Architectural Principles of a Quantum Internet

https://datatracker.ietf.org/doc/draft-irtf-qirg-principles/

QIRG @ IETF 110 Online
10 March 2021

Wojciech Kozlowski
Stephanie Wehner
Rodney Van Meter
Bruno Rijsman
Angela Sara Cacciapuoti
Marcello Caleffi
Shota Nagayama
Recap

• First version of draft prepared and presented at IETF 104 in Prague on 26 March 2019

• Motivation is to address charter point:
  • An architectural framework delineating network node roles and definitions, to build a common vocabulary and serve as the first step toward a quantum network architecture.

• Also want to create a good starting point for people with no quantum background
GitHub

• A GitHub repo is maintained at https://github.com/Wojtek242/draft-irtf-qirg-principles
• A more convenient way to share updates at a finer granularity than datatracker allows
• However, all discussions are still done on the mailing list so no fancy CI/CD
Overview of changes (since 109)

• Control/data plane alignment with Use Case document:
  • Basically say that control plane may also want to access qubits.
  • But do not propose split into classical/quantum control plane, just leave the possibility open.

• Rodney’s feedback summary:
  • Mostly clean up, clarifying fixes
  • Some concern if document is consistent with some uncommon proposals for QI
    • WK opinion: even if they’re not 100% compatible this is not a standard so evolution and deviations should not be a problem
Next steps

• Is the draft ready for RG last call?
• Latest updates have all been minor
  • In general feedback is good, but at this point it is very minor in the grand scheme of things