



## **Clockwork Solutions holds SPAR Training Course for Raytheon**

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Clockwork Solutions has just completed a SPAR training course for Raytheon. Representatives from NavSea, NavICP, Raytheon, and Northrop Grumman were in attendance. The training was associated with Raytheon's purchase of Clockwork's SPAR and SPARopt applications for their continuing work on the Navy's DD(X) Destroyer program. Clockwork Solutions continues to support the DD(x) development team by providing technology and support services as necessary.

SPAR is Clockwork's proprietary asset modeling engine. SPAR™ technology consists of numerous extensions to traditional Monte Carlo techniques implemented in software. These extensions offer a method and tool for describing the fixed and the variable characteristics of a system in one model. SPAR then uses the model to predict the system's performance and cost. Variable factors addressed by SPAR models include the following:

- The structure of the system, including redundancy and reconfiguration.
- The objective for the system (throughput, availability, or safety targets).
- The operating policies of the system.
- Qualities of the system's components, such as initial age, aging rate, and repair time.
- External conditions, such as weather or power loss.
- The spare part stocking policies, including supplier lead time and part cost.
- The preventive maintenance schedules, resources required to carry them out, and their effect on the system.

Through simulation, SPAR establishes a relationship between these factors and a system's overall performance. A SPAR simulation provides a prediction of a system's performance over time, the cost of achieving that performance, and the sensitivity of the system performance to the variable factors which affect it. Through a continuing process of varying the inputs, one can trade-off performance, cost, and risk.

The course was a great success and was well received by everyone in attendance.

For more information on SPAR or other Clockwork tools and services, contact us at 512-338-1945 or [info@clockwork-solutions.com](mailto:info@clockwork-solutions.com)

[Link to SPAR Product Announcement](#)

[Link to DD\(x\) Design Analysis Case Study](#)