

National Aeronautics and Space Administration



Smallsat Lightning Round

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SmallSat Challenge to SCaN

- Significant growth in smallsat, cubesat, and constellations are creating demand for turnkey communications solutions:
 - Access to multiple networks
 - Interoperable, affordable, low SWaP radios
 - Reduced testing & integration costs
- Smallsat needs don't differ substantially from flagship missions
- SCaN networks are not well positioned to meet the increase in mission volume and the smallsat cost profile
- A non-government solution is required
- Smallsat needs aligned with SCaN's approach for commercializing services for our near-Earth users

"Divide and Conquer" approach is tailored to market capabilities and risks...



**TDRSS:
Commercialization Target**

**Measured Transition to
Commercial SATCOM Services**

2020

2030



**Near Earth DTE:
Commercialization Target**

**Rapid Commercialization of
Direct-to-Earth (DTE) Services**

2020

2030

- NASA-owned service capability
- Commercially-provided

Commercial Approach: SmallSat Benefits

SCaN is advancing a strategy to transition to commercial services:

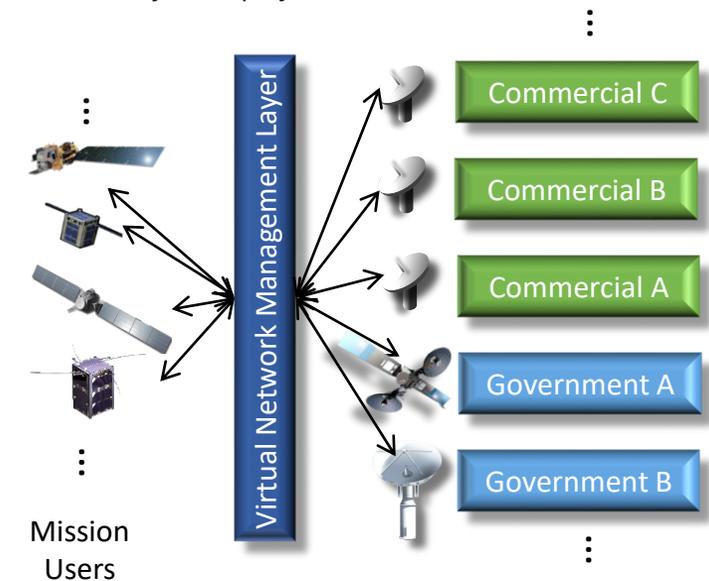
- Goddard Space Flight Center (GSFC) pursuing acquisition of new DTE service providers: RFP in FY22
- Glenn Research Center (GRC) Communications Services Project (CSP) is pursuing demonstrations of commercial SATCOM relay: FY22-24
- GSFC's Near Space Network (NSN) will combine relay and DTE capacity into a single network:
 - Common interfaces for users, access aggregate capacity
 - Reduces barrier to entry – facilitates addition of new providers and capabilities

Expected smallsat mission benefits:

- More ground stations → greater coverage → more data
- Opportunity for new operational constructs with SATCOM relay: systems designed for 1000's of simultaneous users
- Coupling with web, cloud, and data services
- Lowered integration costs



**Companies listed are illustrative of market activity, not indicative of NASA preference or commitments*



Virtual Network Management Concept

NASA's Communications Networks

-  NASA Near Space Network (NSN)
-  NASA Deep Space Network (DSN)
-  Commercial Stations Supporting NSN
-  Future Upgrades



Points of Contact

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