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Intelligent transport systems - Urban-ITS - Mixed vendor environment guide

Systèmes de transport intelligents - ITS urbain - Guide pour un environnement de fournisseur mixte

Intelligente Transportsysteme - Urbane Verkehrssysteme - Leitfaden für gemischte Anbieterumgebungen

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European foreword

This document (CEN/TR 17401:2020) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Introduction

CEN/TR 17401¹ CEN/TS 17402² and CEN/TS 17400³ are a suite of standards deliverables designed to achieve successful implementation of urban-ITS systems in a mixed vendor environment. This document should be considered as the introductory part.

This suite of standards deliverables supports the family of existent standards, and those under development, referencing both common communications protocols and data definitions, that, in combinations, enable Urban ITS (and ITS in general) to function and be managed, and will reference application standards, and their interdependencies and relationships.

Urban authorities use an increasing array of intelligent transport systems (ITS) to deliver their services. Historically, urban ITS have tended to be single solutions provided to a clear requirements specification by a single supplier. Increasingly, as ITS opportunities become more complex and varied. They involve the integration of multiple products from different vendors, procured at different times and integrated by the urban authority.

The need for a mixture of systems provided by different manufacturers to so-called Mixed Vendor Environments (MVEs) is a growing paradigm, which results primarily from the demand for the introduction of competition in the context of public tenders, and the increasing networking of existing stand-alone solutions to address complex traffic management systems.

The mix of systems of different manufacturers is also, in part, a result from technological change. Established companies are suddenly in competition with new companies that exploit technological changes and offer exclusively, or at a reasonable price, new or improved functionality for sub systems.

However, ITS design is often proprietary and, consequently, integration and interoperability can be difficult, time-consuming, and expensive, limiting the ability of urban authorities to deploy innovative solutions to transport problems. In some Member States, national/regional solutions to this problem have been created, and there are also some solutions in specific domains, which have been very beneficial. However, these are not uniform across Europe, compromising the efficiency of the single market.

CEN/TR 17401, this document, is a 'Guide' providing a high-level introduction into the concept of operations (CONOPS) for a mixed vendor environment (MVE); provides a high-level architectural context explanation of an MVE and its operational requirements, and describes the problems and effects are associated with vendor lock-in. It also provides a systematic approach for many aspects of Urban-ITS implementation, and indeed almost all of ITS MVE implementations; and provides a methodical guideline with a procedural model, in order to assist implementers and managers involved with the structure of an MVE and/or with the removal of vendor lock-in.

CEN/TS 17402 focuses specifically on the area of traffic management systems in an MVE, identifies appropriate standards to use to enable an MVE, and addresses aspects associated with the accommodation of regional traffic standards (RTS) in such mixed vendor environments (RTS-MVE), with emphasis on the centre/field systems context.

CEN/TS 17400 provides the methodologies and translators to avoid vendor lock-in, introducing suitable methodologies for system architecture design, making appropriate use of standards, and specifications to be used when translator systems are adopted.

Against this background, this document is designed to enable ITS architects to develop architectural concepts for mixed-manufacturer systems in order to achieve the migration of existing monolithic single-

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² Under preparation. Stage at the time of publication: FprCEN/TS 17402.

³ Under preparation. Stage at the time of publication: FprCEN/TS 17400.

manufacturer systems, by creating and delivering EU-wide MVE communication specifications. These are designed to actively support the implementation of distributed and open system structures for regionally and nationally networked systems in the transport sector throughout the European Union.

1 Scope

This document provides a “Concept of Operations (CONOPS) for the introduction and maintenance of a “Mixed Vendor Environment” (MVE) in the domain of urban-ITS. Structured as:

- PART I Context and issues to be addressed
 - Describes the context, background, objective of the MVE Guide, and describes the architectural context.
- PART II work concepts
 - Aspects of system design and architecture are examined and the basic knowledge required for the application of Part III are presented.
- PART III Practice
 - Provides system design and procurement on three levels against the background of a procedure model.
 - user level;
 - conceptual explanation;
 - examples.
- PART IV Outlook
 - Guidance and requirements for the application of MVE for future business.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 17400:—, *Intelligent transport systems – Urban ITS – Mixed vendor environments methodologies & translators*

CEN/TS 17402:—, *Intelligent transport systems – Urban ITS – Use of regional traffic standards in a mixed vendor environment*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>