Raptor Version 7.0
Reliability Simulation and Analysis Software

Raptor is a software tool that simulates the operations of any system, whether a manufacturing plant, communications network, or military aircraft. Raptor characterizes the system’s cost, reliability and capacity, and can illuminate capacity bottlenecks, high failure-rate components, and resource hogs that are driving up the cost of your operations.

Find Your System’s Cost, Reliability and Capacity Weak Points

Raptor modelers follow 3 basic steps:

1. Draw a diagram of the system using five main objects:
   - Blocks: components or subsystems
   - Nodes: system descriptors and connectivity logic
   - Events: special occurrences, triggers, environmental effects, etc.
   - Hierarchies: subsystems that can be expanded to a greater level of detail
   - Links: connect above objects

2. Enter information about each component:
   - Failure and repair data
   - Sparing and maintenance concept information
   - Cost data
   - Dependency information
   - Capacity information
   - Changes between operating phases

3. Run the simulation and collect results:
   - Sophisticated Monte Carlo simulation algorithms
   - Tabular and graphical outputs
   - Advanced reports
   - Output to files for post-processing

The Reliability Block Diagram (RBD) topology of the system is represented graphically in the following image.

Create Models and Make Decisions on Rational Analysis

Raptor is priced at least 25% lower than other, less capable simulation tools. With Raptor, you can rapidly create analytical models and make operations decisions based on rational analysis, saving your company unnecessary operations costs, unneeded logistics support and critical production capacity. Raptor analyzes cost, capacity, sparing and maintenance concepts, and the full Reliability, Availability and Maintainability (RAM) suite, not just Reliability. Also, Raptor’s intuitive graphical interface avoids the difficulty of equation-based interfaces that limit system representation. Raptor is versatile, accurate and easy to use, and can handle any system configuration, including:

- K-out-of-n redundancy
- Multi-distribution systems
- Cold and hot standby with priority
- Cascading failures

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delivering results that endure
• Adjacency failures
• Components that change behavior with phases of operation
• Massively redundant systems such as ring communication networks

Plus, Raptor uses Monte Carlo simulation, not closed form mathematical models. Because of this, Raptor can avoid time-consuming development of path-based equations, and model configurations where closed form solutions do not exist, including:

• Complex systems that cannot be reduced into series or parallel subsystems
• Components with any failure or repair distribution, including empirical, not just exponential and lognormal
• Systems with real-world influences

And, with Raptor, you get more than software, you get the support of a team with more than 50 years of combined experience in simulation, modeling, test and analysis. The Raptor team can provide you with:

• Analysis and consulting
• Customized modeling and simulation support
• Special modifications to the Raptor software
• Independent verification, validation and accreditation of your models
• Raptor software training
• Technical support

Raptor Can Improve Your Bottom Line

When a Fortune 500 fiber optic equipment manufacturer wanted to save their customer money on a network design, they turned to us. With Raptor they were able to evaluate architecture alternatives for a cable television network, and show two designs that saved money over their customer’s baseline. The first design saved $64,000 in initial costs and was available to deliver revenue-producing service 112 more minutes a year. The second design was $18,000 more expensive to build, but was available 226 more minutes a year. The increase in production revenue paid for the network improvements in the first year.

Features

• Instantly see the effects of a failed component with our new Failure Effects View
• Link multiple models for increased detail and component-handling capacity with our new Hierarchy object
• Model the benefits and costs of preventive maintenance
• Allow components to change their behavior over time with our special Phasing feature
• Perform cost analysis and reliability tradeoff analysis
• Model failed components that induce other components to fail
• See how failures affect throughput with our capacity and flow analysis feature
• Mimic reliability growth or decay with components that repair better or worse than new
• Model consumables and life exhausted components
• Model components that rely on other components to operate
• Step simulations to ease verification of modeling efforts
• Delay statistics gathering to overcome startup transients

Raptor has been in use for over a decade and has thousands of customers worldwide, ranging from aircraft manufacturers, to oil refineries, to the US Government’s most advanced ballistic missile defense system. We’re proud of the customers we’ve served, and invite you to join them and see how Raptor can help you.

See our ideas in action at boozallen.com.

About Booz Allen

Booz Allen Hamilton is a leading provider of management and technology consulting services to the US government in defense, intelligence, and civil markets, and to major corporations, institutions, and not-for-profit organizations. Booz Allen is headquartered in McLean, Virginia, employs approximately 25,000 people, and had revenue of $5.86 billion for the 12 months ended March 31, 2012. (NYSE: BAH)