Time Dependent

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TIP – FTP – UB

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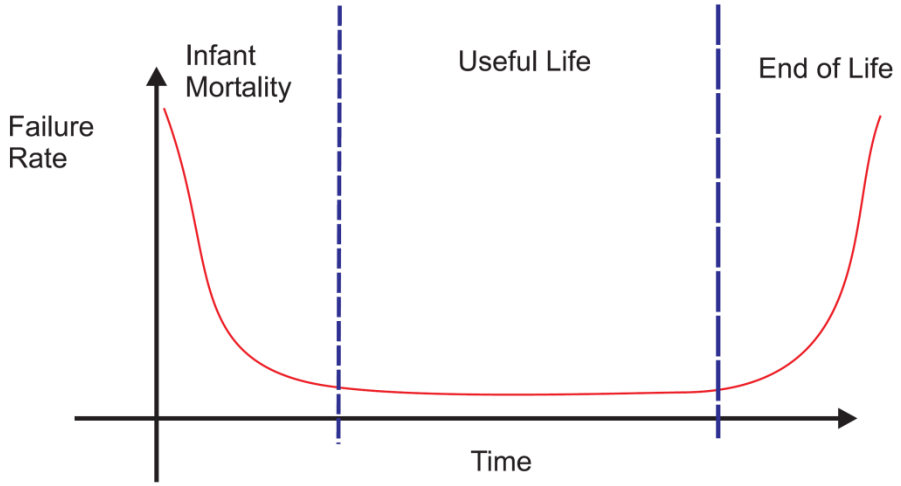
Konsep

- MTBF
  - Mean Time Between Failure
- MTTR
  - Mean Time To Repair
- MTTF
  - Mean Time To Failure
- FIT
  - Failure In Time

Introduction

- Reliability terms based on methods and procedures for lifecycle predictions for a product
- A failure is declared when the system does not meet its desired objectives **or** the system cannot meet minimum performance or availability requirements.

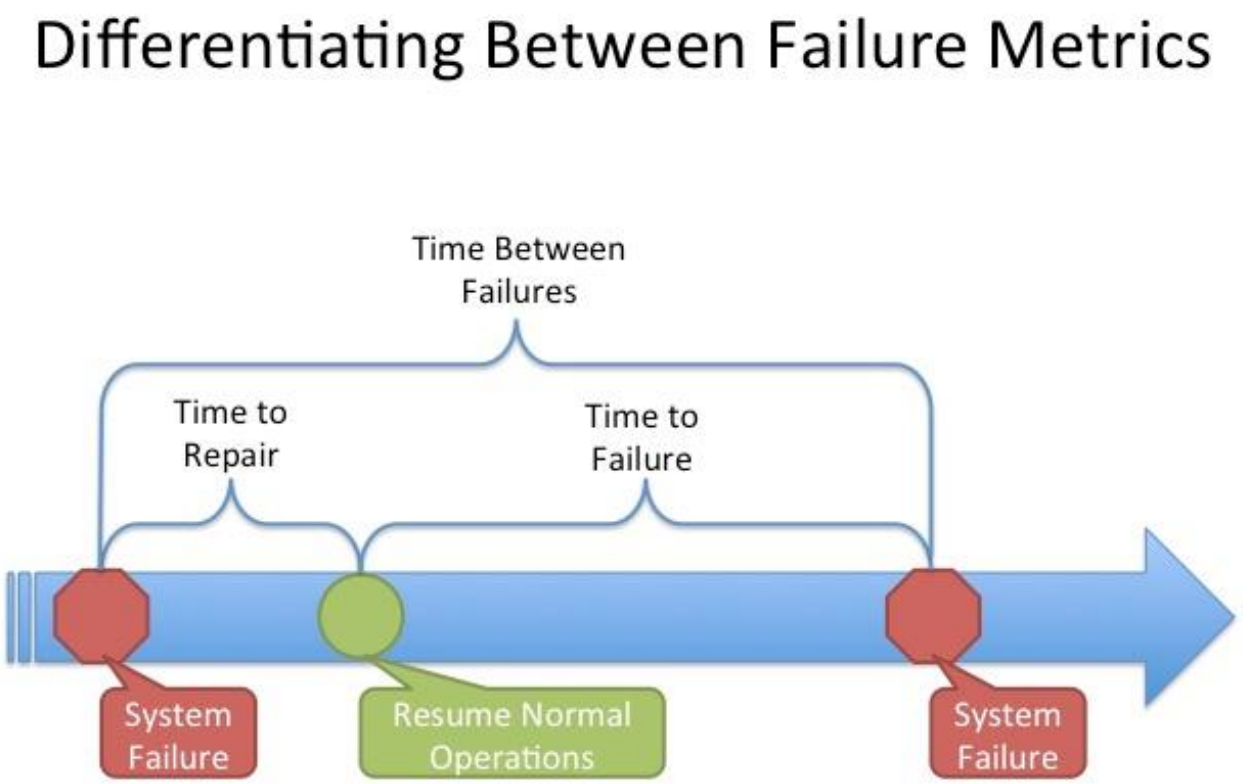


Failure Rate Curve / Bathtub curve

Terms Definition

- Mean Time Between Failure (MTBF) is a reliability term used to provide the amount of failures per million hours for a product.
- Mean Time To Repair (MTTR) is the time needed to repair a failed hardware module. In an operational system, repair generally means replacing a failed hardware part.
- Mean Time To Failure (MTTF) is a basic measure of reliability for non-repairable systems.
- Failure In Time (FIT) is another way of reporting MTBF. FIT reports the number of expected failures per one billion hours of operation for a device.

MTBF is the sum of MTTR and MTTF

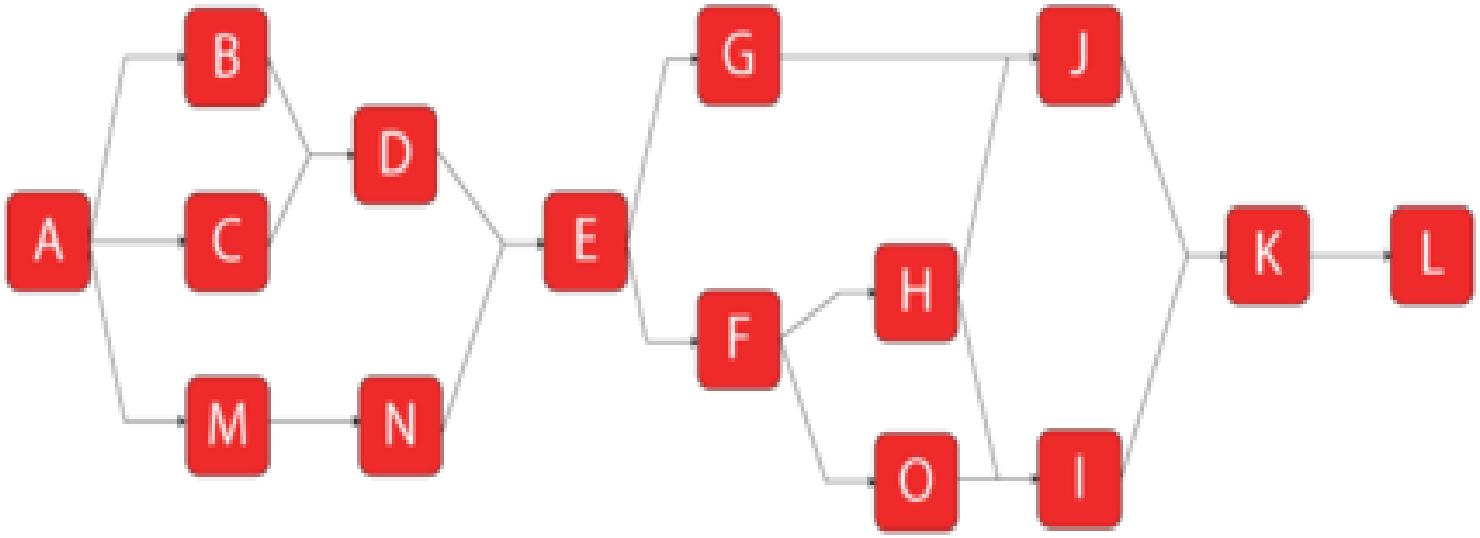


Source: http://static.fosketts.net/wp-content/uploads/2011/07/Slide2.jpg

Probability Distributions In Reliability

- Commonly Used Distributions
  - The Exponential Distribution
  - The Weibull Distribution
    - Bayesian-Weibull Analysis
  - The Normal Distribution
  - The Lognormal Distribution
- Other Distributions
  - The Mixed Weibull Distribution
  - The Generalized Gamma Distribution
  - The Gamma Distribution
  - The Logistic Distribution
  - The Loglogistic Distribution
  - The Gumbel Distribution

Reliability of System?



A – E : Exponential Distribution
F – J : Weibull Distribution
K – O : Normal Distribution

Thank