

5G-PPP TMV Vertical TF

Industry 4.0

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Projects currently involved in I4.0 group

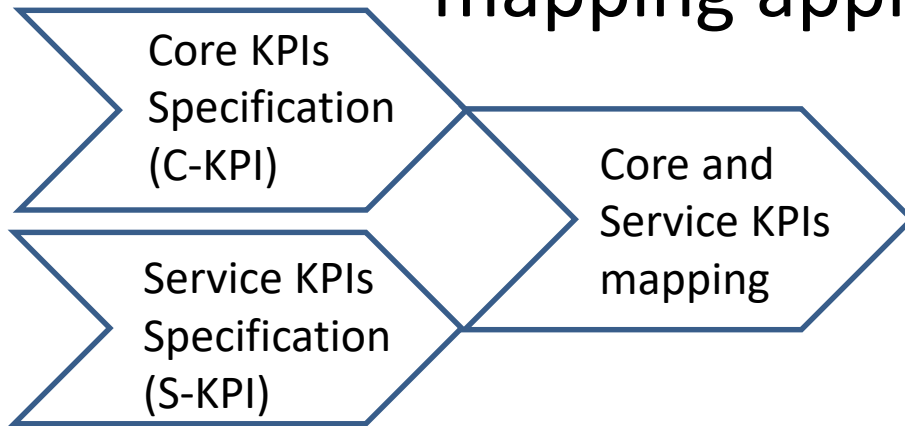
- 5Growth
- 5GSolutions

Targeted Vertical KPI definition by I4.0 group

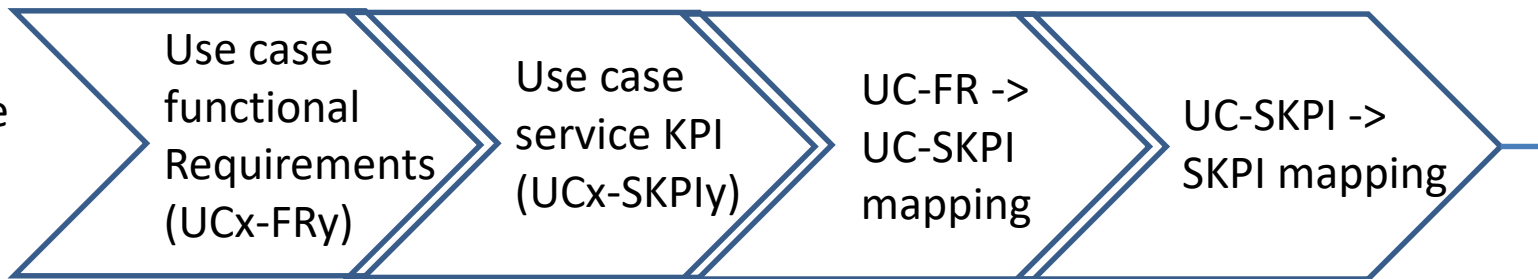
- Reliability/availability
 - Some reliability definitions by different verticals
 - % of data delivered without data corruption
 - Constant data stream 1 day at poll rate monitoring interference
 - reliability ensuring that monitoring information is transmitted continuously and with no **packet loss**, to prevent retransmissions and information not timely reached
 - Availability is a measure of the degree to which an item is in an operable state and can be committed at the start of a mission when the mission is called for at an unknown (random) point in time. Availability as measured by the user is a function of how often failures occur and corrective maintenance is required, how often preventative maintenance is performed, how quickly indicated failures can be isolated and repaired, how quickly preventive maintenance tasks can be performed, and how long logistics support delays contribute to down time.
- Location information/Positioning accuracy
 - Some location information definition example
 - Transmission of coordinates and some other parameters (start-stop, etc) between the metrology expert terminal and the Coordinate Measuring Machine (CMM)
 - The Nlmf_Location service enables an NF to request location determination (current geodetic and optionally civic location) for a target UE or to request periodic or triggered location for a target UE.

Vertical/Service KPI 5Growth mapping approach

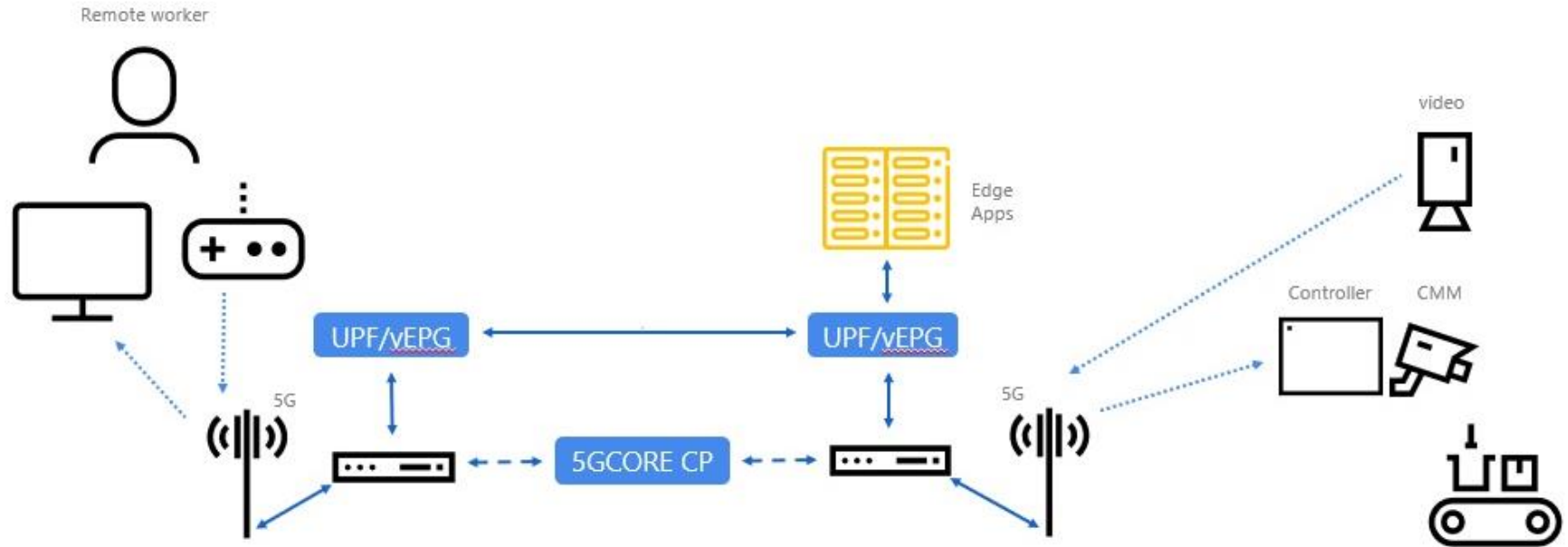
General



Per PoC Use Case



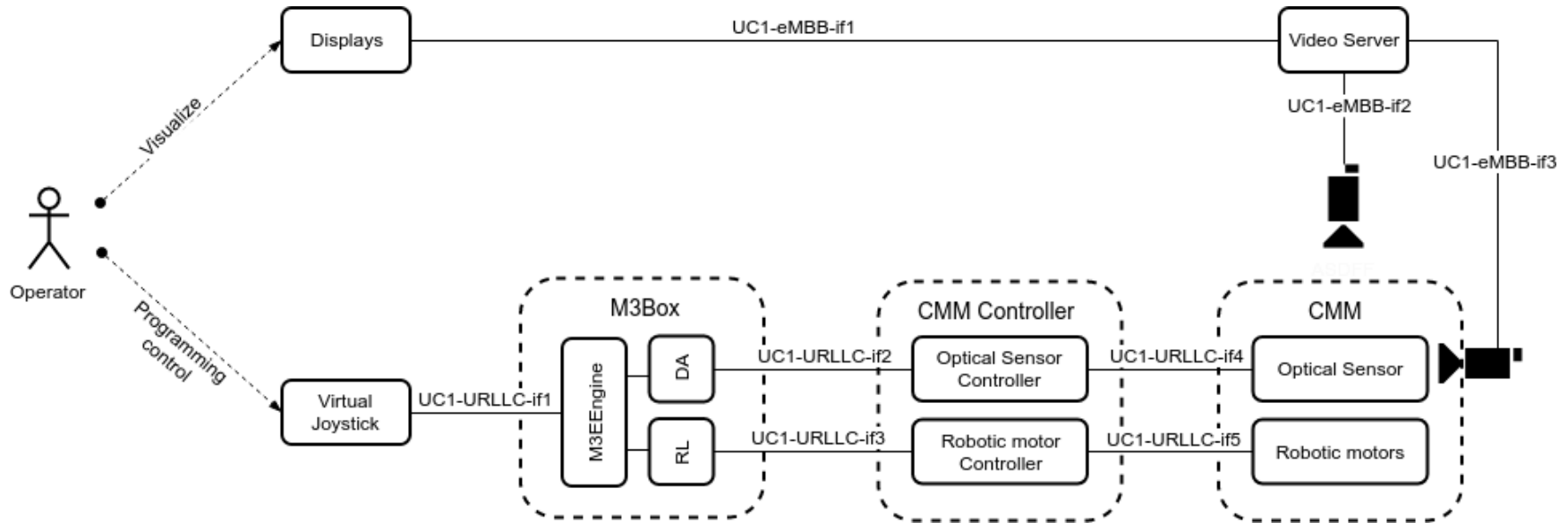
Example 1: 5.1.1. Use Case 1: Connected Worker Remote Operation of Quality Equipment (INNOVALIA)



Requirements

- **Functional Requirement FR-P1UC1-09**
 - High availability of the remote connection including redundant connection in order to guarantee the communication in case of failure
- **UC1-SKPI-4: Radius of Operation**
 - This specific Service KPI is applied to the use case from the *5GR-SKPI-5 Radius of Operation*, and it refers to the maximum end-to-end distance of applicability of the vertical service
 - this Service KPI is mapped to the core KPIs *CKPI-1 End-to-end Latency* and *CKPI-5 Availability*
- **CKPI-5 Availability**
 - percentage of time during which a specific component of the use case (application, server, network function, etc.) is responding to the requests received with the expected QoS requirements. That is, it is the ratio between the up-time of a specific component over the total time the component has been deployed.

Logical Data Plane



M3Box is the edge device that runs the software components that receive the movements produced by the virtual joystick and translate them into commands compatible with the CMM controllers

CMM executes the actual movements

- Vertical/Service KPI definitions might slightly differ
- Need for mapping vertical/service KPIs to common Core/Network KPIs
- Need for taking into account contributions of all the workflow elements