

Web-Altairis: A Ground System on the Internet

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In the face of budget reductions and the faster/better/cheaper challenge, NASA has been seeking to lower the cost of space missions. One result of cost containment has been the movement toward the Lights-Out Ground System (LOGS). Such a ground system would be capable of administering routine spacecraft operations and only involve a human operator when an anomaly occurs. One problem with a LOGS, however, is that it cannot currently be both lights out and accessible at the same time.

Web-Altairis is a software package that increases the accessibility of LOGS. Using advanced data visualization techniques and a client/server architecture implemented in Java, Web-Altairis allows an operator to interact with a ground system from any computer on the internet. This takes the concept of a LOGS one step further, making it an across-the-wire (ATW) ground system. Our presentation briefly discusses the motivations for such ATW ground systems.

Our presentation describes the end-user functionality of Web-Altairis and discusses the technologies we used to implement the software. Requesting data from and sending data to a ground system over the open internet presents technical challenges, raises security concerns, and indicates the need for new concepts in telemetry visualization and ground system management. We identify technologies that supported our efforts, technologies that need more maturity before they will be useful, and lessons that we've learned along the way to implementing this ATW ground system.