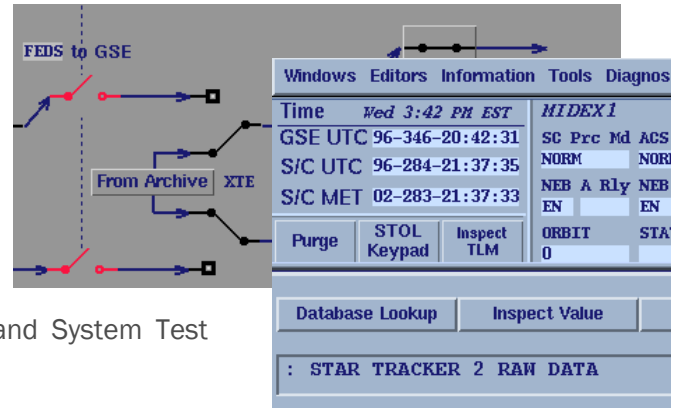


NASA Advanced Spacecraft Integration & System Test Software (ASIST)

Goddard Space Flight Center, Greenbelt, MD

THE CHALLENGE

NASA's Goddard Flight Center is one of the space agency's primary facilities for satellite operations, which means data – lots and lots of data. In fact, mission teams at Goddard regularly work with terabytes of data from multiple satellite missions. To interpret this data, Goddard relies on a system known as ASIST, which is short for Advanced Spacecraft Integration and System Test Software.



NASA ASIST uses Sammi to provide graphical interfaces for real-time command & control.

ASIST processes ground-system data for a variety of satellites and also interprets telemetry from a satellite after it has launched. In its initial form, ASIST ran on a Unix platform, lacking any visuals or graphical displays. For mission workers, reading text without a graphical-user interface was a long and arduous task – one that left tremendous room for error.

THE SOLUTION

NASA knew it needed to create a better user interface for ASIST. It needed a software solutions that would provide sophisticated graphical capabilities, and which could also be networked across multiple workstations on the ground. That's when the company turned to Kinesix Software, a Houston-based software provider that combines the best capabilities of HMI software, SCADA software and GUI software into a single solution.

Kinesix's flagship product, Sammi, was ideal for NASA's needs. Sammi's ease-of-use and low maintenance, for example, made it perfect addition to ASIST. For example, the software's graphical display builder requires no programming skills or compilation of graphics codes. With Sammi as part of ASIST, telemetry and spacecraft display changes now take place with a simple click.

The scalability of the solution means Sammi can reliably handle as much or as little data that is thrown its way.

Edwin Fung
NASA Engineer

Sammi's user-friendly command-and-control ability enables ground crew to send specific instruction to spacecraft equipment, allowing for

"Sammi has played an integral role in how our ASIST software reads data. Sammi's real-time command and control system means workstations on the ground remain updated at all times through sophisticated graphics.

Edwin Fung
NASA Engineer

- **Industry:**
Aerospace
- **Application:**
Command & Control
- **Benefits:**
 - ◆ Real-time displays
 - ◆ Distributed, scalable workstation-based architecture
 - ◆ Rapid Prototyping
- **Selected ASIST Missions:**
 - ◆ Earth Orbiter 1 (EO-1) Spacecraft
 - ◆ Far Ultraviolet Spectroscopic Explorer (FUSE) Project
 - ◆ Microwave Anisotropy Probe (MAP)

someone on Earth to turn instruments on or off, or even send equipment into a different mode. In addition, the solution permits NASA to build, display, and manage massive volumes of streaming telemetry

“Because of its ease-of-use and sophisticated graphics, Sammi enables our workstations on the ground to effortlessly process telemetry from our satellites in space. We never have to worry about whether or not the data is current, Sammi’s command and control system ensures that we are always communicating with the satellite in real-time.

In addition, Sammi’s sophisticated graphics make the data easy to read and understand.”

*Edwin Fung
NASA Engineer*

and graphs allowing ground workers to monitor the observatory at work. Because the charts can dynamically change colors, they will allow workers to maintain better command-and-control of all systems.

The bottom line is clear: Kinesix has provided Goddard with results that can only be described as out of this world.

data packets from the spacecraft, including flight data and scientific/research data that has been accumulated on board the spacecraft. What’s more, it does all of this through real-time custom-built graphics that include pie-charts, graphs, and simple-to-read X&Y charts.

Now, at any one time, ASIST can handle numerous computer processes, all running parallel. With Sammi, NASA’s spacecraft data is automatically transformed from complex text to colorful graphical displays.

What’s more, Sammi and ASIST will be an integral component in many future satellite missions, including NASA’s new solar dynamic observatory – scheduled for launch in 2008. On the solar observatory mission, Sammi will provide color pie charts

Sammi® is a registered trademark of Kinesix Software.