

DC-QNet: Introduction and Overview

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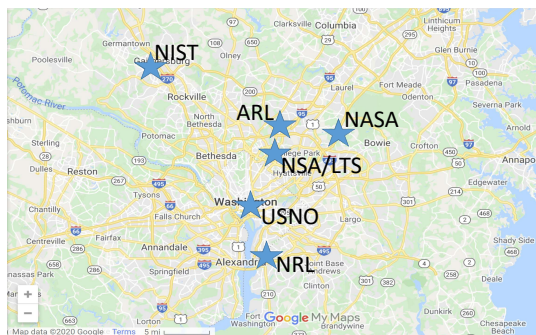
What is DC-QNet:

DC-QNet is a consortium of six DC-area federal agencies coming together to build a real-life regional quantum network (QN) testbed to advance cooperation among the agencies in QN research and development. It will be a non-proprietary environment for test and evaluation of QN concepts, components, protocols and architectures developed both within and beyond the member agencies. It will enable cross-cutting agency synergy in sensor development, secure communications, distributed computing and other use case applications.

The DC-QNet was codified by an interagency MOU on May 18th, 2022. The six agencies are: Naval Research Laboratory (NRL), Army Research Laboratory (ARL), National Institute of Standards and Technology (NIST), Laboratory for Telecommunication Sciences (LTS), US Naval Observatory (USNO) and National Aeronautics and Space Administration (NASA). Associate members include Naval Information Warfare Center - Pacific (NIWC-Pacific, San Diego, CA) and Air Force Research Lab (AFRL, Rome, NY).

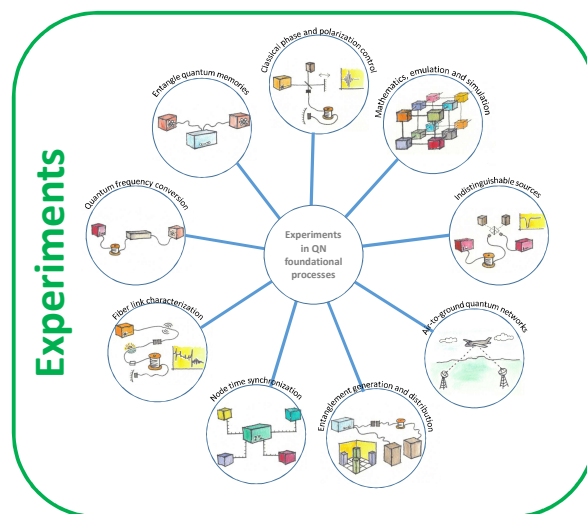


DC-QNet Map



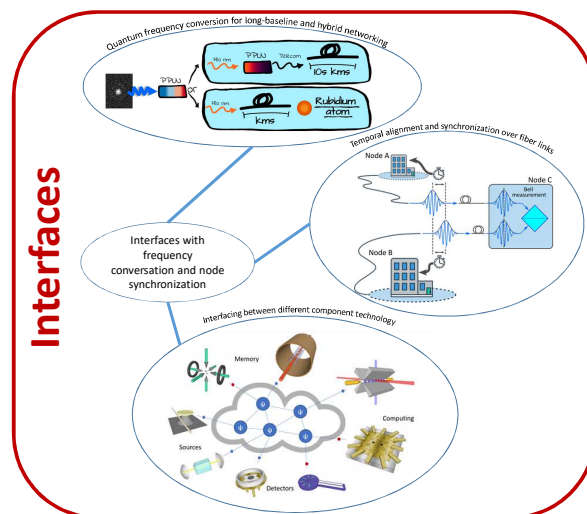
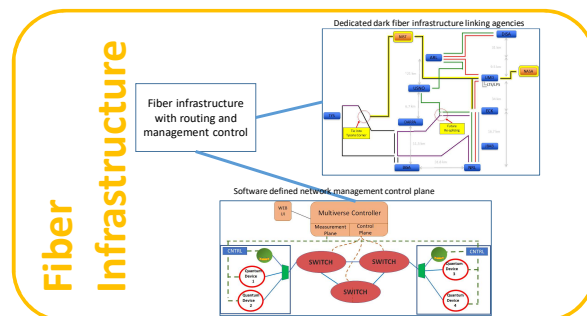
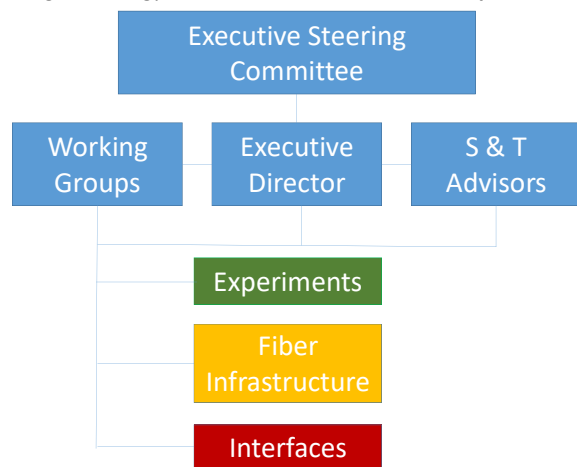
DC-QNet Key Attributes:

- Focus on **metrology & foundational processes** supporting QN precursor to **open architectures** and future **standards**.
- Serves as **dedicated QN resource** for DC-area federal government where policy makers/funding organizations can visit and see technology as it gets created and as applications are developed.
- Federal employees for certain technical activities means DC-QNet can pursue **pre-decisional and CUI research**.
- Takes advantage of **expertise available from leading agencies** in fields such as timekeeping, metrology, security and more.
- Provides for the **unique needs of federal government** such as being platform for the DoD to test its special QN requirements.
- Supports the National Quantum Initiative (NQI) objective in developing **'right-sized' QNs** across the country.



DC-QNet Activities and Structure:

- Development of high-fidelity **quantum memory nodes**, single-photon devices, network metrology, qubit platforms, transduction and frequency conversion, synchronization, and continued research and development into enabling science and technology
- Development of the **network infrastructure to connect the six metropolitan agencies**
- Research and development into the **transfer of quantum entanglement** between nodes
- Emulation, modeling and **simulation of the network**
- Research and development into classical management and control, routing, monitoring, metrology, and associated **software of the quantum network**.



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