WEDNESDAY, APRIL 11, 2007

Space Symposium: The Internet's Next Frontier -- Orbit

A coalition of companies have banded together to put a functioning piece of the Internet infrastructure into space: the router.

While network data has seamlessly passed through the ionosphere and back to Earth as part of getting from terrestrial Point A to Point B on the Internet, network packets have not been routed in orbit. With the latest test project for the U.S. Department of Defense, a satellite carrying a Cisco router will study the capabilities of Internet protocol routing in space (IRIS) as a Joint Capability Technology Demonstration (JCTD).

The satellite will be developed by Intelsat, the oldest commercial satellite services company; routing hardware will be provided by Cisco and aerospace data equipment contractor Seakr Engineering; and financial firm Concerto Advisors will seek funding to bring the technology to market. After a three-year testing period with the military, the system can be turned over to commercial applications.

According to Rick Sanford, director of Cisco's Space and Intelligence group, the system could promise worldwide ubiquitous Internet connectivity within the next decade, and unlike the previously conceived consumer satellite services such as Iridium and Teledesic, the demand is now well developed.

"Those systems were very capable, but built in a time when it was very difficult to consume the services on the ground," Sanford said. "Now, we have ubiquitous computing and demand for high-bandwidth services.

The first satellite will be manufactured by Space Systems/Loral for launch in 2009 and cover Europe, Africa and the Americas. The satellite will be able to take data sent on various frequencies and route the information through the Internet, Intelsat stated in a release.

IRIS will serve as a computer processor in the sky, merging communications being received on various frequency bands and transmitting them to multiple users based on data instructions embedded in the uplink.

The IRIS payload will support network services for voice, video and data communications, enabling military units or allied forces to communicate with one another using Internet protocol and existing ground equipment.

The U.S. military is already creating two Internet-capable constellations of satellites based on similar technology. The Wideband Global SatCom (WGS) will act as a huge pipe to deliver Internet packets to forces anywhere in the world, while the Transformational Satellite System (TSAT) will allow high-security nuclear-survivable Internet communications via ground-to-orbit lasers.

In 2003, Cisco sent up a router as a secondary payload on a disaster monitoring satellite to test the efficiency of routing network packets in space.