

DEPLOY: DIGITAL TWIN

SIMULATING MISSION-CRITICAL OPERATIONAL ENVELOPES

THE CHALLENGE

A young company entering the space industry is designing a low-orbit communications satellite system that will deliver broadband internet to rural communities.

The project has experienced a number of system failures resulting in several aborted missions. The development team is spending weeks troubleshooting the system, which is impacting the deployment schedule. In addition, every failed launch can result in tens of millions of dollars of added cost and lost revenue. Testing is therefore imperative, both in early development stages and also during and after deployment.

The development team is looking for a way to create a full-system digital twin, with all the working components of both hardware and software. The team will use the digital twin to visualize the state and behavior of the system under various environmental, operational, and stress conditions. The goal is to identify as many success and failure conditions as possible before moving the project to the launch phase.

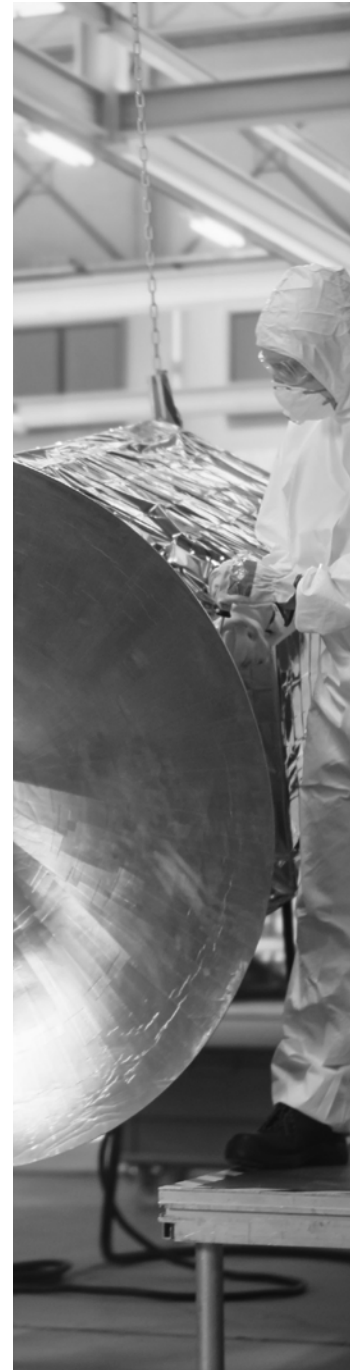
THE SOLUTION

Wind River® Studio includes an integrated high-fidelity simulation capability that allows a development team to model complex systems at all levels. With Studio, Wind River enables the company to build a virtual version of its full system, including the software, processor cores, peripheral devices, memories, interconnection buses, and network connections.

The project team can use the digital twin to quickly simulate functional, safety, and security test scenarios at scale.

THE RESULTS

By building a digital twin of this complex satellite system, the development team now has the agility needed to prove the design at much lower cost and reduced risk. Running unlimited scenarios against the digital twin lets the team inject faults, analyze, and correct the failures faster. They can also prove success, which increases project confidence and quality.



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