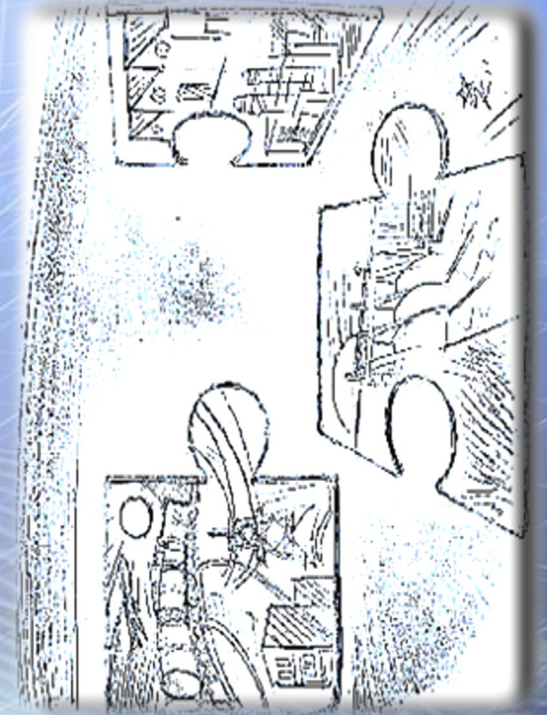


This preface and the following four talks are meant to:

- **Give an overview of NASA-SCaN quantum comm. program**
 - optical → quantum
- **Highlight the new drive:**
 - the US National Quantum Initiative Act (NQI) of 2018
- **Outline the vision:**
 - first US space-based quantum-comm. testbed
- **Stress the active pursuit of partnerships**
 - from quantum technology development to space quantum missions



The drive (since 2019)

- Strategic alignment with the National Quantum Initiative (NQI) (December 2018)
- Responsive to OSTP's vision for *“exploration of space-based entanglement distribution across intercontinental distances”* (February 2020)
- Responsive to OSTP's recommendation for **coordinated quantum networks** research (January 2021)

quantum.gov



The vision: Space-based quantum testbed

- ✓ High-rate and high-fidelity quantum entanglement distribution capability across continental and trans-Atlantic/Pacific distances
- ✓ A unique and enabling space-ground platform for future space and terrestrial quantum networks
- ✓ The need for a space-based testbed



Testbed will test and mature quantum technologies that thread many applications: from science, to computing, to networking and communications

A vision for global collaborative quantum efforts

- Partnerships among government, industry, academia + international
- Collaboration/cooperation on technology development; metrology; applications and architecture
- Vision for dedicated, 'NASA-facilitated' quantum engineering and QIS focusing on space-based quantum-communication science & technology
- Vision for a collaboration inclusive of training, education, workforce, STEM, etc., per the two national initiatives (2018 & 2020) plus the bi-lateral quantum statement (2021)

