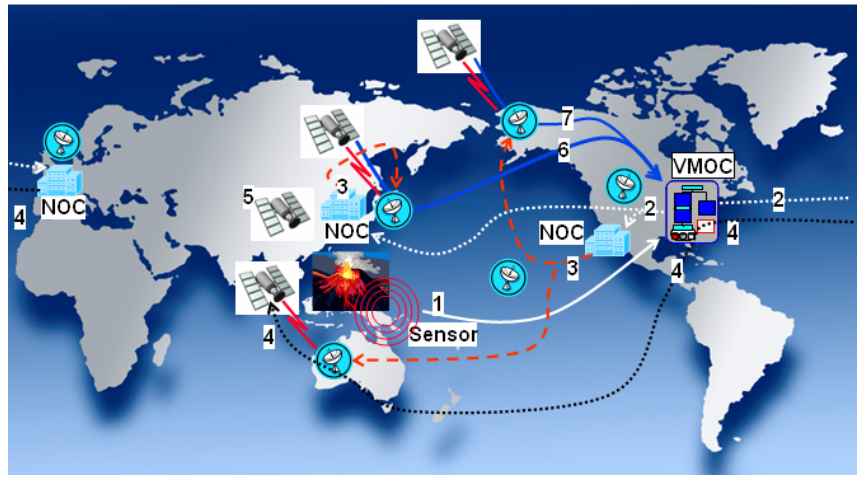
Secure Autonomous Integrated Controller for Distributed Sensor Webs

PI: William Ivancic at NASA Glenn Research Center

Objective

- Develop architectures and protocols to enable time- critical interaction between space and ground systems;
- Secure, interoperation between sensor webs owned and controlled by various entities;
- Development of the network mobility technology including ad hoc network technology and reachback mechanisms to allow for rapid deployment of, and communication with remote mobile sensor webs.



Secure Autonomous Integrated Space/Ground Sensor Web

Approach

- Establish ground station infrastructure
- Develop & demonstrate protocols for Large File Transfer over Multiple Terminals
- Develop Secure Integrated Sensor Web With VMOC Mission Rule Set
- Develop, Integrate & Testing Advanced Nemo Mobile Sensor Web Sensor

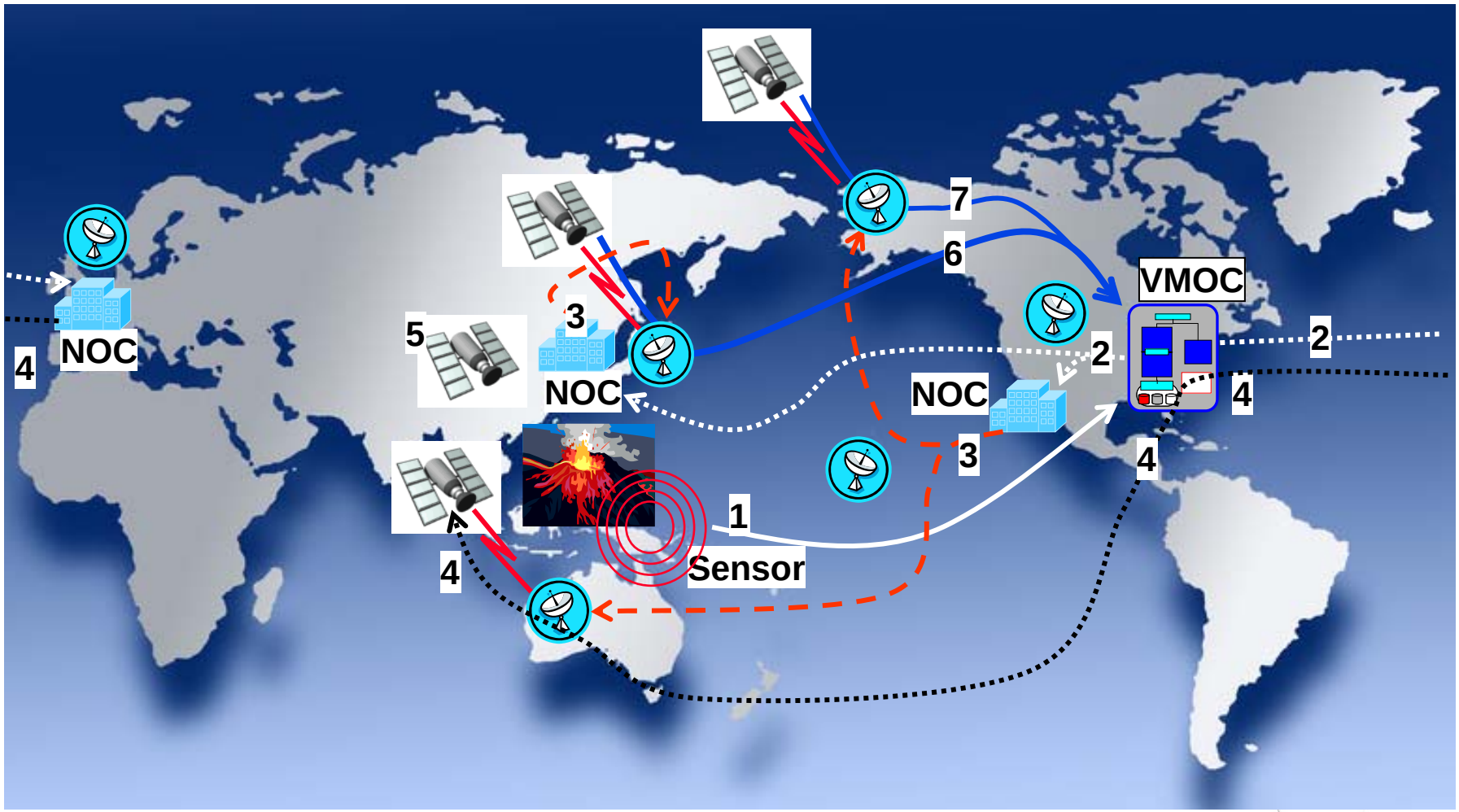
CO-I's/Partners:

- Universal Space Networks, General Dynamics, Surrey Satellite Technology Limited, Cisco, Air Force Space Battle Lab, Army Space & Missile Defense Battle Lab, Japan Manned Space Missions

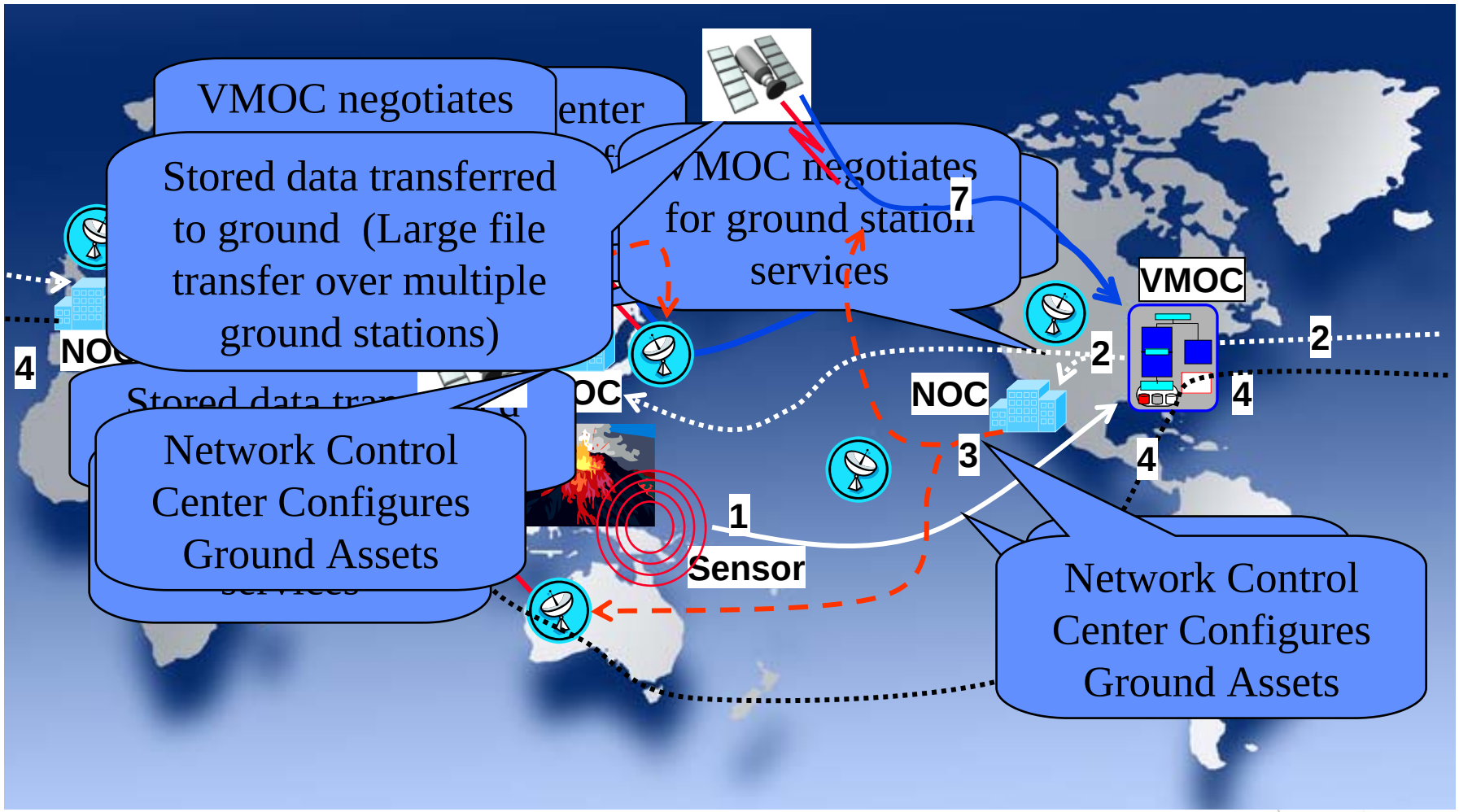
Key Milestones

- Large File Transfer over Multiple Terminals Saratoga Ground Demo - 4/2007
- Sensor Web Collaboration Partnership(s) Established – 8/2007
- Test & Demo Integrated Integrated Sensor Web With VMOC – 7/2008
- Test & Demo of Integrated Mobile Sensor Web – 6/2009
- Integration & Testing Advanced Nemo Mobile Sensor Web Security & Service Discovery – 9/2009

TRL_{in} = 2



Earth Science Technology Office


VMOC negotiates
Stored data transferred to ground (Large file transfer over multiple ground stations)
VMOC negotiates for ground station services
Network Control Center Configures Ground Assets
Network Control Center Configures Ground Assets
VMOC
NOC
NOC
Sensor
1
2
2
3
4
4
4
7