



5G-ENSURE

(Project Number— 671562)

5G-Ensure Standardization Plan

2nd 5G-ENSURE INTERNATIONAL WORKSHOP
5G Enablers for network and system security and resilience

Sophia Antipolis
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Paolo DE LUTIIS
Telecom Italia





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Outline of the presentation

- ❑ Motivation for Security Standardization
- ❑ 5G-Ensure Standardization objectives
- ❑ Standardization Plan
- ❑ 3GPP SA3 and ETSI TC Cyber as main target
- ❑ Other collaborations
- ❑ Final considerations

Motivation for Security Standardization

- ❏ To minimize exposure to risks, security must be built in from the design phases and not added on later as an add-on feature.
- ❏ Hence also Standards have to follow the "Security by Design" approach: it is needed to take into account a set of security, privacy and liability issues that have to be addressed since the beginning of the standardization processes.
- ❏ Minimal security could be the best approach in order to achieve the «Security by Design» principle.

Standardization objectives

- Monitoring standardisation activities directly related to the 5G-ENSURE research topics ensuring the overall coherence of the project results and understanding where the project can contribute to 5G Security specification
- Transferring project results to relevant standards bodies
- Facilitating joint contributions and building consensus, also participating to 5G-PPP pre-standard group
- Receive feedback on 5G security and privacy challenges, priorities, solutions required to understand whether 5G standardisation is correctly addressed:
 - International workshops to present relevant project results and to ensure 5G-ENSURE visibility to a wide audience
 - Open Consultation on 5G security to collect the different views on 5G security.



Relevant topics for 5G Security Standardization

Potentially all the 5G-ENSURE deliverables contains results that deserve to be standardised. In particular:

- ▣ Enablers, actual solutions for 5G Security :
 - ▣ AAA
 - ▣ Privacy
 - ▣ Trust
 - ▣ Security Monitoring
 - ▣ Network Management & Virtualization isolation
- ▣ Other research topics:
 - ▣ Use cases
 - ▣ Security Requirements
 - ▣ Trust Model
 - ▣ Security Architecture



Standardization Plan

Active Participation and direct contributions							Pre-Standard
					▲		
				▲	▲		
	Network Management & virtualisation	Security Monitoring	Trust	AAA	Privacy	Use cases, Security Requirements and architecture	
						●	
		●					
				●			
	●			●	●		
				●			
			■				
	●		■				
	●		■			●	

▲ Contribute ■ Use only ● Monitor



Standardization Plan

- ❑ Topics (columns) grouped by research topics:
 - ❑ Enablers families (Privacy, AAA, etc.)
 - ❑ All the other topics such as requirements, architecture, ...
- ❑ For each topic we have identified the most relevant standardization group(s)
 - ❑ Relevant for monitoring (potential target for contributions)
 - ❑ For contributions
 - ❑ Relevant because used (e.g. the standard impacts the enablers)
- ❑ Objective: improve the number of contributions and the number of targeted groups (from “monitoring” to “contribute”)



3GPP and ETSI as main targets

- ❑ 3GPP has been identified as the key SDO for 5G standardization (it is the main target also for other funded 5G-PPP projects)
- ❑ SA3, the Security 3GPP competence center, is currently working to identify the threats, security requirements and solutions for the security of next generation mobile networks.
- ❑ Within the ETSI umbrella, TC CYBER and ISG NFV (SEC working Group) as main targets for contributions.
- ❑ GSMA and NGMN will also play an important role as drivers for the 5G specifications across the industry (pre-standardization).
- ❑ 34 contributions presented so far to 3GPP and ETSI TC CYBER



3GPP: Direct Contributions

- ❑ 3GPP RAN plenary: TR 38.913 Study on Scenarios and Requirements for Next Generation Access Technologies
 - ❑ Requirements
- ❑ SA3 (Security): the group is finalizing its Study Item and starting to work on the specification phase:
 - ❑ TR 33.899 Study on the security aspects of the next generation system
 - ❑ Requirements
 - ❑ Security areas (mapped to 5G-ENSURE enablers): AAA, Privacy, etc.
 - ❑ Privacy solutions for user subscriber protection. Two proposals for IMSI protection by means of “innovative” public key encryption mechanisms
 - ❑ TS 33.501 Security architecture and procedures for 5G System



ETSI TC CYBER: Direct Contributions

- ❑ TC CYBER does not have a specific WI on 5G security, but it is working on many strategic topics related to the security of the ICT.
- ❑ The 5G-ENSURE project sees TC CYBER particularly relevant on PRIVACY aspects:
 - ❑ TR 103 304 “Personally Identifiable Information (PII). Protection in mobile and cloud services”.
 - ❑ TS 103 458 “Application of Attribute-Based Encryption (ABE) for data protection on smart devices, cloud and mobile services”
 - ❑ STF-529 “Attribute Based Encryption - Common protocol for data access control for Cloud, Mobile and IoT”.
 - ❑ TS 103 532 “Attribute Based Encryption for Attribute Based Access Control”.



Other collaborations

- ❑ 5G-PPP Pre-Standardization WG and 5G-PPP Security WG
 - ❑ as enablers for joint activities and build pre-standardization consensus
 - ❑ Collaboration on contributions tracking (measure the impact of the H2020 funded project on Standard) and information sharing
 - ❑ Collaboration on Whitepapers and «vision» documents
- ❑ NIST: information exchange and collaboration on NIST standard recognized as “relevant” for 5G-ENSURE enablers:
 - ❑ Fine-grained Authorization Enabler
 - ❑ Privacy Enhanced Identity Protection
 - ❑ Federative Auth+ID,
 - ❑ IoT/Group-based authentication
- ❑ ITU-T: Analysis of the 5G standardization landscape submitted to ITU-T SG 17.



Summary

- ❑ 5G-ENSURE has defined a specific plan to achieve its standardization objectives
 - ❑ Elaborated and presented more than 30 direct contributions
 - ❑ External collaborations to exchange vision and collect feedback
- ❑ Not all the groups have been managed as supposed:
 - ❑ Project focus “only” on 3GPP SA3 and ETSI TC CYBER
 - ❑ 5G standardization is actually complex and distributed on many tables at the same time.
- ❑ It is difficult to transfer all the valuable results:
 - ❑ The lifetime of the projects are short compared to the (sometimes) longer time of standardization processes, and not progressing in synch.
 - ❑ 3GPP SA3 is starting now to work on the specification of the phase 1 of the 5G (release 15), TC CYBER will finalize its activities on Privacy in 2018.
- ❑ 5G-ENSURE will transfer its vision and results to the 5G-PPP phase 2 projects and 5P-PPP Working groups.



Thanks.

QUESTIONS ?

