

Quantum Communications at NASA Space Communication & Navigation (SCaN)

OPTICA workshop on Quantum Technologies

April 20, 2021

Presented By:
Dr. Angela Hodge, Program Executive
Quantum-communications Science & Technology
Content Credit: NASA/Badri Younes

Quantum Communications

Information can now be encoded (represented) by multi-state quantum bits (qubits)

- Entangled photons as qubits can interact with each other at any distance
- By having a satellite distribute entangled photons via optical links to well separated stations on Earth, those stations can “talk” to each other via the entangled photons

Quantum Communications

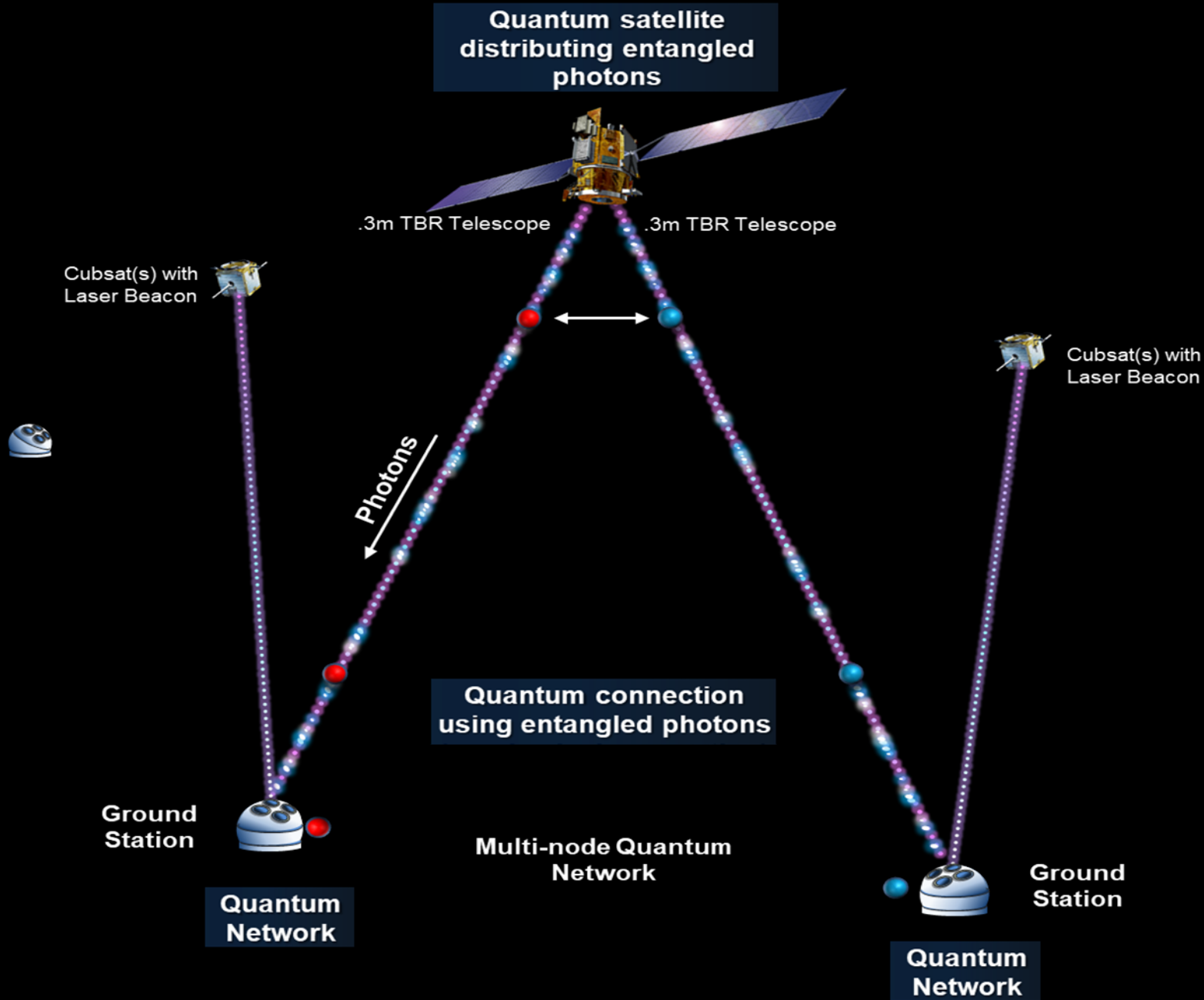
Information can now be encoded (represented) by multi-state quantum bits (qubits)

- Entangled photons as qubits can interact with each other at any distance
- By having a satellite distribute entangled photons via optical links to well separated stations on Earth, those stations can “talk” to each other via the entangled photons

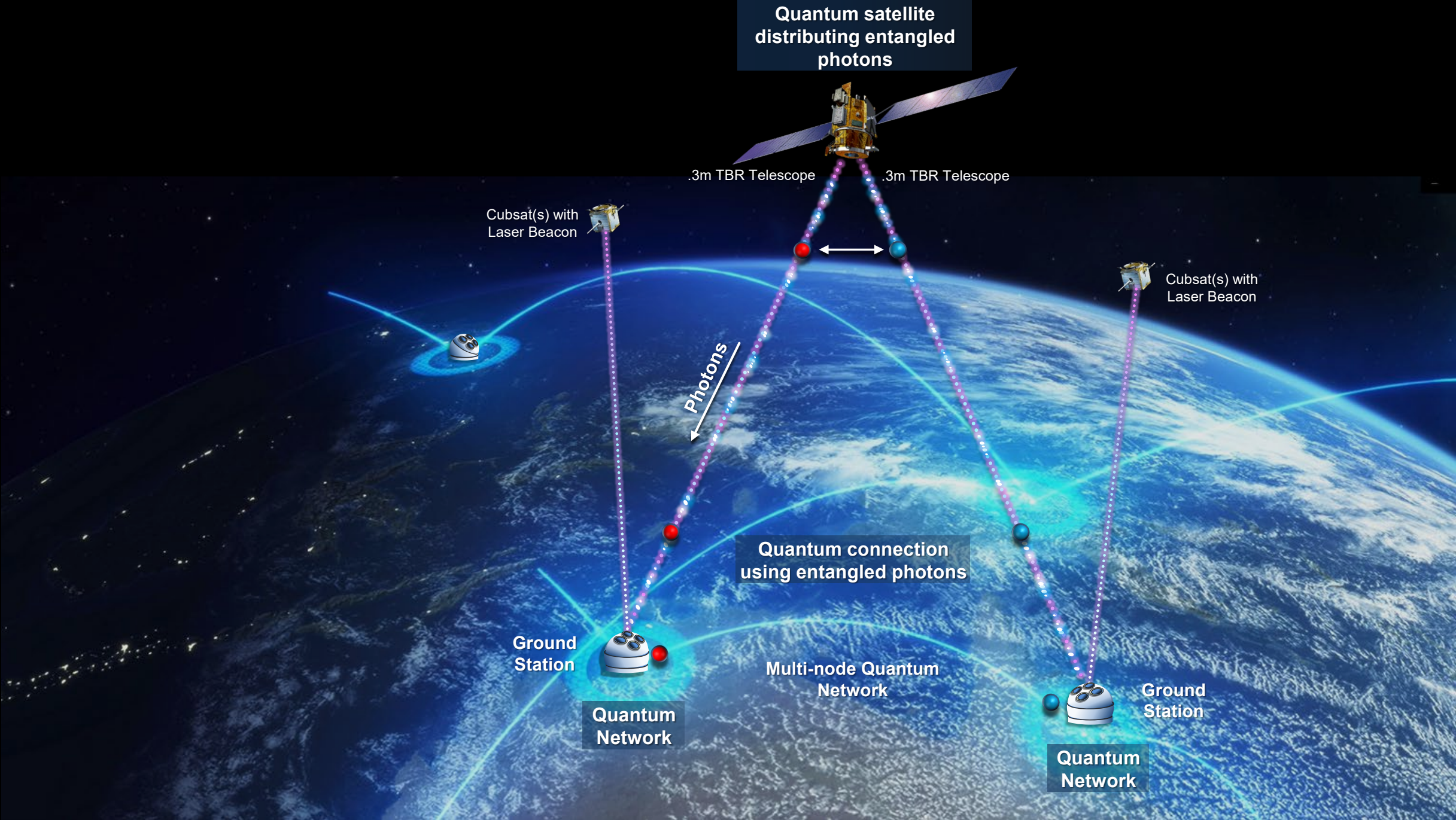
Benefits

- Quantum networks with space links
- Data security

Quantum Communications



Quantum Communications



Quantum Communications

Information can now be encoded (represented) by multi-state quantum bits (qubits)

- Entangled photons as qubits can interact with each other at any distance
- By having a satellite distribute entangled photons via optical links to well separated stations on Earth, those stations can “talk” to each other via the entangled photons

Benefits

- Quantum networks with space links
- Data security

