What I can do
with what I know about
Fault Representativeness

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Faults used for benchmarking should be 

representative

of what happens in production use
About what types of faults do I know enough to use them for benchmarking?

- Hardware faults: yes, partially
- Software faults: yes, partially
- Environmental faults: yes, partially
- Upgrade faults: no
- Operation faults: no
Hardware

- Affect all functional units
- Mostly single bit flips
- Transients
- Permanent faults where possible

weighted by the silicon area
and duty cycle and ...
Software

• The most representative bugs are those remaining in the code to be benchmarked - heavy tests!
  
  inc. Ballista/Mafalda like.

  - the state of practice of testing seems to be quite bad

• Simple injected software faults
  
  – If software is not tolerant to software bugs, it should be.
Environment

- Unplug one module at a time
- Unplug cables one at a time
- ...
Those fault sets will significantly improve the state of the practice for instance in e-business/transactional applications