

***Alternatives for Banks to offer
Secure Mobile Payments
White Paper***

Liisa Kanninen
Executive Director, Mobey Forum
Email: Liisa.kanninen@nordea.com
GSM: +358 50 5117374

Key Challenges with Mobile Contactless Payments

- The business model for commercial roll-out of NFC has not been achieved yet
- Main challenge is the multi-application environment – very complex ecosystem
- The technology is pretty ready, but the business discussions are slow
- Not much has happened since the early days...

*First RFID (pre-NFC) pilot in Lahti, Finland – year 2003:
Nordea, Nokia and Visa tested payments with an embedded Visa payment card*



”Alternatives for Banks to offer Secure Mobile Payments”

- Mobey Forum has produced a new White Paper studying the alternative Open Secure Elements (SEs)
- Currently at internal review process, including closest liaisons
- Planned to be published within few weeks
- The White Paper elaborates on the question how different SEs can empower to take-off of Mobile Financial Services (MFS)
- Describes options and includes recommendations for a Financial Institution wishing to start offering mobile payments

Objectives of the White Paper

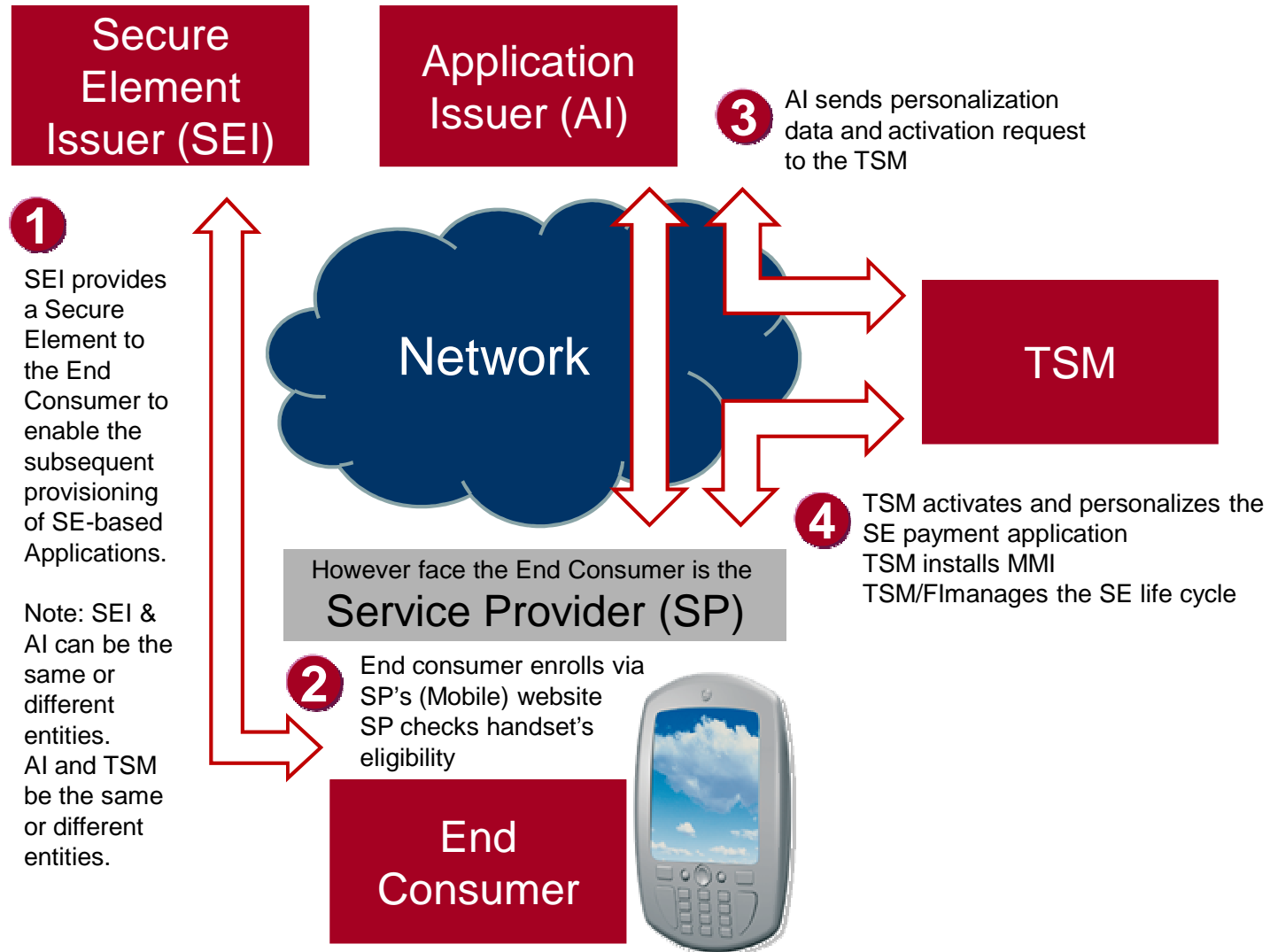
- To provide **relevant information for the decision makers in Financial Institutions** by describing and reviewing technical solutions for MFS Applications requiring or wishing to use a Secure Element (SE) to advance security, **allowing a variety of open business models to kick-start the MFS market.**
- The SE solutions are reviewed regarding their *capabilities, their business impact and their security* in order to present the MFS Stakeholders with an overview of alternatives for the implementation of MFS with SEs, e.g. for mobile contactless payments.
- The paper aims to **promote collaboration** along the value chain by explaining and conceptualizing the **business model options**, to **reduce the ecosystem complexity.**

- The paper studies the MFS Ecosystem, the different roles and positions of Stakeholders in the MFS Value Chain, the SE issuance process and the aspect of lifecycle management and pricing models for Trusted Service Managers (TSMs).
- It then analyses the different SEs:
 - **Stickers (both Active and Passive)**
 - **Secure Micro SD card (Sec. μ SD)**
 - **Universal Integrated Circuit Card (UICC)**
 - **Embedded Secure Element (eSE)**
 - **Trusted Mobile Base (TMB)**
 - *...detailing a concept description, different business model scenarios, technical enablers and inhibitors and opportunities and challenges for every single SE.*
- The paper concludes with a summary of the various SE alternatives and presents a brief outlook on the next steps for the MFS industry.
- The paper is complemented by a detailed appendix on the requirements comparing alternative SEs for MFS.

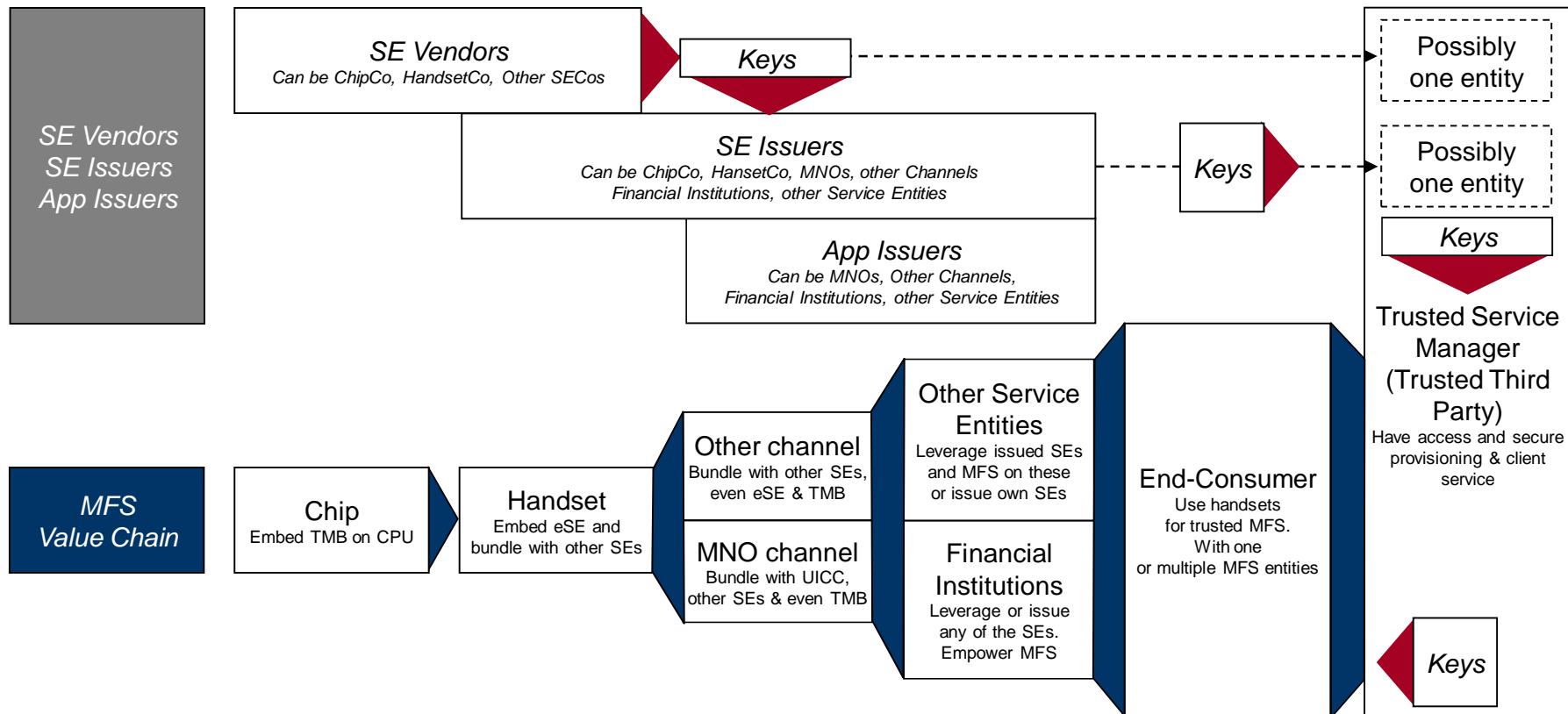
The Main Stakeholder Roles

- **The SE Vendor (SEV):** The physical producer of the SE.
- **The SE Issuer (SEI):** The entity that sources the SE from the SEV, controls the SE's root keys, brands the SE and provides it to the End Consumer.
- **The Application Issuer (AI):** The party that offers an SE-related Application to the End Consumer for its own business purposes, e.g. a Bank, Transport Authority, or Customer Loyalty Program.
- **The Trusted Service Manager (TSM):** An entity that AIs or SEIs may use in different phases of the SE's lifecycle and the Applications' lifecycle to manage the distribution, updating and trouble-shooting.

Key provisioning process to SEs

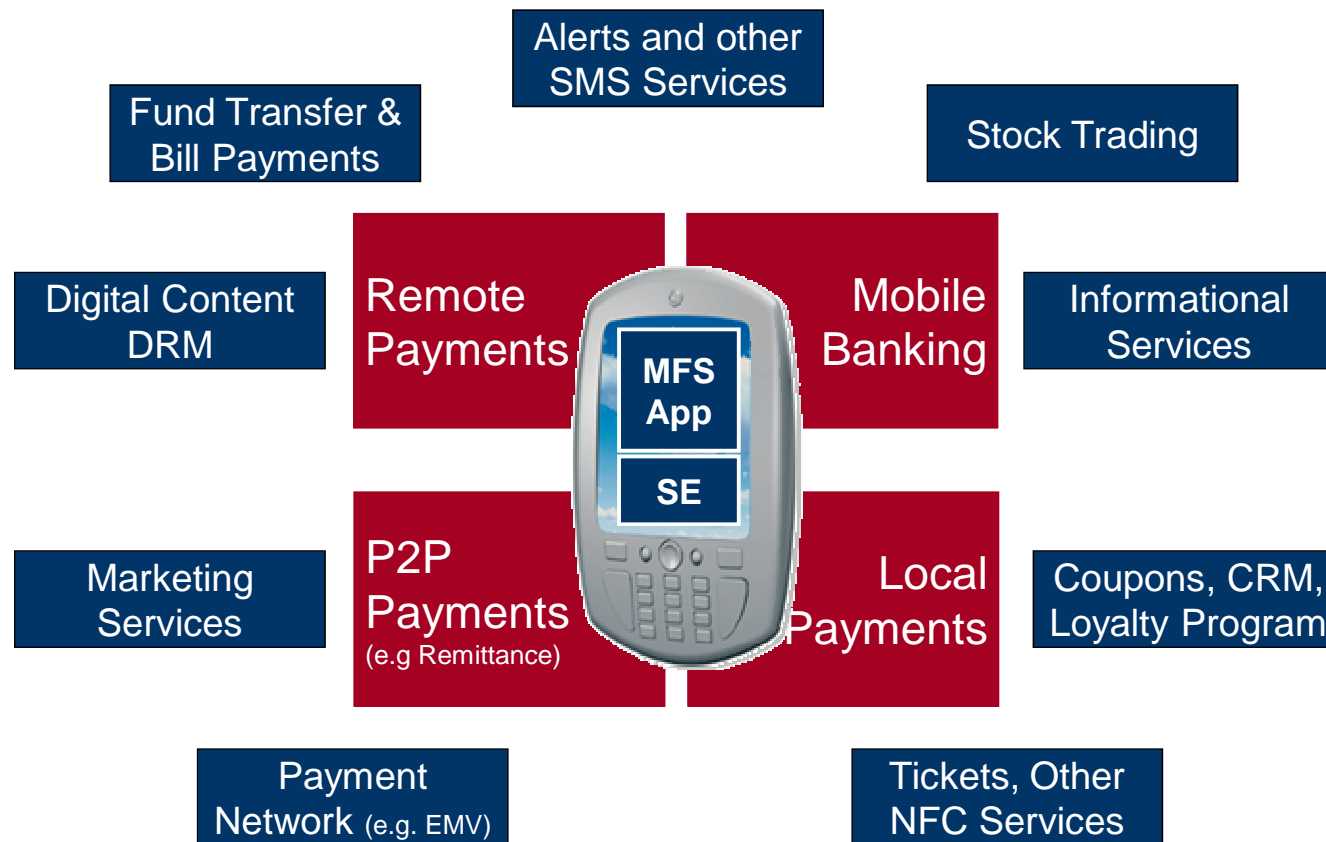


The MFS Value Chain

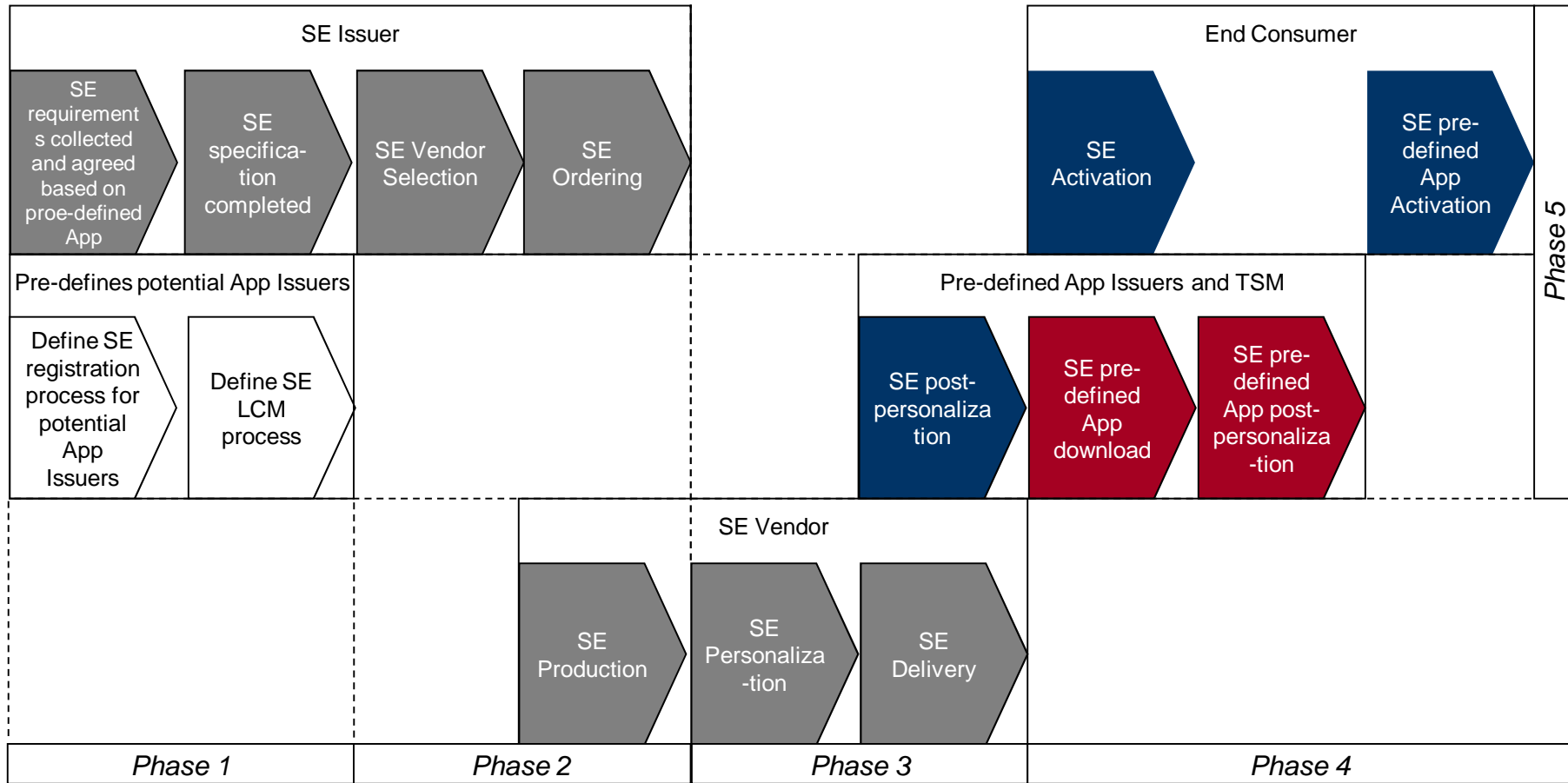


MFS Applications

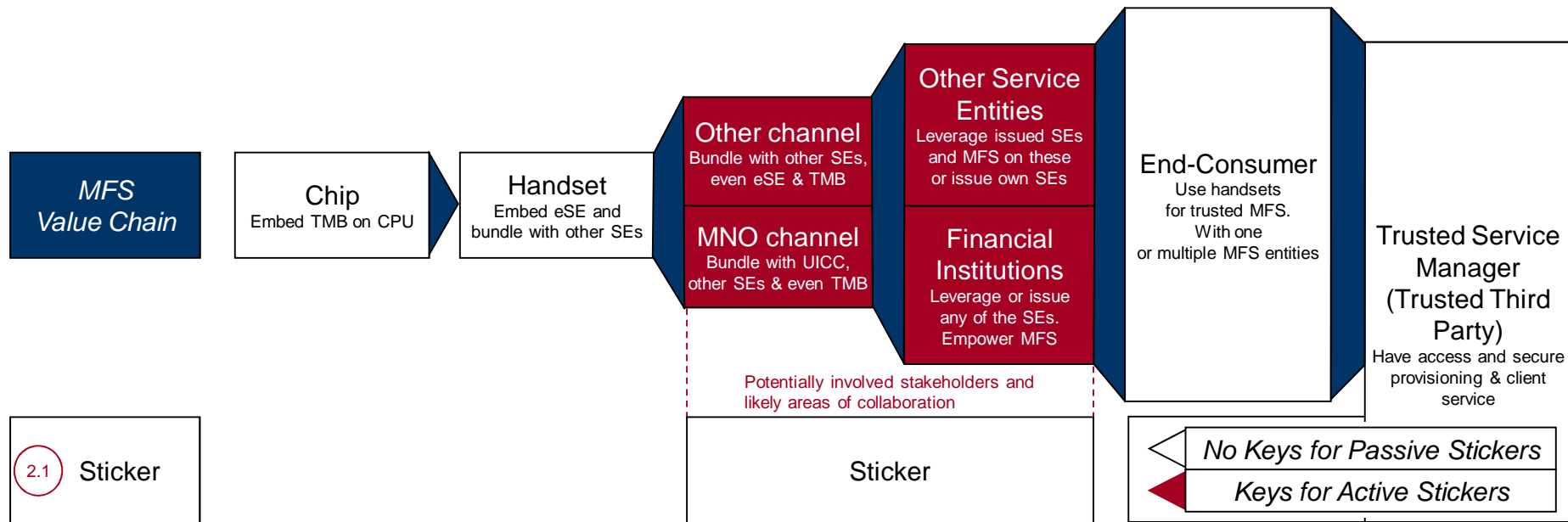
- Please note: Most of these Applications can be executed also without leveraging a SE.



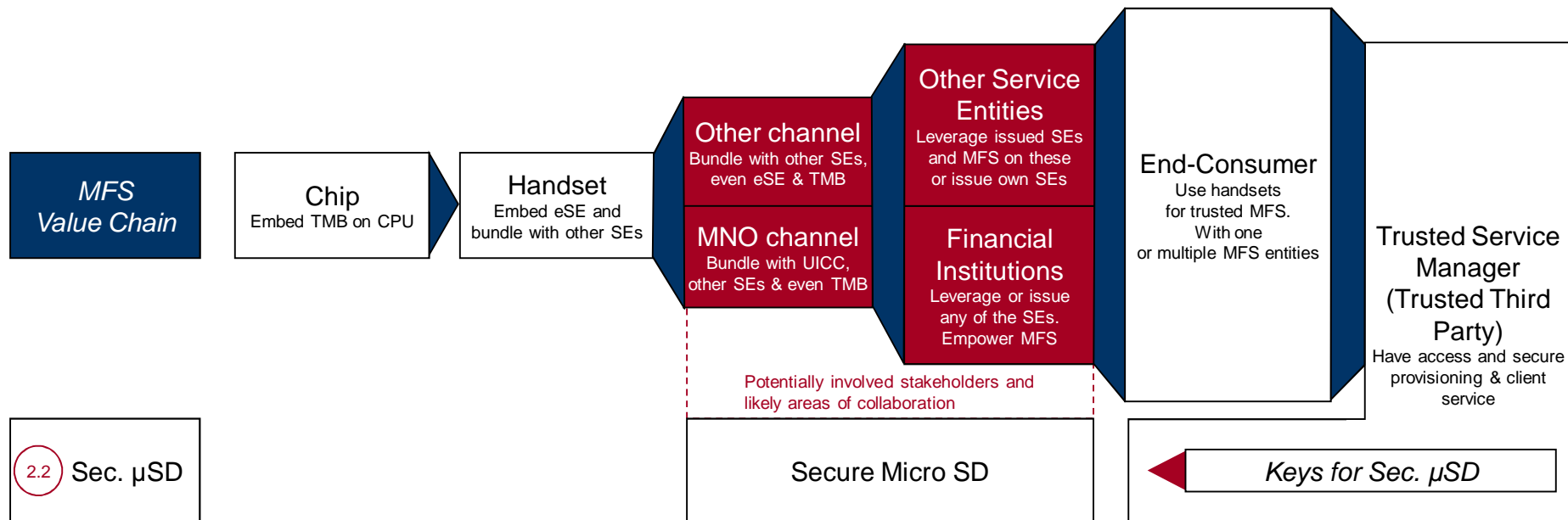
Conceptual SE Issuance Process

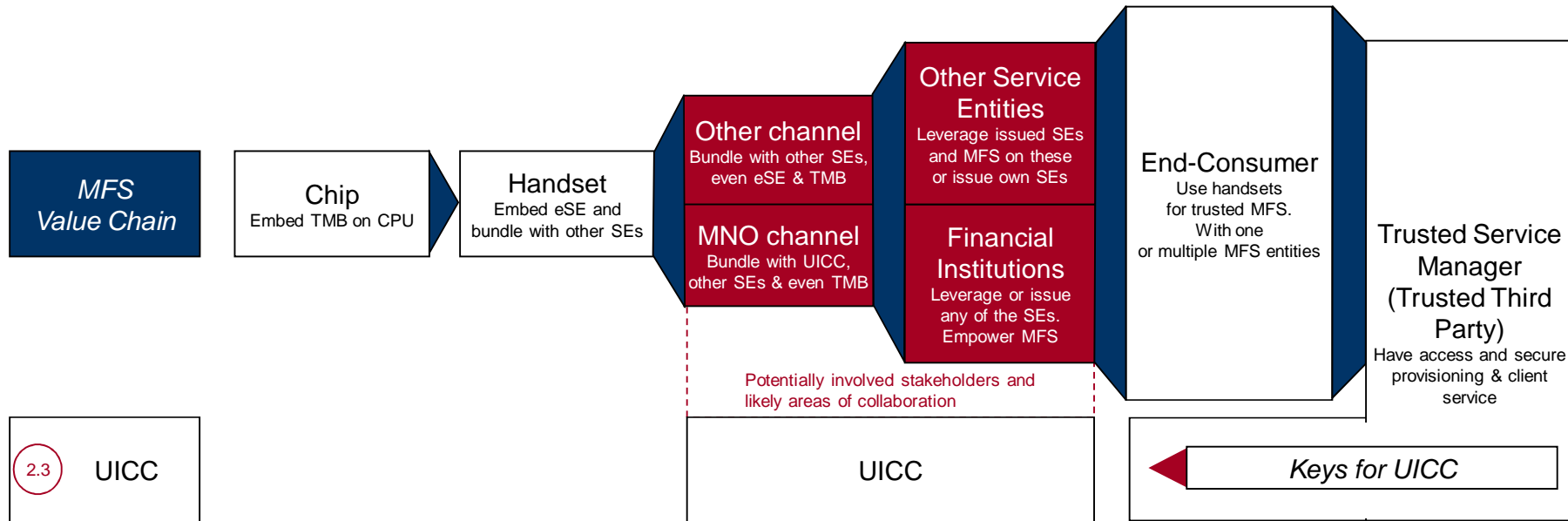


Stickers (both Active and Passive)

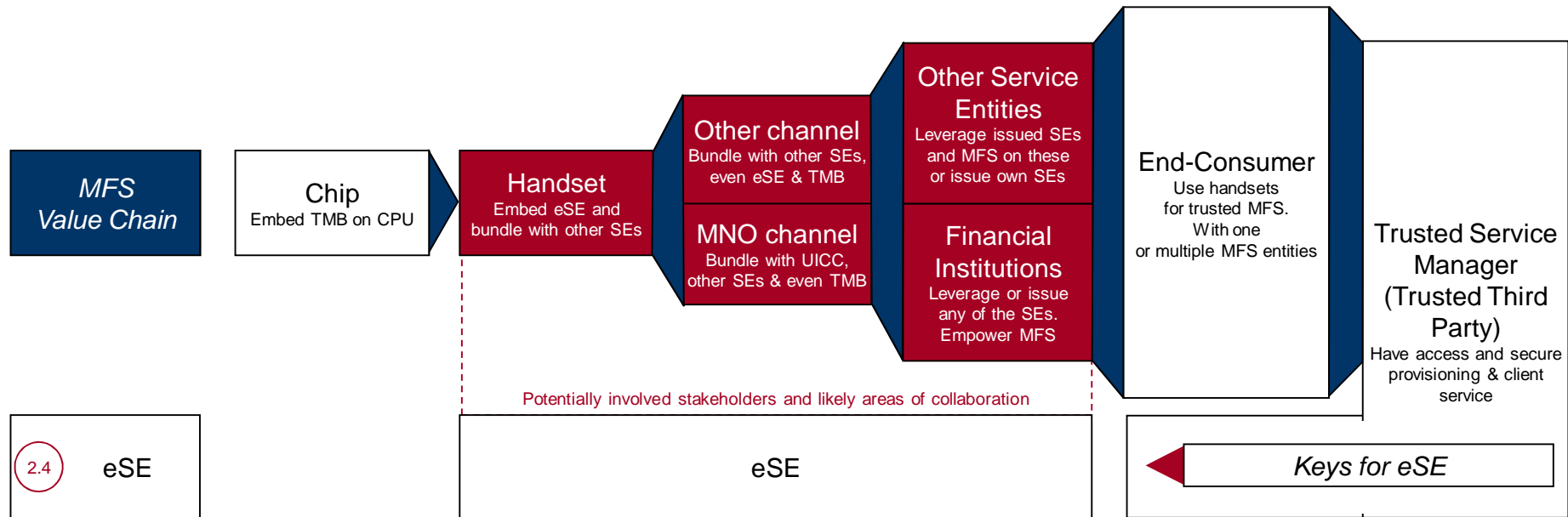


Secure Micro SD

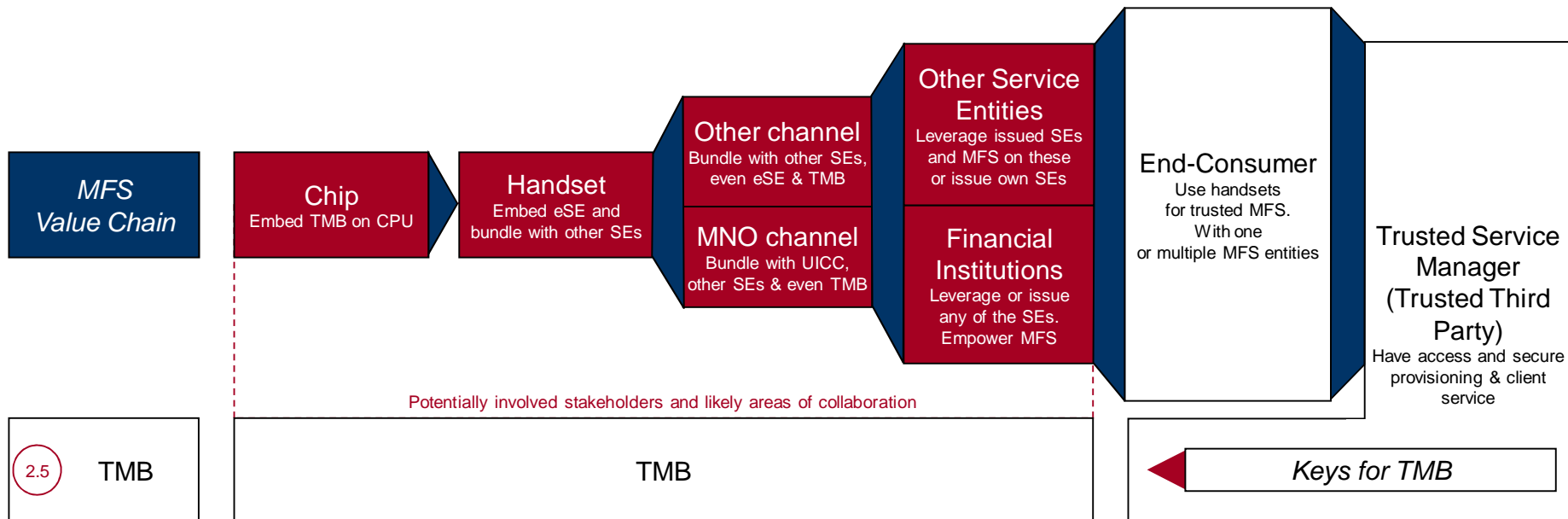




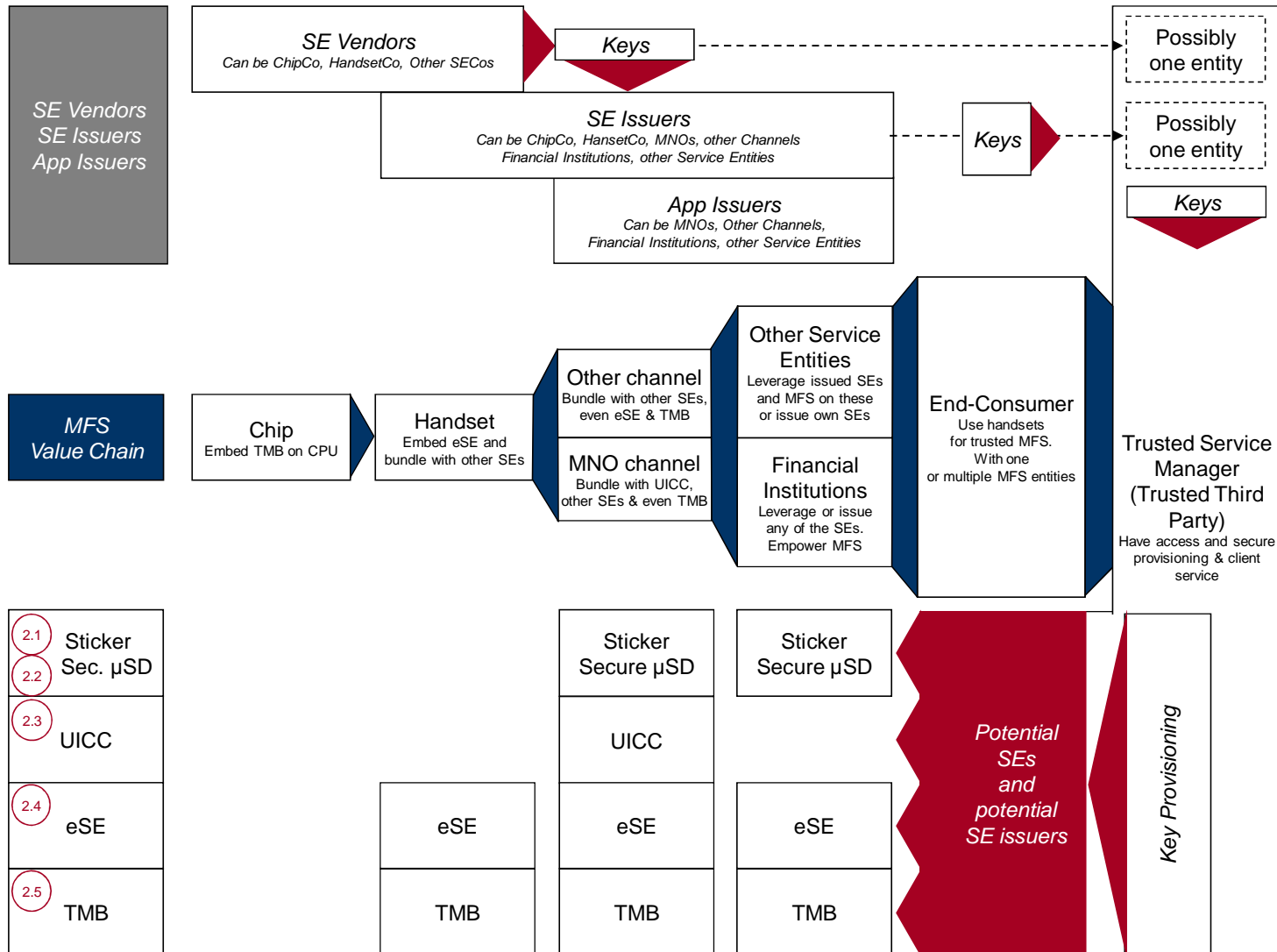
Embedded SE (eSE)



Trusted Mobile Base (TMB)



Overview of Stakeholder roles, Value Chain and Open SEs for MFS



The Key Questions for a Service Provider

- The Stakeholders along the Value Chain have to define their positions: Do they want to be SE Vendors, SE Issuers or Application Issuers or a combination of these?
- Based on this positioning in the MFS Value Chain, which technology would best fit their needs?
- Based on the SE technology, which process of key provisioning shall be implemented, i.e. who is the Trusted Service Manager or does a Stakeholder want to hold this position in-house?
- Based on the context of the respective Stakeholder along the Value Chain, who might be interesting partners to design joint business models and trigger a quick diffusion of the SE technology and the hence empowered services?

The Key Recommendations

- The “bridge technologies” already allow the introduction of MFS in specific areas.
- For large scale take-off of MFS, however, joint industry efforts remain necessary in the areas of:
 - Designing a modular, interface-based architecture for the overall Ecosystem enabling choice of open SEs.
 - Promoting interaction and collaboration across companies and technologies.
 - Standardizing SEs and relevant interfaces as well as the related provisioning processes.

Thank You
for your attention!

