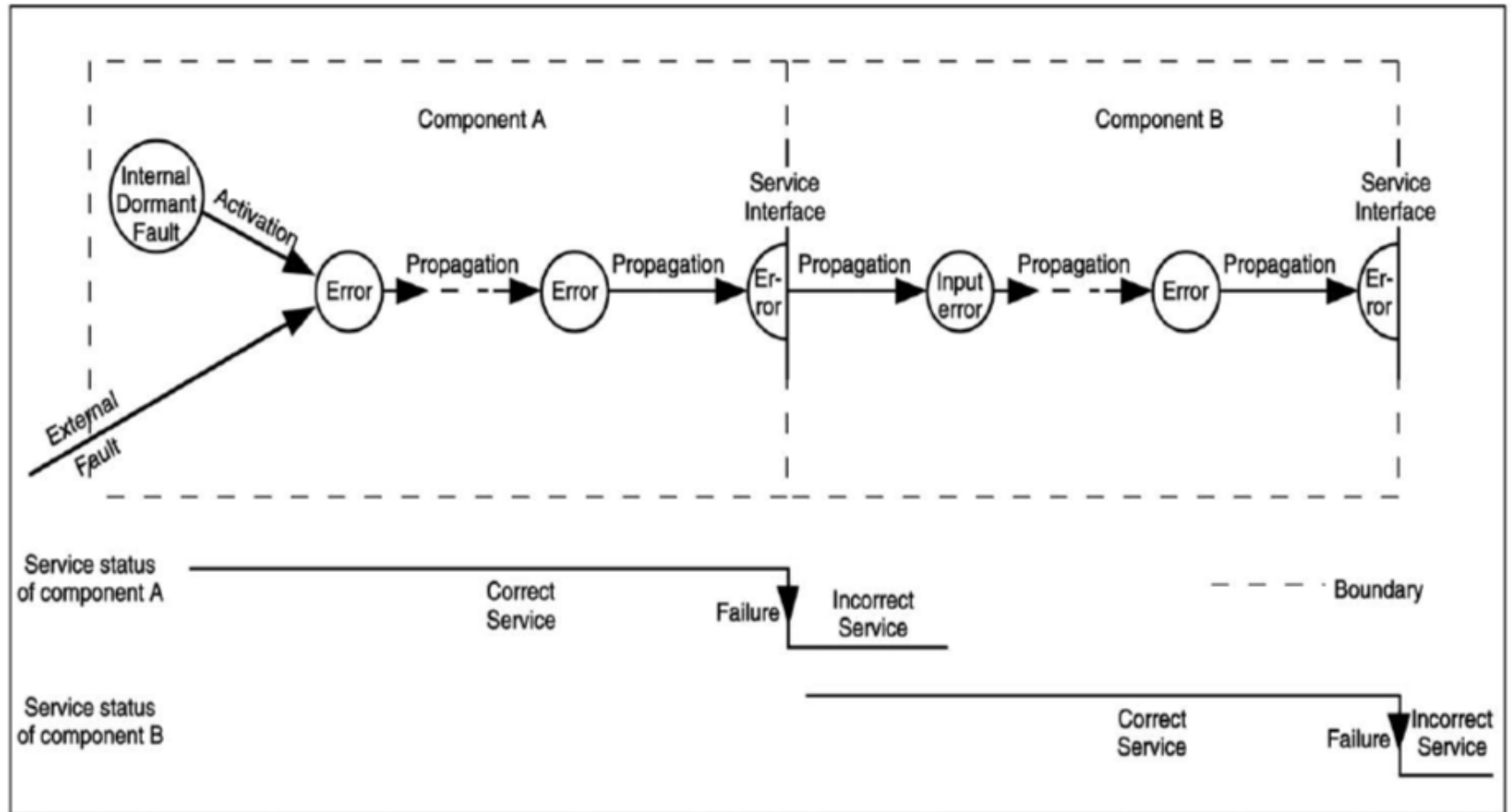


Chain of threats: Faults-Errors-Failures



From A. Avizienis, J.C. Laprie, B. Randell, C. Landwehr. Basic Concepts and Taxonomy of Dependable and Secure Computing, IEEE Transactions on Dependable and Secure Computing, Vol. 1, N. 1, 2004

Types of faults

Failures may have many different causes or faults:

- chip suffers permanent electrical damage
- undersized fan (design fault) allows overheating on hot days
- Chip malfunction (physical fault)
- The machine works ok after cooling down (the fault is transient)
- Operator pushes the wrong button
- Cosmic ray particle causing transient upset in execution
- Defect in software
-

Types of faults

Caused by what?

- Physical faults

- Human-Made faults

Why?

- Accidental faults

- Intentional non malicious faults / Intentional malicious faults

When?

- Development faults: design, manufacturing, ...

- Operational faults: in use or maintenance

Where (with respect to the system)?

- Internal faults

- External faults

How long?

- Permanent faults

- Transient faults