



**ETHIOPIA
DIGITAL
PAYMENT
CONFERENCE**

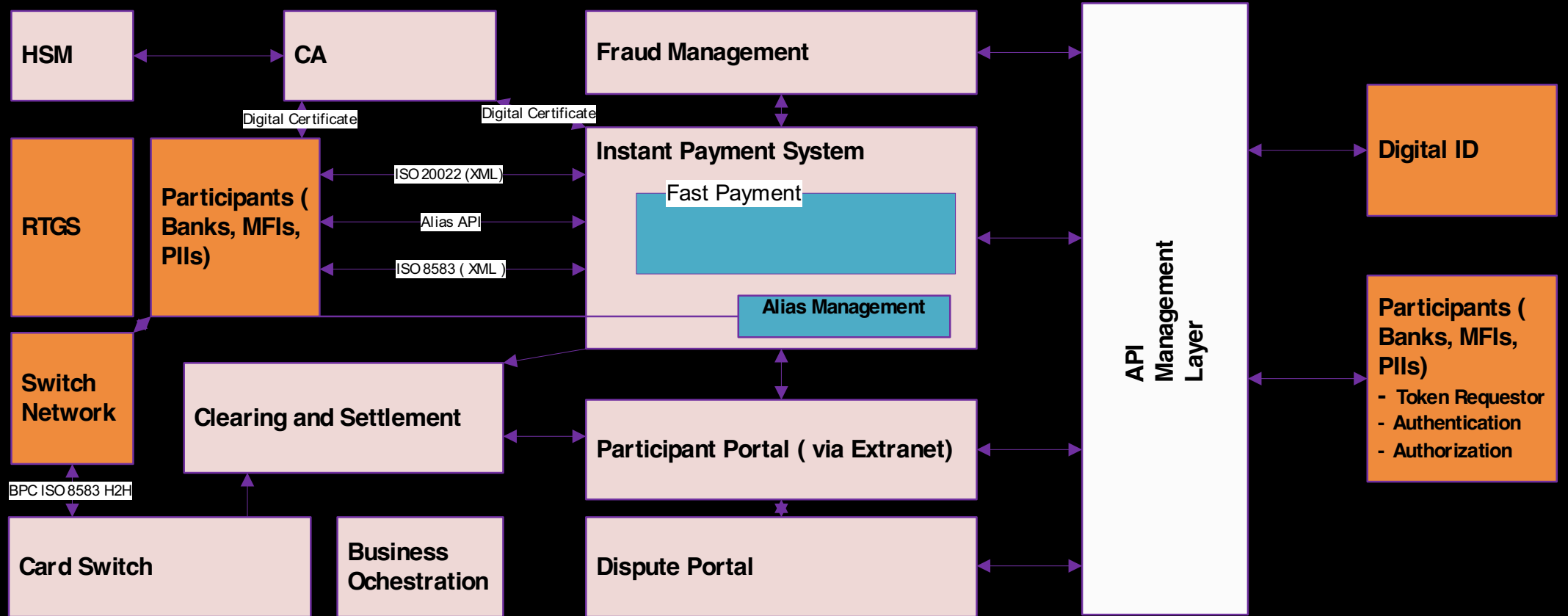
Building the Foundation for Unified Transactions with a Focus on Enabling Merchant Payment Solutions – National Payment Gateway, and QR codes.



FOUNDATION FOR UNIFIED TRANSACTION



MAKING TRANSACTION INTEROPERABLE



MERCHANT PAYMENT SOLUTION-NATIONAL PAYMENT GATEWAY



NATIONAL PAYMENT GATEWAY

What is the National Payment Gateway and What Features Does it Support

MAIN FEATURES OF NPG

- **Hosted Payment Gateway**
 - Hosted Payment Page
 - APIs for PCI DSS Compliant Merchants
 - Mobile SDK for Merchants
- **EthioPay 3D Secure Enablement through a Central EthioPay /Domestic Directory Server and a Hosted Access Control Server.**
- **Hosted Merchant Portal**
- **Hosted Dispute Portal**

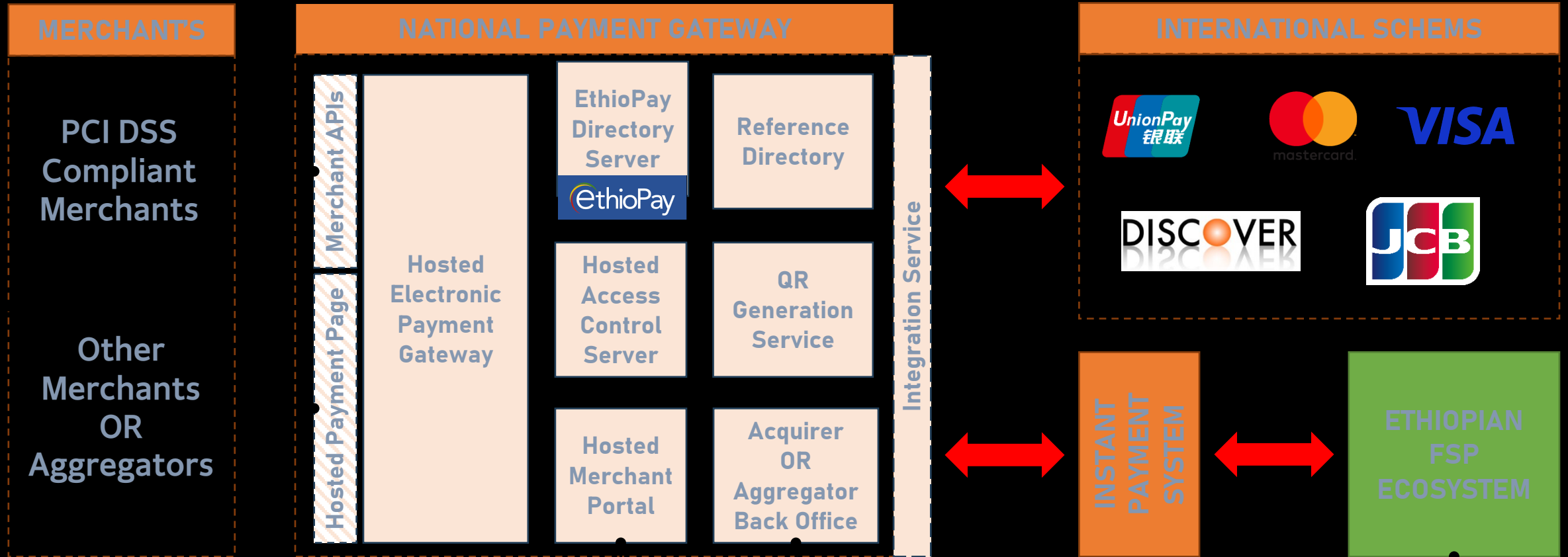


USE CASES OFFERED

- **Card Based Acquiring**
 - Domestic Scheme Cards Online Acquiring
 - International Scheme Online Acquiring.
- **Account/Wallet Based Acquiring**
 - Payment by QR
 - Payment by Link/Reference
 - Payment by Alias
 - Payment by Request to Pay
- **One Time Payments**
- **Recurring Payments**



The National Payment Gateway Ecosystem

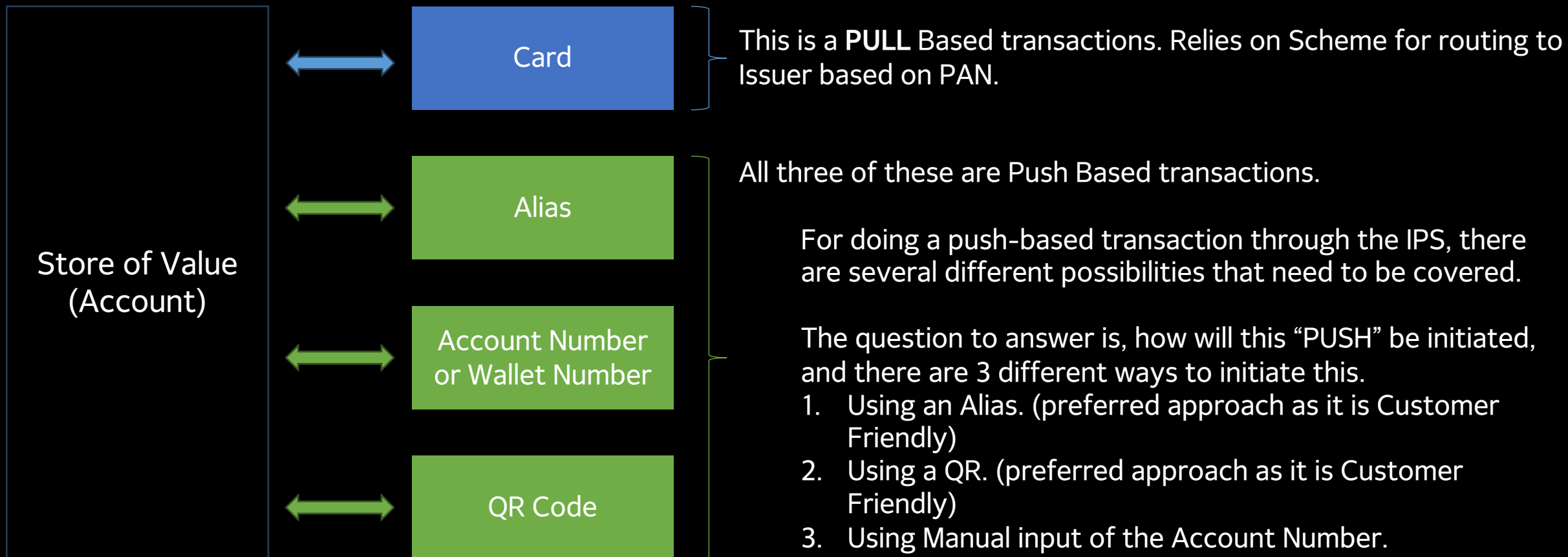


Acquirer's / Aggregators / Merchant Service Providers




USE CASES AND VALUE PROPOSITION FOR PARTICIPANTS


Payment Methods Supported by NPG




PAY BY CARD JOURNEY

Experience when NPG processes a Card on a Hosted Payment Page



-  **Pay by Card**
-  **Pay by QR**
-  **Pay by Alias**
-  **Pay by Account**

SAMPLE SCREEN SHOWING ALL AVAILABLE PAYMENT METHODS ON EPG CHECKOUT



ENSURING A BETTER FUTURE

Order number 12344592

Session time left **18 min. 08 sec.**

Card number

Card expiry date CVV2 / CVC2

Cardholder name:

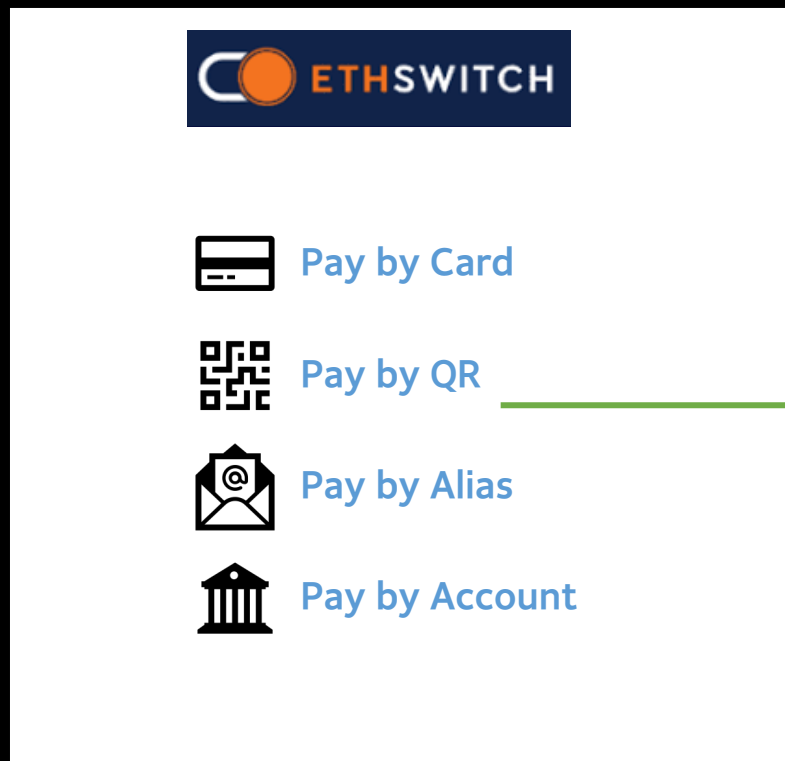
Pay ETB 50.00

SCREEN THAT GETS CARD DETAILS

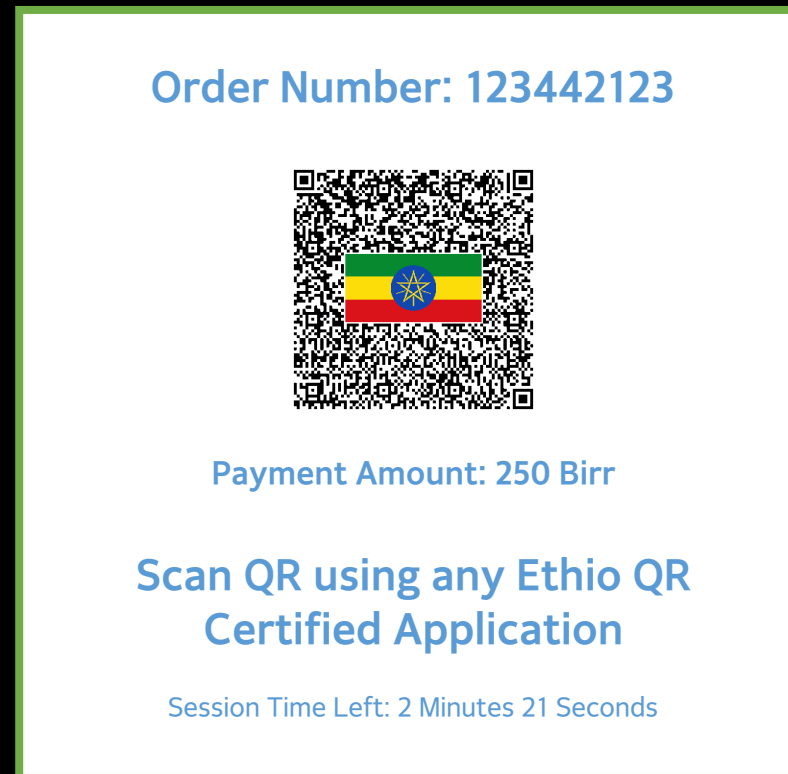


PAY BY QR JOURNEY

Experience when NPG processes a QR Initiated Push Payment from the Hosted Payment Page



SAMPLE SCREEN SHOWING ALL AVAILABLE PAYMENT METHODS ON NPG CHECKOUT



Sample QR Checkout Screen

After clicking on Pay by QR the Merchant or the Hosted EPG Page whichever is being used would display the QR Code which is to be scanned using any issuer that is connected to IPS and has implemented the EthioQR Standard



PAY BY ALIAS JOURNEY

Experience when NPG processes an Alias based Request to Pay Initiated Payment from the Hosted Payment Page



Pay by Card



Pay by QR



Pay by Alias



Pay by Account



Order Number: 123442123

Payment Amount: 250 Birr

Enter Alias:

030092921241

FETCH ACCOUNT

Session Time Left: 3 Minutes 07 Seconds



Order Number: 123442123

Payment Amount: 250 Birr

Account Number: 210*****0753

Account Title: So***** Na*****

SEND REQUEST TO PAY

Session Time Left: 2 Minutes 21 Seconds

Sample Alias Resolve Screen

Account Details Confirmation Screen
When customer clicks on Send RtP,
the Payment Request is sent to the
Issuer Bank

PAY BY ACCOUNT NUMBER JOURNEY

Experience when NPG processes an Account Number based Request to Pay Initiated Payment from the Hosted Payment Page



Pay by Card



Pay by QR



Pay by Alias



Pay by Account



Order Number: 123442123

Payment Amount: 250 Birr

Select Bank:



Awash Bank

Account #:

1000322852311

SEND REQUEST TO PAY

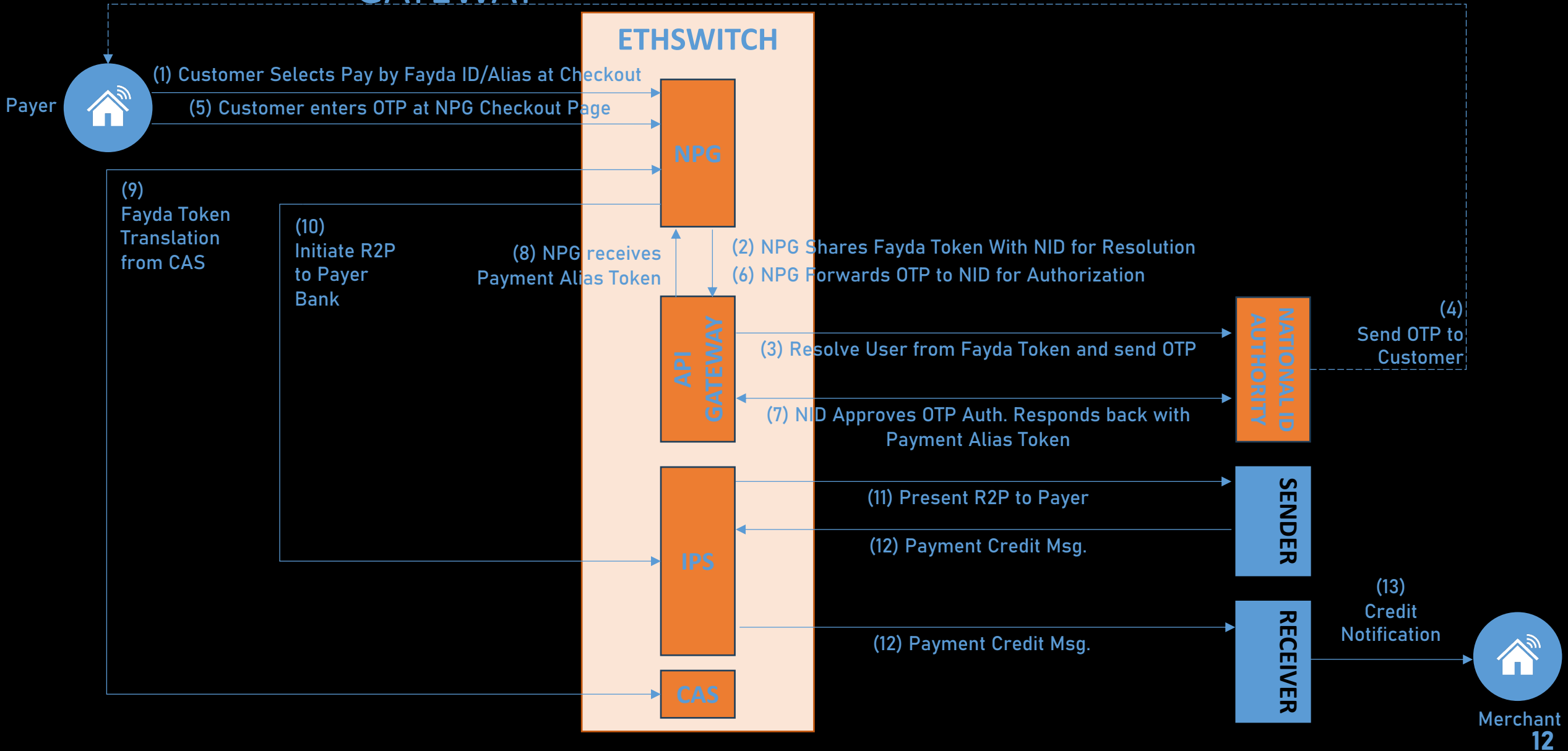
Session Time Left: 3 Minutes 07 Seconds

When customer clicks on Send
RtP, the Payment Request is sent
to the Issuer Bank



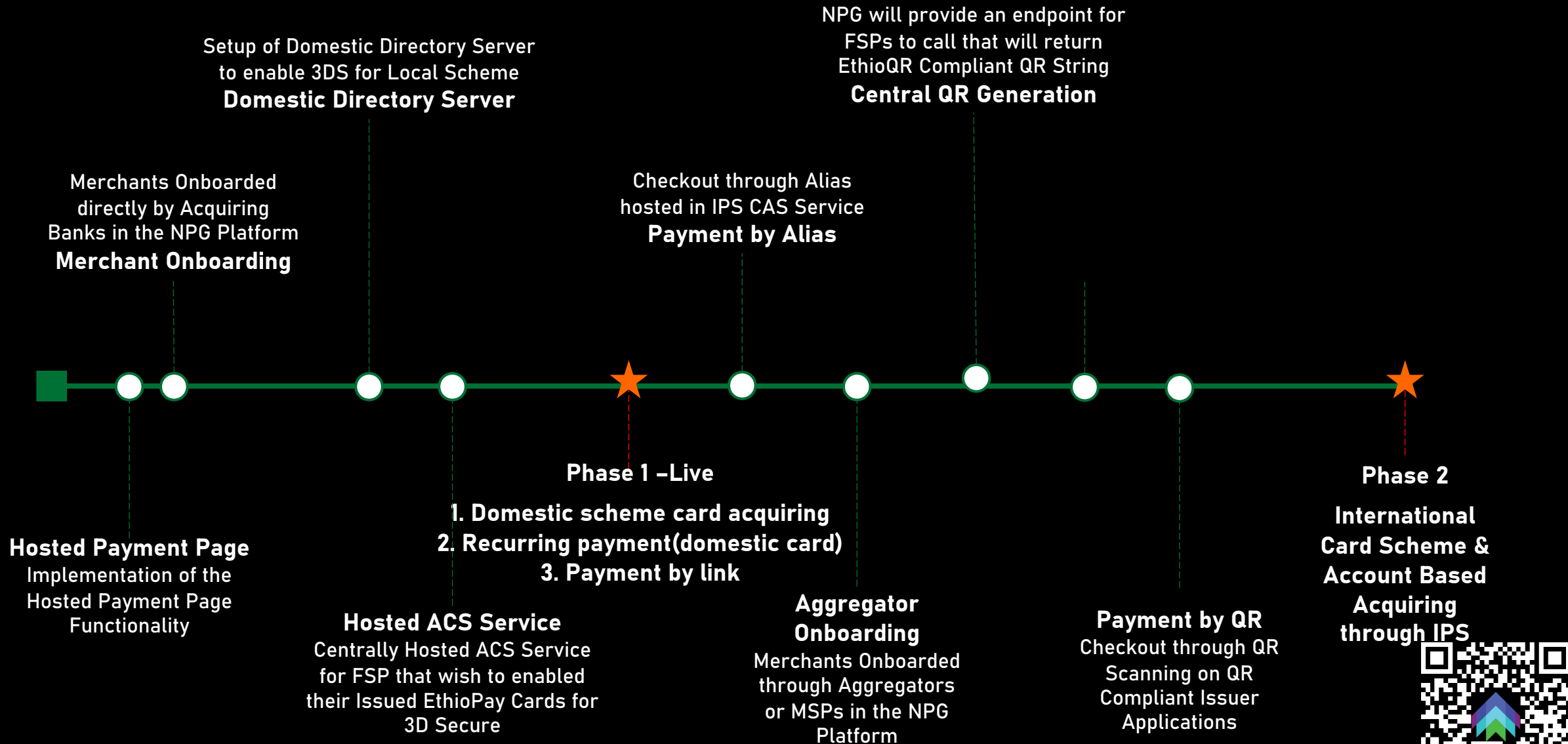
AUTHENTICATED PAYMENT USING ETHSWITCH AS GATEWAY

Fayda Token Based Payment to Merchant on NPG



ROLLOUT STRATEGY

Roadmap of Use Cases to be offered under EthSwitch National Payment Gateway



MERCHANT PAYMENT SOLUTION-QR CODE [IPS]



STANDARDIZING THE QR CODE AND ALIGNMENT WITH BEST PRACTICES.

What are the Main Features of our proposed Standard



COVERS BOTH STATIC & DYNAMIC QR CODES

Our standard supports both static and dynamic QR codes, catering to a variety of payment scenarios.

BASED ON EMVCo STANDARDS

Our QR Code Standard is based on EMVCo standards, ensuring international compatibility and security.

ADVANCED SECURITY PROTOCOLS

Incorporates advanced security measures to protect against fraud and unauthorized transactions.

PROVIDES FULL INTEROPERABILITY

Designed to work seamlessly through integration with Real Time Payments System, ensuring a smooth transition

ADAPTED TO ETHIOPIAN CONTEXT

While aligned with global standards, the system is adapted to the unique needs and challenges of the



QR CODE



DECIPHERED TEXT

000201010212021
640001234567890
120416534512345
678901215166345
123456789012287
60032581b314e25
7f41bfbbdc6384da
a31d160108CBETE
TAA021600001712
345678905204599
953035865802ET5
924TewodrosSpice
s&Grains6010ADDI
SABABA62890117
234567854321234
560211032400000
000324Tewodros
Spices &
Grains0513123876
543212307124567

QR Payload Transposed for Readability

000201
010212
02164000123456789012
04165345123456789012
15166345123456789012
2876 0032581b314e257f41bfbbdc6384daa31d16
0108CBETETAA
02160000171234567890
52045999
5303586
5802ET
5924TewodrosSpices&Grains
6007ADDISABABA
6289 011723456785432123456
021103240000000
0324Tewodros Spices & Grains
05131238765432123
0712456789098765
63045376

Since IBAN's aren't rolled out across the board in Ethiopia, We've designed the System to work such that it can take both BIC + Account Number or just IBAN as Destination Account

Bill or Invoice Number

Phone Number

Store Name

Additional Reference Label that Merchants can use to Pass any value for Recon Counter on Till ID

The CRC, as per the EMVCo QRCPS (QR Code Payment Specifications), provides a way to verify the integrity of the data contained within the QR code. If any part of the data is altered, the CRC value will change, indicating potential tampering or corruption.




The Standard will also support local language by allowing Merchant Store Labels and Reference Labels in Amharic.



USE CASES COVERED BY THE STANDARD.

Summary of Use Cases that our Standard will Cover Right Now

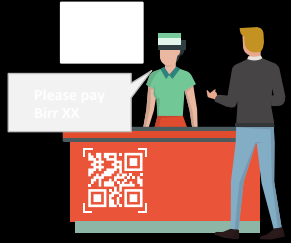


Payer Persona	Payee Persona	Form factor / Location	Flow	Relevant Actors to go-live
Customer with a smart phone	Merchant with a smart phone	 Static QR / In-store	Push payment by customer to Merchant	At least 1 Banks/EMIs who want to acquiring All Other banks as Issuer
Customer with a smart phone	Merchant with a smart phone	 Dynamic QR / In-store	Push payment by customer to Merchant	At least 1 Banks/EMIs who want to acquiring Other banks as Issuer
Customer with a smart phone	Merchant is online website	 Dynamic QR / Online	Push payment by customer to Merchant	





Merchant Presented Static QR Code - Push Payment by Customer Flow



1 Merchant tells payment total



2 Customer opens payment app with QR code scanner



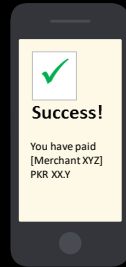
3 Customer scans merchant static (e.g., printed) QR



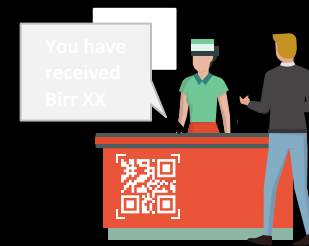
4 Customer inputs payment total



5 Customer authorizes payment



6 Customer receives confirmation



7 Merchant informed of receipt of funds¹

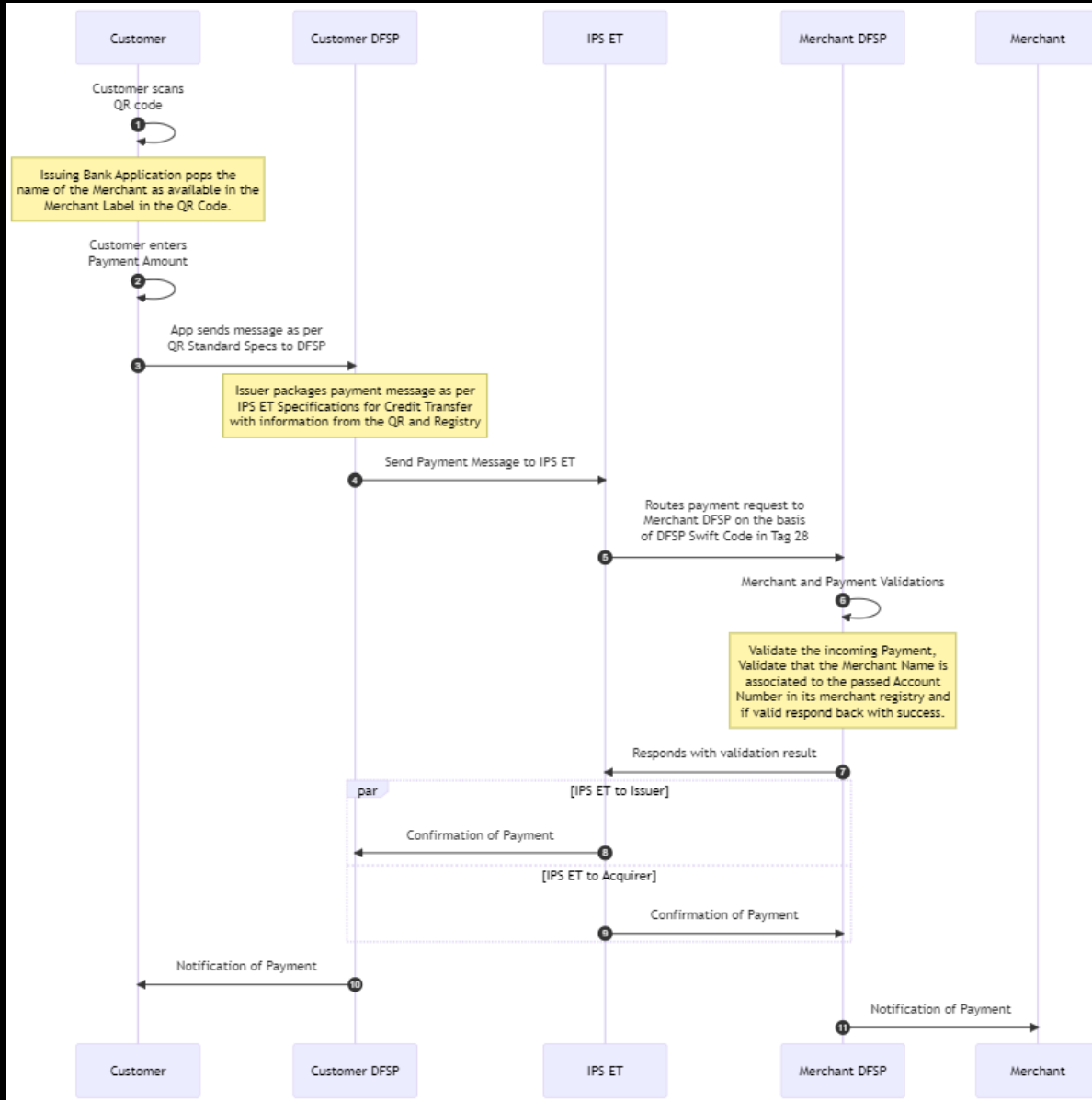


8 Merchant hands over merchandise





Merchant Presented Static QR Code - Push Payment by Customer Flow



1. Customer scans the QR code. At this stage the Issuing Bank Application displays the name of the Merchant, retrieved from the Merchant Label in the QR Code.
2. Customer enters the Payment Amount.
3. Customer's app sends a payment initiation message to the Issuer (Customer DFSP). The Issuer packages the payment message according to IPS ET Specifications, using information from the QR and Registry.
4. The Issuer sends the Payment Message to IPS ET.
5. IPS ET routes the payment request to the Merchant DFSP (Acquirer) based on the DFSP Swift Code in Tag 28.
6. Acquirer (Merchant DFSP) performs Merchant and Payment Validations: It validates the incoming Payment. Validates that the Merchant Name is associated with the passed Account Number in its merchant registry.
7. The Acquirer responds with success if validations are successful.
8. IPS ET confirms the payment to the Issuer and the Acquirer.
9. Acquirer (Merchant DFSP) receives the confirmation of payment from IPS ET.
10. Issuer notifies the Customer about the successful payment.
11. Acquirer notifies the Merchant about the successful payment.



Merchant Presented Dynamic QR Code - Push Payment by Customer Flow



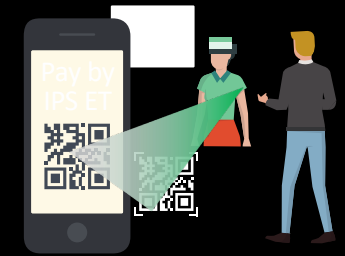
1 Merchant tells payment total



2 Merchant opens his payment app and enters amount to create QR



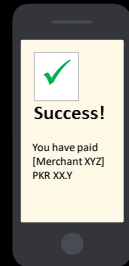
3 Merchant Displays generated QR on POS or Tablet or Screen



4 Customer scans merchant dynamic QR from POS or Screen



5 Customer authorizes payment



6 Customer receives confirmation



7 Merchant informed of receipt of funds

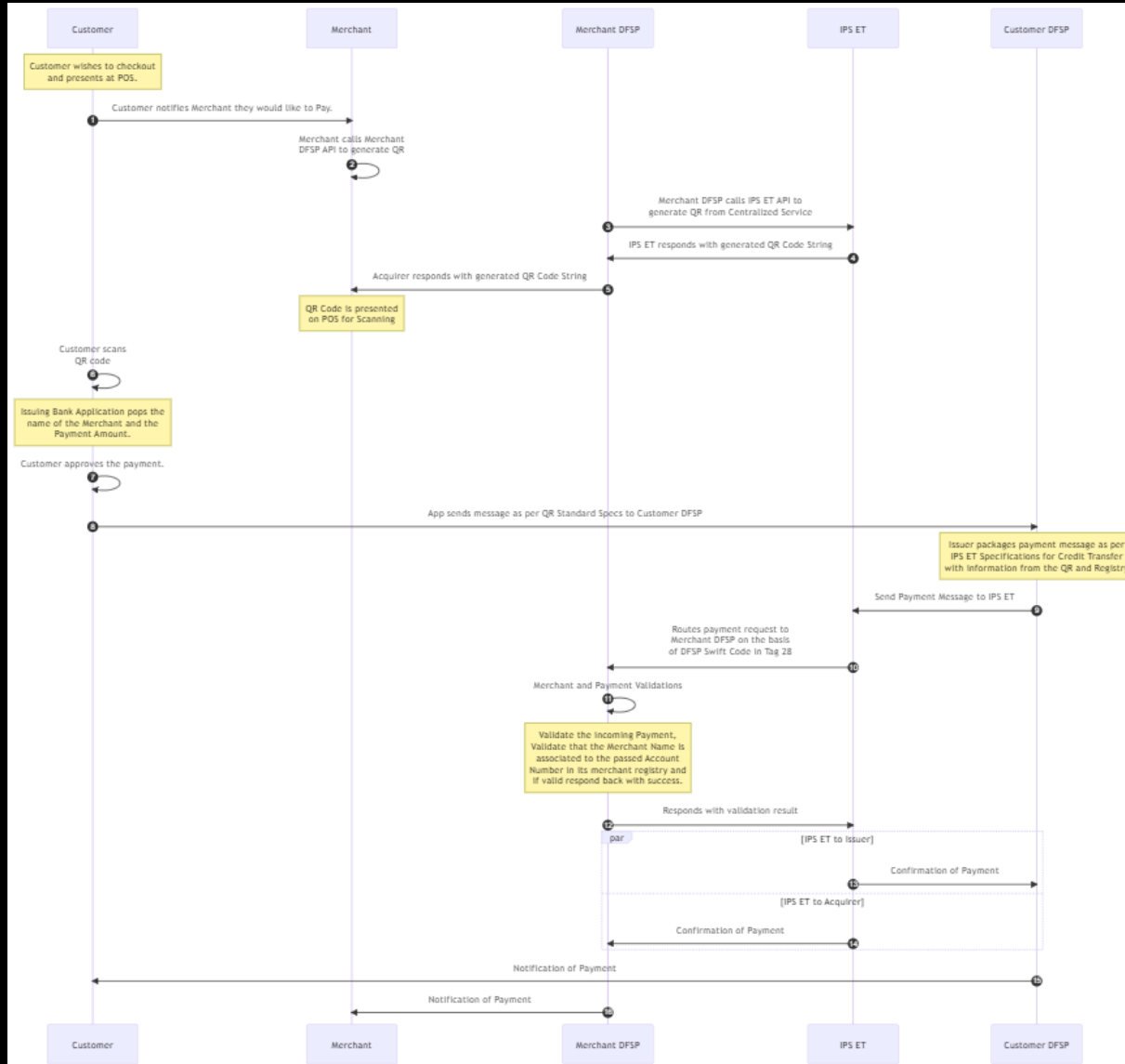


8 Merchant hands over merchandise





Merchant Presented Dynamic QR Code - Push Payment by Customer Flow

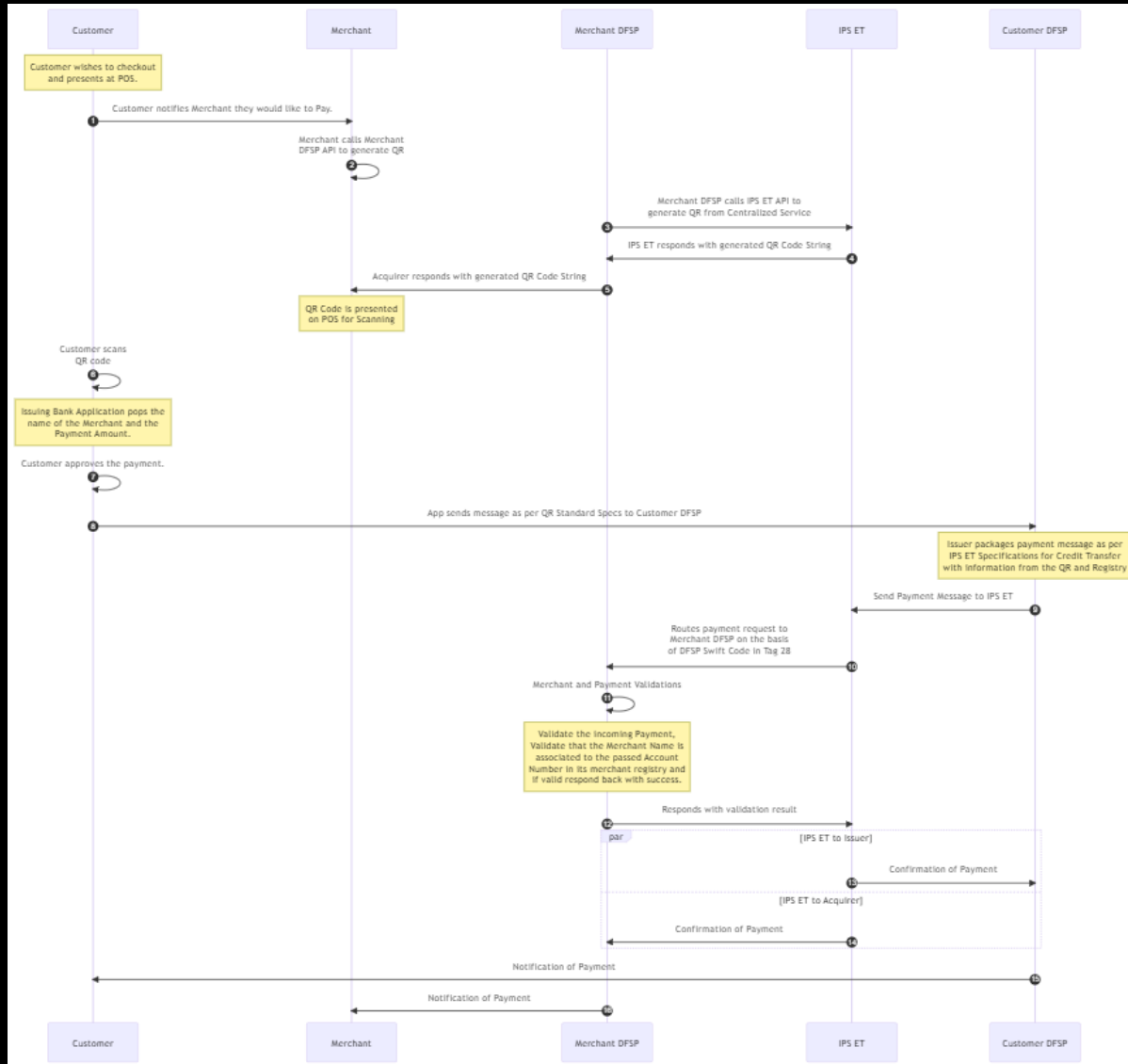


1. The customer presents at the Point of Sale (POS) for checkout, the customer notifies the Merchant about their intention to pay.
2. The merchant calls the Merchant DFSP API to generate a QR code by providing it all relevant information necessary to generate the QR Code.
3. Merchant DFSP (Acquirer) calls the Acquirer API to generate a QR code.
4. The Acquirer responds to the Acquirer with the generated QR code string.
5. Acquirer (Merchant DFSP) responds to the Merchant with the generated QR code string and the QR code is displayed on the POS for scanning.
6. Customer scans the QR code. At this stage the Issuing Bank Application displays the name of the Merchant, retrieved from the Merchant Label in the QR Code.
7. Customer's app sends a payment initiation message to the Issuer (Customer DFSP). The Issuer packages the payment message according to IPS ET Specifications, using information from the QR and Registry.
8. The Issuer sends the Payment Message to IPS ET.
9. IPS ET routes the payment request to the Merchant DFSP (Acquirer) based on the DFSP Swift Code in Tag 28.





Merchant Presented Dynamic QR Code - Push Payment by Customer Flow



11. Acquirer (Merchant DFSP) performs Merchant and Payment Validations: It validates the incoming Payment. Validates that the Merchant Name is associated with the passed Account Number in its merchant registry.
12. The Acquirer responds with success if validations are successful.
13. IPS ET confirms the payment to the Issuer and the Acquirer.
14. Acquirer (Merchant DFSP) receives the confirmation of payment from IPS ET.
15. Issuer notifies the Customer about the successful payment.
16. Acquirer notifies the Merchant about the successful payment.





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THANK YOU

