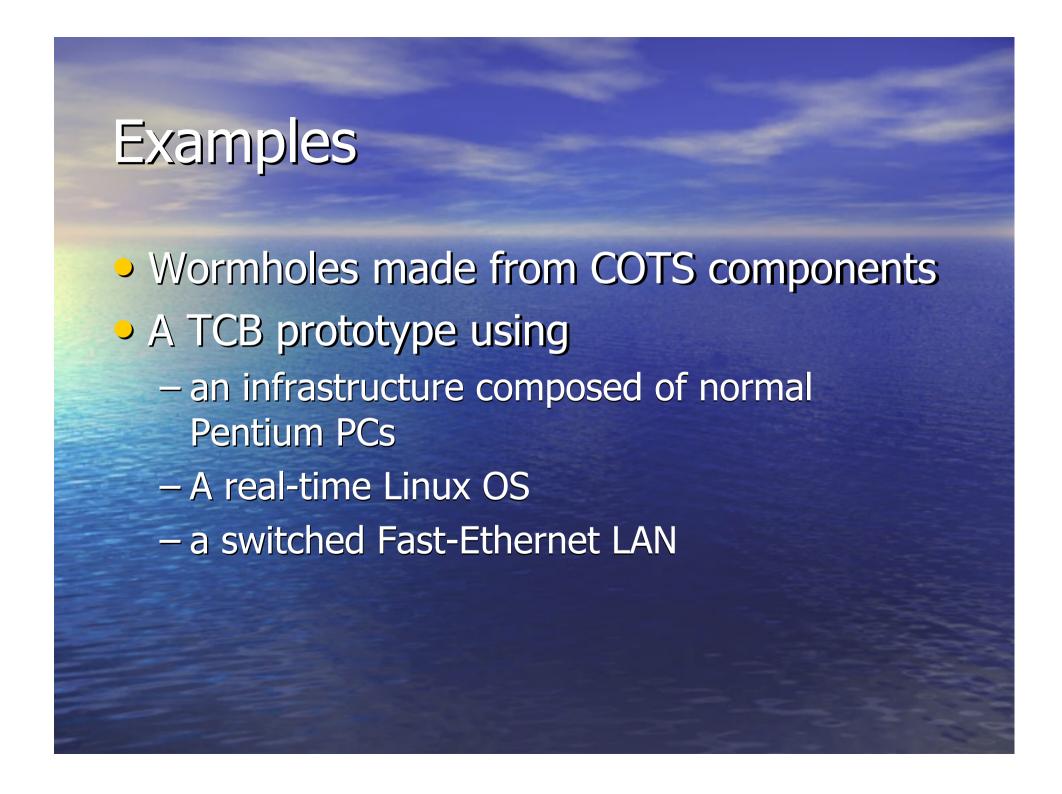# Challenges and Lessons Learned

- Experience gained using COTS components
- Risk management – COTS vs. open-source software (OSS) components
- Dependability of OSS components
- Criticality classification of OSS components
  - A: non-redundant
  - B: duplicated
  - C: triplicated

Examples

- Space: RTEMS
  - Flexibility in the configuration (componentized µkernel)
  - Flexibility in the elaboration and implementation of a comprehensive policy for maintenance, deployment and durability
  - Source code is available and can be freely modified
- Avionics: Embedded Linux
  - Required properties
  - A possible prototype platform

Paulo Verissimo:
A Problem or a Solution

- Main claim: With an adequate perspective, both open-source and black-box COTS components can be combined harmoniously in robust and cost-effective designs
- COTS components are essential and a part of life
- Both open-source and black-box COTS components are useful
- The right architectural approach is fundamental

Examples

- Wormholes made from COTS components
- A TCB prototype using
  - an infrastructure composed of normal Pentium PCs
  - A real-time Linux OS
  - a switched Fast-Ethernet LAN

Summary

- Both presentations expressed optimism re the use of open source components in dependable systems via general observations and specific examples
- Both noted cons as well as pros in this regard
- Security issues re the use of open-source components were touched on, but were not dealt with specifically