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| ITU logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2017-2020 | | **Focus Group on Quantum Information**  **Technology for Networks** | |
| **QIT4N-I-xxx** | |
| **WG(s):** | | 2 | E-meeting, 9 – 20 August, 2021 | |
| **INPUT DOCUMENT** | | | | |
| **Source:** | | Insert source(s) | | |
| **Title:** | | QKDN use case: Insert title of use case | | |
| **Purpose:** | | Discussion | | |
| **Contact:** | | Insert contact name Insert organization Insert country | | Tel: +xx E-mail: a@b.com |

Once the relevant highlighted sections are filled in, submit your use case to [tsbfgqit4n@itu.int](mailto:tsbfgqit4n@itu.int) .

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| --- | --- |
| **Content of this template:** | {vertical use case | horizontal use case | both} |
| **Submitted by:** | {name/organisation of contributor} |
| **Date of submission:** | {date of initial submission} |

# Vertical use case template

Vertical use cases describe top level applications used by individual, commercial, organisational or other end users. These vertical use cases (VUC) build upon specific QKD infrastructure configurations which we call horizontal use cases (HUC).

Some notes on how to complete the form:

* The vertical use case shall be described from the perspective of an end user
* in a descriptive, and not normative, style;
* the text shall be suited for end users with only marginal technical background knowledge in QKD and QKDNs;
* end users shall thus be able to decide if that use case could be of use for them.
* single fields may be left empty and/or filled in at a later iteration/evolution

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| --- | --- |
| **Use case identification:** | {name of vertical use case} |
| **Revision history:** | {use cases usually are written in an incremental, evolutionary process, or need to be revised when e.g, the structure of categories is changed during use case collection etc. Add dates and nature of modifications} |
| **Target end users:** | {identification of end users, e.g. individual end users, organisations, administrations, companies} |
| **Summary description:** | {summary description of the use case in one or two lines with any relevant diagrams} |
| **Goal/intention:** | {describe goal of use case, e.g. goal is to protect, to enable etc.} |
| **Problem:** | {precise problem statement: describe the problem(s) that motivate the uses case; describe how some task (for which our use case should be a replacement) is carried out today, and e.g. why a particular goal cannot (easily) be achieved today} |
| **Solution:** | {explain how the solution can be achieved, describe the mechanism} |
| **Impact on end users:** | {describe security gains, why use case is beneficial for end users, advantages in comparison to alternative solutions, not involving QKDNs etc.} |
| **Economic considerations:** | {cost structure etc.} |
| **Legal context,  applicable regulations:** | {e.g. supports compliance with legal requirements} |
| **Security certification issues:** | {required certification for qualified application} |
| **Relevant standards:** | {existing or planned standards, related to use case} |
| **Associated horizontal use case:** | {basic cryptographic tool based on quantum physics, applied in vertical use case} |

# Horizontal use case template

Horizontal use cases (HUCs) describe the underlying QKD infrastructure of one or several vertical use cases.

Some notes:

* The text may be “more technical” than in the vertical section
* single fields may be left empty and/or filled in at a later iteration/evolution

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| --- | --- |
| **Use case identification:** | {name of horizontal use case} |
| **Revision history:** | {use cases usually are written in an incremental, evolutionary process, or need to be revised when e.g, the structure of categories is changed during use case collection etc. Add dates and nature of modifications} |
| **Summary description:** | {summary description of the use case in one or two lines with any relevant diagrams} |
| **Typical vertical application:** | {typical vertical use cases; need not be reference to actual vertical use cases but rather an informal description of a class of VUCs} |
| **Architecture/deployment model:** | {involved components/actors of the use case/service; physical location of components; achievable ranges or network sizes} |
| **Functional requirements:** | {description of functional requirements} |
| **Operational requirements:** | {description of operational requirements} |
| **Trust model:** | {trust assumptions on components/actors; trust relations} |
| **Security level:** | {statement regarding achievable security levels, e.g. information theoretic security, epsilon security, computational security} |
| **Relevant standards:** | {existing or planned standards relevant for} |