GRITS EVOLUTION TO CLOUD CIS (Central Interoperability System)

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CIS IS THE ONLY SOLUTION
Hard to see what is wrong until you hold it up to what is right.

1

EU STANDARDS AND LEGISLATION – GRITS END OF LIFE

AETIS – New directives for EETS – EU ISO STANDARDS FOR EFC AND INTEROPERABILITY

GRITS problems from a technology, limited scope, lack of standards, and cost aspects..

2

THE NEW SCOPE ENFORCED BY EU

Electronic Fee Collection- System Architecture . (ISO Standard of 2019)

Open Distributed Processing standard (ODP)

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Comparison table P2P vs CLOUD. CIS Cloud Proposal

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ROADMAP OF CIS ON CLOUD

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17573-1

September 2019

ICS 03.220.20; 35.240.60

English Version

Electronic fee collection - System architecture for vehicle-related tolling - Part 1: Reference model (ISO 17573-1:2019)

Perception électronique du télépéage - Architecture de systèmes pour le péage lié aux véhicules - Partie 1: Modèle de référence (ISO 17573-1:2019)

Elektronische Gebührenerhebung - Systemarchitektur für fahrzeugrelevante Maut - Teil 1: Referenzmodell (ISO 17573-1:2019)

This European Standard was approved by CEN on 7 July 2019.

European foreword

This document (EN ISO 17573-1:2019) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 “Intelligent transport systems” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12855

December 2015

ICS 35.240.60; 03.220.20

Supersedes EN ISO 12855:2012

English Version

Electronic fee collection - Information exchange between service provision and toll charging (ISO 12855:2015)

Perception du télépéage - Échange d'informations entre la prestation de service et la perception du péage (ISO 12855:2015)

Elektronische Gebührenerhebung - Informationsaustausch zwischen Dienstleistern und Gebühreneinzugsunternehmen (ISO 12855:2015)

This European Standard was approved by CEN on 7 November 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania,

DRAFT INTERNATIONAL STANDARD
ISO/DIS 12855

ISO/TC **204**

Secretariat: **ANSI**

Voting begins on:
2020-10-21

Voting terminates on:
2021-01-13

Electronic fee collection — Information exchange between service provision and toll charging

Perception du télépéage — Échange d'informations entre la prestation de service et la perception du péage

ICS: 03.220.20; 35.240.60

Annex F
(informative)

Use of this International Standard for the EETS

F.1 General

This International Standard specifies information exchange between service provision and toll charging.

It is intended as a basis for implementation of information exchange between service provision and toll charging for a European Electronic Toll Service (EETS).

NOTE An interoperable application profile (IAP) specification is, at the time of publishing of this International Standard, being prepared. The intention of the IAP is to provide a more solid support for interoperability, through definition of a coherent set of options and parameters settings based on ISO 12855.

This International Standard defines requirements that correspond to the requirements listed in EC Decision 2009/750/EC; see Table F.1.

GRITS STRUCTURAL PROBLEMS

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1. **Lack of any compliance to European Union International Interoperability standards**, besides generating legal issues, also makes cooperation with foreign road operators difficult, time consuming and problematic.

2. **GRITS SCOPE** is extremely limited and doesn t have provision for all types of messages or toll technologies or other types of interoperable participants (ex. SATTELITE GNSS TOLLING, ZONE TOLLING, MEDIA CARDS, FERRY TICKETS, PARKING SYSTEMS ETC.)

3. **High maintenance costs due to separate on premises installations** with excessive license costs, infrastructure costs, operational costs **CENTRAL ARCHITECTURE CUTS THE COSTS BY 60%**

GRITS INHERENT TECHNOLOGY PROBLEMS

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1. GRITS USES VERY OLD TECHNOLOGY AND TOOLS

Lack of state of the art technologies (micro services architecture) limits agility in adding business functionality fast and effectively.

Adding **more road operators** or other partner EFC domains, **require excessive parameterization** and testing at **EACH of the** peered systems, creating unnecessary complexity, very large implementation timelines, increased risks and inflated costs.

2. GRITS HAS NO DATA FILTERING AND NO SINGLE POINT OF TRUTH

Data filtering can be automated, **only if interoperable system is centralized** and necessary information is maintained at a single installation.

Adding multiple countries and foreign concessions **will increase load by magnitudes** as there is no way **to filter data of interest** between concessioners .

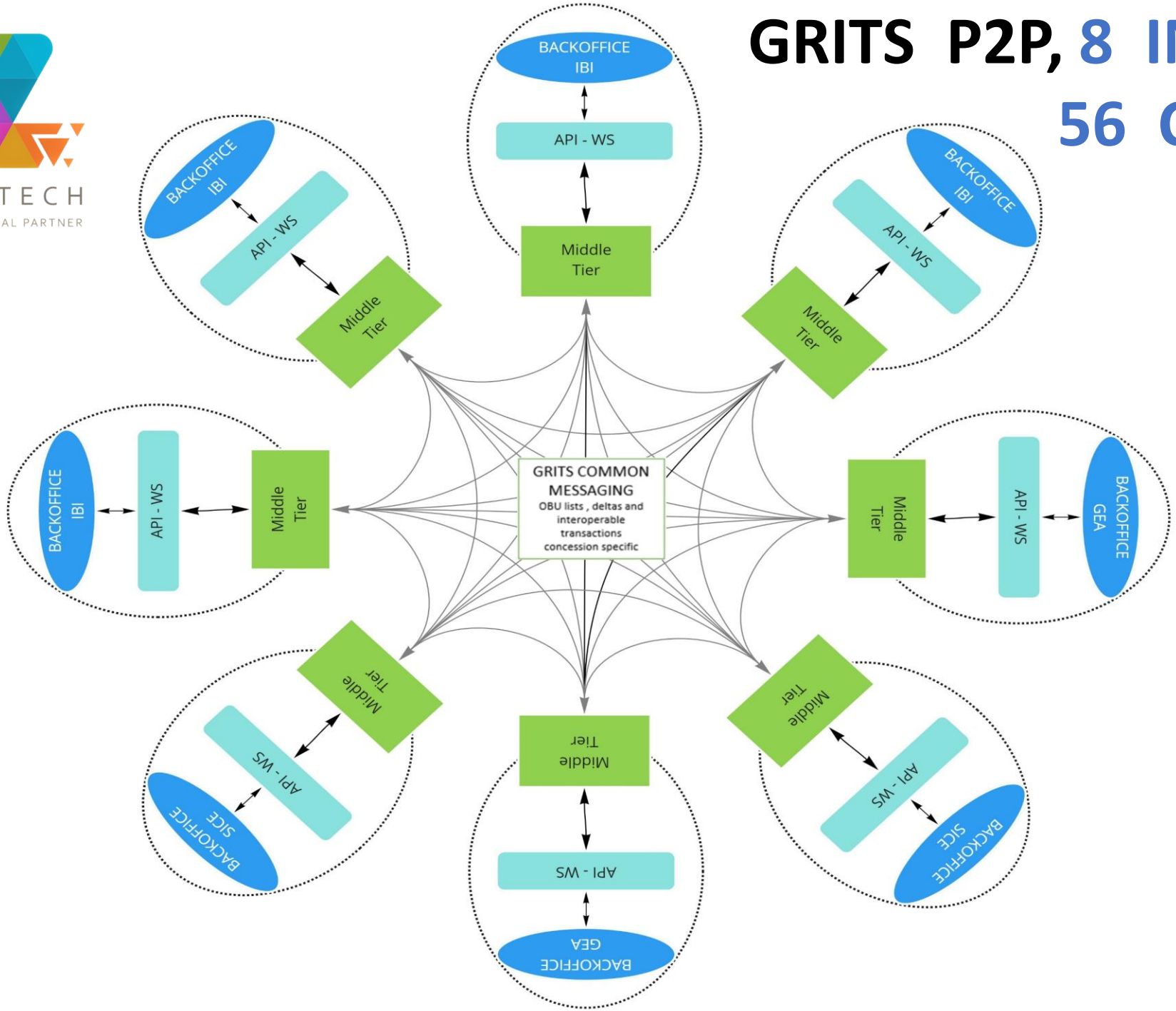
3. VIRTUAL PEER, PSEUDO CENTRAL PROPOSED ARCHITECTURE IS NOT ENOUGH

The Virtual GRITS concessioner that will be responsible for the bridge to external participants will face two big problems.

The lack of a single point of truth, the need for heavy reporting and other functionalities necessary to achieve the pseudo central architecture.

The VIRTUAL CENTRAL PEER will be obliged to HEAVILY MODIFY HIS ERP SYSTEM.

GRITS P2P, 8 INSTALLATIONS 56 CONNECTIONS



API – WS
Application Programming Interface via Web Services

Middle Tier Platform
Custom Common Oracle Application V1

with off the self Oracle products

WEB Logic
ESB (Enterprise Service Bus)
Oracle Database

Necessary of the self hardware

Two MDT platform installations per concession. One for production and one for development/testing purposes

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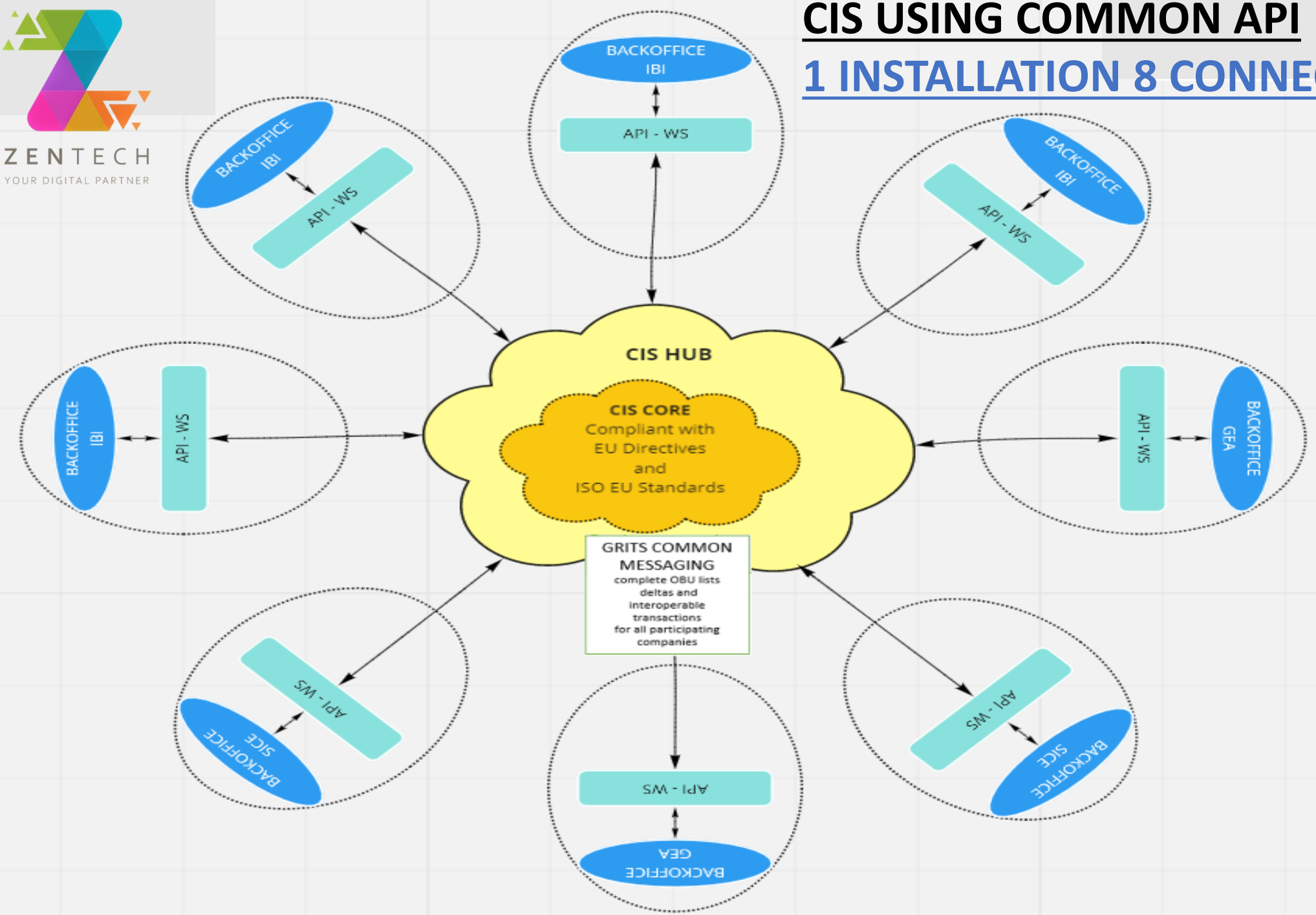
CIS USING COMMON API

1 INSTALLATION 8 CONNECTIONS



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EFC 2019 STANDARD

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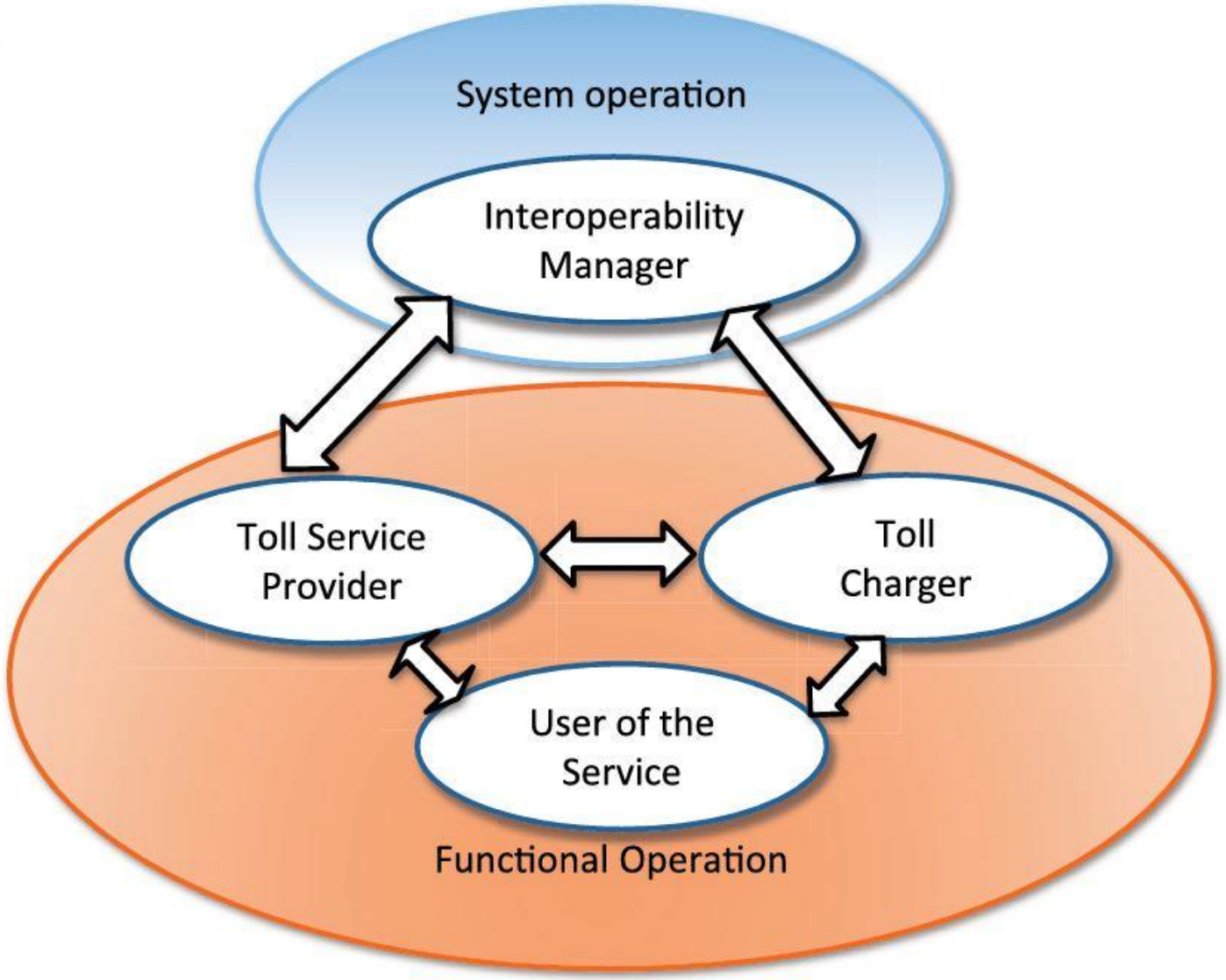

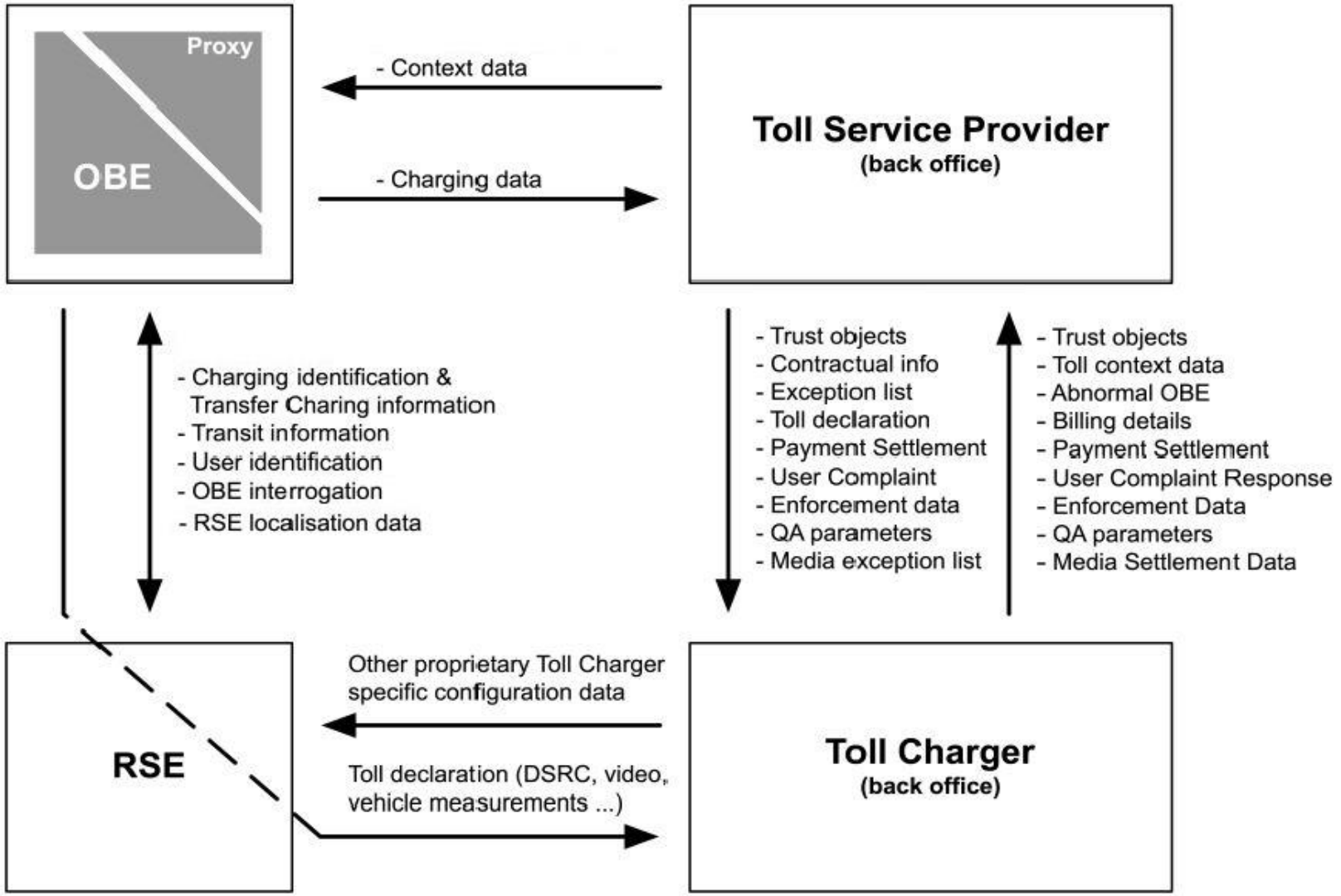

EFC ENVIRONMENT
2019 STANDARD

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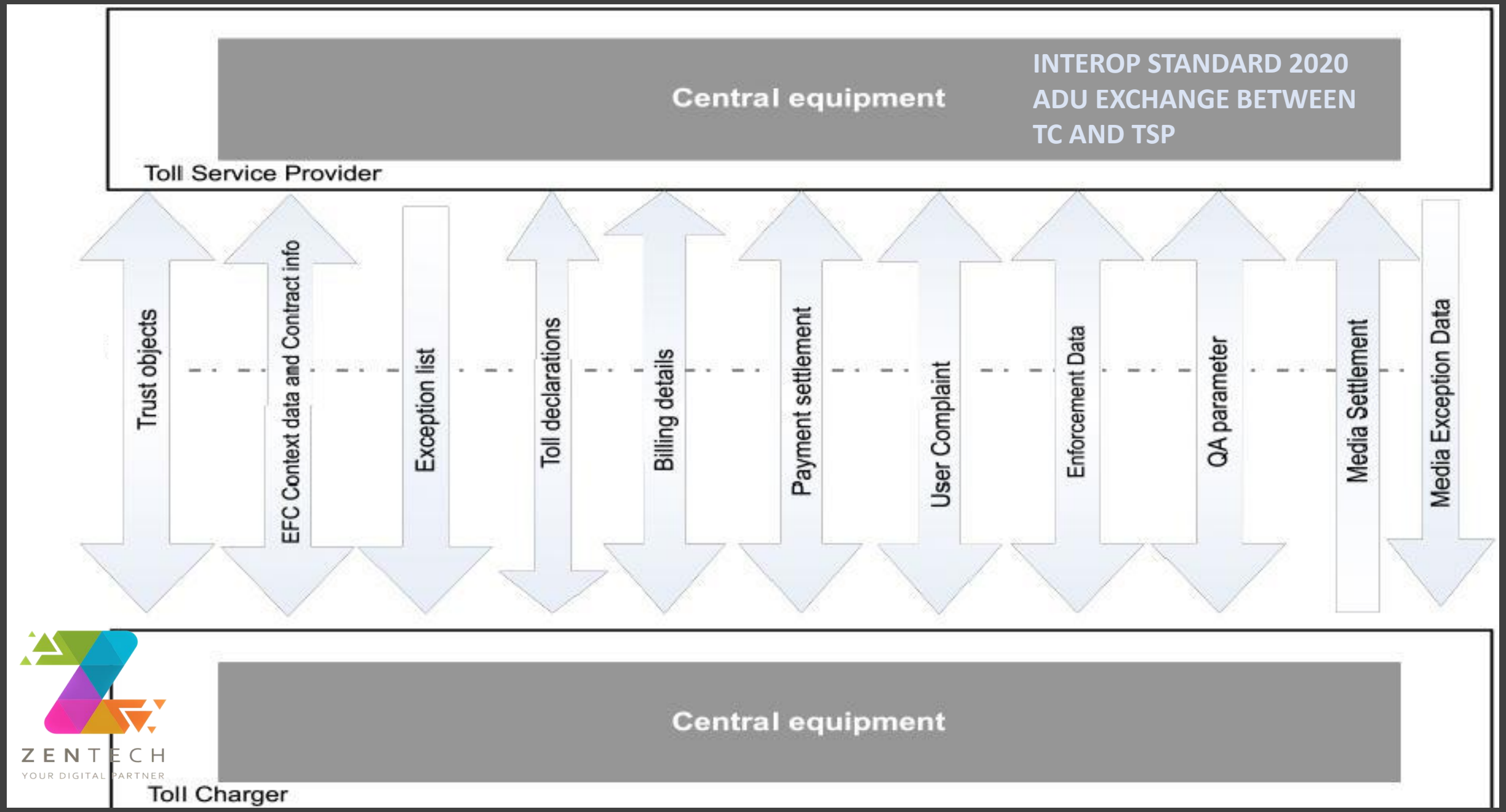

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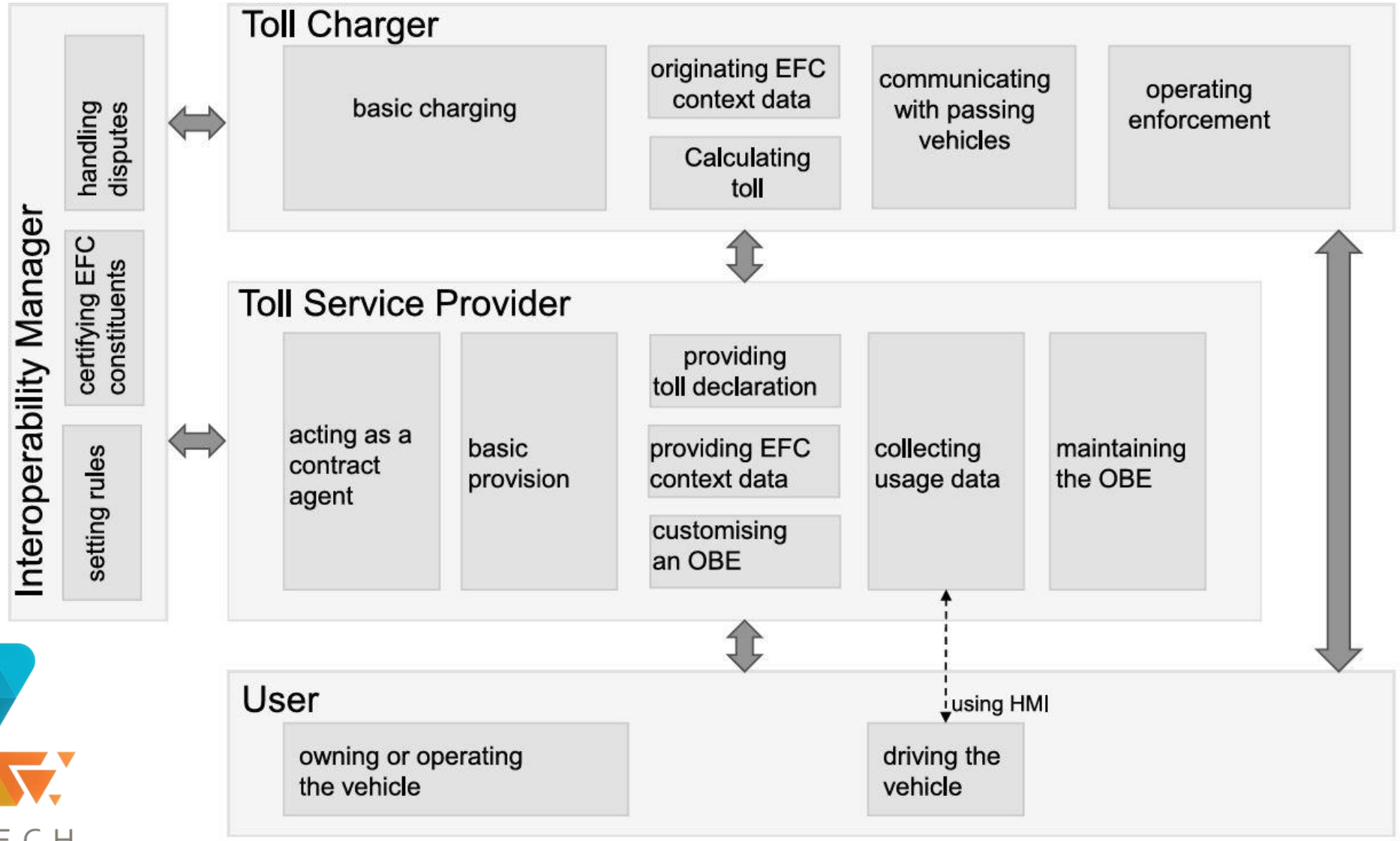

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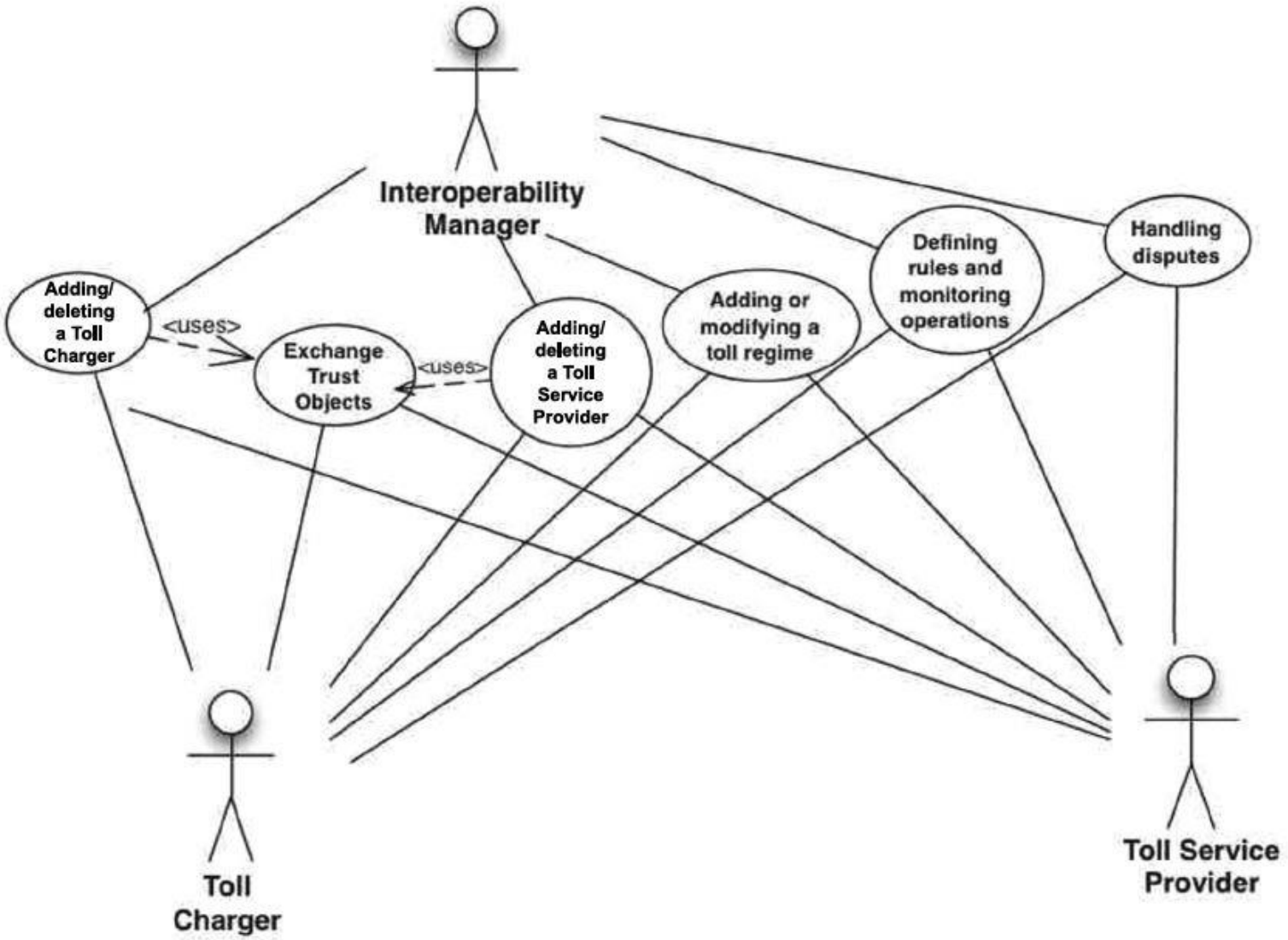

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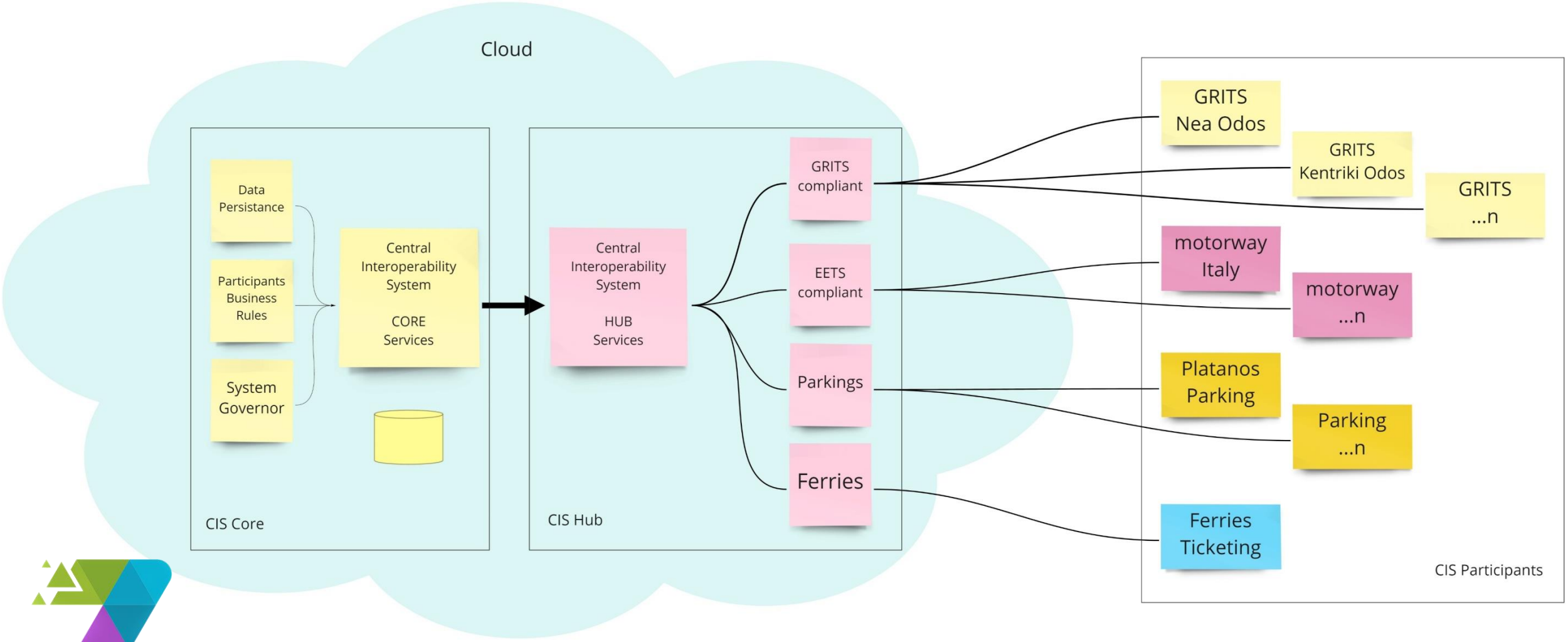
CIS EU ISO INTERNATIONAL STANDARDS COMPLIANT ARCITECTURE



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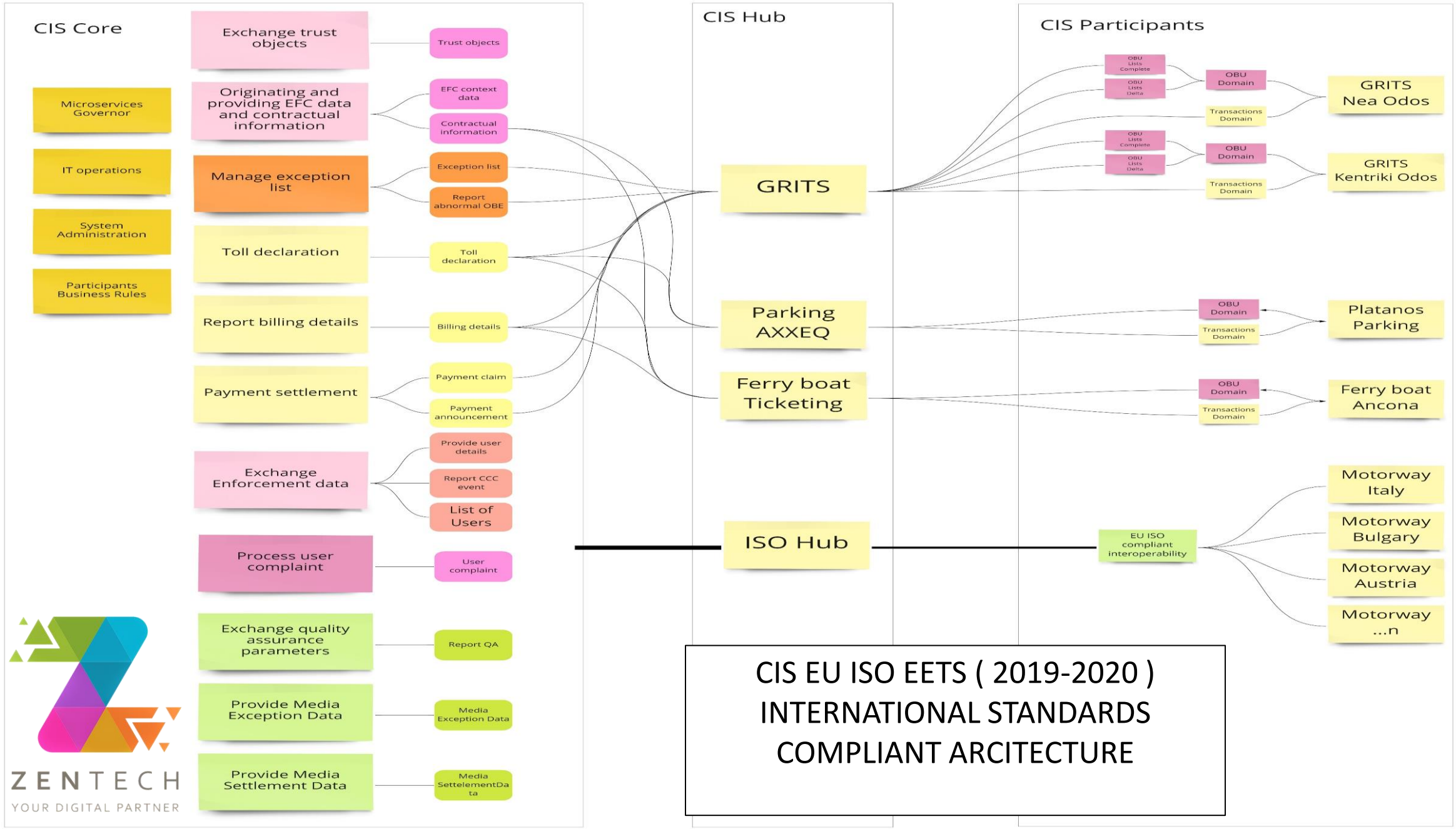

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CIS EU ISO EETS (2019-2020) INTERNATIONAL STANDARDS COMPLIANT ARCITECTURE

P2P vs CLOUD CIS
YEARLY OPEX PER CONCESSION

EXPENSE TYPE	P2P ARCHIT.	CIS CLOUD ARCHIT.
Oracle Svcs /ZENTECH MAINT	ORACLE SVCS 24,000/YEAR	ZENTECH SVCS 15,000/YEAR
Oracle Licences New	24,000	
MPLS LINES	12,000	
HARDWARE CHANGES	5,000	
ORACLE extra svcs	2,000	
OVERHEAD 10%	6,000	
ZENTECH CLOUD SVCS		15,000
TOTAL	**73000**	**30,000**

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CIS CLOUD VS P2P COMPARISON TABLE
SIX SELF EXPLANATORY ARGUMENTS

CIS VS P2P GRITS	CIS CLOUD	PEER TO PEER
Fully compliant with EU ISO INTERNATIONAL STANDARDS and the MOSTrecent (2020) STANDARDS and DIRECTIVES FOR EETS	✓	✗
State of the art technologies . Easy to operate, maintain and upgrade. One infrastructure vs eight.	✓	✗
Expanded scope to cover all toll technologies and business types of participants.	✓	✗
The yearly OPEX is 60% less with cloud architecture mixture of PaaS and SaaS. ROI is under two years	✓	✗
CIS is FUTURE PROOF, TECHNOLOGY ADVANCED, AND TIME AND COST EFFECTIVE	✓	✗
CIS is qualified to function as the National Greek System allowing for toll interoperability and Mobility SVCS	✓	✗

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ZENTECH AS AN IMPLEMENTOR AND CLOUD SVCS PROVIDER

- The ZENTECH team had first the idea of CIS CLOUD AND GRITS migration 20 months before , and has already designed conceptually and practically the new central apps for cloud operation keeping the same API s with Backoffice providers, but following the newest EETS standards for implementing the addition of new participants and services.

- The ZENTECH team were the people that designed the P2P GRITS system back in 2010 and also Mr. Siozopoulos was the project manager responsible for all phases of implementation of GRITS in 5 concessions during 2011 and 2012. GRITS launched December 2012 , and since then it operates successfully.

- ZENTECH has already designed the CIS, analyzed the necessary works, defined related costs, secured and designed the migration strategy. ZENTECH has also tremendous experience cooperating with key players like TECHNOLOGY PARTNERS and TOLL players like GEA and IBI.

- ZENTECH currently develops the new CIS CLOUD BASED application with state of the art technologies, aimed to operate seamlessly on one central redundant infrastructure and with a 60% reduction of the yearly OPEX for all concessions. Technology partners like ORACLE or MICROSOFT will be used on a need basis and controlled fully by ZENTECH.

CENTRAL INTEROPERABILITY SYSTEM

GREEK NATIONAL SYSTEM (EETS compliant)

INITIATE CIS CLOUD PROJECT

Design and migration finalized and approved as EETS and EU standards compliant.

Works planned, costs estimated and negotiations started.

2020

EXECUTE AND PLAN THE FUTURE

Implement contracts to be signed and project plan finalized. Initial scope is NEA ODOS - KENTRIKI ODOS/ ONE PARKING SYSTEM/ONE FOREIGN MOTORWAY

CIS AS THE GREEK NATIONAL SYSTEM

2021

NEW BUSINESS

EXPAND TO NEW BUSINESSES AND MOBILITY SERVICES THROUGH INTERNATIONAL STANDARDS

COVER FOR GNSS TOLLING OR

2022

NEW SCOPE

OTHER TOLLLING METHODS BASED ON RSE OR CAR DEVICES

OR COMBINATIONS

2023

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CIS CIS EETS platform works with Toll4Europe

KEEP EVERYTHING FLOWING ON EUROPE'S TOLL ROADS.

Efficient, transparent, reliable, interoperable. One device, one contract, a variety of added benefits. That is our understanding of borderless driving on Europe's toll routes.

For this, we optimise the coordination between prevalent system components based on the EETS (European Electronic Toll Service) using the two technologies GNSS (Global Navigation Satellite System) and DSRC (Dedicated Short-Range Communication). Toll4Europe integrates both technologies into one device. This means: a smooth exchange of all data and system updates via wireless (over the air) communication systems. Accurate detection, precise invoicing. The information society and smooth, efficient mobility of tomorrow complement each other perfectly. Throughout Europe. In brief: a well-thought-out system which is designed for the future.

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TRACK WITH COUNTRY SPECIFIC OBUS

TRACK WITH EETS HYBRID TOLL4EUROPE OBU (GNSS-DSRC)

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FOR

THANK YOU FOR ATTENDING

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