QKD for the Optical Transport Network

DIVQSec Quantum Communication Panel @ WoQ Munich

June 27th 2023, Helmut Grießer

Adtran and Adva Network Security

ADVA became Adtran

Market-leading supplier of optical and packet transport solutions

Technology, products

Security competence

Adva NETWORK SECURITY

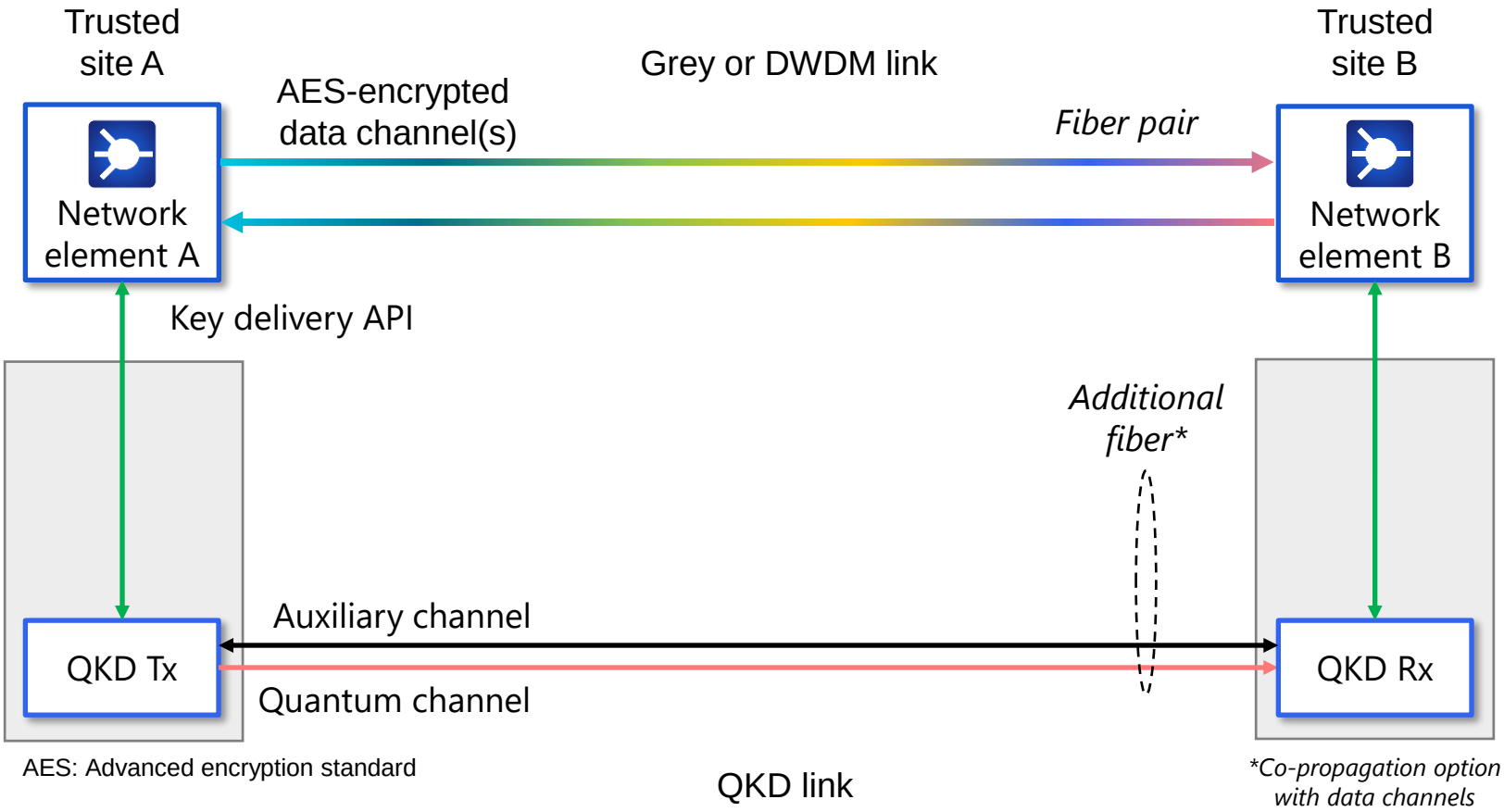
Delivering sophisticated security controls

- Open optical transport
- Ethernet and IP networking
- Synchronization and timing
- Network management

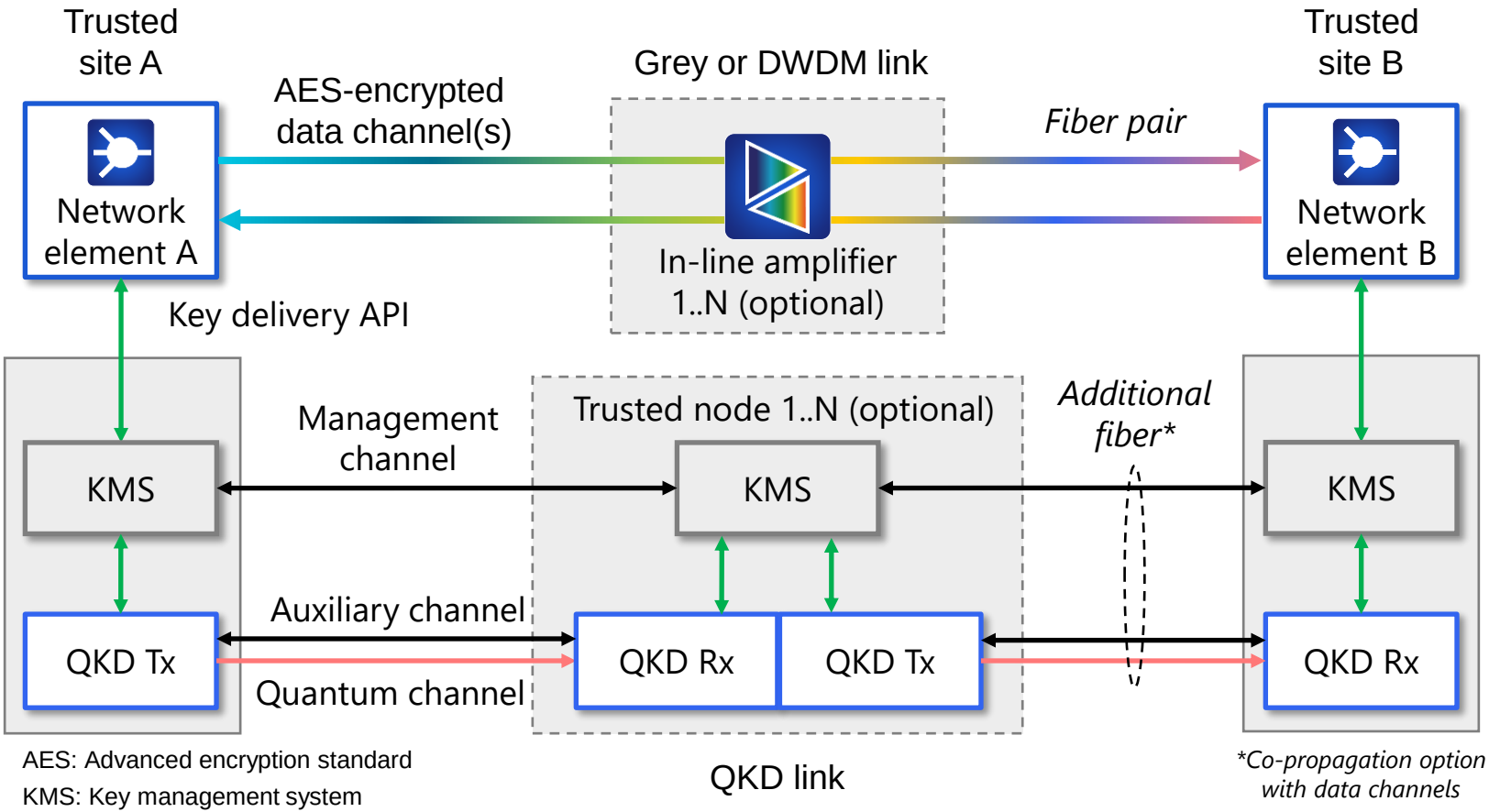
Security advise
Secure design
Certification, approval

- Secure transport packet and optical
- VS-NfD approved and FIPS certified
- Professional security support

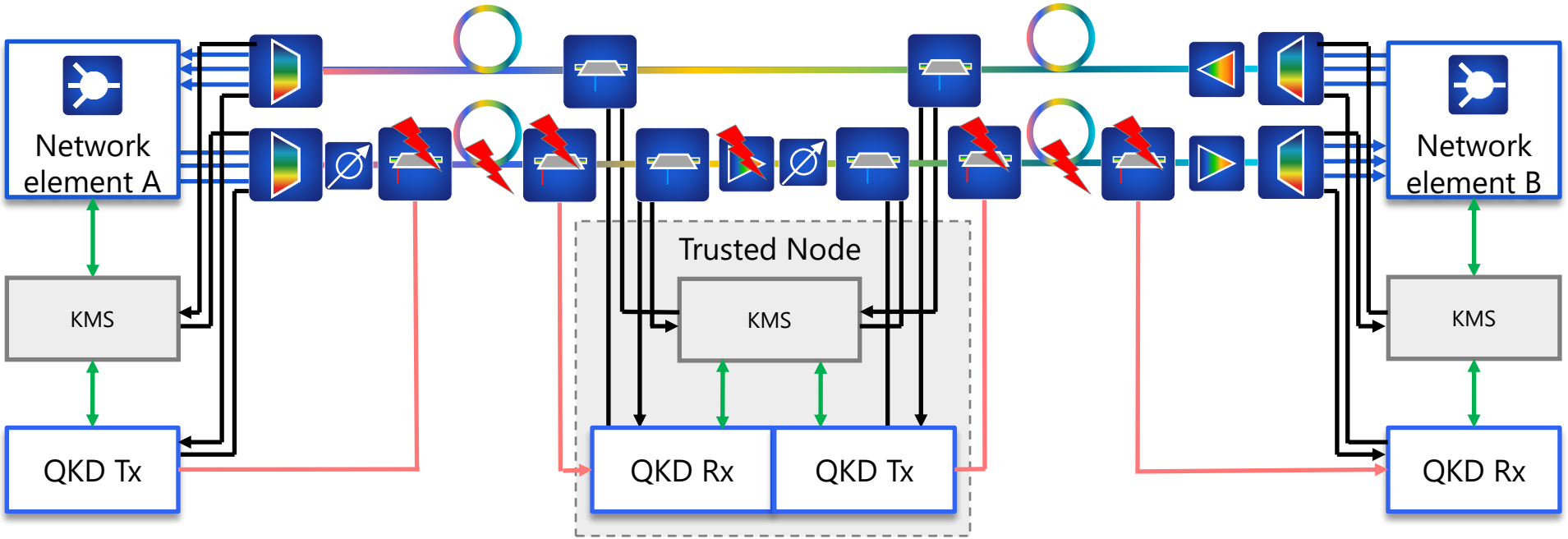
QKD is part of a larger network encryption solution



… and creates dependencies

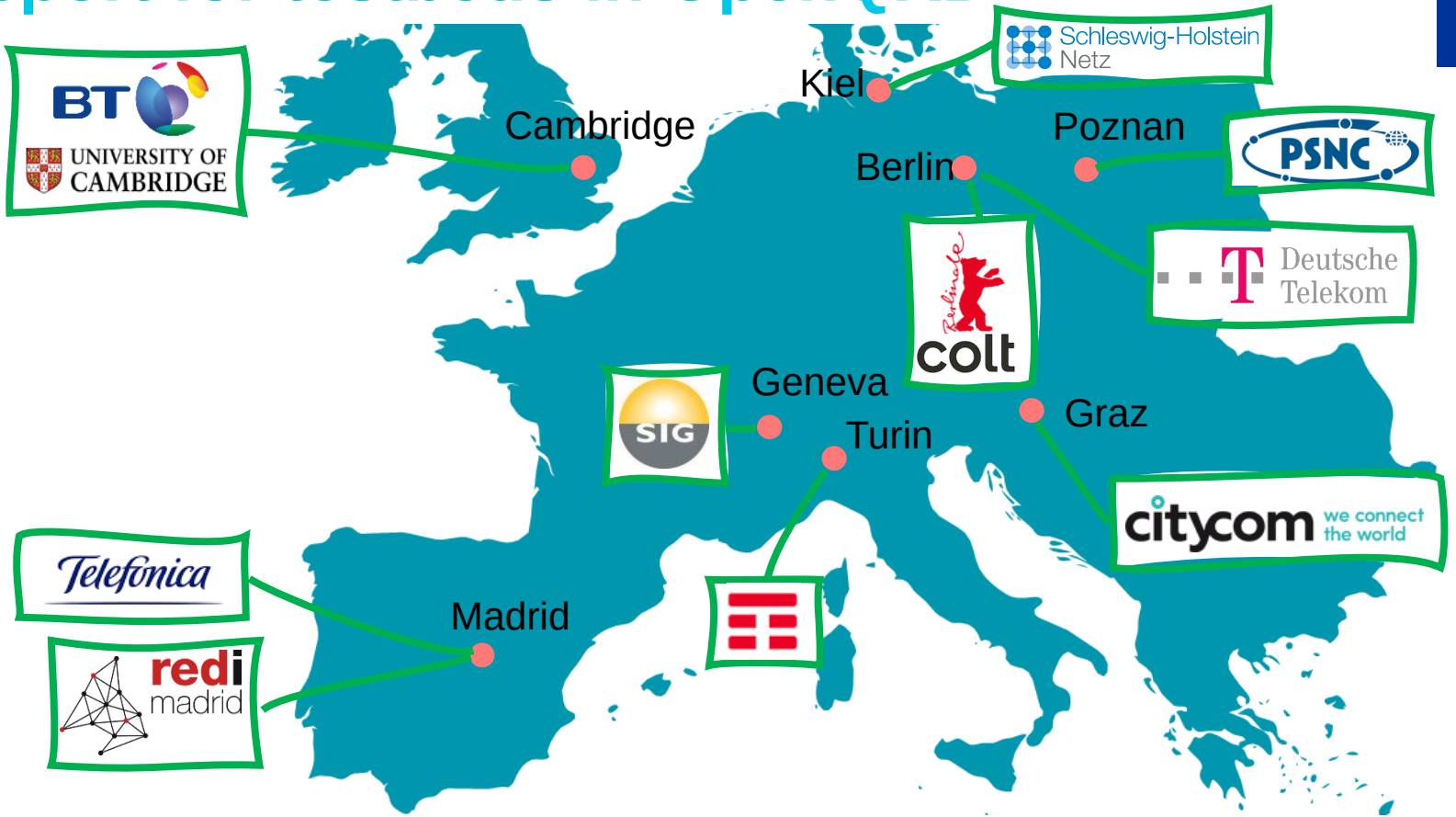


Multi-span configuration

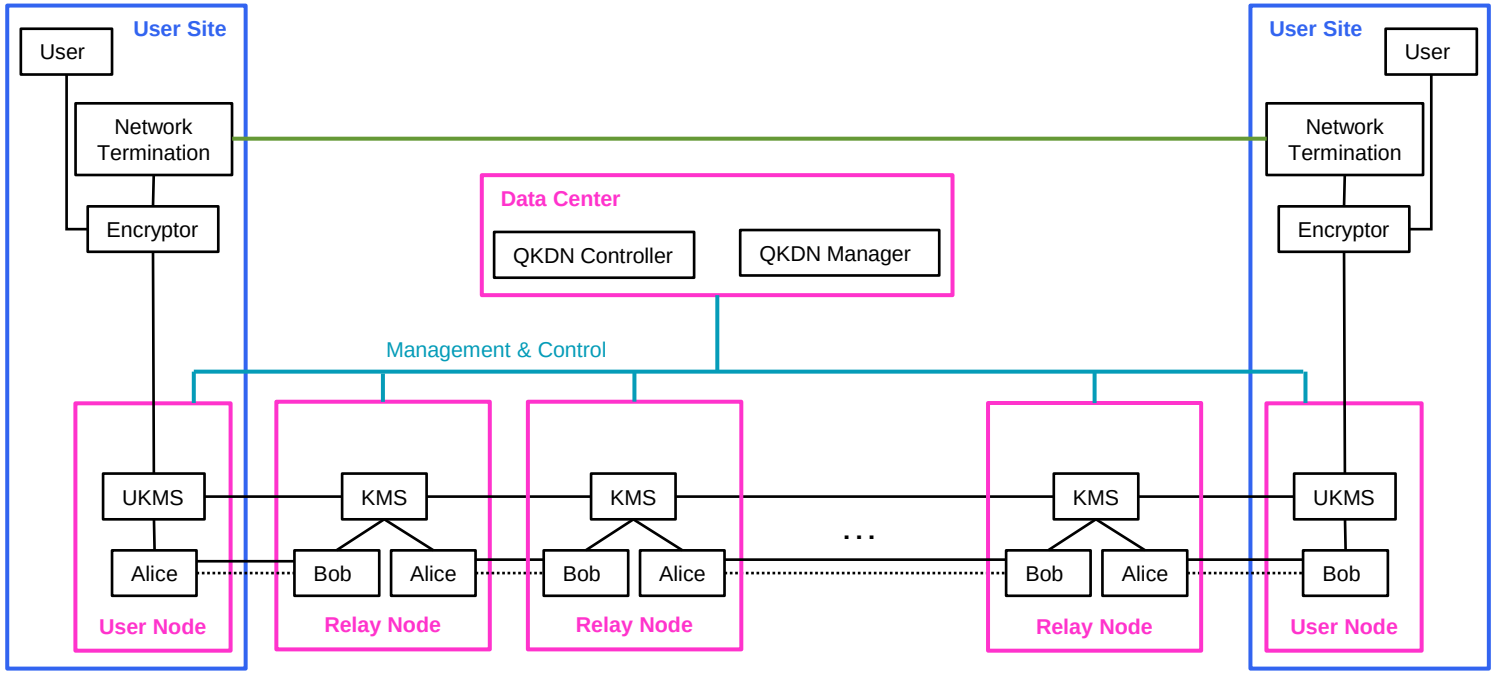


X-talk due to stimulated Raman scattering and filter leakage, ASE noise leakage from ILA

Support for testbeds in OpenQKD



QKD as a service



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Take aways

- **QKD and optical transport looks like a natural match**
  - There is fiber available that can serve as the optical channel for QKD
  - Securing optical networks is important and getting more common

- **Network providers are not happy to fiddle with their transport network**
  - Quantum channel limits transmission capacity and can make operation a hassle
  - Use a dedicated fiber for the quantum channel if possible
  - Span attenuations in legacy networks might still be too high

- **QKD will be an add-on for classic and post-quantum key exchange**
  - QKD comes with extra cost but is only solution that can provide long-term security
  - Certification/standardization of QKD devices/networks to address a broader market

Thank you

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