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Proposed SIs for Security WG in 2020

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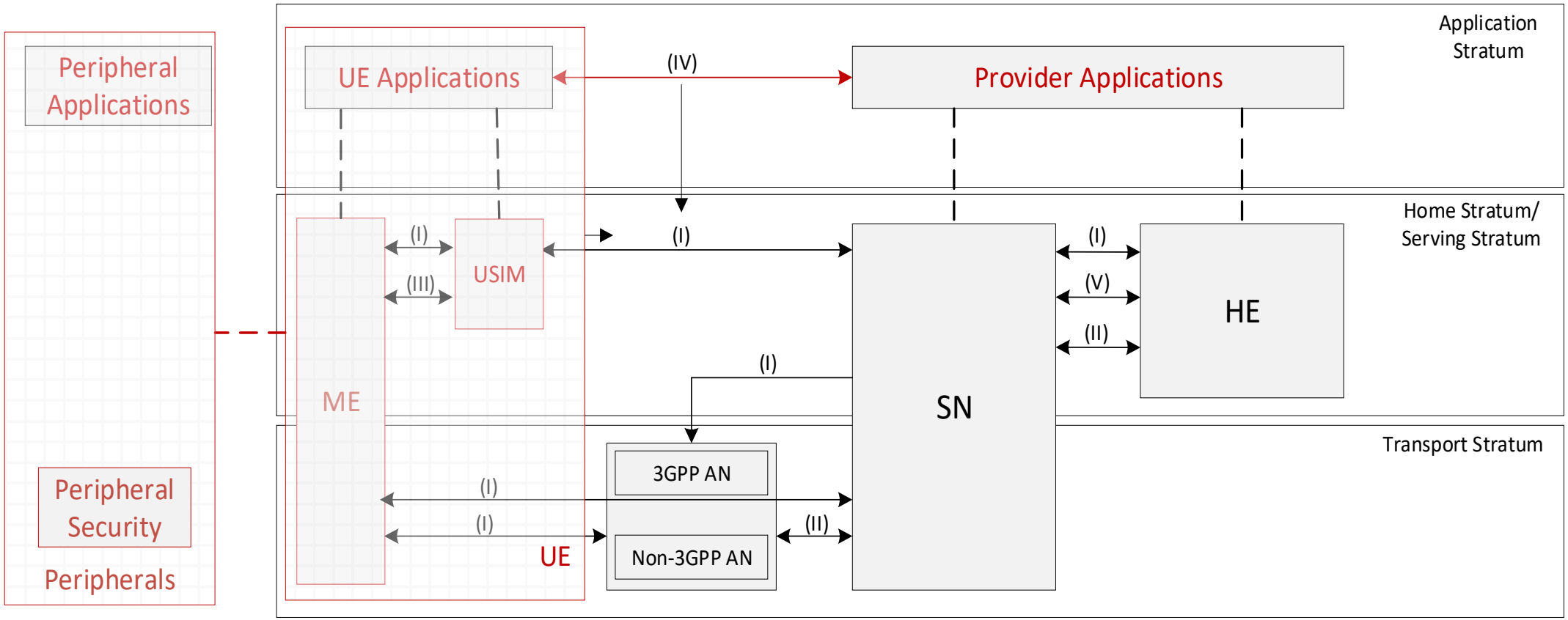
Contents

- UE-Centric 5G Security Whitepaper 2.0
- New Study on 5G Slicing Security

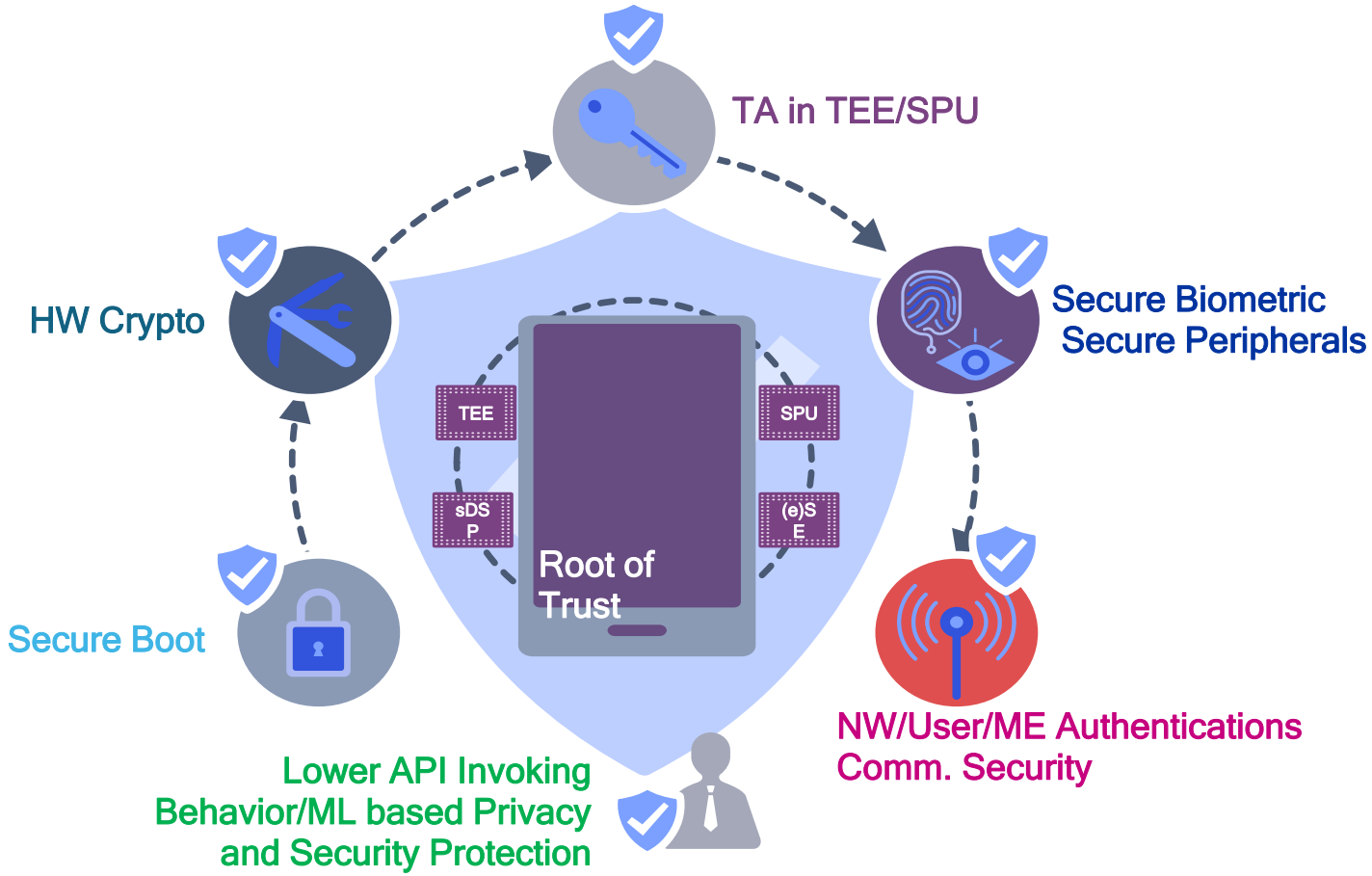
Contents in Whitepaper 1.0

- Chapter 1: Preface and General Introduction
- Chapter 2: 5G Applications and Terminal
  - Focusing on security relevant use cases
- Chapter 3: Security Threats in Aforementioned Use Cases
- Chapter 4: Security Solutions
  - Traditional solutions
  - Emerging solutions (5G SUCI/Authentication)
- Chapter 5: UE-Centric Security
  - UE as RoT
  - Remote Authentication and Attestation
  - Hardware Token
  - Openness of UE RoT and Security Capabilities
  - Multi-role Isolation

Based on 3GPP Security Architecture with Extensions



UE-Centric Security Framework as the Foundation



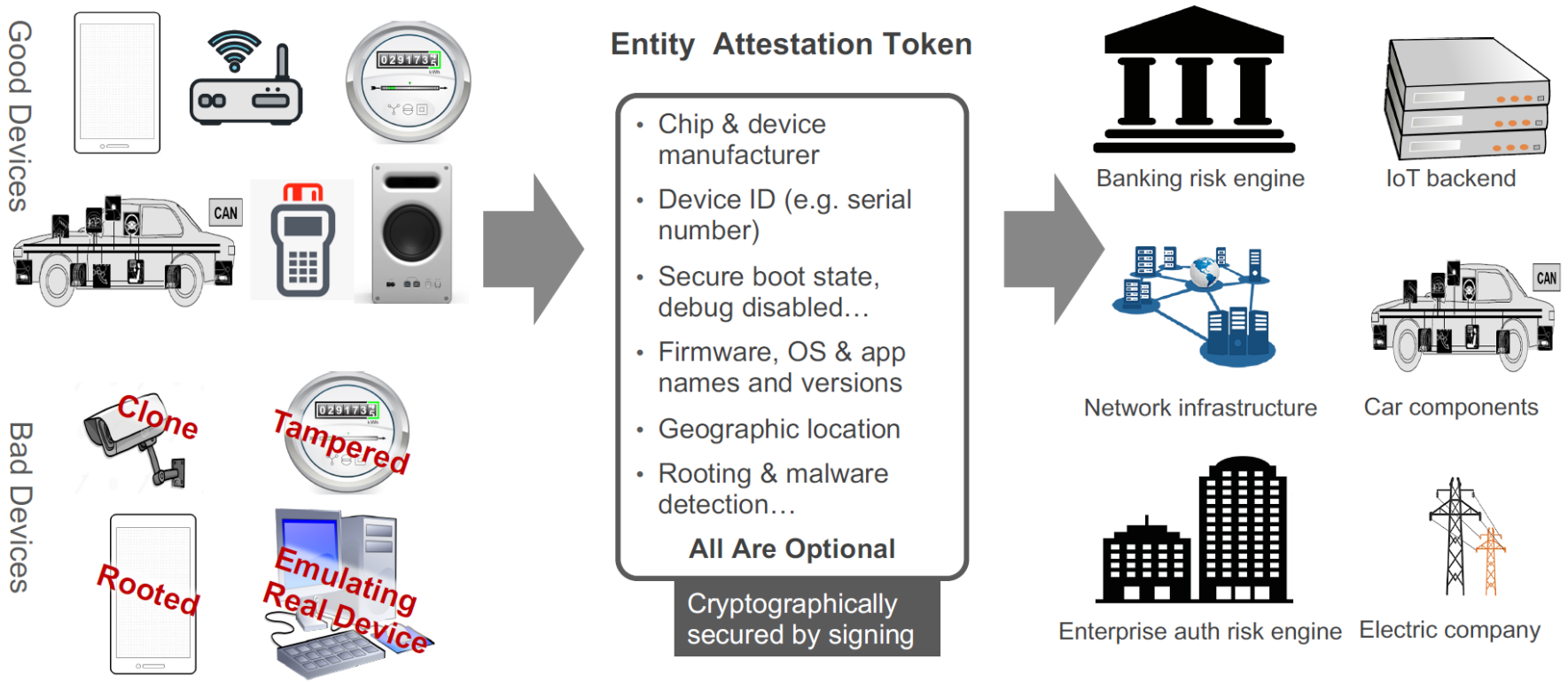
HW and SW Attestation
HW Token

RoT Openness

Terminal/User
Authorized Peripherals

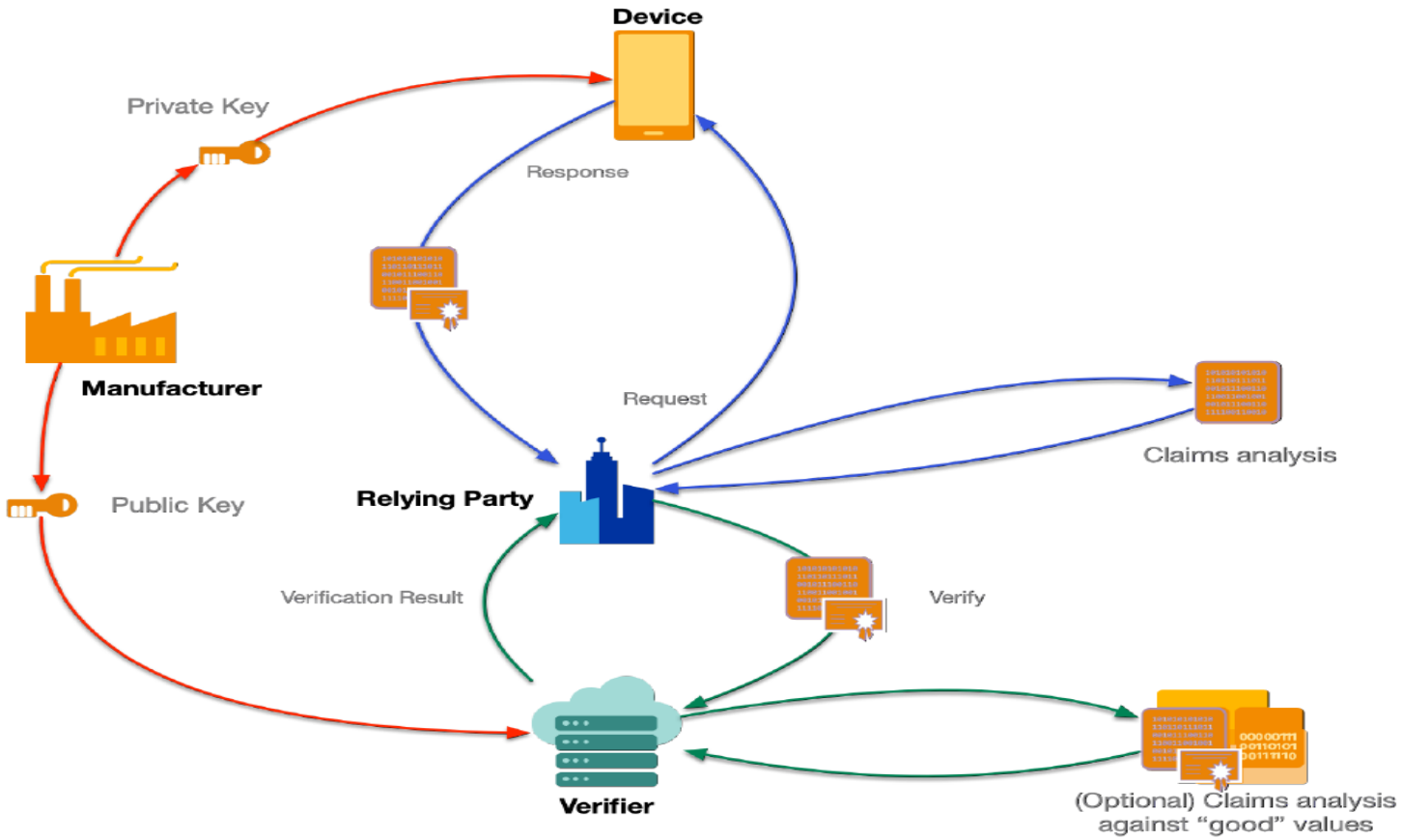
Candidate Contents for Whitepaper 2.0 (1/3)

- Combination of Remote Attestation and Hardware Token
  - Hardware token based remote attestation
  - IETF RATS WG is developing a new RFC EAT



Candidate Contents for Whitepaper 2.0 (2/3)

- Combination of Remote Attestation and Hardware Token



Candidate Contents for Whitepaper 2.0 (3/3)

- More scenarios and solutions on Openness of UE RoT and Security Capabilities
- 3GPP AKMA study
- Transfer/Relay of Trust
  - Tsinghua Uni. inputs?
  - Hop-by-Hop, E2E, 3GPP IAB Security study?
- New UE-involved and security-required use cases (if any)?
- Also open to other proposals

Contents

- UE-Centric 5G Security Whitepaper 2.0
- New Study on 5G Slicing Security

5G Slicing Security Study (1/3)

- Network Slicing deemed as the critical feature to enable 5G SA usage for Verticals
- What 3GPP has done on 5G Slicing Security

Key issue	Solution1	Solution2	Solution3	Solution4	Solution5	Solution6	Solution7	Solution8	Solution 9	Solution 10
#1 Authentication for access to specific Network Slices	Yes	Yes	NA	Evaluation pending	NA	NA	NA	NA	NA	NA
#2: AMF Key separation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
#3: Security features for NSaaS	NA	NA	Evaluation pending	NA	NA	NA	NA	NA	NA	NA
#4: Security and privacy aspects related to the solution for Network Slice specific access authentication and authorization	Evaluation pending	NA	NA	NA	Evaluation pending	Evaluation pending	Evaluation pending	NA	NA	NA
#5: Access token handling between Network Slices	NA	NA	NA	NA	NA	NA	NA	NA	Evaluation pending	NA
#6: Confidentiality protection of NSSAI and home control	NA	NA	NA	NA	NA	NA	NA	Evaluation pending	NA	Evaluation pending

5G Slicing Security Study (2/3)

- What 3GPP has done on 5G Slicing Security
  - Focus on Network Slice Specific Authentication and Authorization (NSSAA)
    - ***General conclusions***
      - *Slice specific authentication is optional to use*
      - *Slice specific authentication uses a User ID and credentials, different from the 3GPP subscription credentials (e.g. SUPI and credentials used for PLMN access) and takes place after the primary authentication.*
      - *AMF confirms, locally or based on ARPF/UDM, whether slice authentication is required for each S-NSSAI*
      - *Slice specific authentication is based on EAP framework where AMF takes the role of the passing through Authenticator*
    - ***Conclusions for key issues***
      - *For Key Issue #1 Authentication for access to specific Network Slices, a merge of Solution#1, solution#2 and Solution#4 are recommended as the basis for the normative work.*
      - *For Key Issue#2, AMF key separation, it is concluded not to consider in the present document, since the use case that this key issue is addressing, is not concluded in TR 23.740 [5].*
      - *For Key Issue #4, it is recommended that no normative work is required.*
      - *For Key Issue #5, it is recommended that Solution #9 is used as the basis for normative work.*

5G Slicing Security Study (3/3)

- Suggest to also study other parts beyond 3GPP scope, e.g.
  - Appropriate ID and credential management for NSSAA
  - Slice specific and vertical services oriented security other than NSSAA
  - Application management, policy mapping, slice selection for different verticals
  - Charging?
  - ….

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Thank you

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