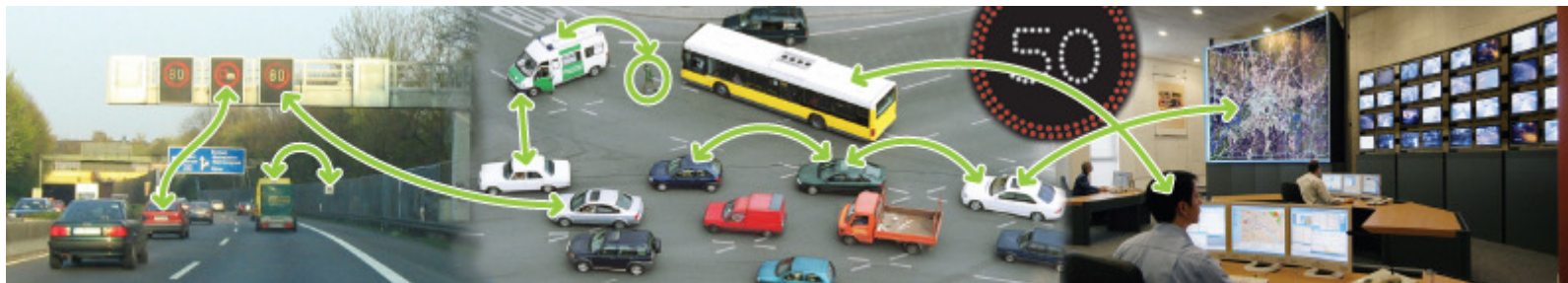


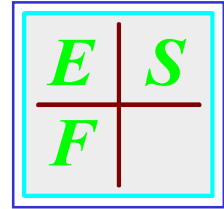
ETSI TTCN-3  
User conference 2009  
3 – 5 June 2009  
ETSI, Sophia Antipolis, France

**Smart Communications for  
Intelligent Transport Systems  
(SCITS)  
Approach for Testing**

Dr. Hans-Joachim Fischer  
ESF GmbH  
[HJFischer@fischer-tech.de](mailto:HJFischer@fischer-tech.de)



# Early ITS

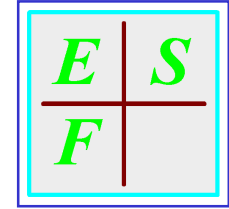


08:48:48 AM

TTCN-3 user conference 2009

5.6.2009

<http://www.tc204wg16.de>



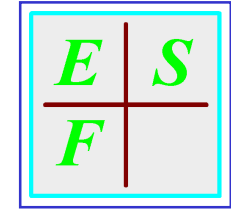
# Communications Access for Land Mobiles

- since 2002 -

**CALM standards successfully validated within the CVIS project**



<http://portal.etsi.org>



# ETSI TC

# I ntelligent

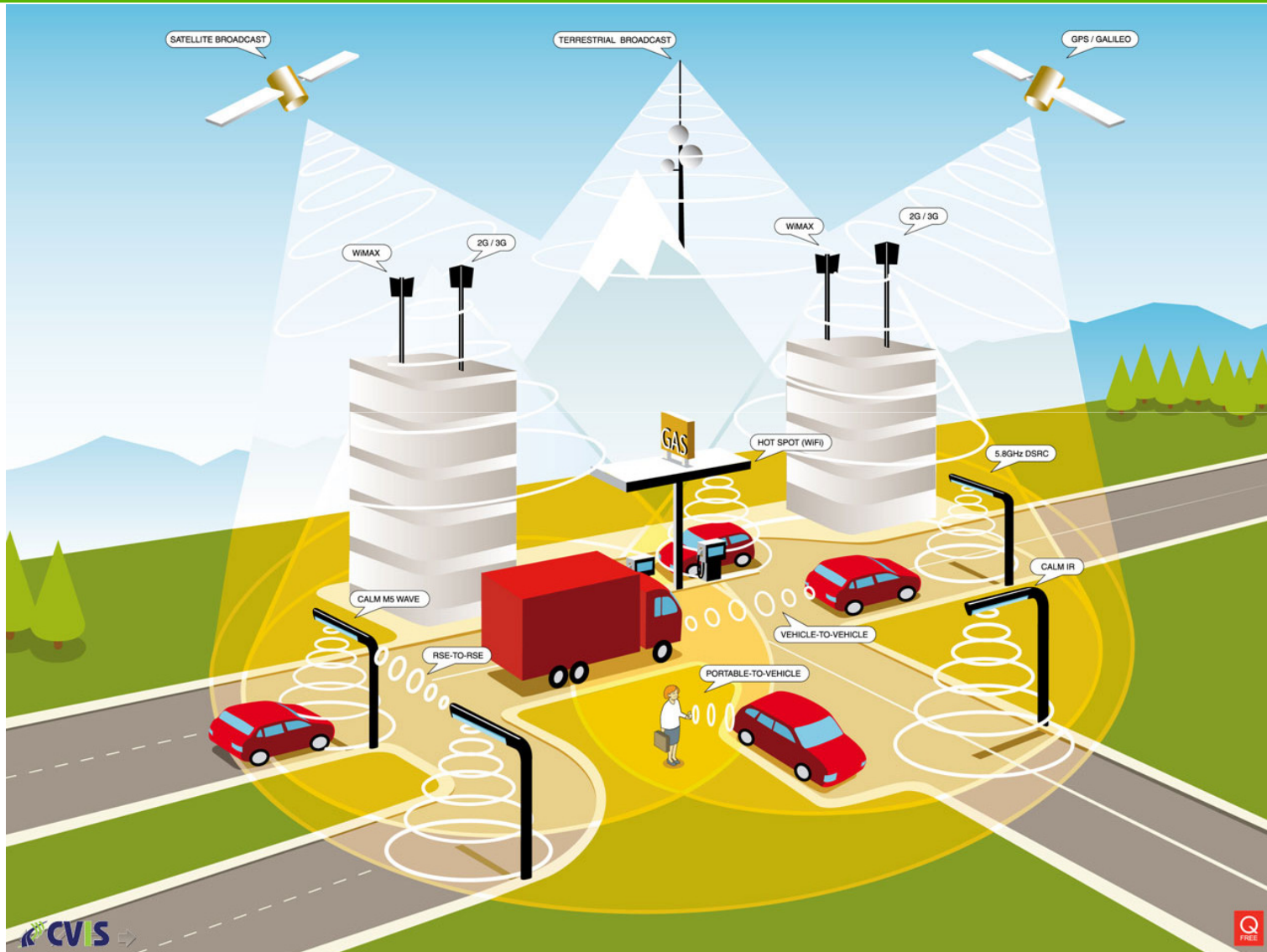
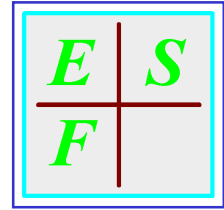
# T ransport

# S ystems

- since 2007 -



# Communication Scenario



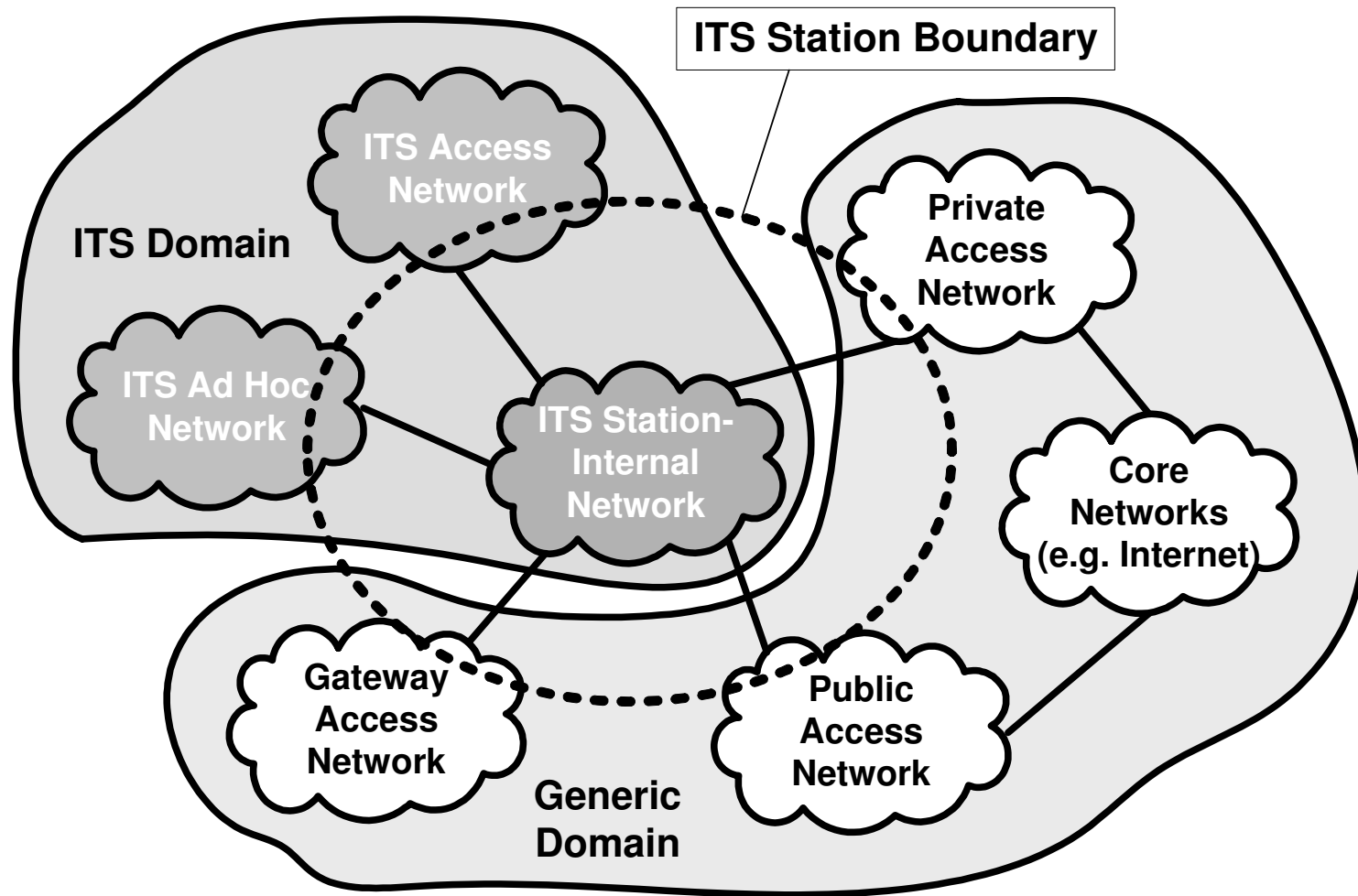
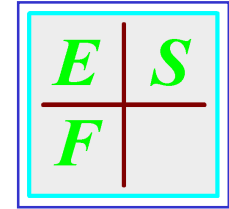
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TTCN-3 user conference 2009

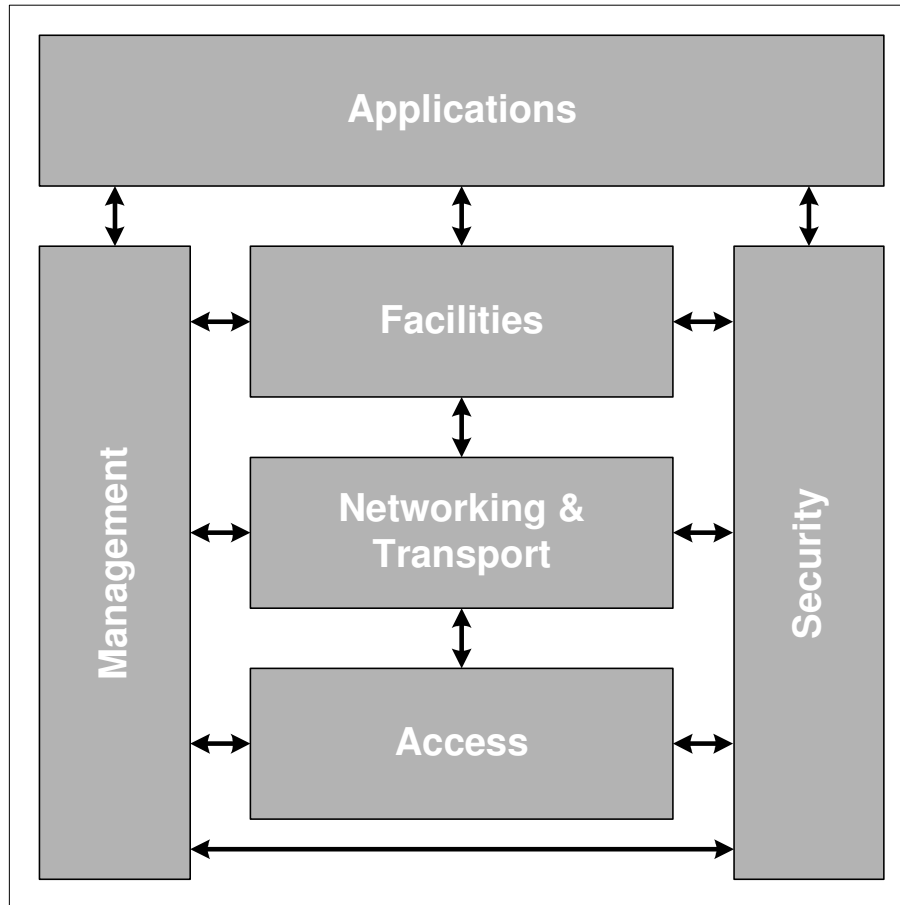
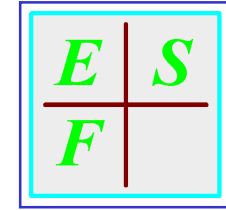
5.6.2009



# ITS networking



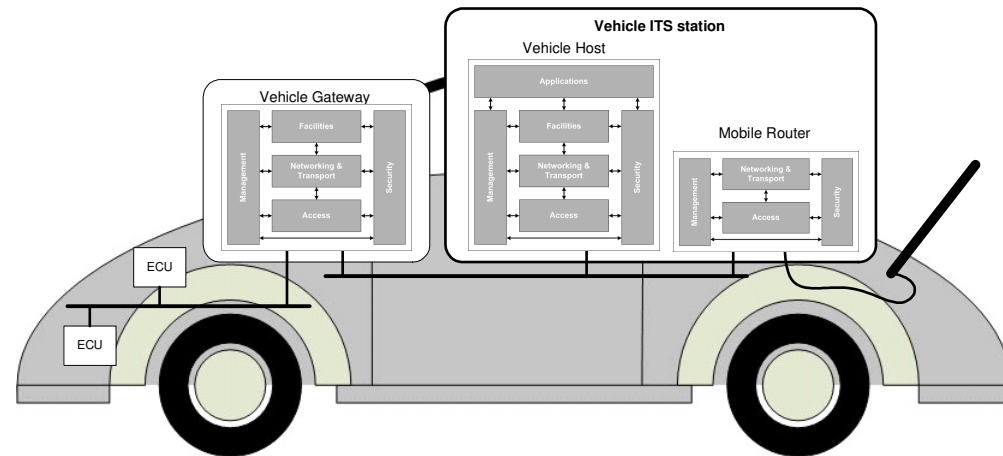
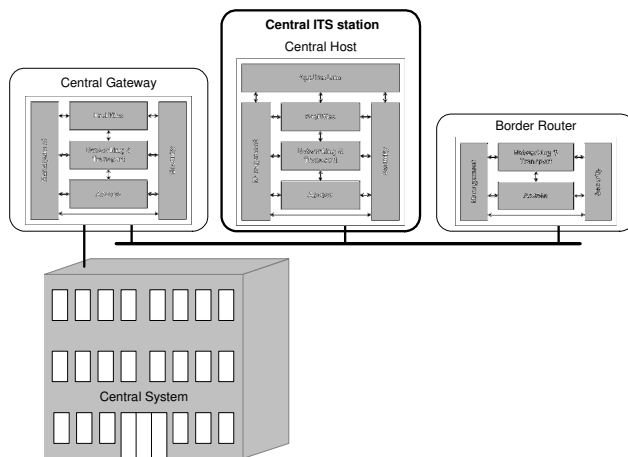
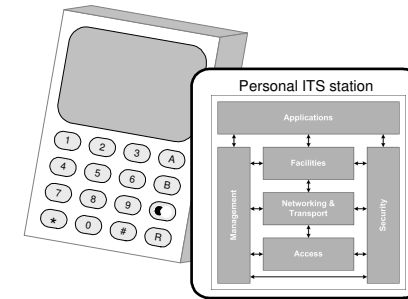
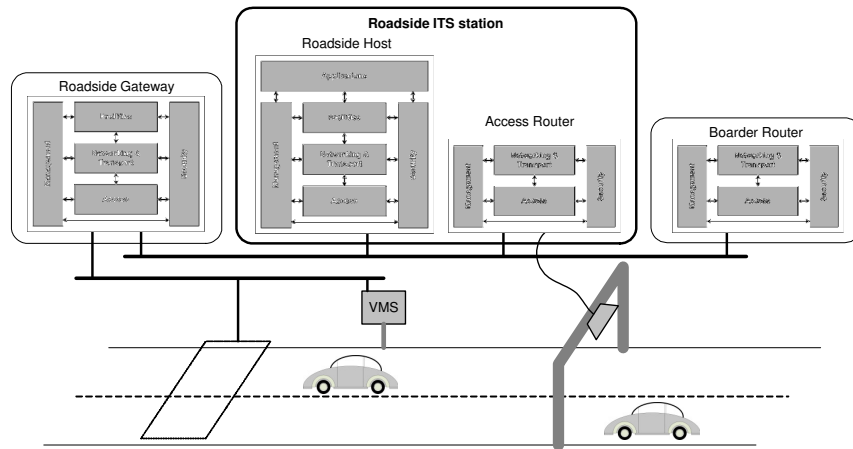
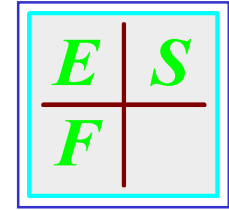
# ITS Station



An **ITS station** (ITS-S) is a logical or physical entity in a communication network, comprised of applications, facilities, networking & transport and access layer components presented in figure 1, that operate within a **bounded secure management domain**

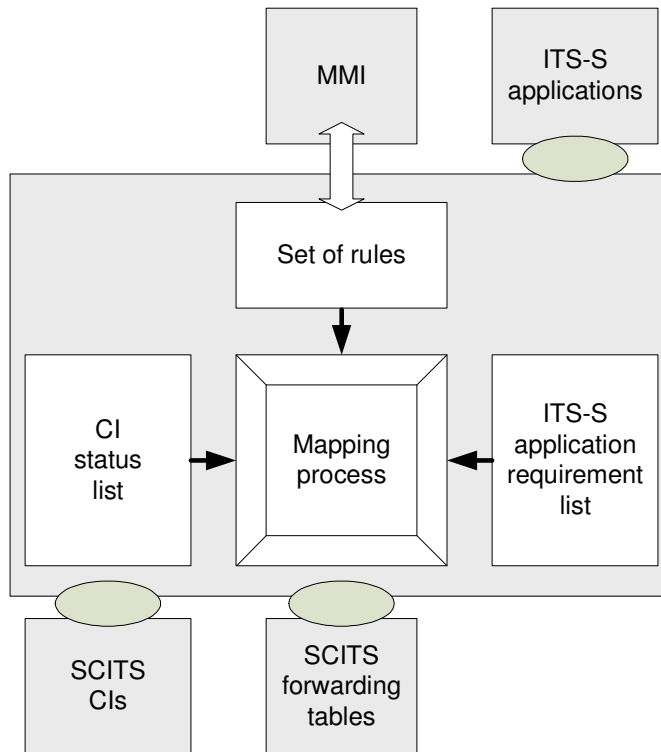
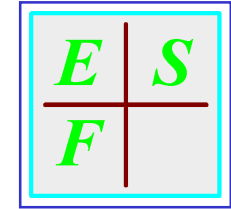
Blocks are interconnected either via observable interfaces or via SAPs.

# ITS sub-systems





# ITS core



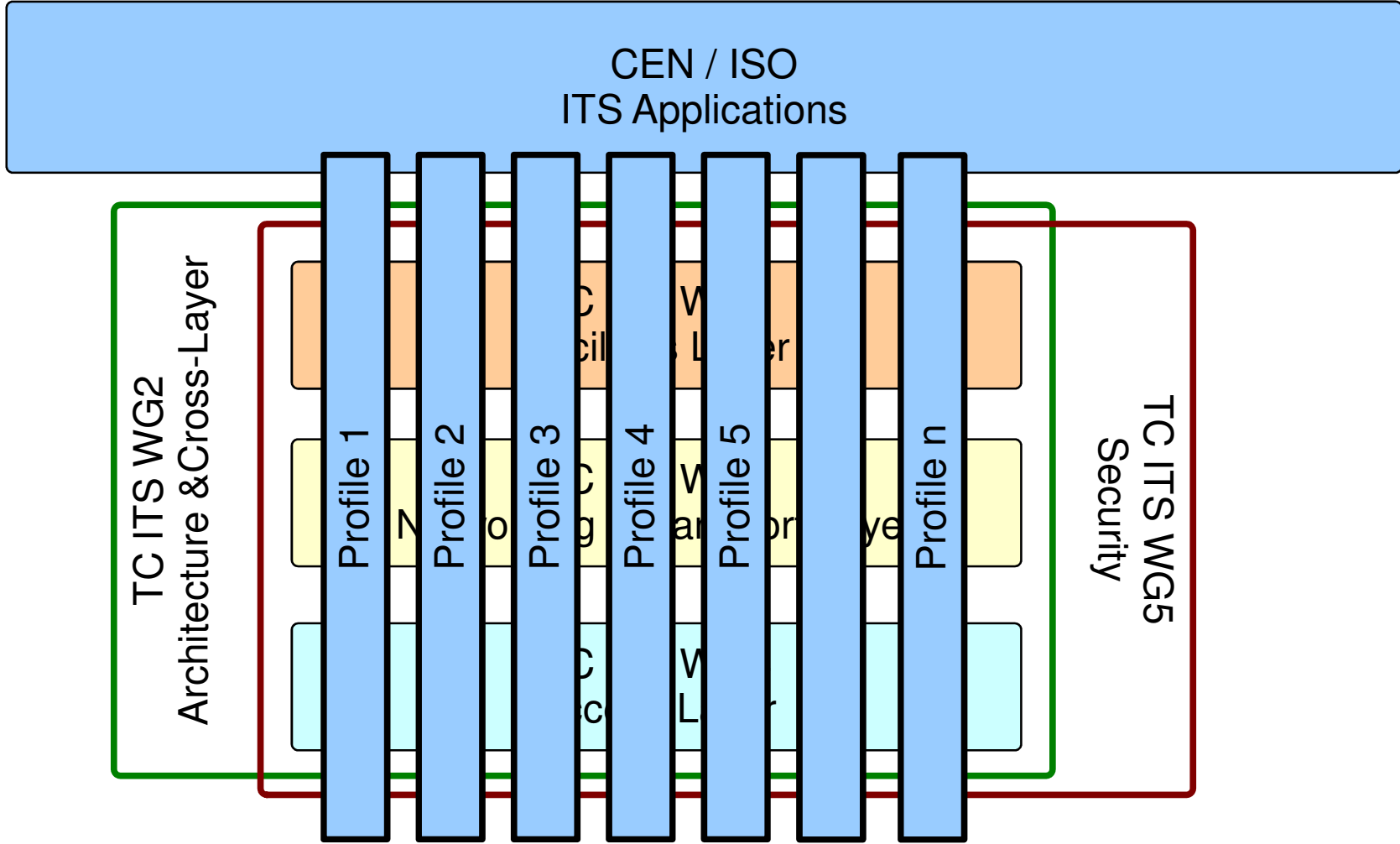
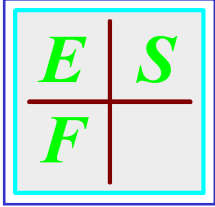
## Communication interfaces and applications are decoupled!

Based on rules and policies, functional requirements from ITS-S applications, and static and dynamic properties of communication interfaces, i.e. implementations of access technologies, ITS communication channels are assigned to ITS-S applications.

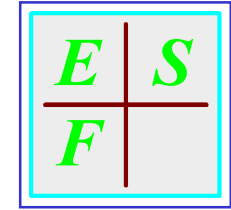
Abstractions have to be used!

An ITS communication channel is defined by a mapping of an ITS-S application via a selected networking & transport layer protocol to the best suited communication interface. Some of these mappings may be static in a given regulatory domain, others will be highly dynamic, making best use of redundant and complementary access technologies by means of horizontal and vertical handover procedures.

# ITS standards



# Challenges for testing



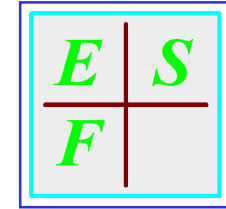
- Unknown number of different profiles.
- Functionality of abstractions of elements.
- Test of management / security – Interaction with OSI layers via non-observable SAPs.
- Conformance tests for combinations of standards.
- ...

→ Developers of base standards need a feed-back from experts on testing.

→ General approach for testing of SCITS and ITS needs to be developed.

→ General decision to use TTCN-3.

# The end



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