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Information Model Requirements

An accounting and further work

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Part(s) of the P1900.4 D0.01 (approved in Madrid) addressed by the document?

4. System Architecture	
5. Use Cases	
6. General System Requirements	
7. Functional baseline Architecture	
8. Information Model and Representation	✓
9. Procedures	
Other : *(please detail)*	

Information Model Requirements

- General Information Model requirements
  - Derived from the reference Use Cases
  - Provide a basis for specific requirements for each of the identified types of information flow
    - NRM to TRM information
    - RAN to NRM information
    - TRM to NRM information
    - TRM to TRM information

Information Model Requirements

- Objective of the contribution
  - Account the Information Model requirements
  - Check whether the General requirements are well-linked to the reference use cases and – potentially – provide hints for refinement
  - Check whether the Specific requirements are well-linked to the General ones and provide, alike, hints for refinement
  - Ensure that the identified requirements have been identified in a SA-independent way

Information Model Requirements

- General Requirements
  - Extensibility (New features/rules shall be easily incorporated)
    - Mainly linked to the Use Case 1 and information representation
    - Being instantiated by Extensibility requirement in 8.2.1
    - As it involves information types and representation it can be elaborated in parallel with the System Architecture work.
    - Proposal: each type of Information Flow should include such a requirement adapted to the specific information type (e.g. policies, RAT info etc). In this way the General requirement will be well-linked to the rest of the use cases

Information Model Requirements

- General Requirements
  - Relationships
    - Mainly linked to information structure
    - It is instantiated by specific requirement in 8.2.1and it may also be related with ones in 8.4.1. and 8.5.1.
    - As it involves information types and representation it can be elaborated in parallel with the System Architecture work
    - Proposal: each type of Information Flow should include such a requirement adapted to the specific information type (e.g. policies, RAT info etc). In this way the General requirement will be well-linked to the rest of the use cases.
    - Proposal: The name of the requirement might change to a more generic one.
    - Proposal: It should be ensured that the refinement will not affect the system-architecture-independency of the requirement.
    - Proposal: in case a General requirement can be included about minimizing the complexity and interactions required for informatiom processing

Information Model Requirements

- General Requirements
  - Non-uniform data structures
    - Mainly linked to information structure
    - It is not directly instantiated by a specific requirement in any of the identified Information Flows.
    - It might be affected by the type of the identified interfaces as it refers to not simple data structures
    - Proposal: It can be merged to the previous one into a more generic form.
    - Proposal: a new requirement may be included about the form of the information to be communicated over the identified (generic) interfaces to ensure the system-architecture-independency as well.

Information Model Requirements

- General Requirements
  - Qualifying data (Meta-knowledge)
    - Generic enough – well linked to the reference use cases
    - It is not directly instantiated by a specific requirement in any of the identified Information Flows.
    - Proposal: A further clarification is needed. In turn specific examples can be provided for each of the information flows.
    - Proposal: Any clarification must ensure that the required meta-knowledge will not form a significant overhead.

Information Model Requirements

- General Requirements
  - Various transaction models
    - Generic enough – well linked to the reference use cases
    - It is not directly instantiated by a specific requirement in any of the identified Information Flows.
    - It involves information distribution. It has to be ensured that the identified models shall be supported by the System Architecture
    - Proposal: the term “transaction” might need renaming.
    - Proposal: The requirement in question may be included in the system requirements.

Information Model Requirements

- General Requirements
  - Exclusions and Dependencies
    - E.g. Modes of Operations
    - It is not directly instantiated by a specific requirement in any of the identified Information Flows.
    - Proposal: A further clarification is needed. In turn specific examples can be provided for each of the information flows.

Information Model Requirements

- General Requirements
  - Unique identifiers
    - (Useful as a reference)
    - Generic enough
    - It involves single fields of information; it can be elaborated in parallel with the System Architecture work.
    - Proposal: Further clarification is needed
    - Proposal: Information flow specific requirements to include it in more details

Information Model Requirements

- General Requirements
  - Platform independent unambiguous type definitions.
    - Generic enough – well linked to the reference use cases
    - It is instantiated by Specific Requirement in 8.3.1.
    - As it involves information representation it can be elaborated in parallel with the System Architecture work
    - Proposal: Specific requirements can be derived for each information flow.

Information Model Requirements

- General Requirements
  - Efficient and fast retrieval and updating of information objects.
    - Generic enough – well linked to the reference use cases
    - It is instantiated by Specific Requirement in 8.4.1 and 8.5.1.
    - As it involves information retrieval it must be ensured that it can be elaborated in parallel with the System Architecture work
    - Proposal: the term “efficient” is too generic. A rephrasing might be needed either in the General Requirement or in each of the specific ones.
    - Proposal: the term “information objects” might need clarification

Information Model Requirements

- General Requirements
  - Openness
    - It is not instantiated by any Specific Requirement
    - Proposal: (As it is mentioned in the document) further clarification is needed

Information Model Requirements

- General Requirements
  - Ability to be distributed
    - Generic enough – well linked to the reference use cases
    - It seems to be related with specific requirements (in sections 8.2.1, 8.4.1, 8.5.1) regarding signalling overhead.
    - As it involves information distribution it must be ensured that it can be elaborated in parallel with the System Architecture work
    - Proposal: it might be renamed in order to include in the title the signalling overhead minimization.
    - Proposal: if it only states that any type of information should be structured in a form that can be communicated then an additional General Requirement is needed about the minimization of the signaling overhead.

Information Model Requirements

- General Requirements
  - Compliance with relevant standards, e.g. IEEE 802.21
    - Generic enough – well linked to the reference use cases
    - Proposal: A more specific statement may be included for each of the information flows.

Information Model Requirements

- Issues that have been addressed by specific requirements but not the General
  - Local information storage
  - Information distribution in a secure way regarding for example reliability of distribution, error control etc
  - Notification of peer entities about status change in a individual one (8.5. TRM – to TRM information)
  - Proposal: to be further investigated if already covered
  - Proposal: Otherwise, the above mentioned requirements must be generalised and included in the Gerenal Requirements List.

Conculsions

- An accounting of the so-far identified Information Model requirements has been presented
- Linkage to the reference Use Cases has presented
- The relationship between the General requirements and the information-flow-specific has been considered
- The posibility for further elaboration in parallel with the System Architecture work has also been investigated
- Certain gaps have been identified and the corresponding actions have been proposed.
- Next step: refinement of the information model General and Information Flow specific requirement lists.

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