In today’s fiscally challenged environment, it is more important than ever that decision makers have rational analysis to help them achieve their goals within budget constraints. Today, a family of advanced next-generation analytic tools is helping analysts provide their leadership unparalleled insights into the programs and portfolios they manage.

Booz Allen Engineering Services Can Help You With More Effective Decision Making

Booz Allen Hamilton Engineering Services, an ISO 9001 and AS9100 certified engineering and technical solutions firm, can help organizations make better decisions based on objective analysis. Our innovative reliability simulation and analysis software tool Raptor has been successfully used for more than a decade in both the public and private sector. Developed by Booz Allen Engineering Services, Raptor simulates the operations of any system, whether a manufacturing plant, communications network, or military aircraft. It 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.

Create Models and Make Decisions on Rational Analysis

Raptor is priced at least 25 percent 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. In addition, 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
- Adjacency failures
- Components that change behavior with phases of operation
- Massively redundant systems such as ring communication networks

Moreover, 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; or systems with real-world influences.
With Raptor, you also receive support from a team with decades of combined experience in simulation, modeling, test and analysis. We 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

## 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

## Raptor Can Improve Your Bottom Line

When a Fortune 500 fiber optic equipment manufacturer wanted to save its customer money on a network design, they turned to Booz Allen Engineering Services. With Raptor, the company was 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.

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 [www.raptorplus.com](http://www.raptorplus.com)