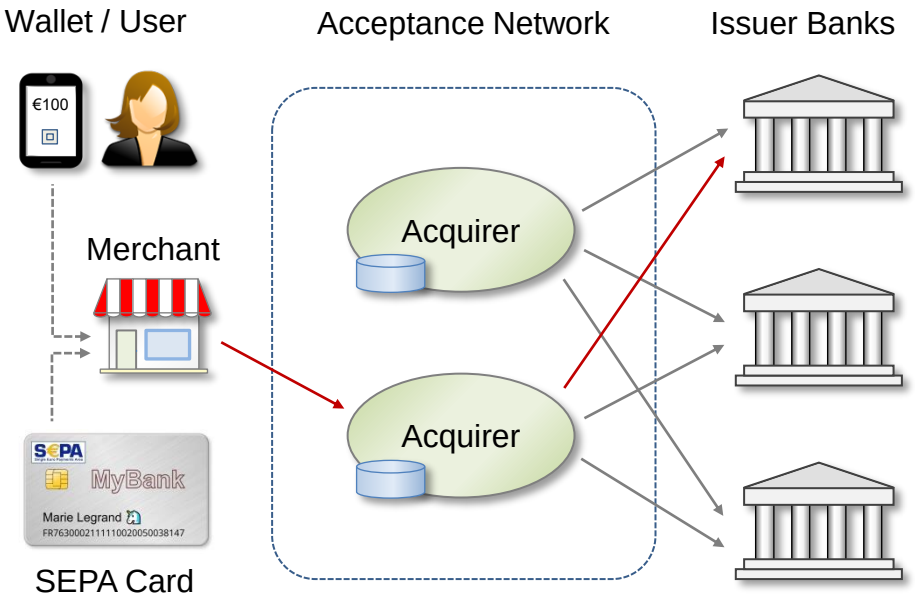
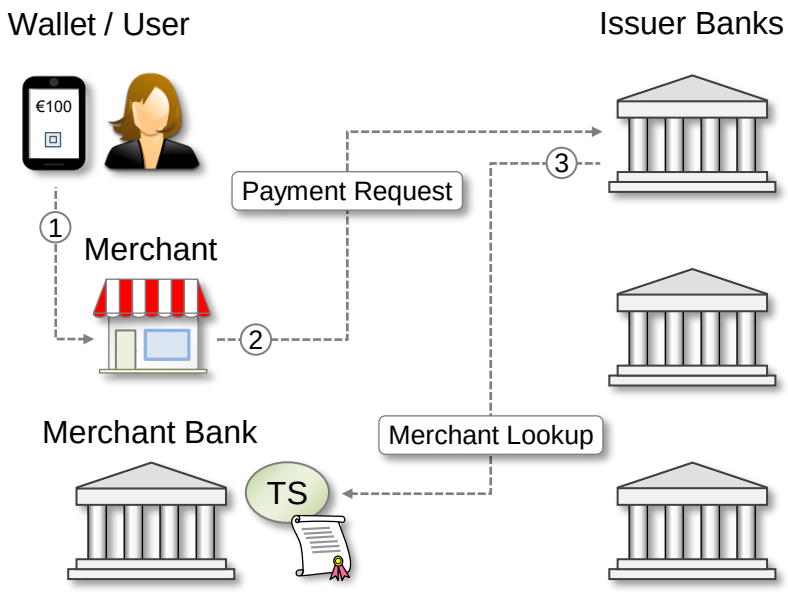
Presumed EPI Front-end* Architecture





In the traditional architecture for card-based payment authorizations, Merchants are connected to Acquirers who handle the communication with the Issuer Banks (or card networks). An Acquirer is usually the entity that has the business agreement with a Merchant as well.

The infrastructure needed to support card transactions depends on a *huge number of statically configured security parameters and paths*, illustrated by the arrows in the diagram.

This model also relies on *databases* holding card-number to Issuer Bank "routing" tables.

Acquirer services are covered by *additional fees* on top of the fees required by the Banks running the payment scheme like SEPA Inst.

Due to *technical and commercial challenges*, the EPI acceptance network would most likely result in *a copy of the VISA/MC duopoly*.

In the Saturn architecture a Merchant has a business agreement with their account-holding Bank which also provides a simple *public trust service* (TS), that vouches for the Merchant's validity including its claimed account number.

The data provided by a TS is *digitally signed* by the Merchant Bank and is thus to be trusted by all Banks sharing a specific payment schema like SEPA Inst.

Security with respect to payment requests [2] is maintained through *mutually signed digital contracts* resulting from the Merchant and User authorization step [1], combined with TS Merchant lookups [3].

The arrows in the diagram are *transient*; *there is no need for externally configured security, path, or routing information*.

By *eliminating front-end* intermediaries*, the payment business remains in the hands of the *fully decentralized network of Banks* running a specific payment scheme.

***** Payee and payer *authorization*

Existing Features

Feature	Comment
Proof-of-concept system	A proof-of-concept system is available for public testing using Android.
European heritage	Effectively a “fusion” of established mobile phone payment systems like Swish(SE), Vipps(NO), MobilePay(DK), PayLib(FR), TWINT(CH), etc.
Universal “Wallet”	The ability to use the Saturn wallet for other account-based schemes than SEPA Inst, including VISA and MasterCard operations make this part more attractive (“sticky”) for consumers, banks, and merchants.
Real-time balance support	View account status before paying.
Integrated e-Receipt support	Saturn is currently the only (?) payment system providing integrated e-Receipt support.
Blocks the GAFA	By leveraging the banking infrastructure to its fullest, Saturn leaves no room for the GAFA to take control over SEPA Inst since it builds on *decentralization* which is the opposite to the method very successfully used by the GAFA.
Exploits Open Banking APIs	Through a slightly upgraded Open Banking API, Saturn integration in banks becomes simple.
Expandable API	Discovery services permit the introduction of new functionality without requiring every bank or merchant to upgrade simultaneously.
State-of-the-art security	In Saturn, all messages are *digitally signed* using industry-standard cryptographic algorithms. The wallet is UX- and security-wise on par with Apple Pay.
Open and free	Fully open design, free from licensing. Proof-of-concept system published on GitHub.

Planned Features

Feature	Comment
Authentication option	An authentication option in the Saturn wallet can obviate the need for banks to develop specific authentication applications for on-line banking as well as PSD2 services. The system also permits other parties using the same platform without additional costs or licenses in similarity to FIDO.
P2P payment support	Using the same accounts as for retail payments, users may send and receive money between each other using a phone number or e-mail address. This scheme also supports splitting restaurant bills as well as a secure request-to-pay method using standard e-mail or SMS for messaging.
Loyalty card support	Automatic transfer of *applicable* loyalty cards and coupons before payment is requested
App Integration	Tight integration with apps for parking, transport, etc.