New Payments Architecture

Vendor Advisory Group

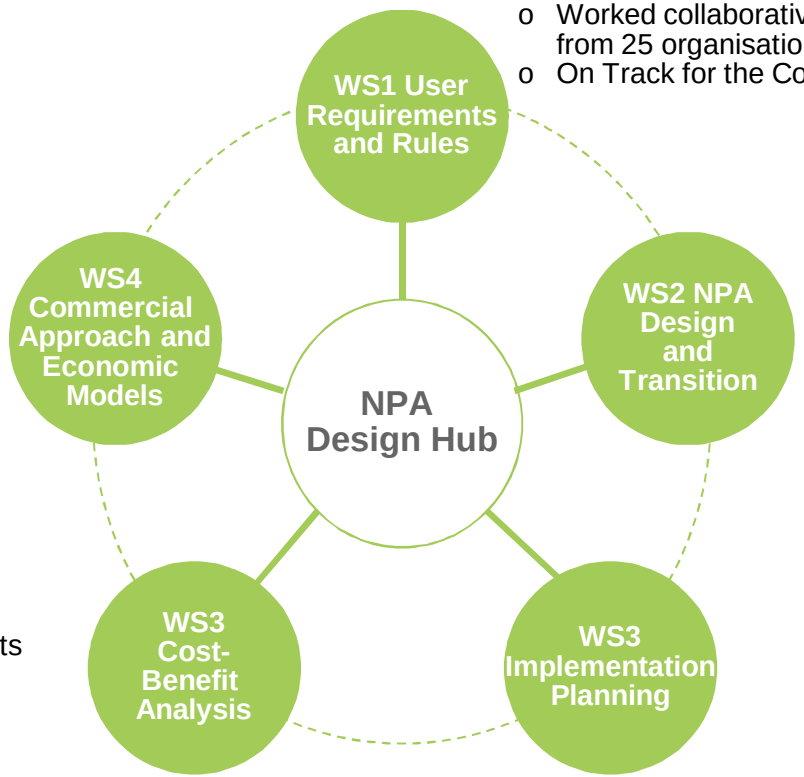
16th June 2017

Agenda

#	Agenda item
1	Overview of each work-stream
2	**WS2: NPA Design & Transition**
2.1	NPA High-Level Architecture
2.2	Directory Services
2.3	Settlement & Clearing deployment approach
2.4	Transition
2.5	Participation Model
3	**WS3: Implementation Planning**
3.1	High-level architecture timeline
3.2	Architectural timeline
3.3	Indicative end user timeline
	Wrap up

Status of each workstream

- Designed and presented core proposition for the 3 End User Needs solutions addressing the detriments identified in the Strategy.
- Worked collaboratively with input from a wide range of stakeholders from 25 organisations to design and validate the 3 EUN solutions.
- On Track for the Consultation dates.



- Developed a commercial categorisation for the elements of the NPA.
- Clarified the role of competition in the architectures.
- Draft funding and economic models being discussed and finalised.
- On Track for the Consultation dates.

- High Level Architecture Outlined.
- Preferred centralised option for Settlement and Clearing agreed at Design Hub.
- A Settlement and Clearing Option analysis is included in the Supporting Doc pack.
- Working on Transition States with Implementation Planning workstream.
- On Track for the Consultation dates.

- Interviewed a wide sample of the payments community.
- Built a CBA model in line with the agreed Inception Report.
- Finalising the first draft report within the Workstream team.
- Included Key Assumptions and emerging cost benefit model in this pack.

- Developed a Payments Industry implementation Landscape shared with the Forum.
- Risk assessment of Implementation Landscape undertaken
- Key planning principles and assumptions agreed and in this pack.
- Developing an Implementation Plan and we ask for your feedback on the draft version included in this pack.
- On Track for the Consultation dates; dependent on WS2 for finalisation of transition states.

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Section 2:
WS2 NPA Design & Transition

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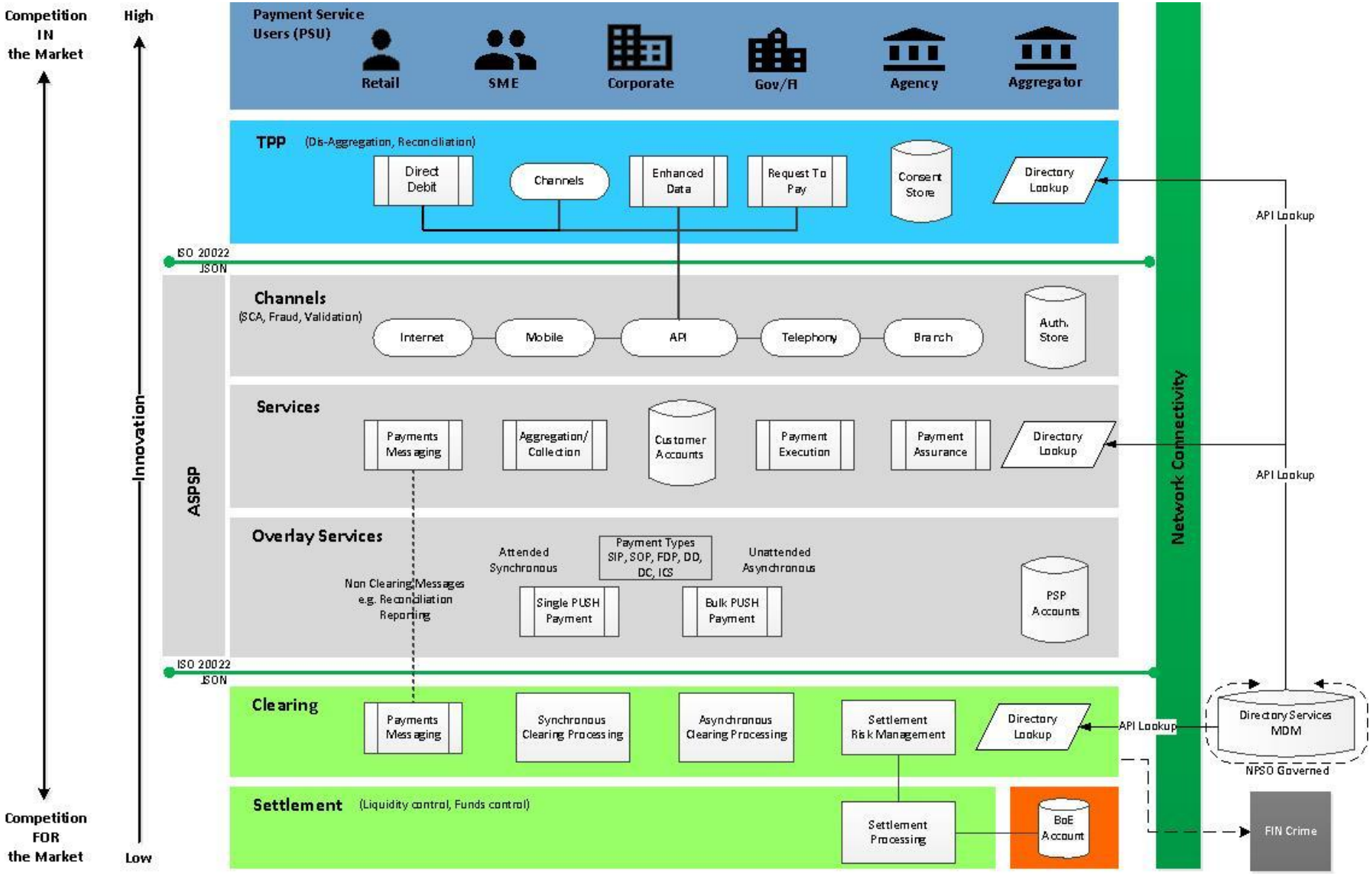
NPA High Level Architecture

NPA High Level Architecture



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NPA High Level Architecture – Layers

Name	Description
Customer Layer	The full range of Payment Service Users (PSUs) will be supported and key use cases have been developed to drive and validate the NPA design. The PSUs considered for the NPA design are: • Retail • Commercial • Corporate • Government • Agency • Aggregator
TPP Layer	Created under PSD2, TPPs will be enabled to provide alternative channels and innovative payments, for multiple ASPSPs. They:- • Hold the consent for payments and execute against an ASPSP following authorisation • Can implement Assurance Data and Request To Pay, using Open Banking APIs • Can provide channel alternatives, aggregation solutions and disbursement solutions • Under the layered model approach ASPSPs can also choose to behave as a TPP
ASPSP Channels	Channels represent the access directly provided by ASPSPs including APIs to support PSD2 and Open Banking.
ASPSP Overlay Services	These are approved services by the NPSO and implemented on top of push mechanisms (Single Push Payments and Bulk Push Payments). They can also potentially be used to emulate existing scheme messages (e.g. BACS CT, FPS SIP)
ASPSP Services	Services that are required to execute and process the Payment against the customer account e.g. Fund check and Debit the customer.
SPP-Clearing	Provides coordination for ASPSP to ASPSP payments messaging; • Registry records valid PSP participants and roles managed by the FCA / NPSO, with SLAs • Assures validation and correct routing • Separates clearing and non-clearing messaging • Real time attended payments will be credited immediately to customer accounts • Unattended and bulk payments will be acknowledged, Refunds process will be available
SPP-Settlement	Single point of settlement control for all payment instructions; • Flexible settlement cycles supported by overlay type, to manage settlement risk

NPA High Level Architecture Components (1/2)

Component Name	Description
Competition for and In the market	The solution will enable competition for each layer and component, PSR/PSF will determine risk criteria and recommend final solution
TPP Channels	Channels provided by TPPs to their customers in order to access TPP services
TPP Consent Store	Repository of PSD2 customer consent
Request to pay	The request equates to a PSD2 authorised consent held by the TPP • Customer can change (amend, cancel, defer) consent with the TPP • Customers can withdraw authorisation directly with their ASPSP
Enhanced Data	Provides reference data (Sort Code/Bank/Overlay level (EISCD) reference data, CASS account transfers and customer reference data, PSP and TPP endpoints, roles and certificates) • Managed by the NPSO • Data pushed to participants (TPP, ASPSP) attended channels, unattended channels within SLAs
Directory Services Network Layer	The NPA will require access to a number of reference data sets to perform 'front office' functions, transact payments and perform 'back office' functions. One example of a directory enabled service is the Current Account Switching Service (CASS). Access to directory reference data sets are expected to be required through all levels of the NPA architecture. Directory Services will be accessed via an API lookup by participants based on Open Banking standard APIs with access to the data being controlled by assigned rights to the particular participant. Connectivity between the layers and components will be open to multi-vendor competition (e.g. BT, Virgin, Vodafone) and not tied to a single proprietary provider or particular network element
PSD2 API	NPA builds on the PSD"/Open Banking APIs and security models. • ASPSP manage customer authentication and authorisation • PSD" will need extension to support specific use cases (variable amount, TRA PULL Payments)
ISO 20022	The NPA requires that standardised, ISO20022 payment messages are used by the participants for data in transit: Standardised messages will further enable interoperability, reduce cost, support innovation & increase competition. The use of ISO20022 by the NPA will also enable NPA Participants to offer service users a richer data capability which in turn can be used to provide innovative new payments services to both consumers and businesses.

NPA High Level Architecture Components (2/2)

Component Name	Description
Payment Messaging	Advices, Research and Adjustments and reporting
Aggregation / Collection	Aggregation and collection of funds to the customer accounts
Payment Execution	Processing of the payment at the payee or the payer ASPSP account and managing the Overlay Services processing
Payment Assurance	• Confirm Payee Identity • Confirms Payment Status • Confirms Payer Identity
Attended Single Push Payment	Routes and manages attended synchronous payment instructions between participants • Ensures that instructions finality rules are followed • Supports multiple overlay payment types, whilst maintaining resilience and safety
Unattended Bulk Push Payment	Routes and manages attended synchronous payment instructions between participants • Ensures that instructions finality rules are followed • Supports multiple overlay payment types, whilst maintaining resilience and safety
Network Connectivity	The network is in the competitive space and can be provided by competing providers that comply with the technical standards and rules set by the NPSO.
Settlement Processing	Ensures BoE instruction finality rules are followed and interfacing to BoE RCA accounts • Supplies only the required information for bank to bank transfers
Fin Crime	Financial Crime is being delivered by another project and will not be delivered by NPA. However, there is a requirement on NPA to share payment transaction data with the Financial Crime utility. This requirement has been taken into consideration during the assessment of clearing and settlement options with a recommendation that responsibility for sharing payments data with the Financial Crime utility with 'Sync Clearing Processing' and 'Async Clearing Processing'.

Directory Services

NPA Directory Services – Background

The NPA will require access to a number of data sets to perform ‘front office’ functions, transact a payment, and perform ‘back office’ functions. Access to these data sets will potentially be required through all levels of the NPA architecture.

The Open Banking Programme as part of its ‘Read / Write’ solution is implementing a Directory Services component. NPA is proposing to build upon this design to meet its requirements for a Directory Services Component.

The Directory Services (referred to as ‘Registry’) concept is referred to in the CMA Remedies and Open Banking Approach document.

There is no single architectural component that comprises the Directory Services; rather it is best to consider this a sub-system of interacting components.

The deployment methodology for the Directory Services will be subject to a number of considerations both technical and commercial. This paper will primarily look to explore these options at a high conceptual level.

The paper is focusing on data, will be technology agnostic and is not intended as an implementation design.

Open Banking Read / Write solution is referenced but not explained. See the Open Banking Outline solution 2018 v1.2 for information.

NPA Directory Services – Key Considerations

NPSO Governance model

- Information management will require to be Governed by a central body. NPSO is indicatively placed to undertake this.

Solution will build upon the Open Banking Read / Write solution – *This requires validation*

- The Open Banking solution for Open APIs contains a number of solutions for supporting services. Directory Services is one of these.

Data changes (CRUD) will be required near real time based on defined SLAs

- The immediate payments system will require data changes to made available near real time (TBD) to ensure correct payment transaction

Routing data will be required as a lookup for both centralised and distributed use cases

- Routing data (EISCD & CASS) has been identified as being required at TPP, ASPSP and SPP Clearing layers

CRUD performance must be within the agreed transaction SLAs

- All defined data sets will be subject to SLAs and resilience and availability criteria (NFR)

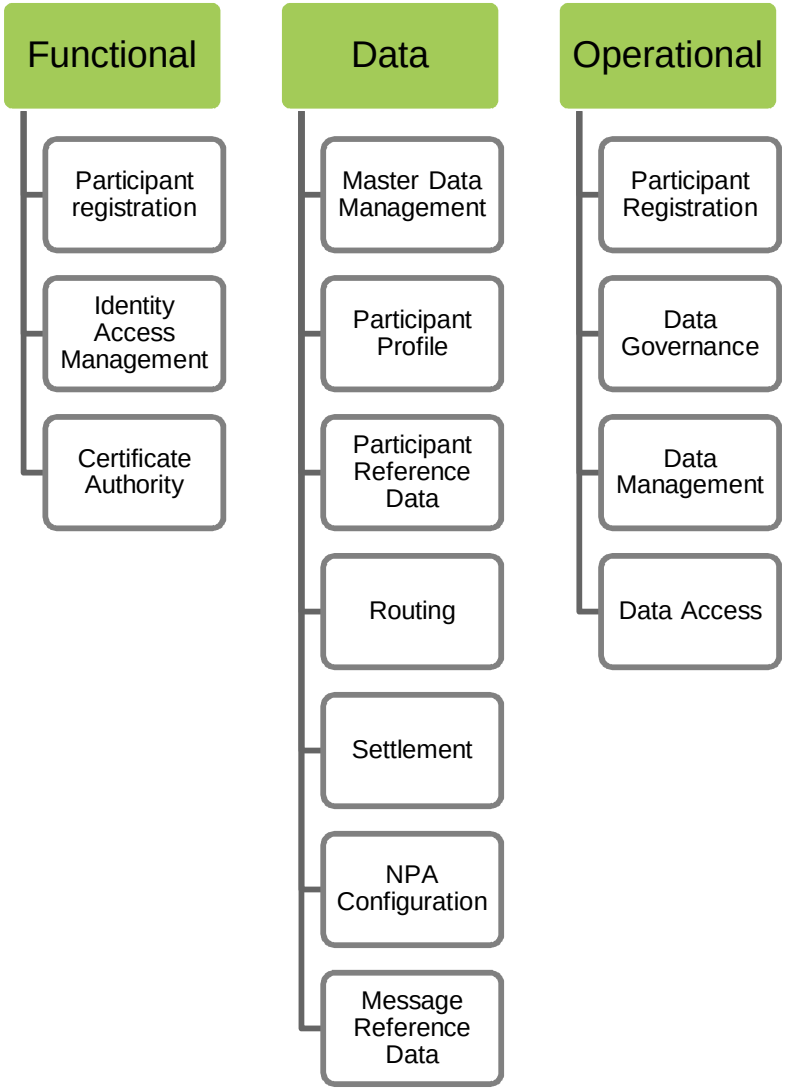
Data integrity and consistency must be maintained

'Commercial in Confidence' data segregation

- Controls must be in place to restrict data access, in particular CASS data

NPA Directory Services – Requirements

Directory Services requirements are split between functional items (tasks it needs to perform) ,the data it needs to collect, host and serve to the NPA, and operational processes to manage the data.



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Directory Services – NPA Data Requirements

NPA will require a number of data sets to support payment initiation and execution. These have not been fully explored or identified but indicatively fall into the following categories;

Customer Reference Data

- Participant Registry
- Roles
- Profile

‘Bank’ Reference Data

- Payment Routing
- Re-direction
- CASS

‘Scheme’ Reference Data

- Configuration
- Frequency

Directory Services – Open Banking

The diagram below is a snap shot from the 'Open Banking Implementation Entity, Solution Outline Read / Write Solution V1.2. The integration of the NPA functional, data and operational requirements into this solution will be dependant upon a number of factors which require further investigation.

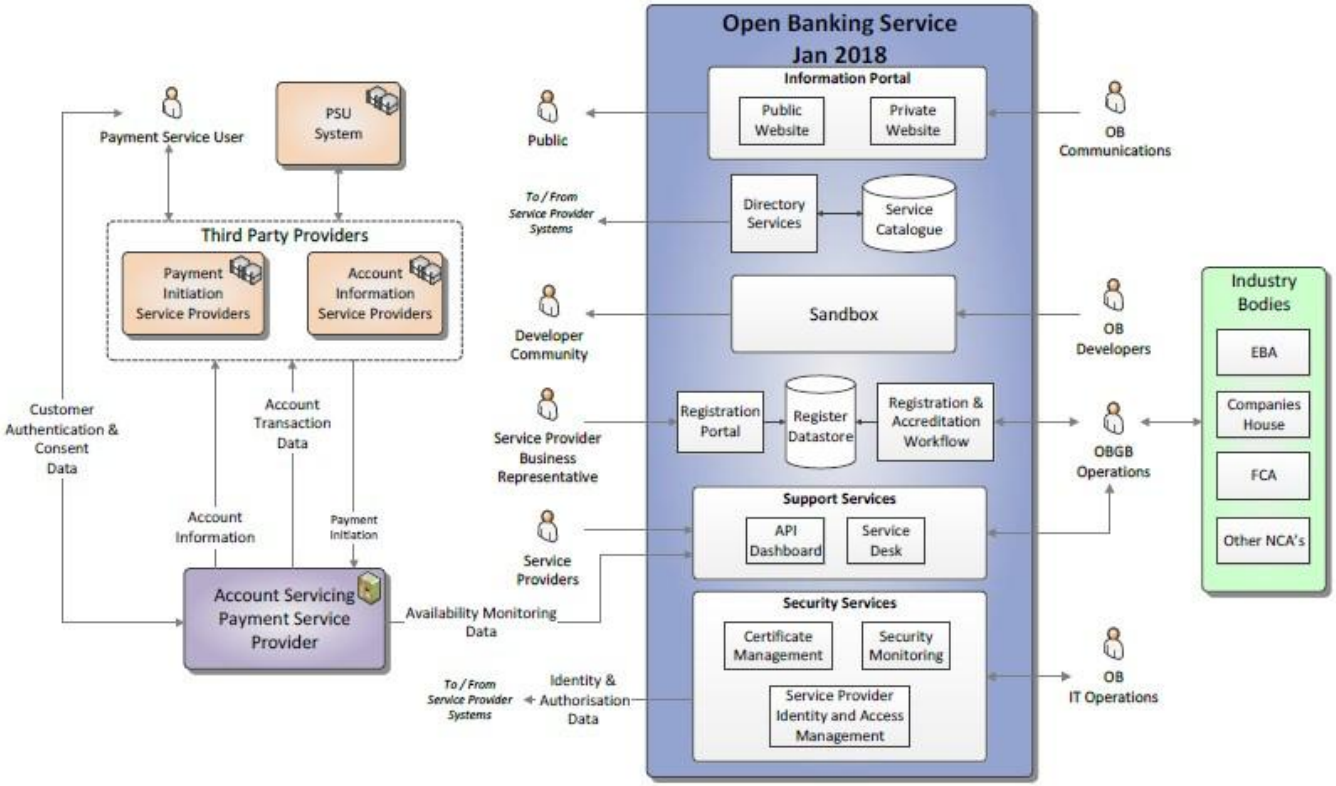


Figure 3. Architecture Overview - Read / Write Data.

- Can the functional requirements be met ?
- Can NPA data sets be integrated into this model ?
- Can the OB IAM solution be used to facilitate authorised access to NPA data sets ?
- Can MDM be implemented within this model ?
- Does this model support a distributed data model ?
- Are there any physical hosting constraints ?

Deployment Considerations

Model

- Centralised data access
  - *Data held centrally and consumed via API access*
- Distributed data access
  - *Data is distributed and accessed locally*

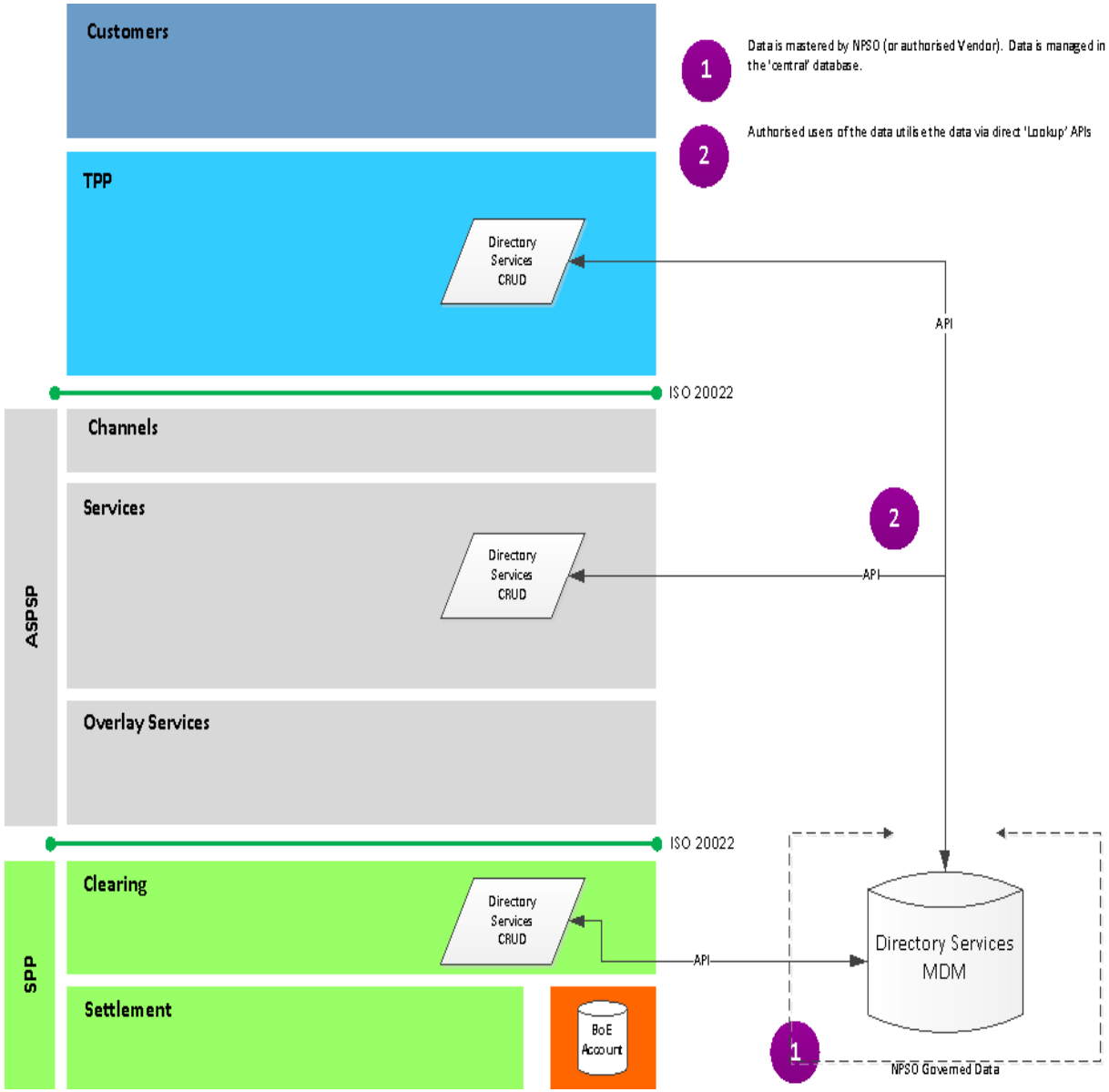
Vendor

- Centralised Single vendor
  - *Data hosted by a single vendor*
- Centralised Multi-vendor
  - *Individual data sets hosted by different vendors*
- Distributed Single vendor
  - *Data distributed by a single vendor to participants*
- Distributed Multi-vendor
  - *Individual data sets distributed to participants by different vendors*

MDM

- Master Data Management will be required to define and manage the NPA data. This falls into two categories; Reference Data ; Analytical Data. MDM will provide the processes for assuring the consistency and quality of the data whether centralised, distributed, single vendor or multi-vendor

Deployment Model Options – Centralised



- Data Governed centrally by the NPSO
- Master Data Management (MDM) centralised
- Data updates subject to agreed SLAs
- Data physically managed by a vendor(s)
- Authorised users access data via defined APIs
- API and lookup performance subject to agreed SLAs and NFRs

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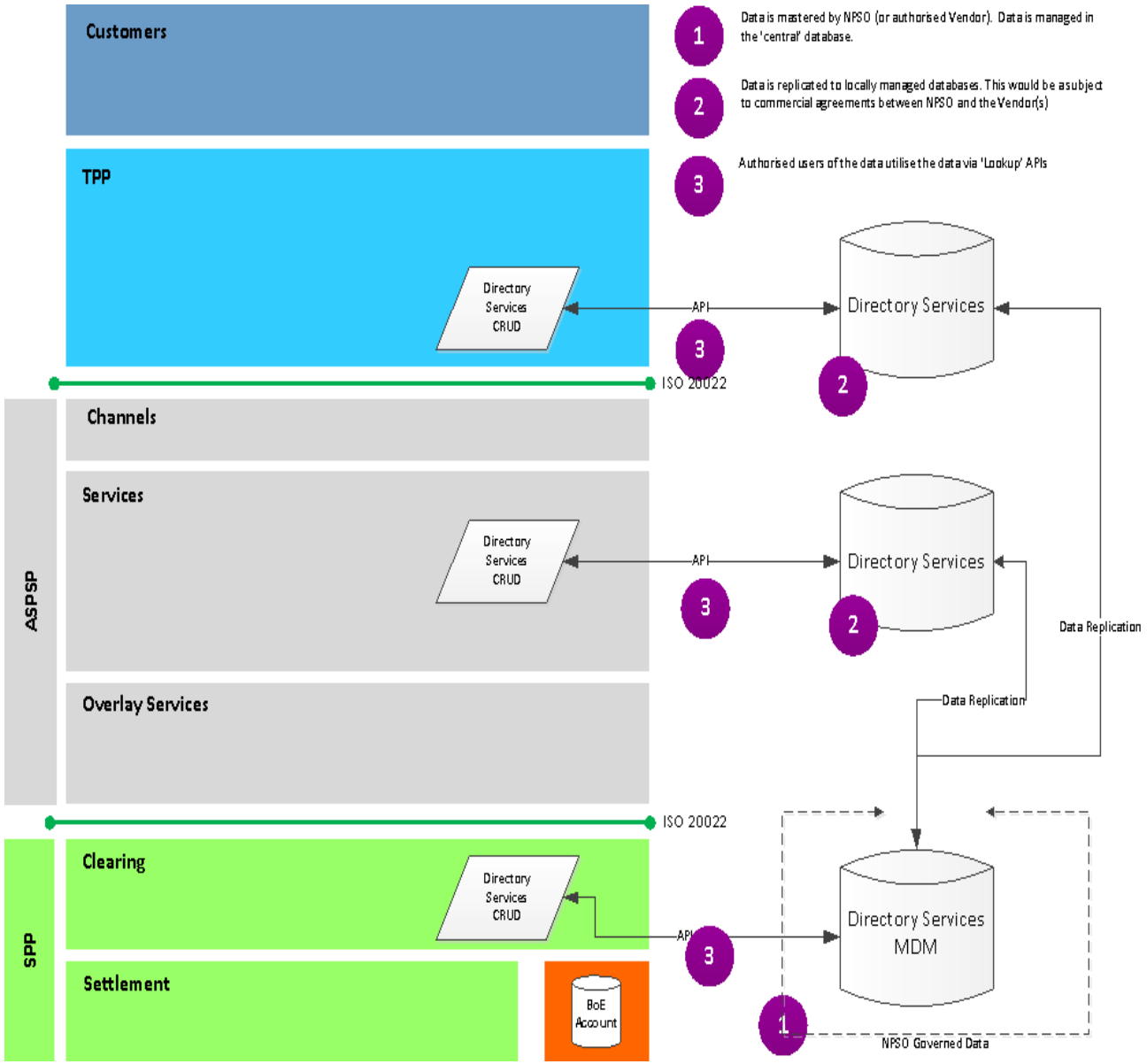
Deployment Model Options – Distributed



Data Governed centrally by the NPSO

- Data that is subject to external updates, e.g. EISCD would be managed by NPSO who would coordinate changes with the Vendor(s)

Master Data Management (MDM) centralised

Data updates subject to agreed SLAs

- Data will be required to be distributed / replicated based on agreed SLAs

Data physically managed by a vendor(s) and distributed based on commercial agreements

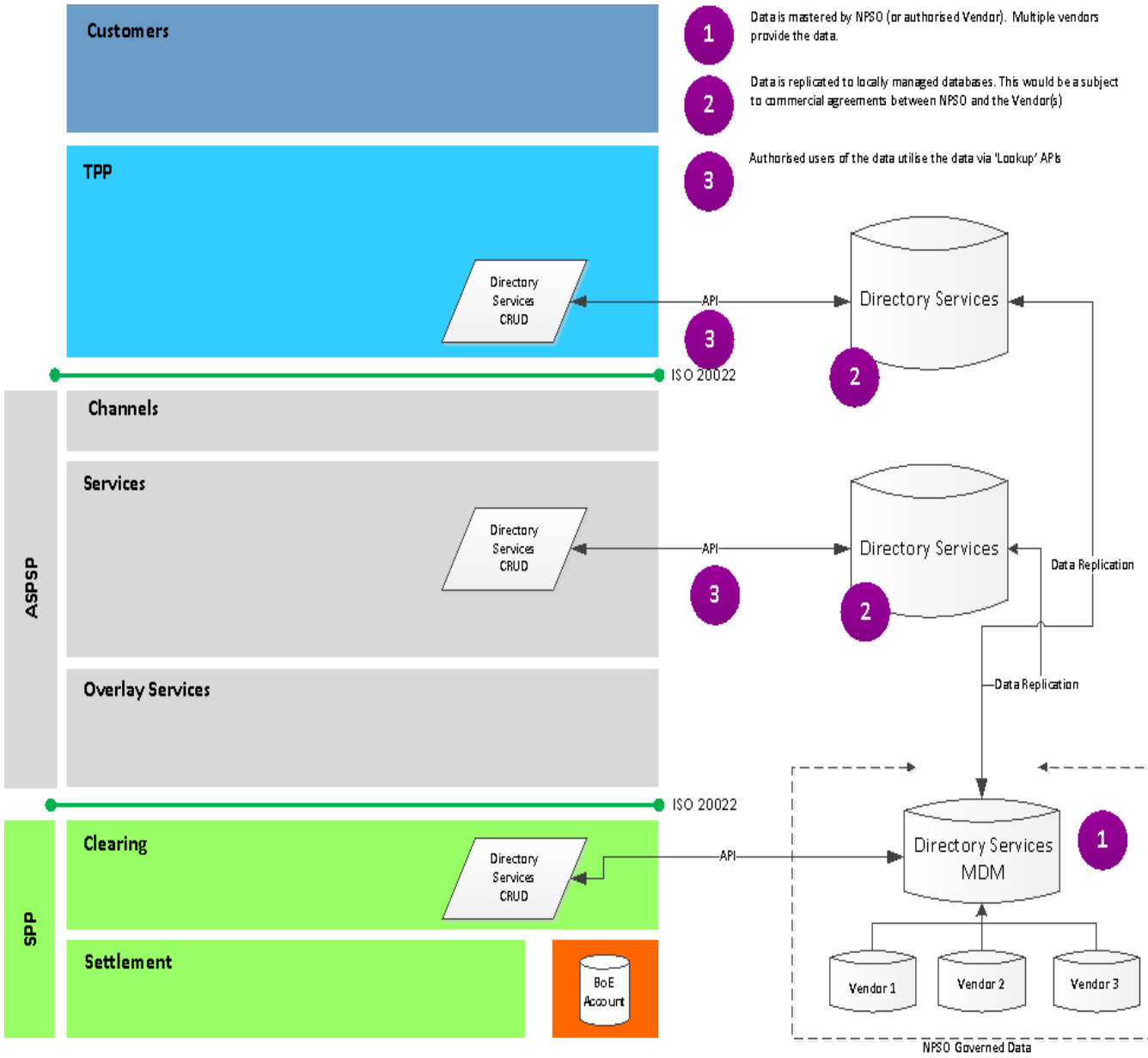
- The competitive model allows for a single or multiple Vendors to host and manage the data

Authorised users access data via defined APIs to locally held data

Data replication will be subject to agreed SLAs

- Real time updates ?

Deployment Model Options – Multi-Vendor



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Data updates subject to agreed SLAs

- Data will be required to be distributed / replicated based on agreed SLAs

Data physically managed by multiple vendors and distributed based on commercial agreements

- The competitive model allows for a single or multiple Vendors to host and manage the data

Authorised users access data via defined APIs to locally held data

Data replication will be subject to agreed SLAs

- Real time updates ?

Deployment Model Options – Pros / Cons

Vendor options for hosting and managing Directory Services will depend on the competition criteria that is employed, i.e. 'for the market' or 'in the market'. The response to this will drive the deployment methodology and the practicality of data management. The following table provides a view of the 'pros' and 'cons'

Criteria	Centralised	Distributed
DBMS	Centralised DBMS. Data is mastered centrally.	Centralised DBMS required to managed the distributed data. Additional management complexity. Data is mastered centrally.
Performance	DB performance is dependant upon many factors, i.e. data model, access mechanism, read/write optimisation, latency, where data is mastered. Performance between Centralised and distributed will depend on the model employed.	DB performance is dependant upon many factors, i.e. data model, access mechanism, read/write optimisation, latency, where data is mastered. Performance between Centralised and distributed will depend on the model employed.
Replication	Replication across centralised environments. Data integrity maintained at one point.	Replication across centralised environments and to distributed environments. This will potentially impact data integrity and consistency across the NPA layers at a point in time.
Data Synchronisation	Centralised updates, synchronised across the centralised filesystem.	Additional DBMS tasks to synchronise distributed data updates. Additional management complexity.
Saleability	Centralised environments will be based on SLA and growth projections, and should provide horizontal scalability.	Distributed environments will be the responsibility of individual PSP to procure , size and manage based on the services adopted by the PSP.
Data Segregation	The controls and methodology to segregate data (where required, i.e. CASS data) exist and are readily available. The data architecture that is employed will determine the methodology employed and the approach taken. Both centralised and distributed will have equal complexity.	The controls and methodology to segregate data (where required, i.e. CASS data) exist and are readily available. The data architecture that is employed will determine the methodology employed and the approach taken. Both centralised and distributed will have equal complexity.
Competition	A centralised approach will promote 'competition for the market' in that a limited number of vendors will provide the Directory Services data sets.	A distributed approach will allow individual PSPs to hold a commercial agreement with a vendor for the data set(s), and again they will choose how to implement the services.

Deployment Options – Wider Data Implications

Operationally where data is hosted will impact the complexity of payments processing. The following table looks at the impact of processing payments within the layered architecture dependant on whether data is available locally or centrally.

Criteria	Centralised	Distributed
Customer	N/A – It is not anticipated that the NPA will be providing data directly at the Customer layer.	N/A – It is not anticipated that the NPA will be providing data directly at the Customer layer.
TPP	Direct API to required data sets.	Data held locally access mechanism defined by TPP. Commercial agreement required to 'buy' data sets ?
ASPSP	Direct API to required data sets	Data held locally access mechanism defined by TPP. Commercial agreement required to 'buy' data sets ?
Clearing	Direct API to required data sets	N/A

Settlement & Clearing Deployment Approach

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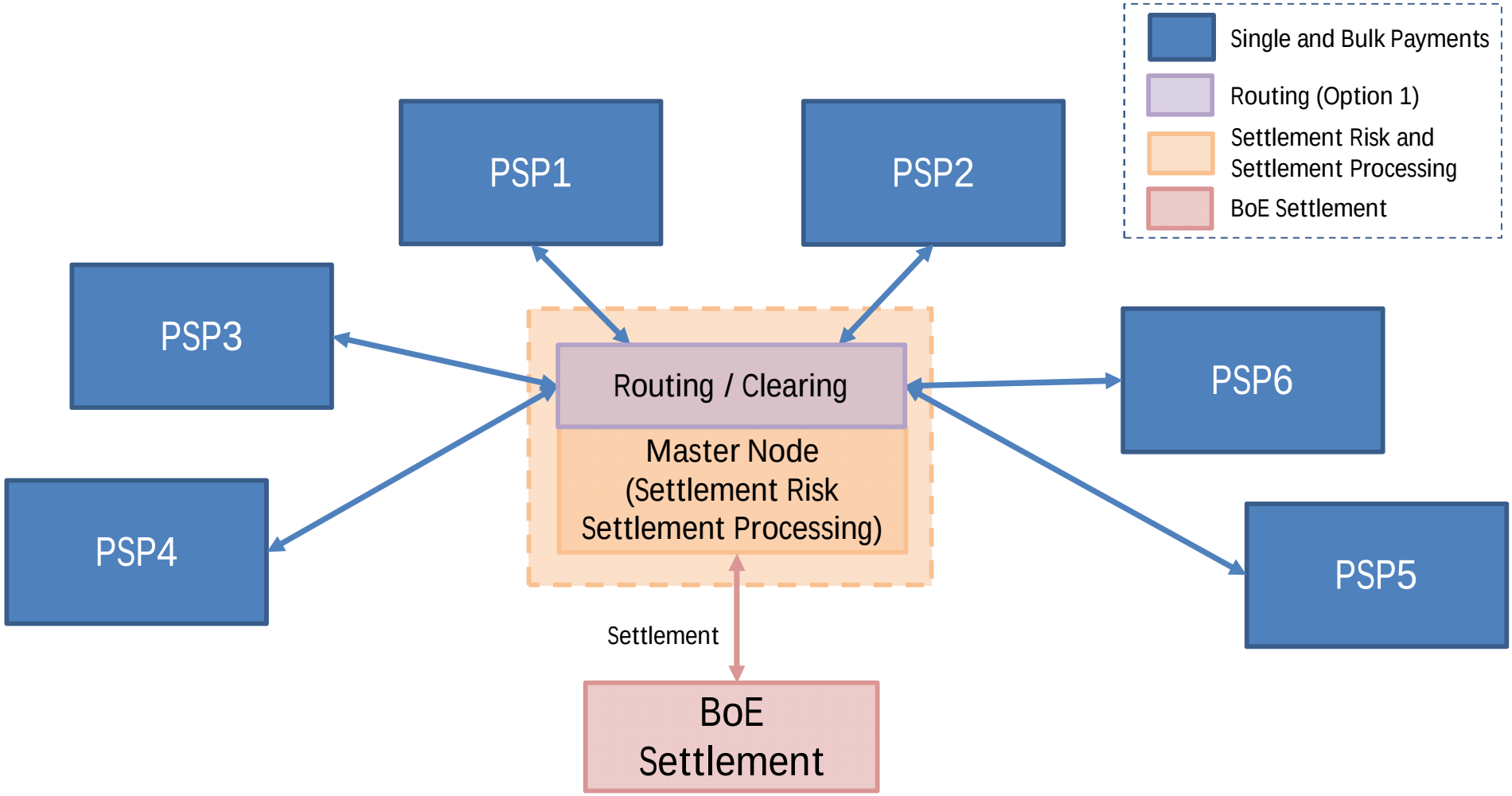
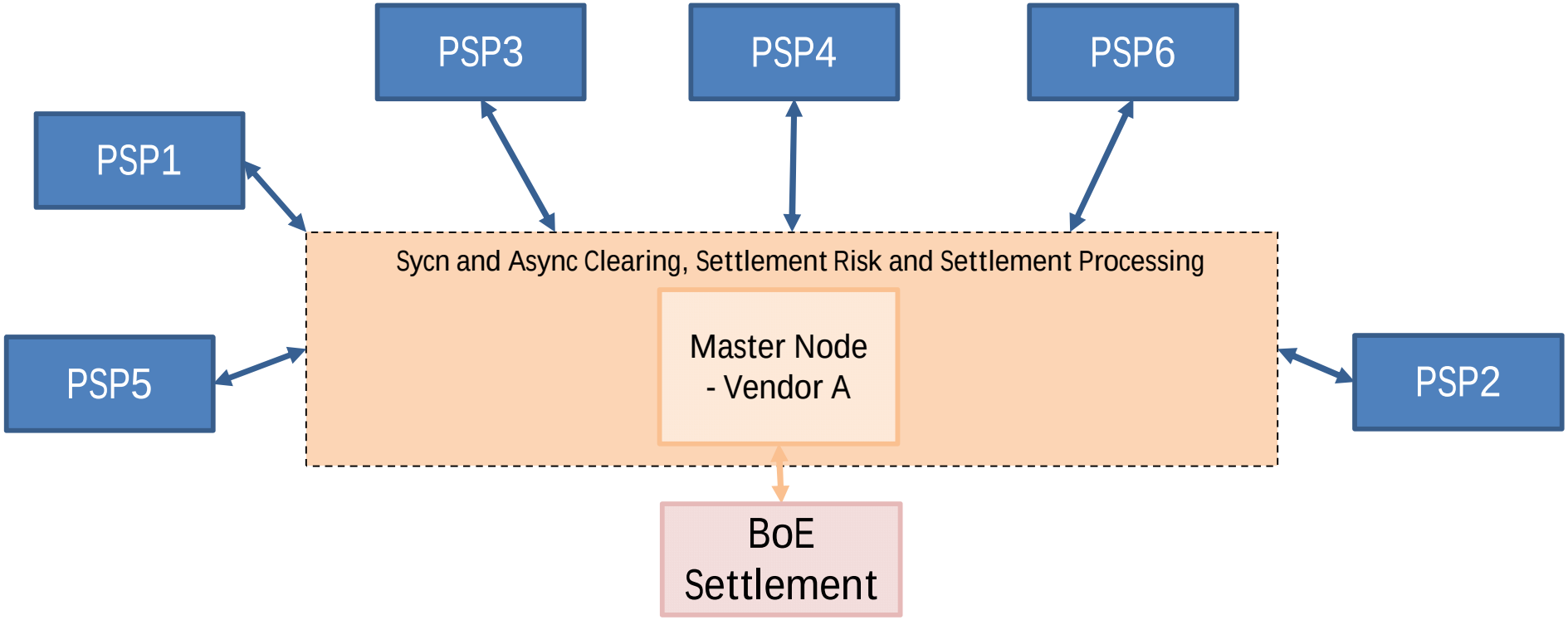
Hub & Spoke Settlement and Hub & Spoke Clearing



- Ø Controlled settlement processing - no settlement risk
- Ø Simple to govern, operate and reconcile
- Ø Well understood approach with existing schemes and best practice globally including the recent US (TCH) and EU (SCT Inst) models
- Ø Simplified interfacing and messaging
- Ø Simplified PSP to PSP relationship management – a new PSP only needs to establish a relationship with the Clearing and Settlement Risk Manager Infrastructure.
- Ø Easier to add or remove PSPs

Single Vendor Deployment Approach

In this approach a single vendor will be providing, settlement risk and settlement processing for all synchronous and asynchronous payment types.



Opportunities:

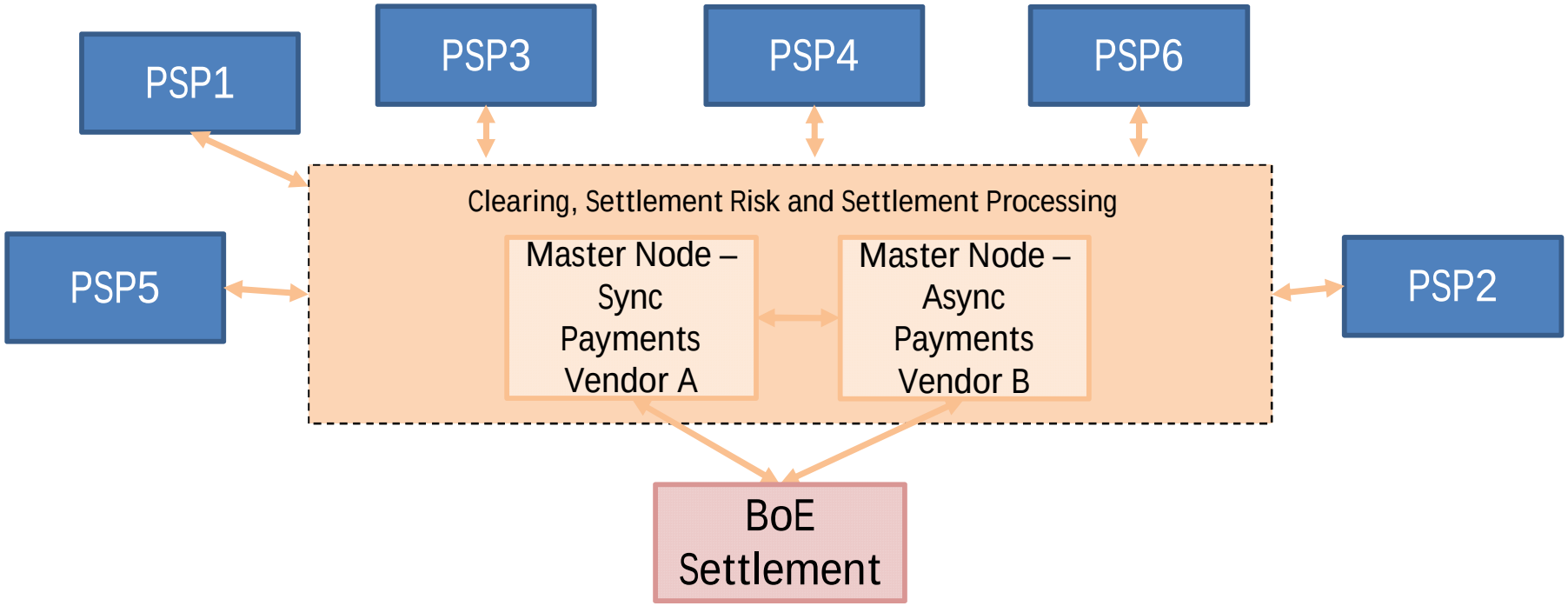
- Ø Inherits participant liquidly efficiency - single debit cap each participant for all payments types and multilateral netting for all participants
- Ø Technically less complex with no real-time data sharing required between multiple nodes for liquidly efficiency
- Ø Reconciliation and reporting will be simpler
- Ø Reduced settlement requests to the BoE
- Ø Consistent and standardised service model
- Ø Single point of contact for operation issues
- Ø Efficient oversight for NPSO
- Ø Maximising volume has potential to reduce unit cost

Considerations

- Ø Reliant on a single vendor to scale for increased demand
- Ø Migration to an alternative supplier in event of contractual issues may require retendering
- Ø No opportunities to direct traffic for market needs
- Ø Reliant on single vendor to accommodate changes – may have resourcing constraints – PSPs are reliant on a single vendor for service (on-boarding and support)
- Ø May lead to reduced negotiating power with single vendor
- Ø Limited opportunities to reduce transition risk between future vendors

Multi Vendor Deployment Approach

In this approach clearing and settlement of synchronous and asynchronous will be provided by different vendors. The concept is to allow multiple vendors to provide a clearing and settlement service for a given payment type.



Opportunities

- Ø Flexibility to scale – nodes can scale independently for increased demand
- Ø Traffic directed based on market needs – traffic separated by payment type
- Ø Stronger negotiating power
- Ø The NPSO will be responsible for managing single agreed risk position for each participant by allocating a debit cap to each master node (payment type).
- Ø Reduced transition risk one model deployed
- Ø Simplified integration / migration to new master nodes for new payment types
- Ø NPSO will retain the flexibility to reallocate debit caps

Considerations:

- Ø NPSO will be responsible for allocating a debit cap to each master node (payment type)
- Ø Opportunities exist to provide a more sophisticated cap management approach in the future
- Ø Reconciliation and reporting will be across multiple vendors
- Ø Each master node will submit its own settlement requests to the BoE – BoE will need to process all requests within the time window (each request may affect the same account)
- Ø Less traffic per vendor may have higher unit cost
- Ø NPSO will need a process to coordinate changes to a participants overall risk position at BoE and their alignment to master node debit caps

Transition State

Transition Principle & Pre-Requests

Principle

- Payments UK's recommendation detailed in the response to Payment Systems Regulator's Final Report on its Market Review into the 'Ownership and Competitiveness of Infrastructure Provision' report for migration. Namely:
    - Phased transition approach is the ideal and least disruptive to the market, a big-bang implementation is not desirable
    - Introducing a transitionary period ensures that all ASPSPs can develop or upgrade their systems over time, which will be more cost-effective and less impactful
    - Migration period to be kept as short as possible, without creating unnecessary risk in order to keep costs low and to quickly and efficiently reap the benefits
    - If there is a need for translation services to be in place during this period and support having a time limit imposed on how long translation services can be used for.
    - Migration and adoption of ISO 20022 for UK electronic payments must avoid:
        - detrimental impact to the integrity of the payments
        - introducing uncontrolled risks
        - avoid detrimental customer impact, whatever the segment of customer
        - imposing barriers to entry for new market entrants
- Facilitate transition of PSPs from the current Payment models to the New Payment Architecture
- Ensure that the current and new system are able to run independently of each other for clearing
- Minimise impact on the existing payment schemes during transition

Pre-Requests

- At the start of Transition
    - All ASPSPs will be able to receive Single Immediate payments Single Payments
    - Directory Services & PSP Accounts implemented
- BoE RTGS implemented before Day1, resulting in single settlement account across all the schemes

Potential Designs

The following designs where considered

All ASPSPs receive NPA transactions on Day1

- All ASPSPs will be able to receive Single Payments at the start of Transition Period-1, followed by Bulk Payments at the start of Transition Period-2 and Images clearings at the start of Transition Period-3
- Sending of NPA transactions will be phased by type of payment and volume.
- This is the recommended approach

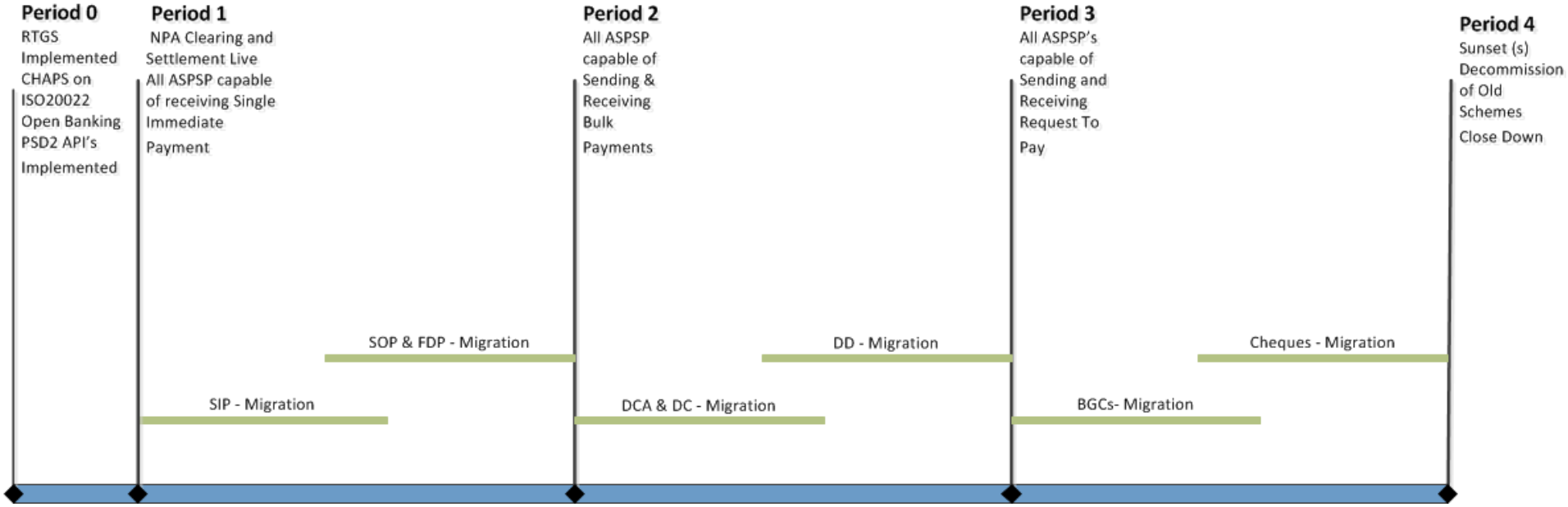
ASPSPs Phased to send & receive NPA transactions

- ASPSPs will be phased to send and receive NPA transaction
- Helps in migration as all the ASPSPs are not expected to receive NPA transactions on Day1.
- This model was discounted as all the ASPSPs are expected to have the functionality to receive and process ISO20022 format messages with the implementation of RTGS.
- In addition sending data from New to Old will result in data truncation and throw away developments

Big Bang Approach

- Each Payment Type migrated as a Big Bang on the same Day
- Reduces the migration window
- This model was discounted due to the inherent risk in adopting this approach and is against the recommendation in the PSR “Market Review into the ‘Ownership and Competitiveness of Infrastructure Provision” report.

Transition Period



Transition of the current payments to NPA will be done over a number of discrete` periods.

- Period 0 – Pre-Transition
- Period 1 – Single Payments
- Period 2 – Bulk Payment
- Period 3 – ICS Payment
- Period 4 – Sunset(s) and close down

The transition periods will be further split into Phases catering for individual Payment Types.

Transition Period Description

Each Transition period, will be built on the functionality implement in the previous Transition period.

- Transition Period-0 - The following features are expected to be implemented before NPA
  - RTGS
  - Market Driven
    - Confirmation of Payee
    - Request to Pay
- Transition Period-1 – Single Payments (all ASPSPs capable of receiving Single Payments)
  - Transition Period-1, Phase-1
    - Sending of New Single Immediate Payments
  - Transition Period-1, Phase-2
    - Sending Forward-dated Payment
    - Sending Standing Order
- Transition Period-2 – Bulk Payments (all ASPSPs capable of receiving Bulk Payment)
  - Transition Period-2, Phase-1
    - Sending of Bulk Payment implemented
  - Transition Period-2, Phase-2
    - Sending Payments for Direct Debits
- Transition Period-3 – Image Clearings (all ASPSPs capable of receiving ICS Payment)
  - Transition Period-3, Phase-1
    - Processing of Credits
  - Transition Period-3, Phase-2
    - Processing of Cheques
- Transition Period-4 – Sunset(s) & Close down

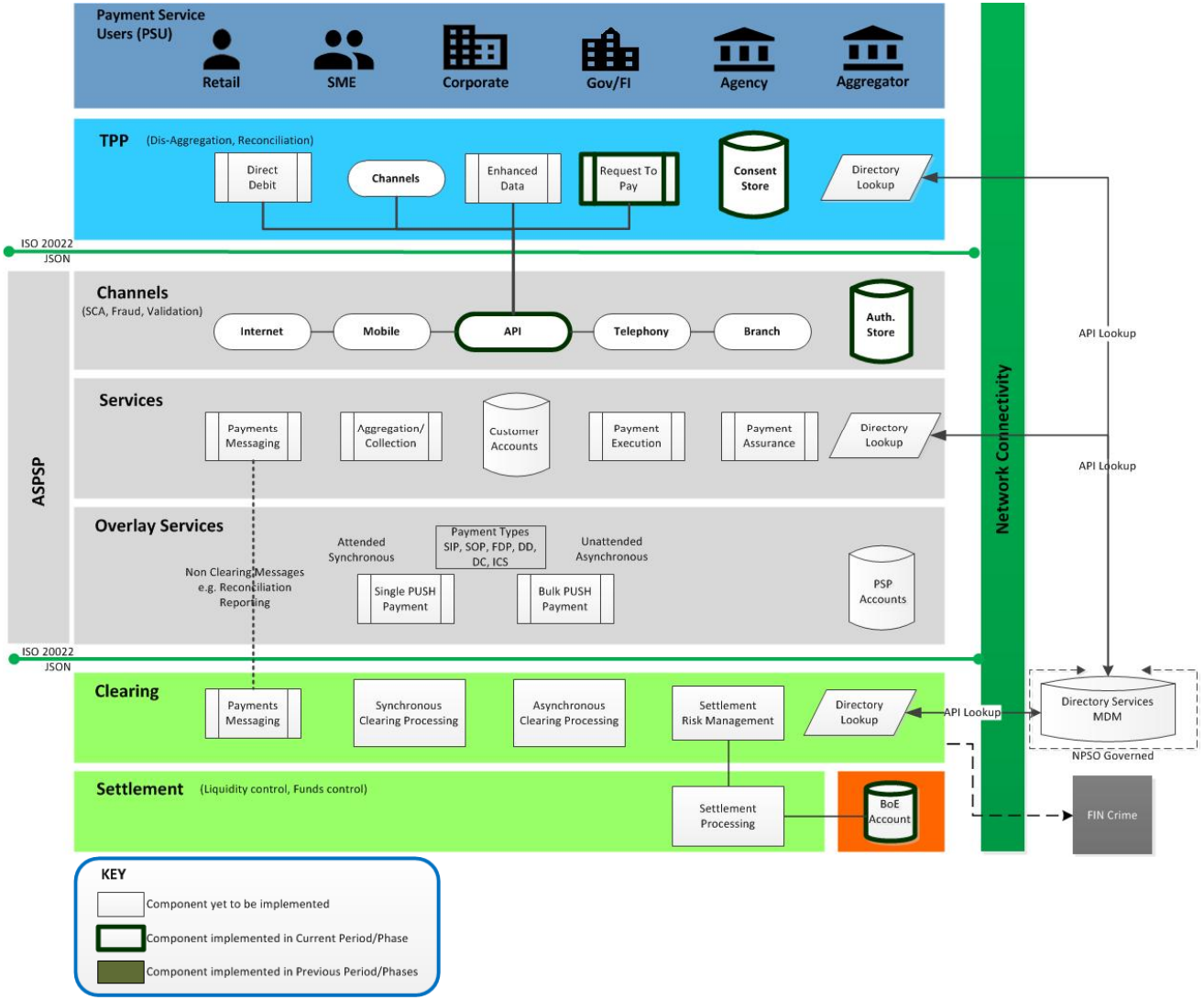
Transition Period–0 - Pre NPA Implementation

Function Provided

- BoE – Single Settlement Account for ASPSPs
- PSD2 API's
- Request to Pay
- Confirmation of Payee

Components Implemented are:

- Request to Pay
- Consent Store
- PSD2 API
- Authorisation Store
- BoE Accounts



Transition Period–1 - Single Payment

At the start of Transition Period-1, all ASPSPs will be able to receive Single Payments

Components Implemented are:

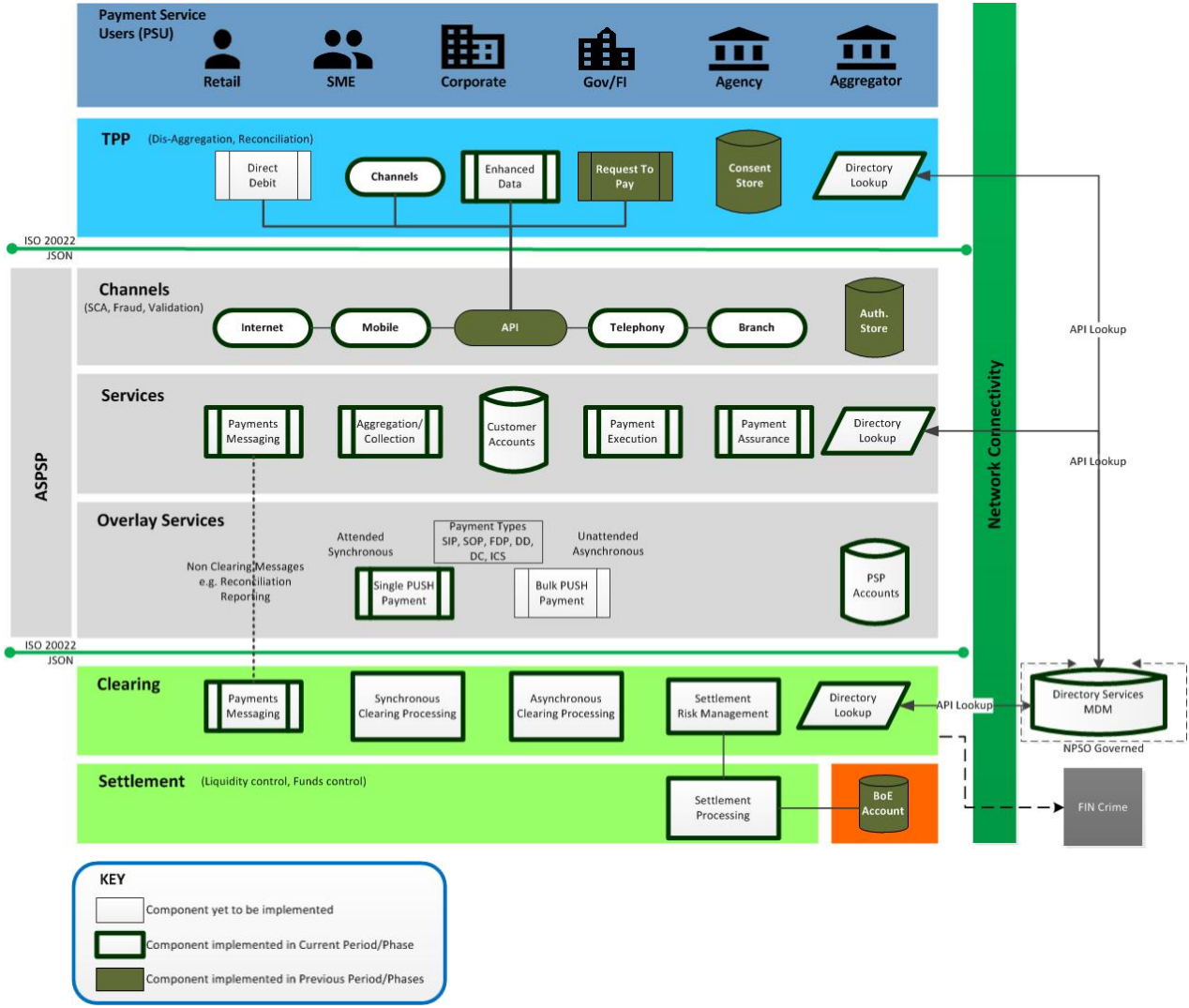
- Payment Messaging
- Synchronous Clearing Processing
- Asynchronous Clearing Processing
- Settlement Risk management & Settlement processing
- Customer Account
- Payment Execution
- Aggregation/Collection
- Payments Messaging
- Settlement Processing

Single Payment will be migrated in the following Phases:

- Phase-1
  - Sending of New Single Immediate Payments
- Phase-2
  - Sending Forward-dated Payment
  - Sending Standing Order
  - Request To Pay

In addition to the components implemented in the previous periods, the following components are expected to be implemented for sending Single Payment messages:

- TPP Channels
- TPP Directory
- PSD2 API
- Some of the channels - Internet, Mobile, Telephony or Branch
- Payment Assurance
- Tracking of Payments as a part of Payment Assurance



Transition Period–2 - Bulk Payment

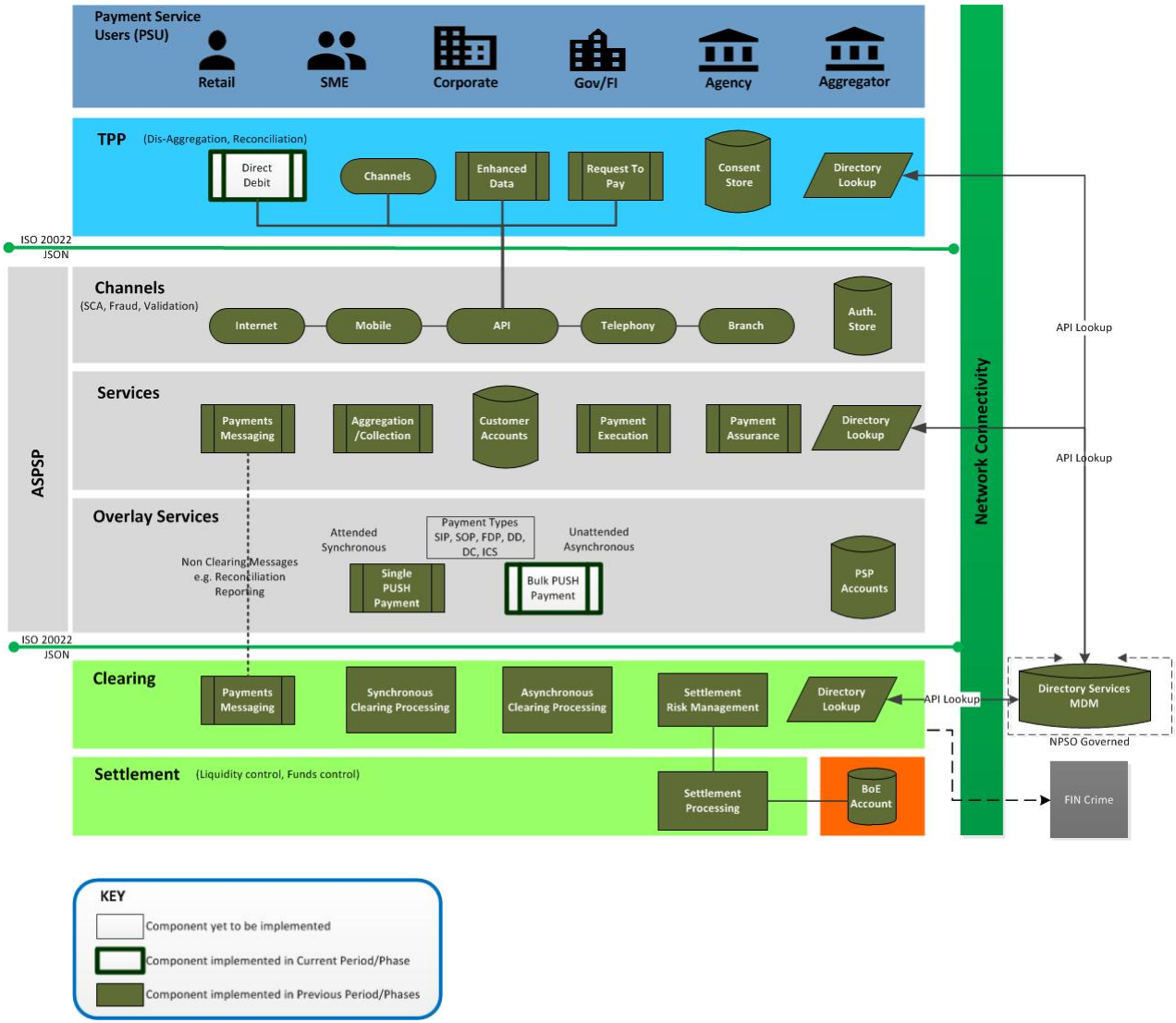
All ASPSPs must be capable of receiving Bulk Payments at the start of this Transition Period.

Bulk Payment will be migrated in the following Phases:

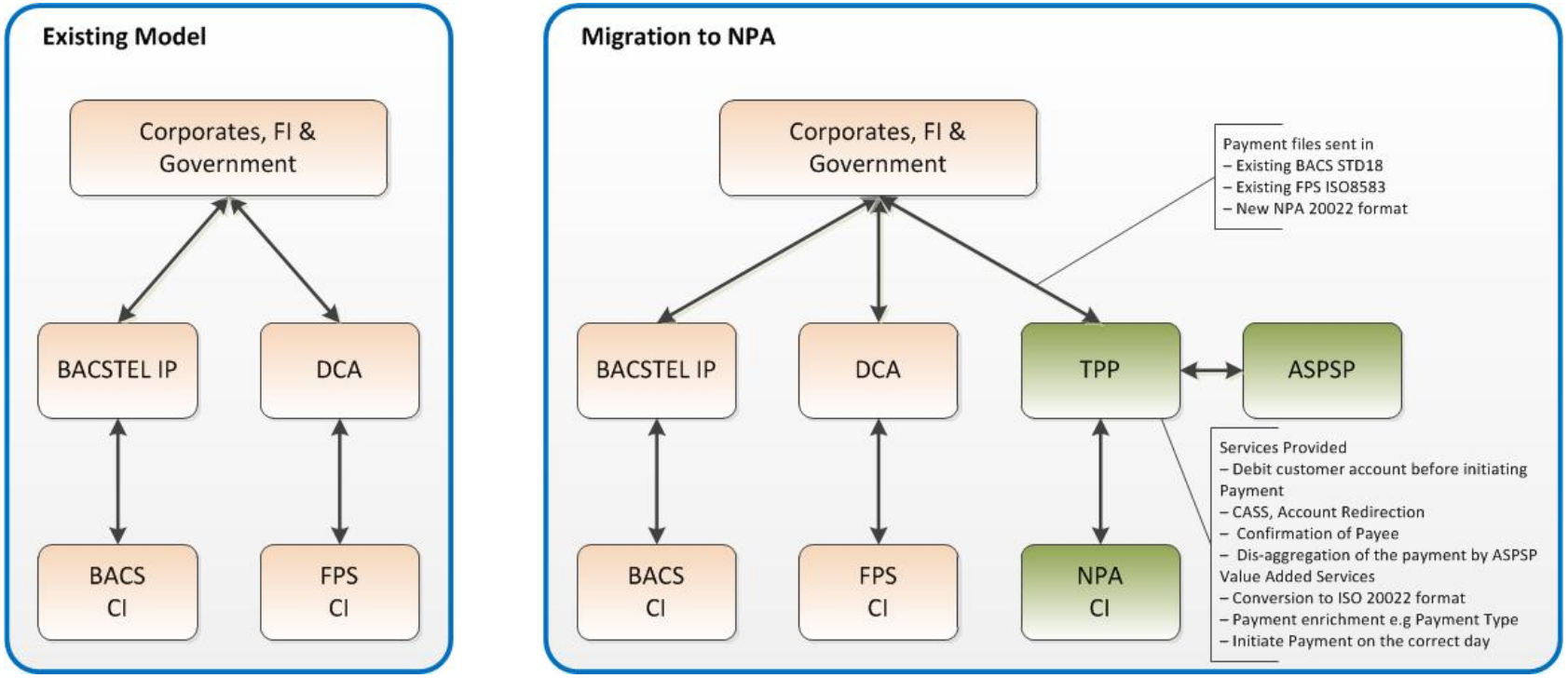
- Phase-1
  - FPS Direct Corporate Access Payments
  - BACS Direct Credit
- Phase-2
  - Direct Debits

Components implemented for sending Bulk Payment messages are:

- Bulk Push Payment
- Direct Debit



Transition Period–2 – Direct Submitter Migration



In the existing model a consolidate file with payement transaction for all ASPSPs are submitted to

- BACTEL IP in STD18 format for BACS
- DCA in ISO8583 format for FPS

During Migration, the files will be submitted in the same format to TPP. TPP as a part of their service will perform

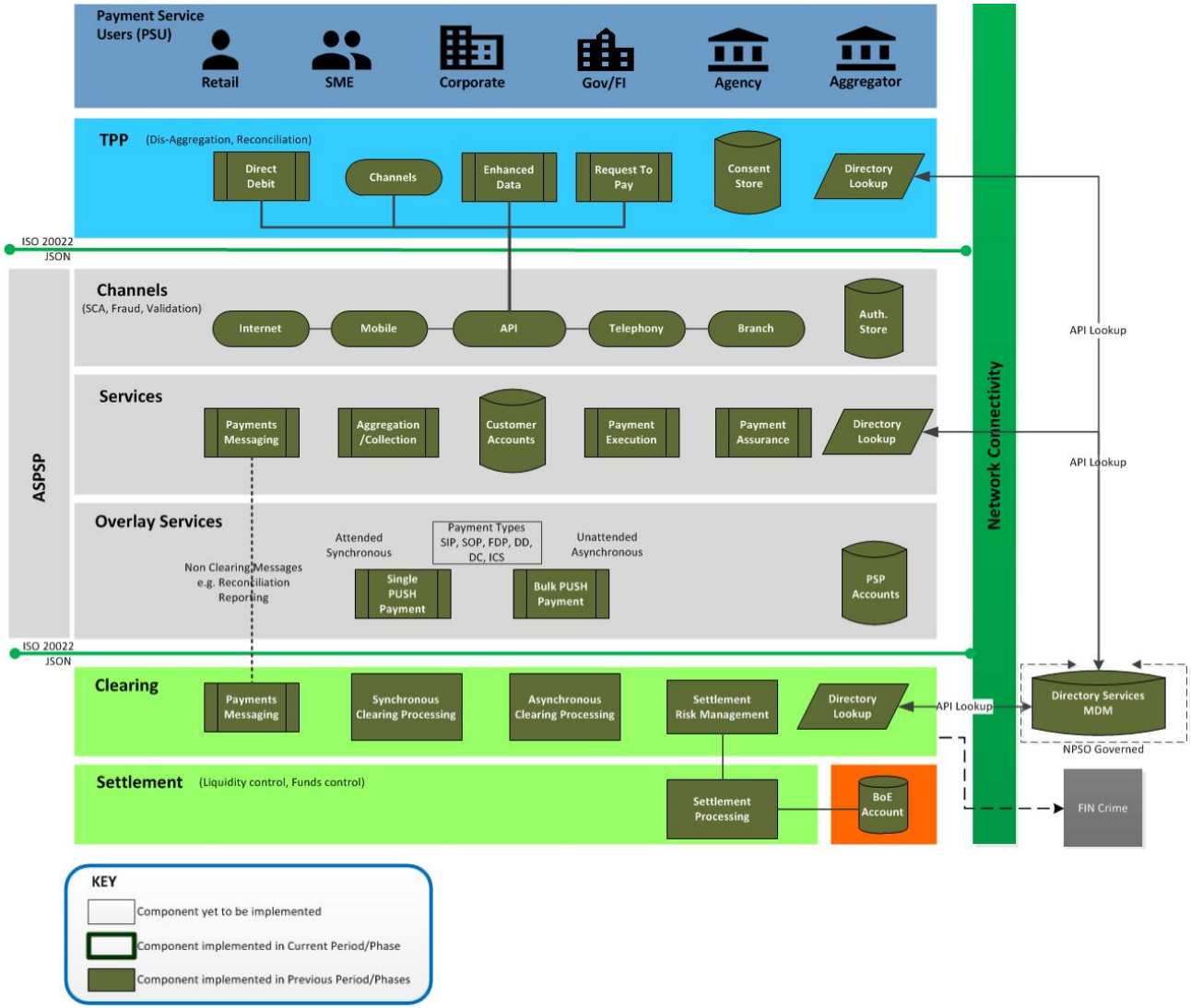
- Confirmation of Payee (where required)
- CASS Account redirection
- Split the file by ASPSPs
- Covert the data into ISO20022 format
- Enrich the data where required e.g. include the type of payment

Transition Period–3 - ICS Clearing

All ASPSPs must be capable of receiving ICS Payments at the start of this Transition Period.

ICS Payment will be migrated in the following Phases:

- Phase-1
  - ICS – BGC Credits
- Phase-2
  - ICS - Cheque Debits



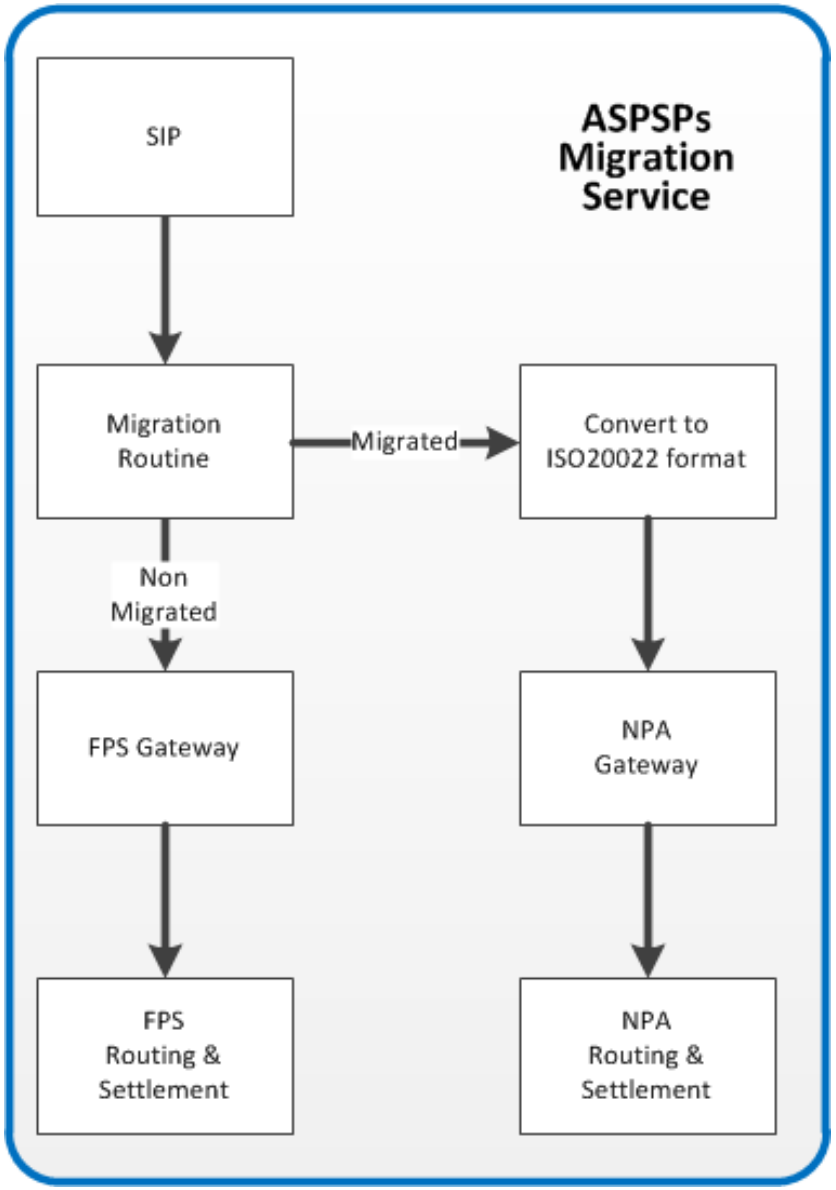
Considerations Re-routing of FPS Single Immediate Payment

During Transition Period-1, if we do not have sufficient ASPSPs sending NPA transactions, a migration service could be implemented to re-route the FPS Single Immediate Payments to NPA. This service could run in

- In the FPS central switch or
- In ASPSPs as shown in the diagram and example below

Migration Service in ASPSPs

- Intercepts SIP transaction in the ASPSPs.
- Routes Migrated transactions to NPA Gateway
- These transactions will have a cut down version of the NPA data
- Non-Migrated transactions routed to FPS Gateway as in the current model



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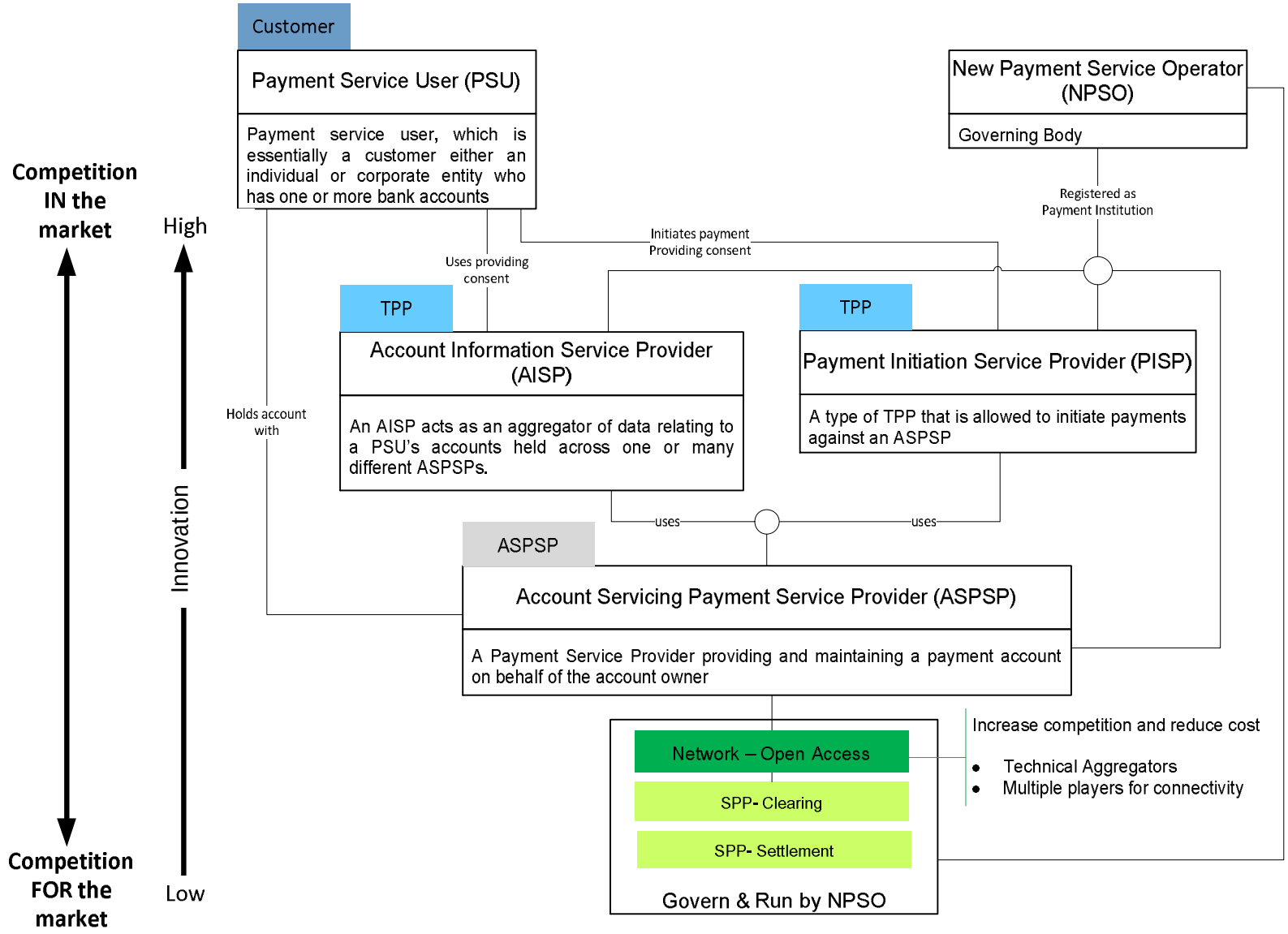
Participation Model

Participant Role Definition

NPA Participant can take one or more of these role



- TPP (AISP, PISP) and ASPSP are different roles possible in the ecosystem
- A business entity can play more than one role e.g. Challenger Bank can be TPP as well as ASPSP.

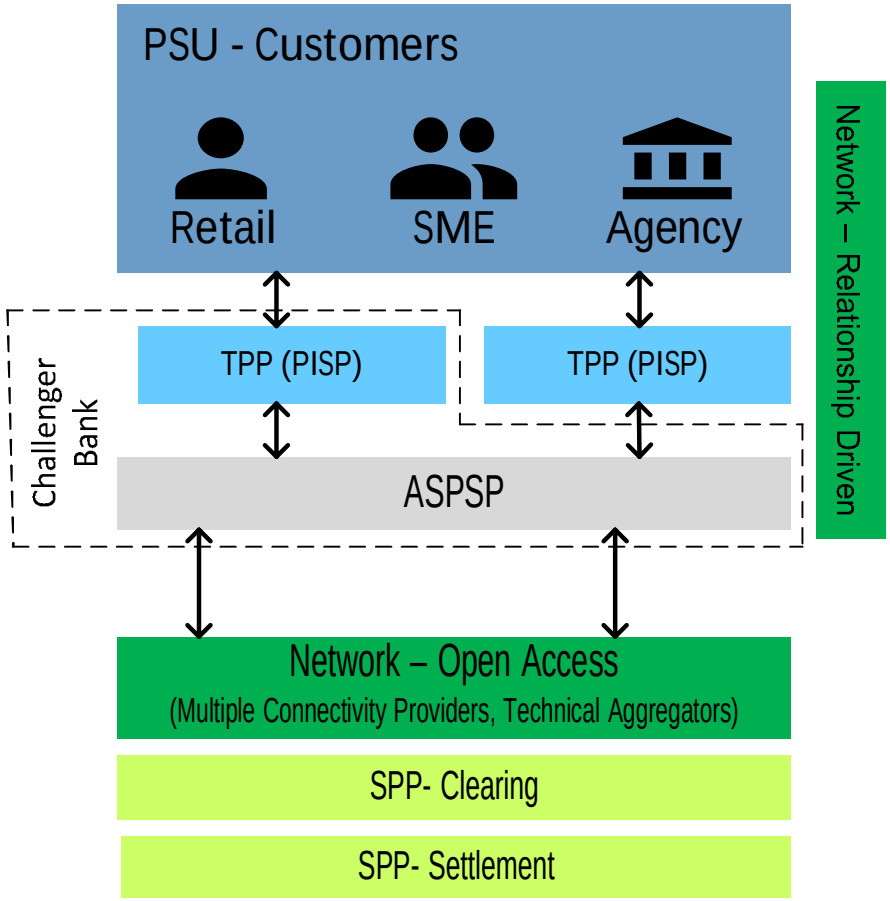
Participant Model

Direct Settling Participant	Direct Non Settling Participant*	Indirect Participant**
• Bank of England Settlement Account is mandatory • Direct technical connection to the NPA infrastructure • Mandatory to receive payments 24/7 • Expectation to offers send payment capability 24/7 • Liquidity and Risk management tools required	• Bank of England settlement account is not required – settlement provided by the Direct Settling Participant • Direct technical connection to the NPA infrastructure • Mandatory to receive payments 24/7 • Expectation to offers send payment capability 24/7	• Bank of England settlement account is not required – settlement provided by the Direct Settling Participant • No direct technical connection to the NPA infrastructure – the technical connectivity is between yourself and your Sponsor Bank • Fully reliant on the NPA service offering of your Sponsor Bank • Not mandatory to receive or send payments 24/7

* Also called as “Connected Non Settling Participant”
** Also called as “Non Connected Non Settling Participant”

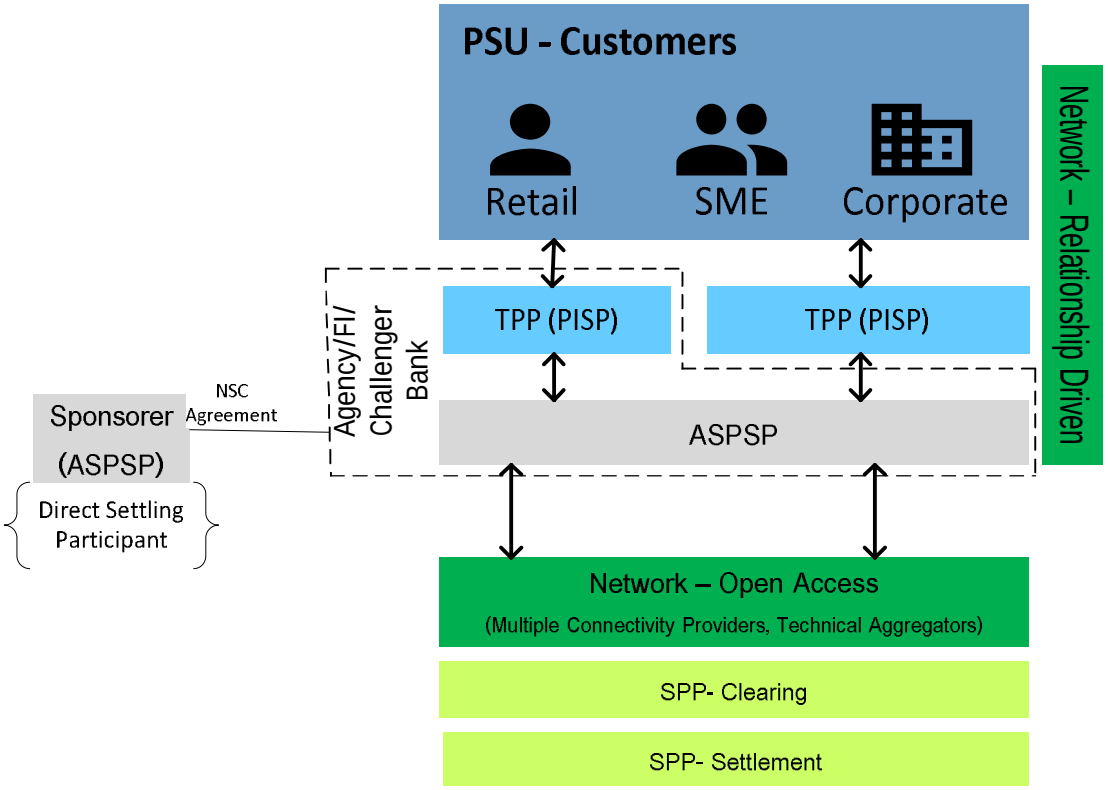
- NPA Participant is one that realises one or more roles defined (see previous slide)
- NPA Participant can use any of the above mentioned participation model
- Following slides provide few examples to understand these participation models

Challenger Bank – Direct Settling Participant



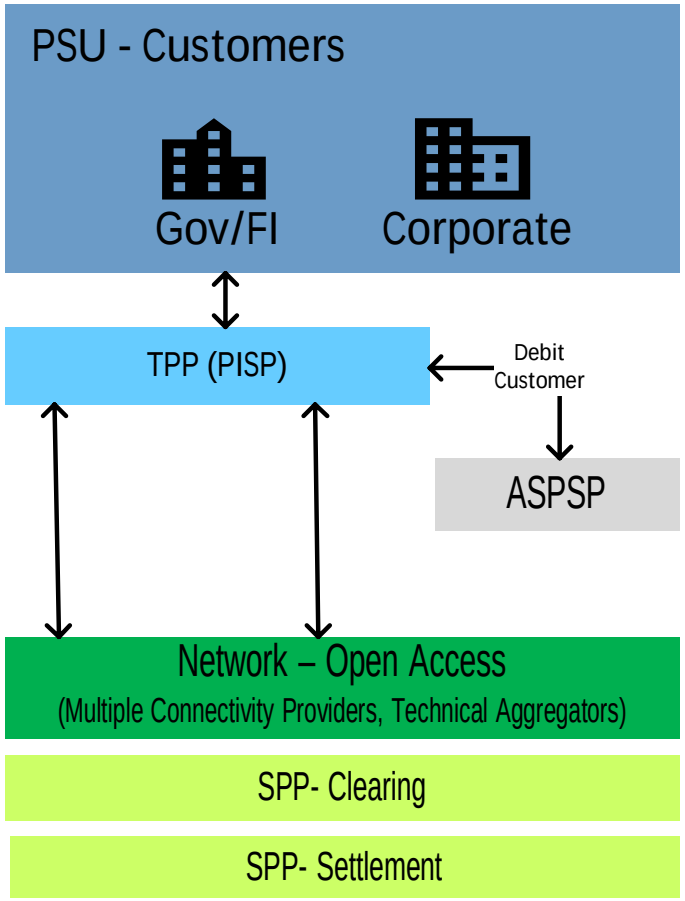
- Challenger Bank Bank has to implement TPP (PISP) and ASPSP layers to submit payments directly into NPA
- Have a settlement account with Bank of England
- Multiple Connectivity Providers or Technical Aggregators (TA) available to provide connectivity to NPA.

Agency/FI/Challenger Bank – Direct Non Settling Participant



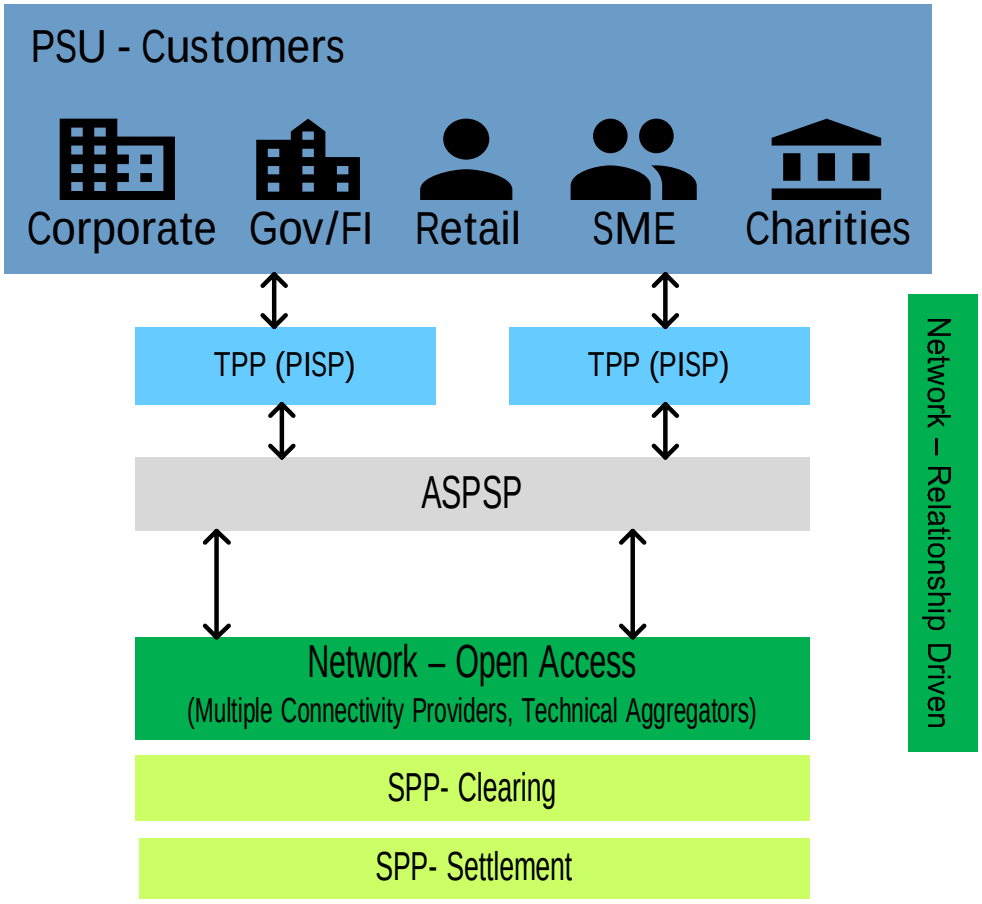
- Agency/FI/Challenger Bank has to implement TPP (PISP) and ASPSP layers to submit payments directly into NPA
- Agree on a Net Sender Cap (NSC) with the Sponsor
- Multiple Connectivity Providers or Technical Aggregators (TA) available to provide connectivity to NPA.

Corporate/Government/FI – Direct Non Settling Participant



- Need to identify or be a TPP (PISP) to initiate payments
- Agree on a Net Sender Cap (NSC) with the Sponsor
- Allows Corporates, Government and FI to come directly to the NPA Clearing Layer

Corporate/Government/FI, SME and Charities – Indirect Participant

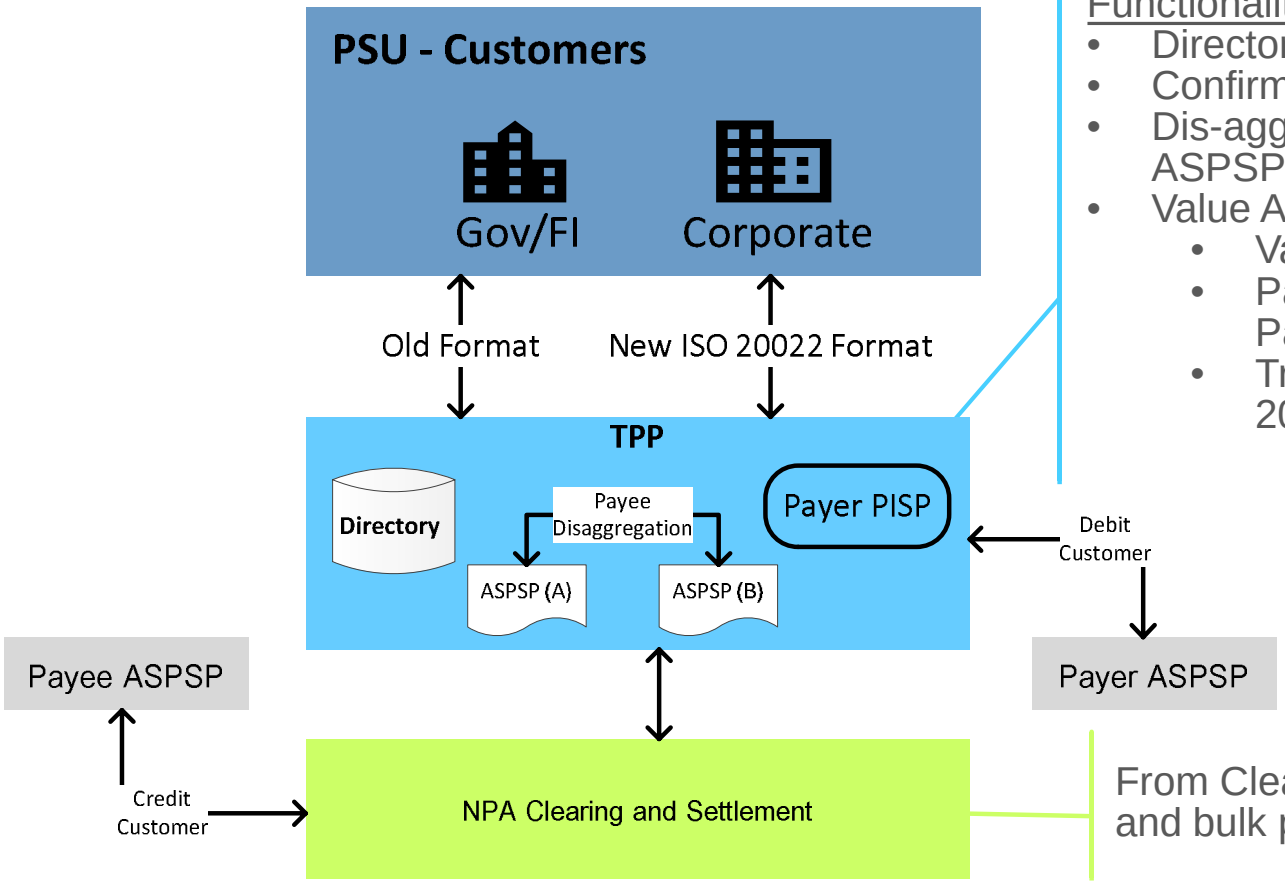


- Need to identify a TPP (PISP) to initiate payments
- More Choice – Can choose any TPP from the market in a competitive manner

Corporate/Government/FI – Direct Submitters

BACS Direct Credit

- Government/FI, Corporates will continue to generate their payment file as they do today to push credit (e.g. Payroll)



Functionality TPP will deliver

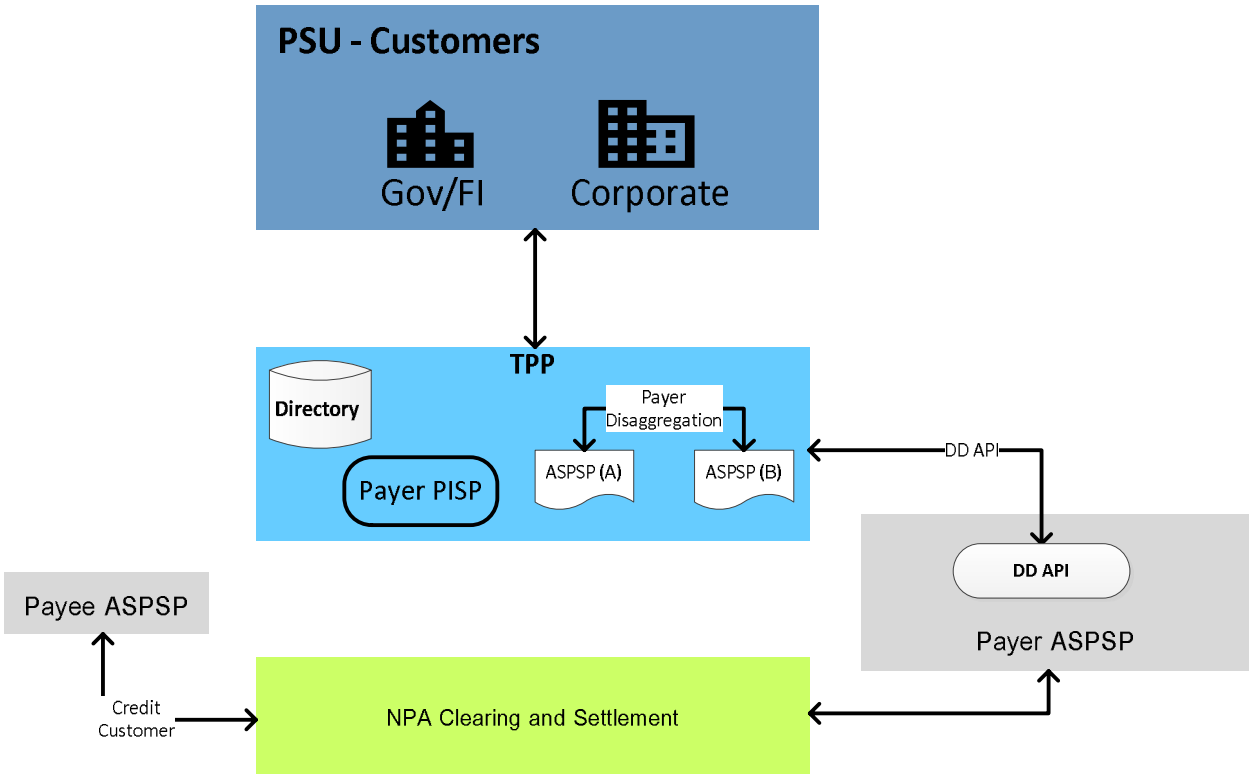
- Directory Services – CASS, Account Redirection
- Confirmation of Payee (Payment Assurance) and
- Dis-aggregation of the payment file per Payee ASPSP
- Value Added Services
  - Validation of files
  - Payment enrichment service like adding Payment Type
  - Translation from current format to ISO 20022

From Clearing perspective, single and bulk processing is the same.

Corporate/Government/FI – Direct Submitters

BACS Direct Debit

- Government/FI, Corporates will continue to generate their collection file as they today and pass it to TPP (e.g. Utility bills, Council Tax)
- TPP will use the consent provided to initiate DD Collection API provided by Payer ASPSP.
- Rest of the flow is similar to any other DD Collection



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Section 3:
WS3 Implementation Planning

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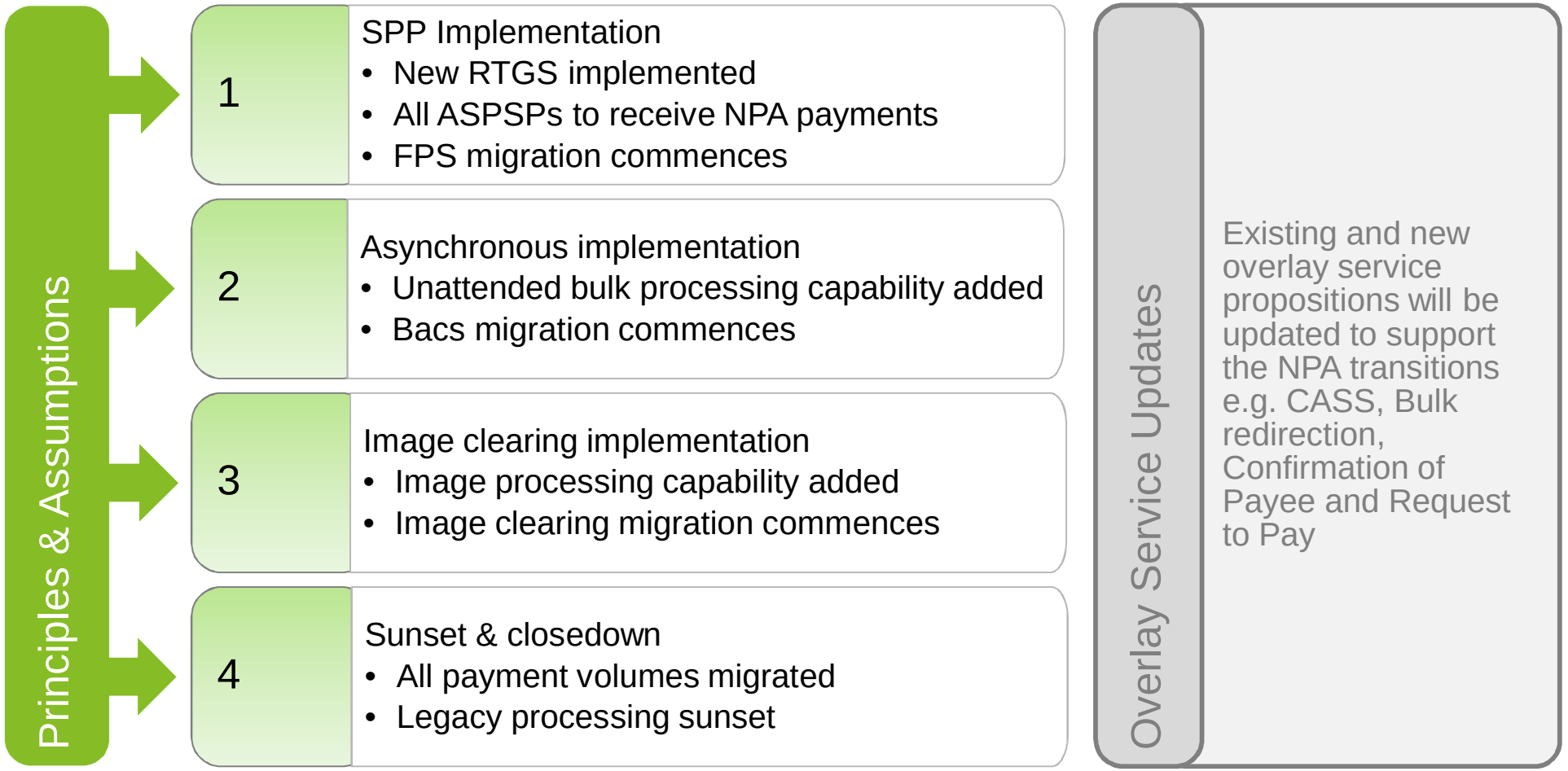
High Level Architecture Timeline

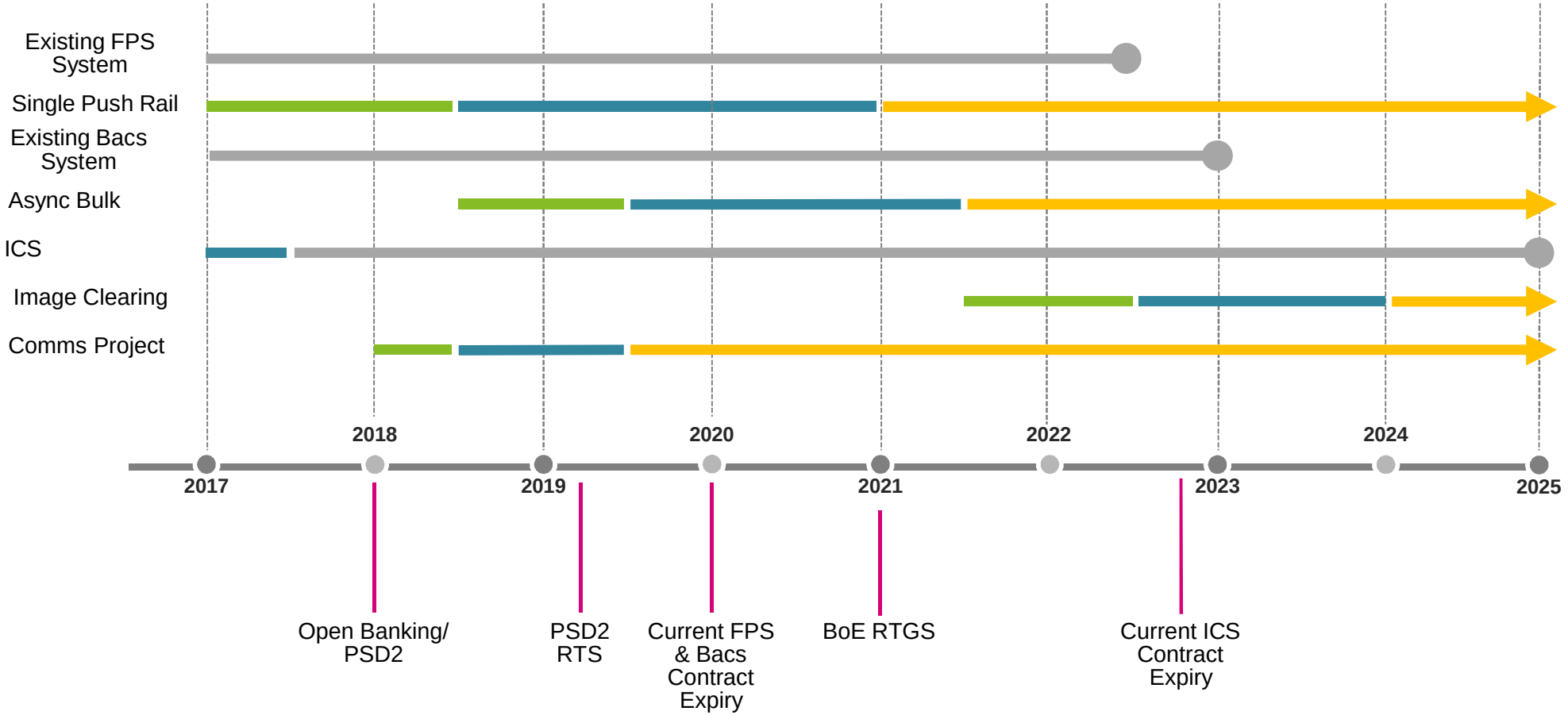
The implementation timeline proposes 4 key transition periods



Architectural timeline

Draft

Proposed NPA High Level Timeline



- Requirements Gathering
- Procure & Build/Specify & Market Builds
- Run
- Existing process & sunset

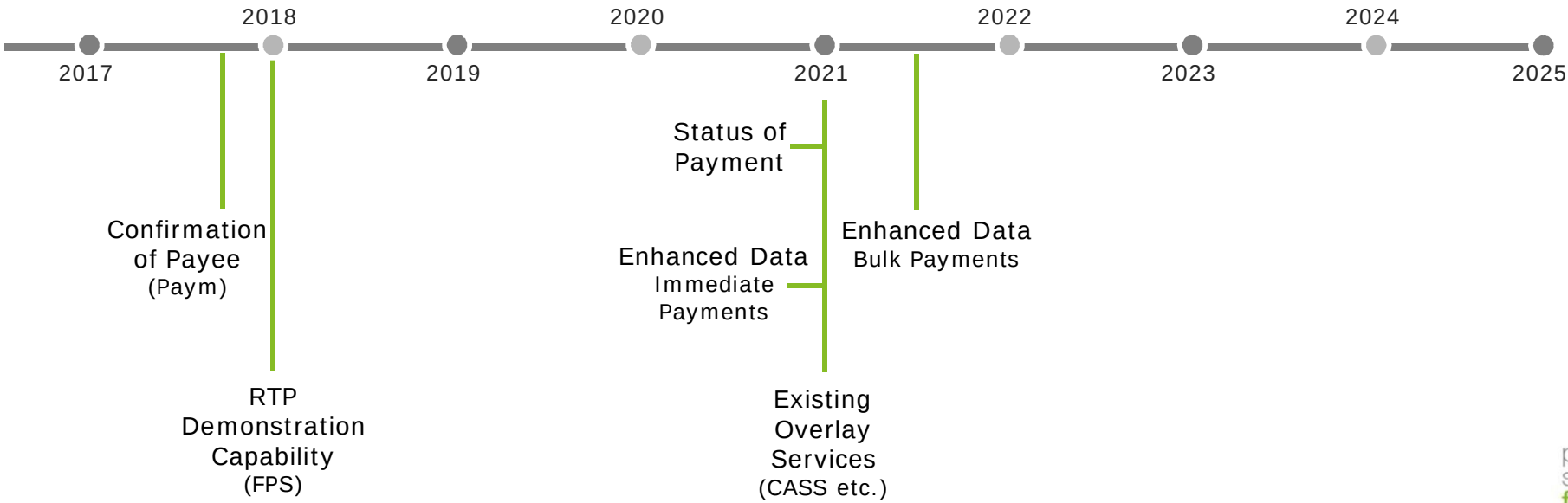
Indicative End User Timeline

End user needs will be satisfied through services and propositions delivered competitively
NPA will support these services

Confirmation of Payee (Paym*)	Request to Pay (FPS*)	Enhanced Data/Status of Payment
• Extension of functionality to support lookup against SCN & a/c number • Technical capability Q4 2017 • Participant proposition amends required to deliver to end users	• Demonstration Capability end 2017 – proving/testing end user reactions • Competitive service delivery definition during 2018 - aligned to PSF outcomes	• Technical capability to support NPA implementation from 2021

Existing Overlay Services

Existing overlay service propositions updated to support the proposed NPA transitions from 2021
(e.g. CASS, Bulk redirection)



* - Paym and FPS are defining the first examples of market delivered solutions

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Wrap-up

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