Material for UTMC Technical Specifications referring to ETSI specifications on Cooperative ITS

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The Seamless project proposes that the following material is added at end of TS.003 Section 3 "Architecture", in a new section 3.4 "Cooperative ITS"

3.4 Cooperative ITS

3.4.1 Cooperative ITS involves delivery of services in the vehicle, through communication with other vehicles or the infrastructure. Cooperative ITS architecture is defined in two principal standards: ISO 21217 "CALM Architecture" and (ETSI) EN 302 665 "ITS Communications Architecture". The former is a normative reference within the latter.

3.4.2 The UTMC logical reference model may be extended to include Cooperative ITS as shown in Figure 3-3. ITS stations are defined in EN 302 665.
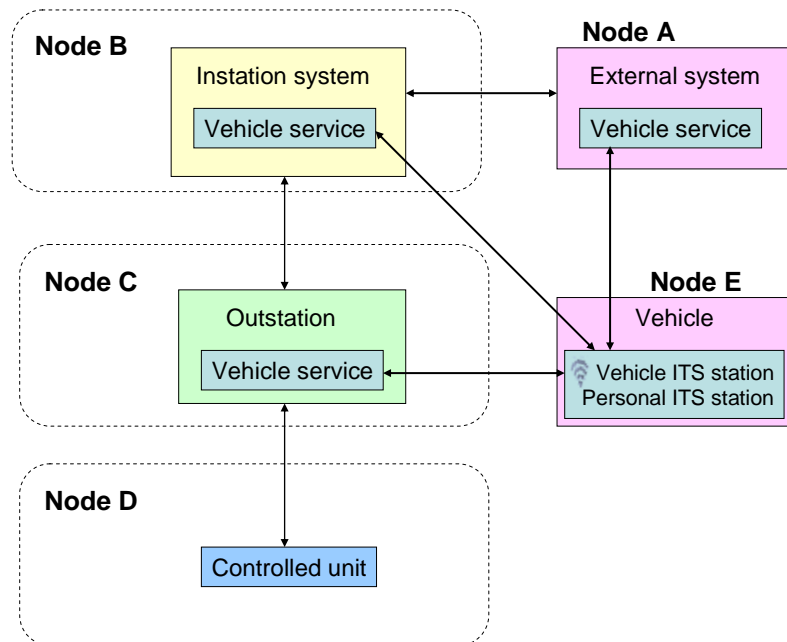

Figure 3-3 Extended logical model with Cooperative ITS

3.4.3   Nodes A and B each may act as a central ITS station communicating with in-vehicle ITS stations.

3.4.4   Communications between Node A and Node E are outside the scope of the UTMC system but provide a practical channel for getting data from a UTMC system into services in the vehicle.

3.4.5   UTMC Node C may act as a roadside ITS station communicating with in-vehicle ITS stations.

3.4.6   The ETSI ITS G5 standard (ES 202 663) is recommended as a suitable communications protocol to support the link between roadside and vehicle.

3.4.7   EN 302 665 defines a reference architecture for an ITS station. Although the scope is different, this model has similarities to the functional reference model for a UTMC system defined in section 3.3 above. As functional reference models the two are compatible.

3.4.8   EN 302 665 and further related ETSI specifications also define specific requirements for ITS stations which are in excess of the requirements of this UTMC Technical Specification.

Explanatory note (not intended for inclusion in UTMC TS.003)

The ETSI "ITS station reference architecture" is shown below.
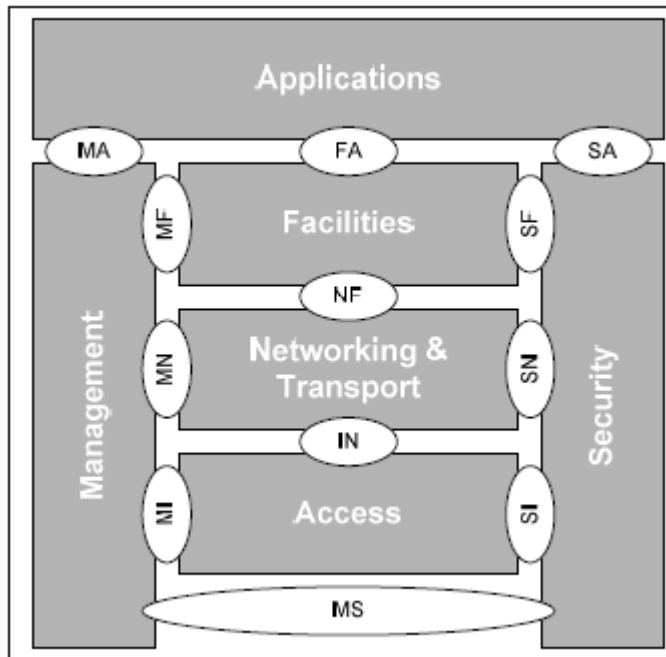
The multi-part TS 102 723 is to define detailed interfaces between these layers, which makes this more than just a functional reference model. These interfaces will not correspond to any existing UTMC specifications, registered objects or systems.

EN 302 665 already defines several mandatory requirements that are not present in UTMC:
- ASN.1 for specifying all interfaces
- Application priority and channel access priority
- A logical channel type and its specific representation in interfaces
- Registration scheme with differences to that of UTMC
- Specific management protocol capabilities

Given current specifications, a UTMC-compliant interface is not likely to be ETSI CITS-compliant, nor vice versa. The likely configurations for co-existence are:
- There is adaptation within the UTMC Node B or Node C, which includes an ETSI-compliant ITS station. Communications with the vehicle are ETSI-compliant but perhaps not UTMC-compliant.
- Somebody goes to the effort of registering sufficient UTMC objects, including both application content and ETSI general types and mechanisms, so that the communications are both ETSI and UTMC-compliant at the same time.
- A specialised ITS station component might receive UTMC communications and yet present regular ETSI interfaces to higher layers. This would not be fully compliant with the ETSI architecture but would allow interoperability.

Given the current uncertainty over UTMC community interest in cooperative ITS deployment, the proposed specification text leaves these options open for implementers to determine – they follow from 3.4.8.