



## Q&A Transcript

- Q1** What kind of devices are included within the 25,000-USD priced package per substation? A whole set of entanglement-based QKD pair or part of it?
- *\$25,000 is a target price point for a single QKD transceiver. We are not at that price point yet (closer to \$75,000) but we can drive to a lower price quickly with modest volumes. (Response from Duncan Earl, Qubitekk Inc.)*
- Q2** Aren't PKI and QKD addressing two different problems, authentication vs. session keys for encryption? QKD does not solve the authentication problem.
- *I think for the key establishment purpose, both PKI and QKD are addressing the same problem (Response from Zhangchao Ma, CAS Quantum Network Co., Ltd.)*
- Q3** Why is Qubitekk using entanglement instead of BB84?
- *Entanglement-based QKD definitely seems to be the hardest way to do QKD. However, we are purposely developing this type of QKD so that we can eventually build more general quantum networks for computing and sensing. We believe that being able to distribute entangled photons around an optical network will be a critical resource/technology for many emerging quantum technologies. (Response from Duncan Earl, Qubitekk Inc.)*
- Q4** I guess there are entangled photon sources and a set of polarization measurement circuit with Si-based single photon detectors for 810nm inside your QKD "transceiver", which is different to BB84 based transceiver with only source and modulators.
- *That is correct. We have two types of sources that we can use (one at 810nm and one at 1570nm). For short fiber distances (<5km), the 810nm solution is preferred. For longer distance, the 1570nm solution must be used. Since we use entangled photons, the protocol is closer to a BBM92 protocol. We also do not use a modulator to select the measurement basis, but rather use a passive beam splitter to "decide" what measurement basis is used for each measurement. (Response from Duncan Earl, Qubitekk Inc.)*
- Q5** In your presentation Hans, you showed an example where Hyundai is using QKD between metro scale industrial sites. Is there a specific reason that is driving the need for QKD instead of traditional cybersecurity alternatives or is it just for demonstration purposes?
- *One of their shipyards is naval related. Their objective was to find a more secure technology and QKD is the main candidate. (Response from Hans KIM, KT Corp.)*
- Q6** One question for large scale QKD networks. Is there need only synchronization solution hop-by-hop or sync solution end-by-end?
- *Synchronization itself is a very interesting application of quantum communication networks.*
-