Small Business Innovation Research/Small Business Tech Transfer

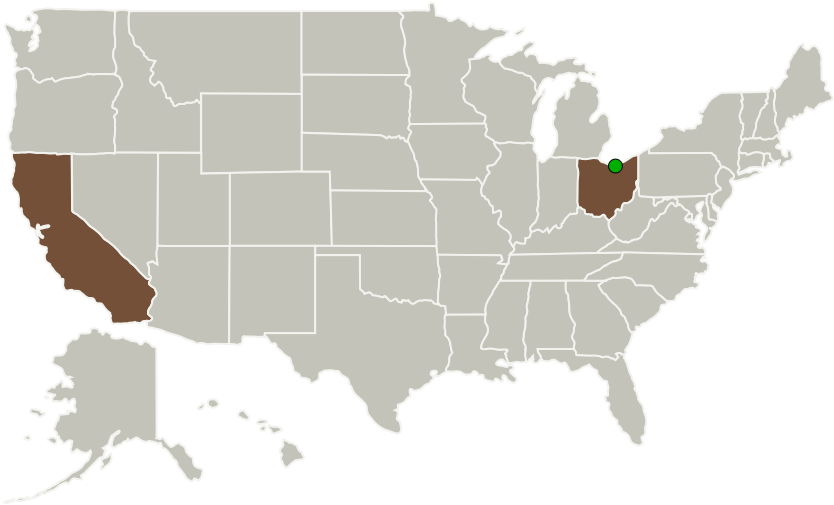
Secure DTN Communications, Phase II

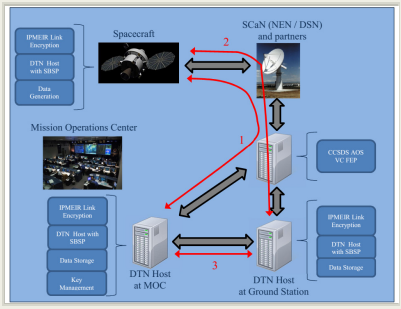
Completed Technology Project (2014 - 2016)

Project Introduction

Innoflight proposes to implement and perform an on-orbit demonstration of a Secure DTN communications suite on the SCaN Testbed aboard the ISS. Secure DTN is a combination of the Streamlined Bundle Security Protocol (SBSP) and the NSA's IPMEIR (Internet Protocol Minimum Essential Interoperability Requirements) Suite-B based networking protocol. The Secure DTN suite will enhance NASA's ability to support missions by expanding SCaN's ability to support heterogeneous communications architectures while protecting mission critical data integrity. Secure DTN will also enhance SCaN's ability to collaborate with non-government entities and foreign partners while assuring ownership of intellectual property. The Secure DTN effort will include contribution to the INB (ION NASA Baseline) codebase of the SBSP, with an implementation of Suite-B. The convergence layer will be upgraded with the IPMEIR security suite for internet protocol over CCSDS. An innovative PKI (Public Key Infrastructure) based key management and distribution system will be prototyped during the effort. The Phase II effort will conclude with an on-orbit demonstration of the Secure DTN suite with the SCaN Testbed that is currently mounted on the ISS (International Space Station). The suite will be demonstrated using both TDRSS and direct space to ground communications links.

Primary U.S. Work Locations and Key Partners





Secure DTN Communications Project Image

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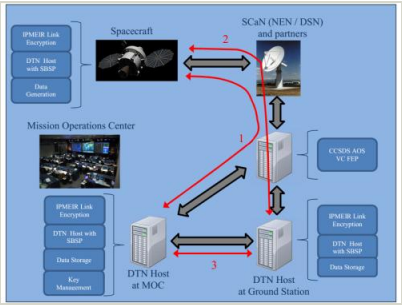
Organizations Performing Work	Role	Type	Location
Innoflight, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	San Diego, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Images



Project Image
Secure DTN Communications Project Image
(https://techport.nasa.gov/image/130131)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Innoflight, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

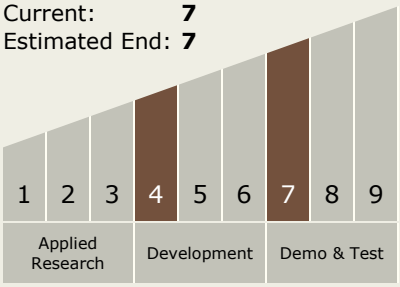
Carlos Torrez

Principal Investigator:

Assi Friedman

Technology Maturity (TRL)

Start: **4**
Current: **7**
Estimated End: **7**



Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  └ TX05.3 Internetworking
    └ TX05.3.3 Information Assurance

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System