



Welcome to the World of Standards



STF 455 – REPORT TO ETSI CTI PLUGTEST ESSEN

Essen, November 2013. Presented by leader of STF 455, Dr. Hans-Joachim Fischer

This presentation:



- STF 455 Team
- STF 455 technology
- C-ITS communication protocols
- Conformance test results
- Next steps

STF 455 Team

STF 455 – Members



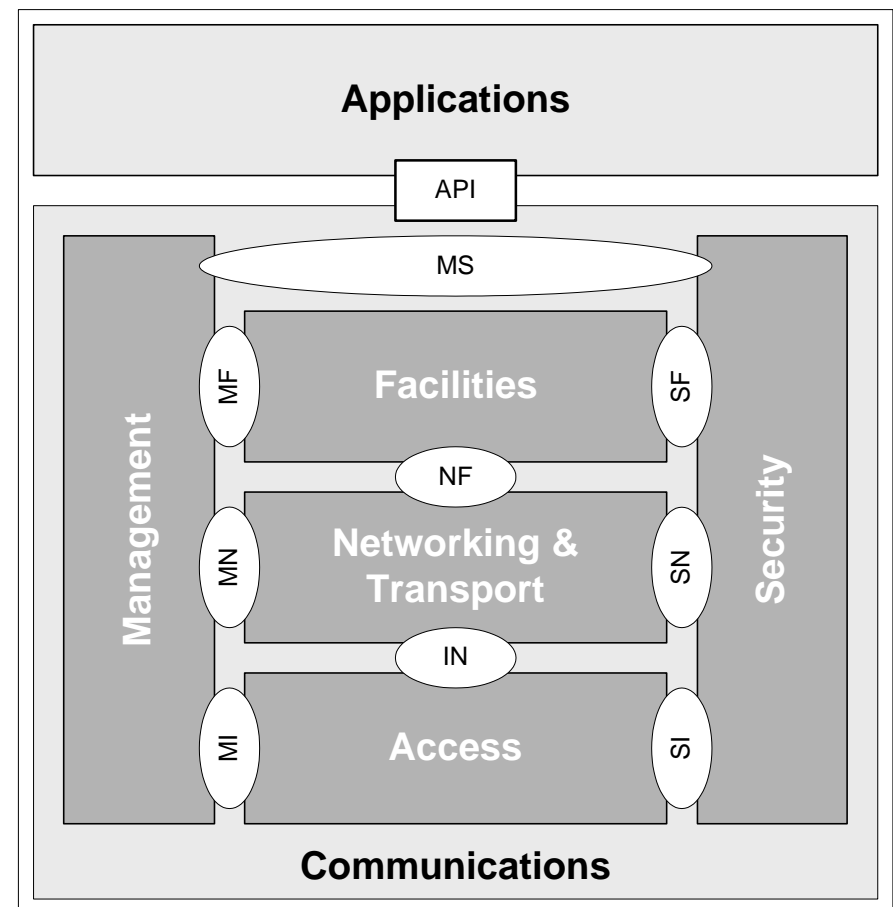
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STF 455 Technology

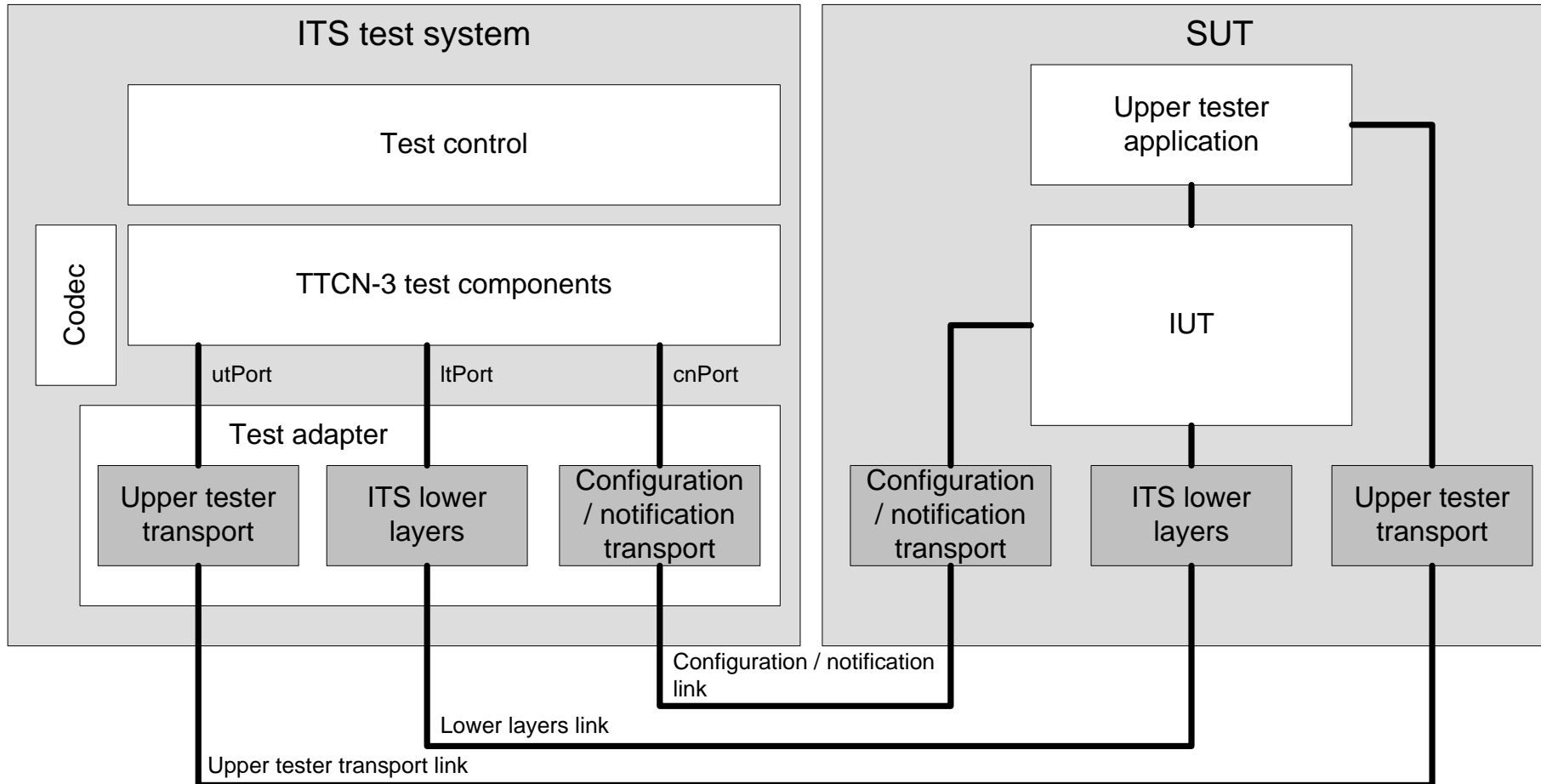
ETSI ITS test platform.

- created initially for ETSI C-ITS base standards: [STF 424](#)
- extended for ISO C-ITS communications base standards: [STF 422](#), [STF 455](#)
 - ISO 21218: Access Technology Support
 - ISO 24102-4: ITS station-internal management communications protocol (IICP)
 - ISO 24102-5: ITS fast service advertisement protocol (FSAP)
 - ISO 29281-1: ITS Fast networking & transport layer protocol (FNETP)

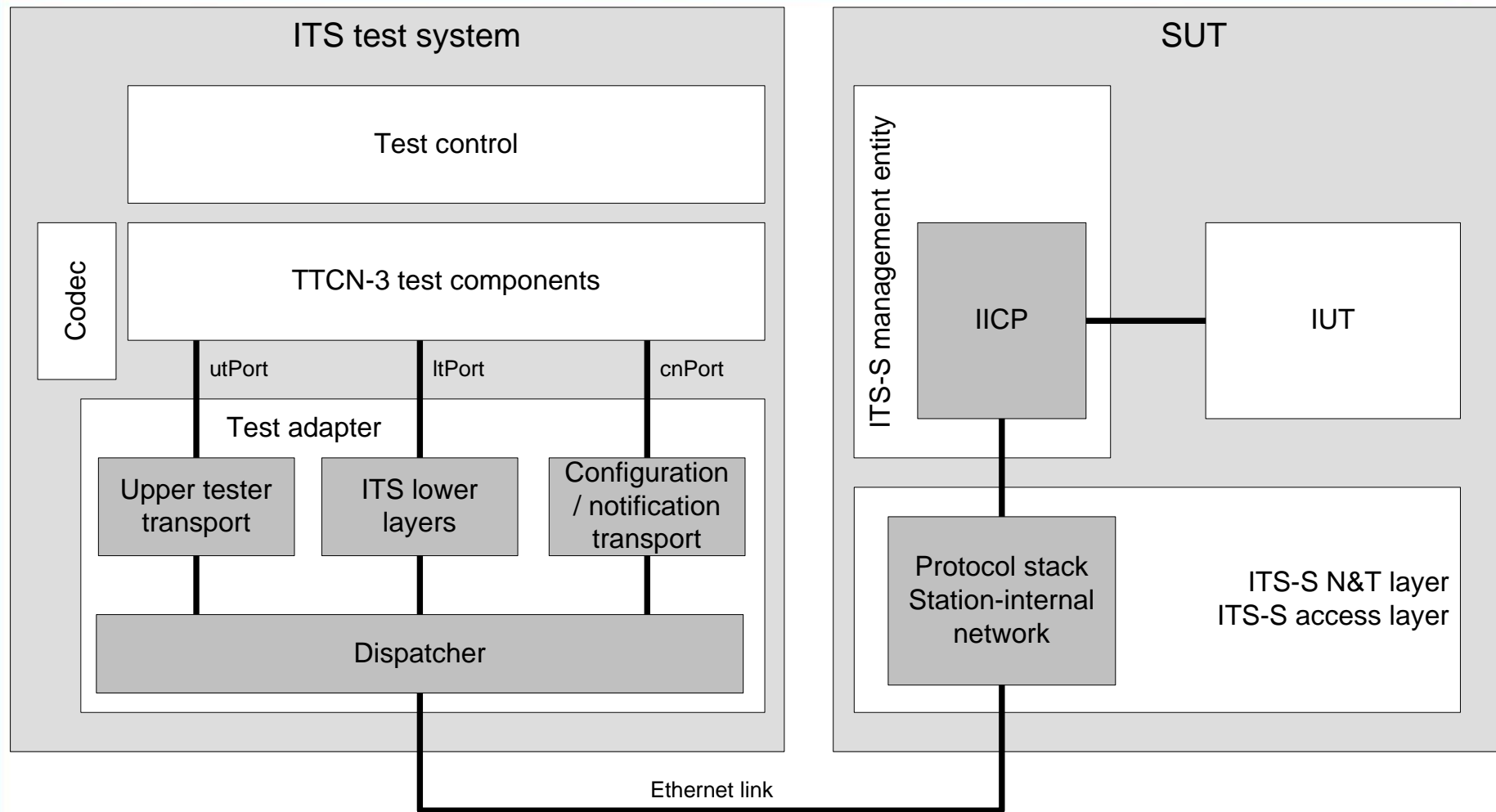
- An IUT that may be located in any ITS-S communication layer, the ITS-S management entity, the ITS-S security entity, or combination of layers and entities.
- An IUT typically has an
 - lower access
 - upper access
 - management/security access.



C-ITS test architecture (STF 455)



Standardized link: SUT – ITS test system

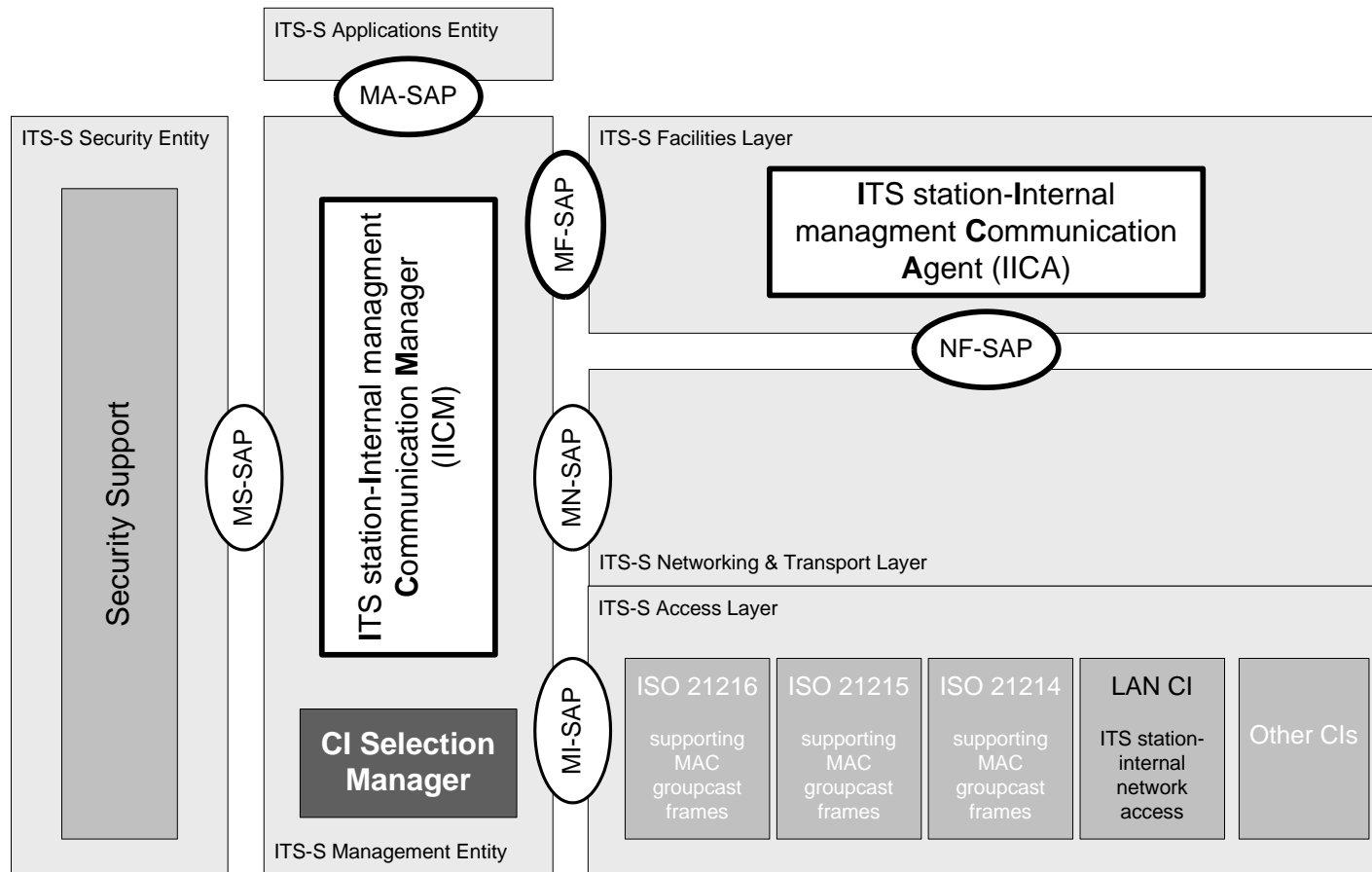


• The ITS station-internal management communications protocol (IICP – ISO 24102-4) together with the ITS station management SAP standard (ISO 24102-3) provides an efficient access to an IUT located somewhere in the ITS station reference architecture. The three links between the ITS test system and the SUT

- IUT protocol stimulation and observation via
 - Upper tester transport link
 - Lower layers link
- IUT protocol configuration / event notification via
 - Configuration / event notification link

merge into a single Ethernet link (the ITS station-internal network).

Conformance testing: Usage IICP (ISO 24102-4)



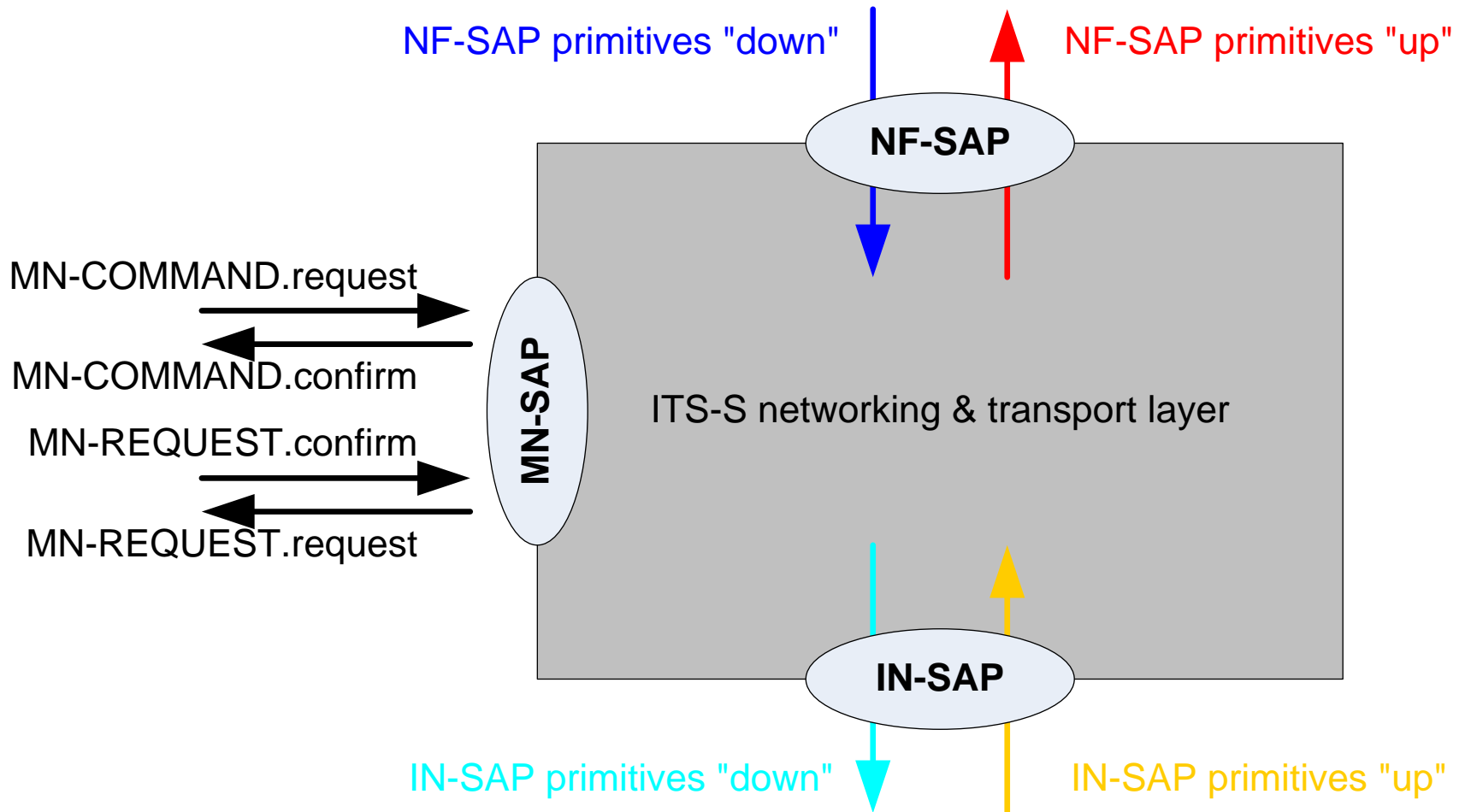
- Applicant does not need to implement a specific test access in case IICP is implemented.

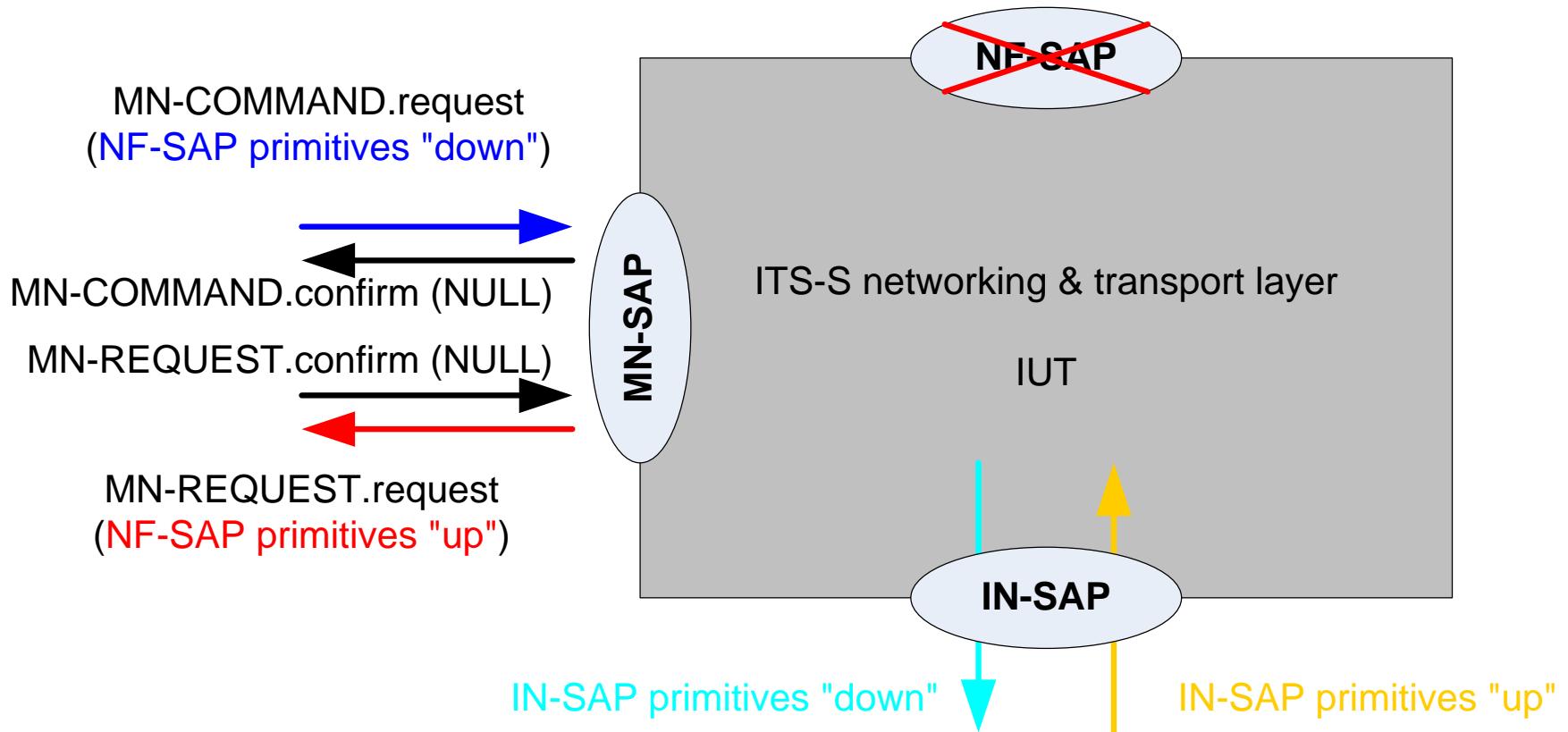
Example

of an IUT located in the ITS-S Networking & Transport Layer

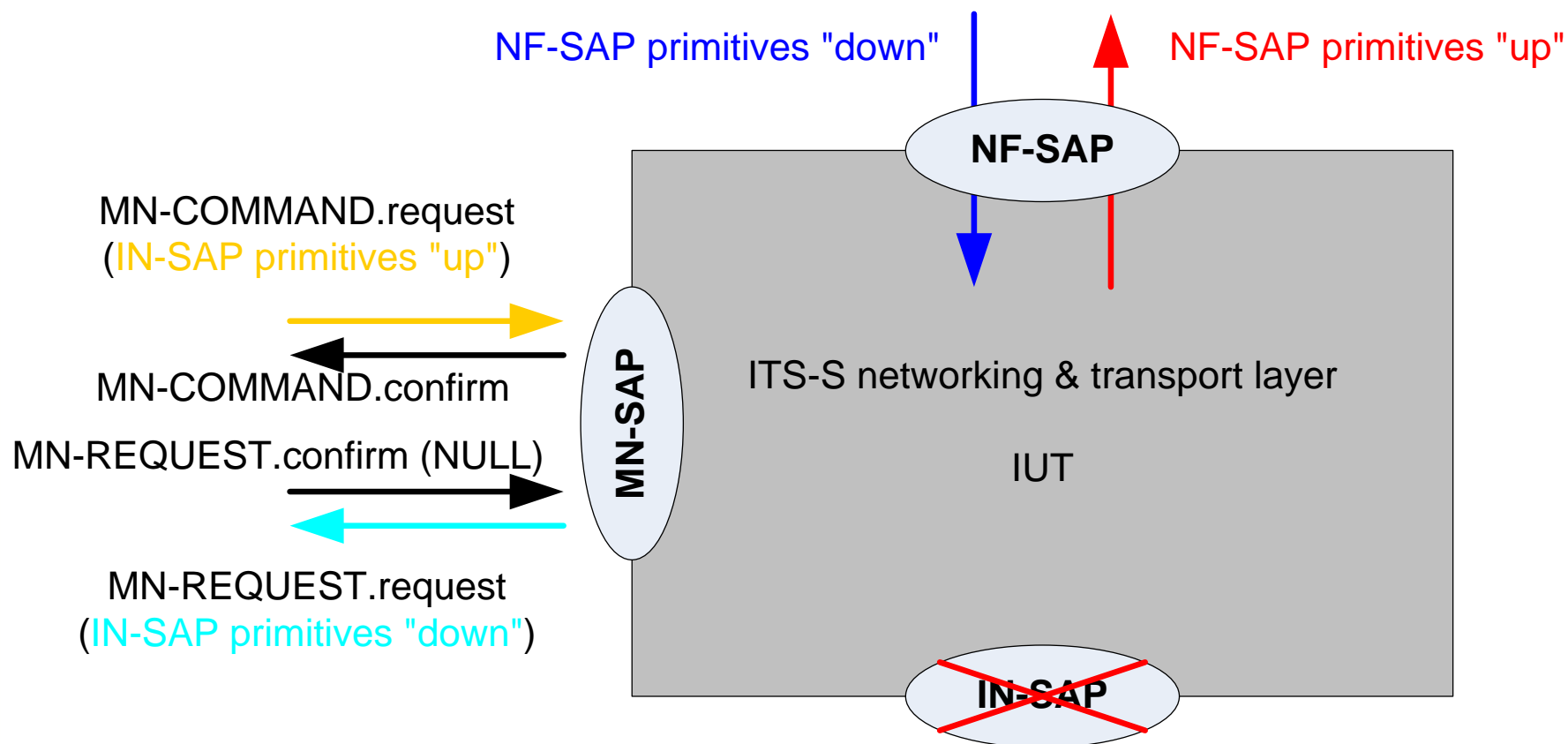
... see the next four slides.

Normal operation of ITS-S N&T layer

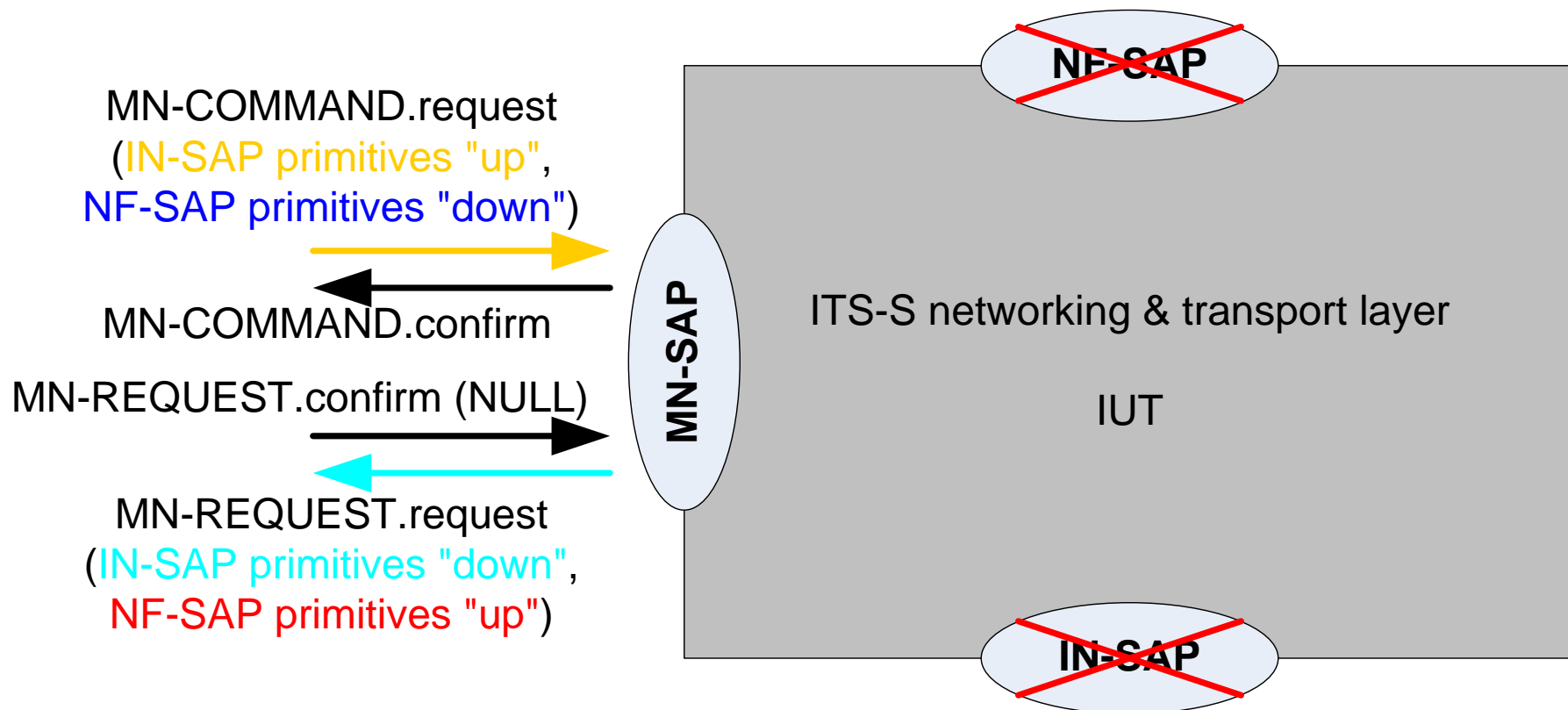




- ITS-S access layer of SUT is used to access IUT via IN-SAP



- The ITS-S access layer of SUT is **not** used to access IUT via IN-SAP.



- 🌐 The IUT on its own can be tested without using any other layer in the SUT.

- Usage of IICP for **lower tester access** is applicable for protocols residing in
 - ITS-S applications entity
 - ITS-S facilities layer
 - ITS-S networking & transport layer

 - ITS-S security entity
- Usage of IICP for **upper tester access** is applicable for protocols residing in
 - ITS-S applications entity
 - ITS-S facilities layer
 - ITS-S networking & transport layer
 - **ITS-S access layer**
 - ITS-S security entity


- Usage of IICP for access to the SUT is applicable also for protocols residing in more than one of the layers or entities of the ITS station.
- Applicant does not need to implement a specific upper test access in case IICP is implemented.
- Applicant may implement his SAPs as he wants, and still can use IICP as a standardized access for testing whether IICP is used as a station-internal management protocol or not.


- Applicant needs to implement the features of IICP to select and perform the proper test mode
 - Selection of layer / entity to be tested
 - Selection of either
 - "only upper tester access and usage of existing lower layers"
 - "upper and lower tester access"
- Document on the Test System Configuration (usage of IICP) will be publicly available as a CEN/ISO TS.

C-ITS communications protocols

- ISO 21217: ITS station and communication architecture
 - Nothing to be tested
- ISO 29281-1: Fast Networking & Transport Layer Protocol (FNTP)
 - Currently being harmonized with IEEE WSMP (one identical protocol for the IEEE 802.11 access technology! FNTP supports further any other single-hop access technology)
- ISO 24102-5: Fast Service Advertisement Protocol (FSAP)
 - Currently being harmonized with IEEE WSA (one identical protocol for the IEEE 802.11 access technology! FSAP supports further any other access technology)

→ WSMP/WSA will be a sub-set of FNTP/FSAP in the harmonized solution.

-  ISO 21218: Access technology support
 - Mainly for sophisticated ITS station units with several access technologies

-  ISO 24102-4: ITS station-Internal management Communications Protocol (IICP)
 - For sophisticated ITS station units with several ITS-SCUs

Conformance test results

- Implementations of **FSAP** (ISO 24102-5) and **FNTP** (ISO 29281-1) in the ITS station units from Commsignia (Hungary) and Peek Traffic (The Netherlands) were **successfully tested** with the STF 455 test platform. Both vendors used IICP to connect the ITS test system to the SUT.
- Tests on **IICP** (ISO 24102-4) started. However it has to be noted that using IICP as protocol between ITS test system and SUT, IICP is implicitly partly tested with any other test performed.
- Tests on **ATSP** (ISO 21218) will start soon.

Next steps

- Attendance at ETSI PlugTest in Essen in November 2013
- Tests of ATSP (ISO 21218) and IICP (ISO 24102-4) from November 2013 through January 2014
 - We still accept implementations of IICP (ISO 24102-4) and ATSP (ISO 21218) for testing!
- Mission to IEEE 1609 WG in Los Angeles in November 2013
- Mission to ISO TC204 WG16 in San Diego in December 2013
- Finalization of all deliverables in January and February 2014
- Final reports and closing of project in due time

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Thank you!