



ETHIOPIA
DIGITAL
PAYMENT
CONFERENCE

ETHIOPIA'S DIGITAL TRANSFORMATION

INTEROPERABLE PAYMENTS ECOSYSTEM



ETHSWITCH

06 April 2024

Skylight Hotel, Addis Ababa, Ethiopia



AGENDA

The Presentation Program and Key Topics to Cover.

- 01 Who Is Ethswitch
- 02 Interoperable Payment Ecosystems & Their Impact
- 03 Benefits of Interoperability for an Emerging Economy
- 04 EthSwitch's Role in Achieving Interoperability in Ethiopia
- 05 The EthSwitch Roadmap
- 06 Interoperable Use Cases being Rolled out by EthSwitch
- 07 Questions & Answers



WHO WE ARE

EthSwitch is the National Switch owned by all banks (private and public) the National Bank of Ethiopia, MFIs, PIIIs, and PSOs.

The mission of the Company is :**“Making Payments Simple and Affordable”**, and its Vision is **“To be best in class Payment Network in Africa by 2035”**.

The underlying mandate of the company is to contribute to the modernization of the national payment systems and the attainment of financial inclusion in the country.

OUR MANDATES



Interoperability between financial institutions



Implement Domestic Payment Schemes



Provide National Payment Gateway



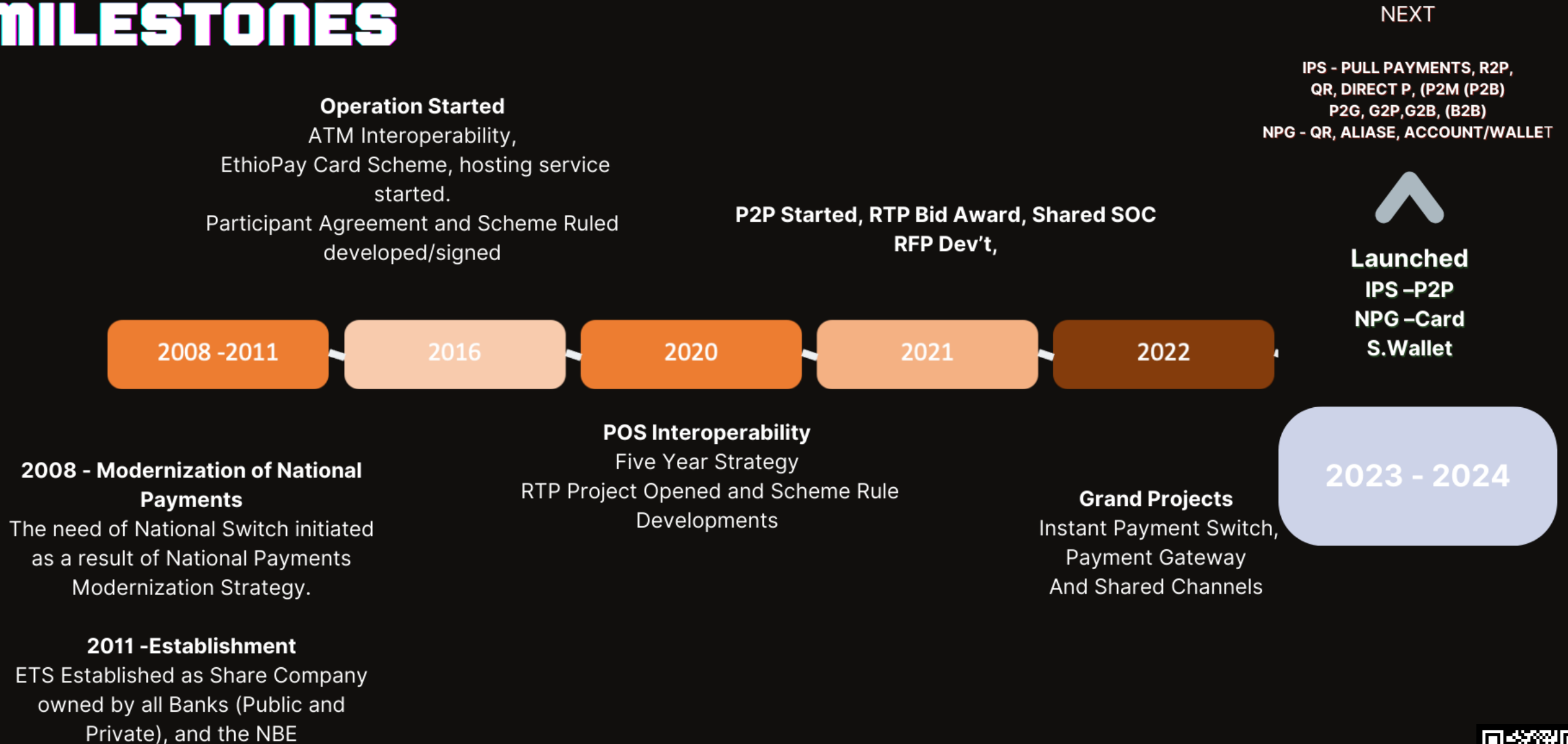
Serve as Central Interconnectivity for clearing & settlement



Provide Shared Platform /Infrastructure services



KEY MILESTONES

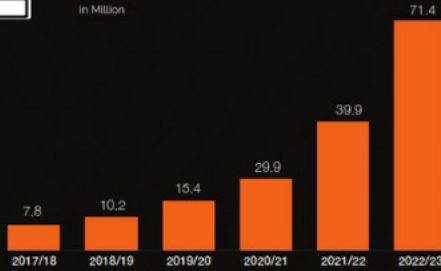


OUR SUCCESS STORIES

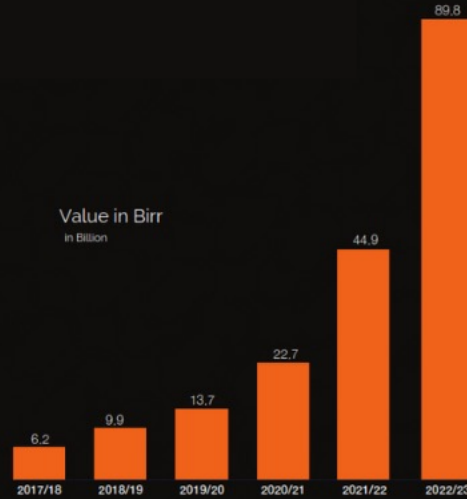
Number of ATM Transactions



Volume
in Million



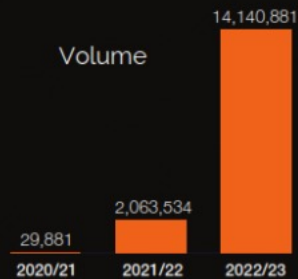
Value in Birr
in Billion



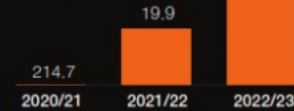
Number of P2P Transactions



Volume



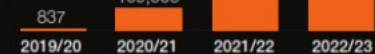
Value in Birr
in Billion



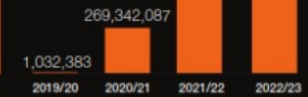
Number of POS Transactions



Volume



Value in Birr



INTEROPERABLE PAYMENT ECOSYSTEMS & THEIR IMPACT

What is Interoperability and its definition in the context of the Payments Ecosystem



This is a common site today in Ethiopia, we sometimes refer to these as ATM Parks.

But what does the presence of this mean?

Simply put, this array of **single-bank ATMs** represents **investment in infrastructures** which results in **inefficiencies** and **added costs** of financial institutions not utilizing **shared transactional systems**. It also signifies that Ethiopia is largely a **cash economy**. Another impediment to a digital and transparent economy.



WE BELIEVE THIS LACK OF INTEGRATION HAS BEEN A FUNDAMENTAL REASON FOR HISTORICALLY **SHACKLED GROWTH OF FINANCIAL INCLUSION IN ETHIOPIA** OVER THE YEARS.



INTEROPERABLE PAYMENT ECOSYSTEMS & THEIR IMPACT

What is Interoperability and its definition in the context of the Payments Ecosystem

How does Interoperability solve this?

Interoperability ensures **seamless transactions**, allowing payments to **and from anyone** using a **unified account** and **standardized payment tools**, irrespective of the service provider.

GLOBAL BEST PRACTICES

OPEN PARTICIPATION FOR ALL DFSPs IN A SYSTEM

SPEI in Mexico allows both bank and non-bank DFSPs to participate in the system.

SPEI also allows non-bank DFSPs to maintain settlement accounts at the Central Bank to settle obligations.

ENABLE MULTIPLE USE CASES IN THE SYSTEM

Egypt's Inter-Bank Mobile Payment Systems—which is managed by Egyptian Banks Company (EBC) — enables interoperability among participating DFSPs on multiple use cases, which includes CICO at agents, P2P transfers, bulk payments, and merchant acceptance.

CONSULTATIVE REGULATION & SUPPORT

The Central Bank and National Payments Council of Jordan jointly led an effort to develop JoMoPay, a national real-time, open-loop, credit-push payments system. The role of the regulatory and a central coordinating agency helped to ensure equal voice of all participants in the construct of the system.

POINT OF FOCUS

In each of these economies, Interoperability significantly improved the utility of digital financial services by making digital money more widely acceptable. And as digital money became more widely acceptable, it **encouraged digital liquidity and reduced dependency on cash**.



INTEROPERABLE PAYMENT ECOSYSTEMS & THEIR IMPACT

What is Interoperability and its definition in the context of the Payments Ecosystem



Interoperability expands opportunities across the payment sector for Providers, Businesses, and Individuals.



Interoperability motivates new entrants to engage with evolving payment trends and technologies.



Interoperability promotes technological innovation among all the participants in the payment ecosystem.



Interoperability maintains the balance between competition and cooperation and continuous evolvement.



Interoperability enhances financial inclusion, boosts revenue, and increases affordability.



ACHIEVING INTEROPERABILITY IN ETHIOPIA

EthSwitch's Role in Achieving Interoperability in Ethiopia



ESTABLISHING RULES & GOVERNANCE

- EthSwitch strives establishes clear protocols for system interactions, decision-making processes, and risk management strategies."
- EthSwitch strives to harmonize decisions to align with the diverse interests of all ecosystem stakeholders.
- EthSwitch strives to foster collaboration and participation amidst competitive and diverse environments to facilitate interoperability.



BUSINESS AGREEMENTS & INCENTIVES

- EthSwitch strives to ensure the economic viability of business models for all participants.
- EthSwitch strives to fairly price transactions and allocates risks, prioritizing market value for customers.
- EthSwitch strives to uphold overall fairness to promote sustainability and growth within the ecosystem.



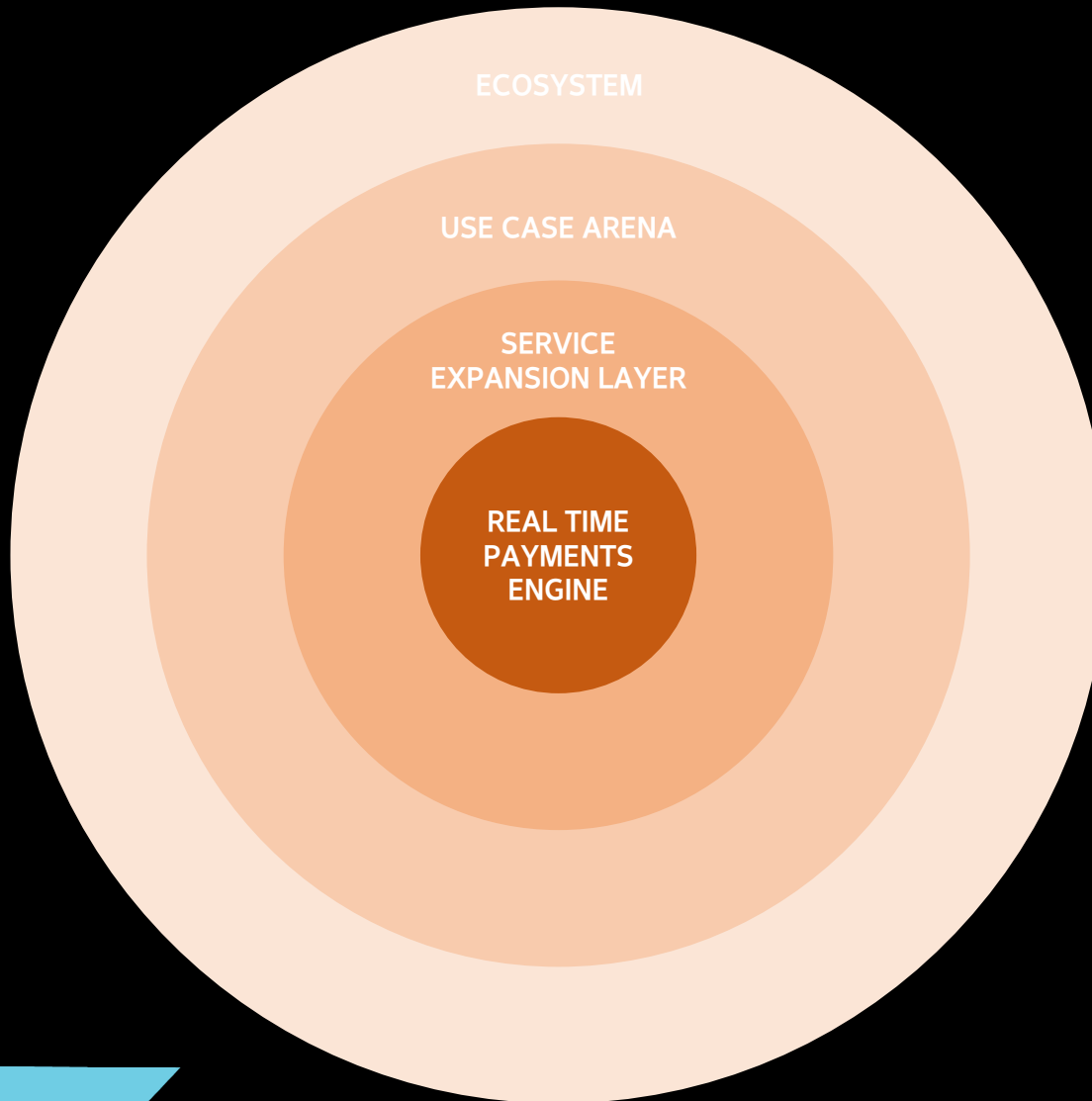
TECHNICAL INTEGRATION

- EthSwitch strives to establish robust technical infrastructure to enable seamless connections and data sharing among diverse payment systems for interoperability.
- EthSwitch strives to continually develop and advances its systems, ensuring the capacity to support multiple use cases and connect all payment service providers.



ACHIEVING INTEROPERABILITY IN ETHIOPIA

EthSwitch's Role in Achieving Interoperability in Ethiopia



Core Interoperability Engine

This is the heart of interoperability, the central switch that facilitates technical interoperability between different financial systems, enabling them to communicate and transact seamlessly.

- ISO20022 BASED REAL TIME PAYMENTS ENGINE

Service Expansion Layer

Adds value to the core services by providing additional features such as alias management for user-friendly identification across platforms, an API gateway for third-party integrations, and tools designed to broaden the reach and utility of the central hub.

- Hosted Payment Gateway
- Request to Pay Engine
- Hosted Wallet System
- Shared Switch Services
- API Gateway
- Interoperable QR Codes

Use Case Arena

Encapsulates the practical applications of interoperability, from peer-to-peer transfers to bill payments and merchant services. This layer translates the technical capabilities of the core engine into real-world financial solutions.

- Person to Person Use Cases
- Person to Merchant Use Cases

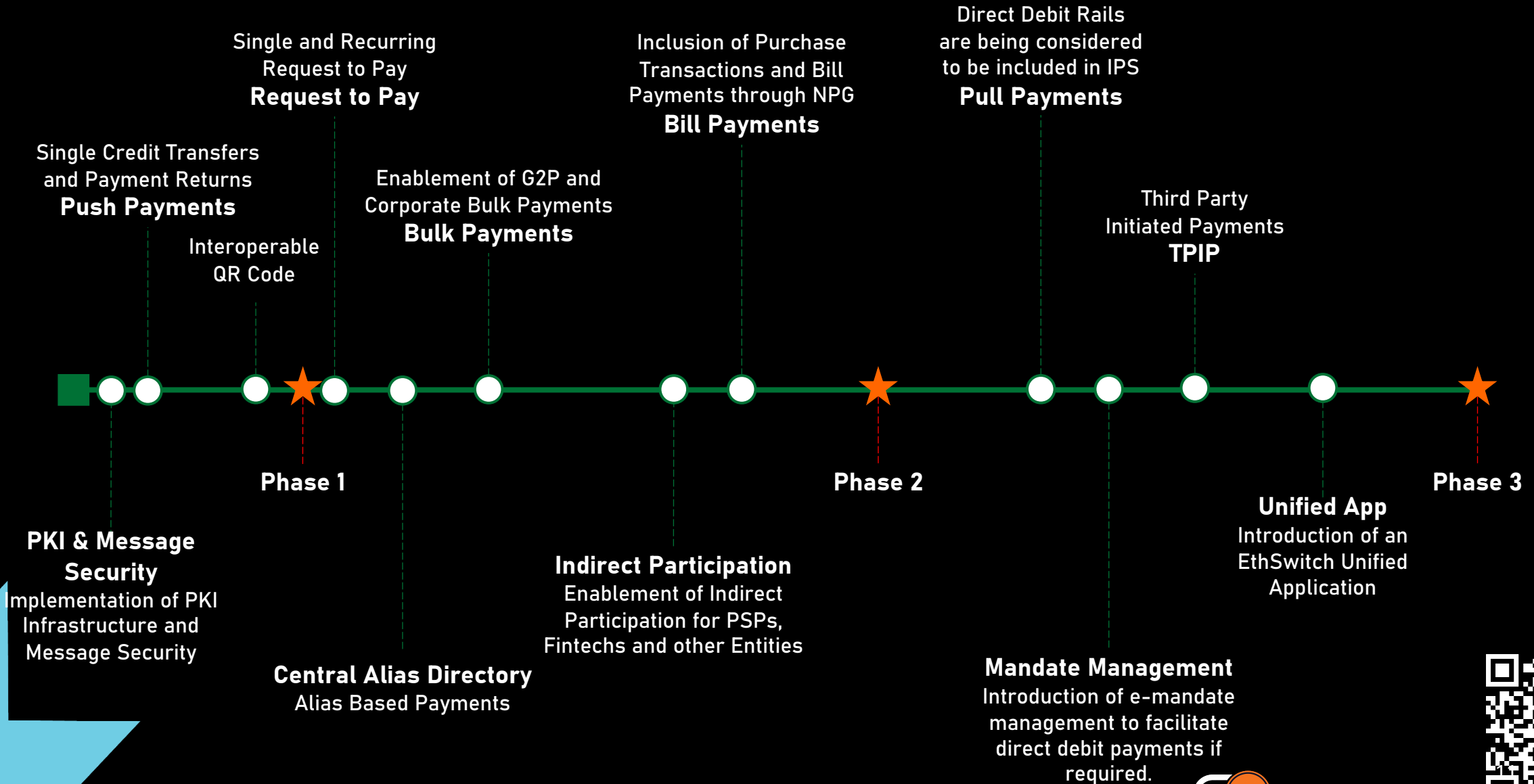
Ecosystem

Includes all stakeholders—banks, fintech companies, government programs, and consumers—who participate in and benefit from the interoperable network established by EthSwitch. This circle represents the community and operational framework that supports and utilizes the services provided by the inner circles.

- Financial Service Providers
- Non-Banking Financial Service Providers
- Fintechs

ETHSWITCH's ROADMAP TO AN INTEROPERABLE ETHIOPIA

EthSwitch's Role in Achieving Interoperability in Ethiopia



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch



Types of Payments

P2M (Person to Merchant)
B2B (Business to Business)



Form factors

Smartphone - QR, Issuer Apps
Feature phone - USSD
PC / Laptop - Web portals/Internet banking
OTC - Interoperable QR



Time Criticality

In Person payment (in-store, online e-commerce) - has to be paid in certain time
Payment with a due date (e.g., Utility bill) - payment amount changes after due date
Non-time critical - invoice generated without a fixed time to pay



Payment amount

Full payment
Installment payment / partial payment



Mode of interaction between payer and payee

In-store purchases
Online purchases
Doorstep delivery



INTEROPERABLE MERCHANT PAYMENTS

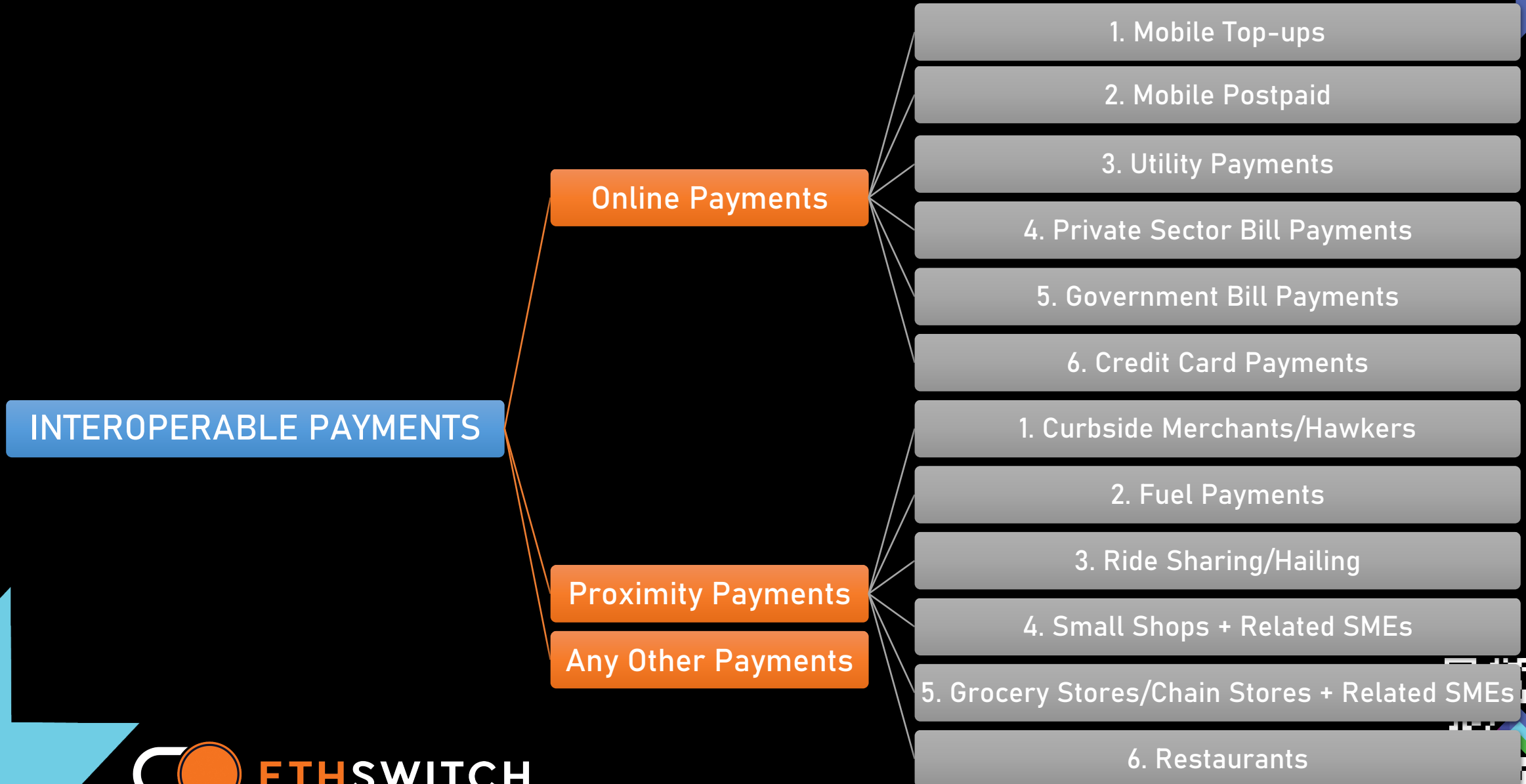
A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

Type of flow	Description
1 Customer initiated push payment to merchant	Customer (payer) initiates the payment transfer to merchant using the Interoperable QR Code that can be either Static or Dynamic.
2 Merchant/business initiates a Request to Pay	<p>Merchant initiates and sends a digital request to pay to the customer with the amount pre-populated (using USSD, Alias, etc.)</p> <p>The customer then either approves or rejects the request, and if approved, initiates a push payment to the merchant PSP</p>



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

QR CODE



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
0211032400000000
0324Tewodros Spices & Grains
05131238765432123
0712456789098765
63045376

Since IBAN's aren't rolled out across the board in Ethiopia, The System is designed 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.



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

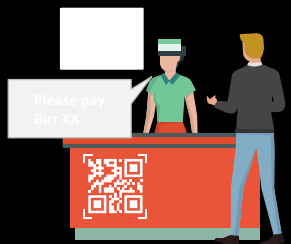
Payer Persona	Payee Persona	Form factor / Location	Flow
Customer with a smart phone	Merchant with a Static QR Code printed and on display at Store.	 Static QR / In-store	Push payment by customer to Merchant
Customer with a smart phone	Merchant with a smart phone that generates an individual QR for each transaction.	 Dynamic QR / In-store	Push payment by customer to Merchant
Customer with a smart phone	Merchant is an online website that generates an individual QR for each transaction.	 Dynamic QR / Online	Push payment by customer to Merchant



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

STATIC QR CODE



1 Merchant tells payment total



2 Customer opens payment app with QR code scanner



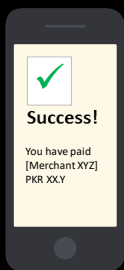
3 Customer scans merchant static (e.g., printed) QR



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



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

DYNAMIC QR CODE



1 Merchant tells payment total



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



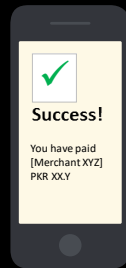
3 Merchant Displays generated QR on POS or Tablet or Screen



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



INTEROPERABLE MERCHANT PAYMENTS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch



PROXY PAYMENTS – INTEROPERATING THROUGH AN ALIAS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch

Central Directory Service

+251(91)864-7456

CBE - ETCBE99872336521

ZEMEN - ETZMN01785698326

AWASH - ETAWS01785698326

+251(91)657-9983

AMHARA - ETAMH99872336521

NIB - ETNIB017285698326

Pay 091 864 7456

Pay Abeneazer2021

Pay abeneazer@ethswitch

versus

Add Beneficiary,

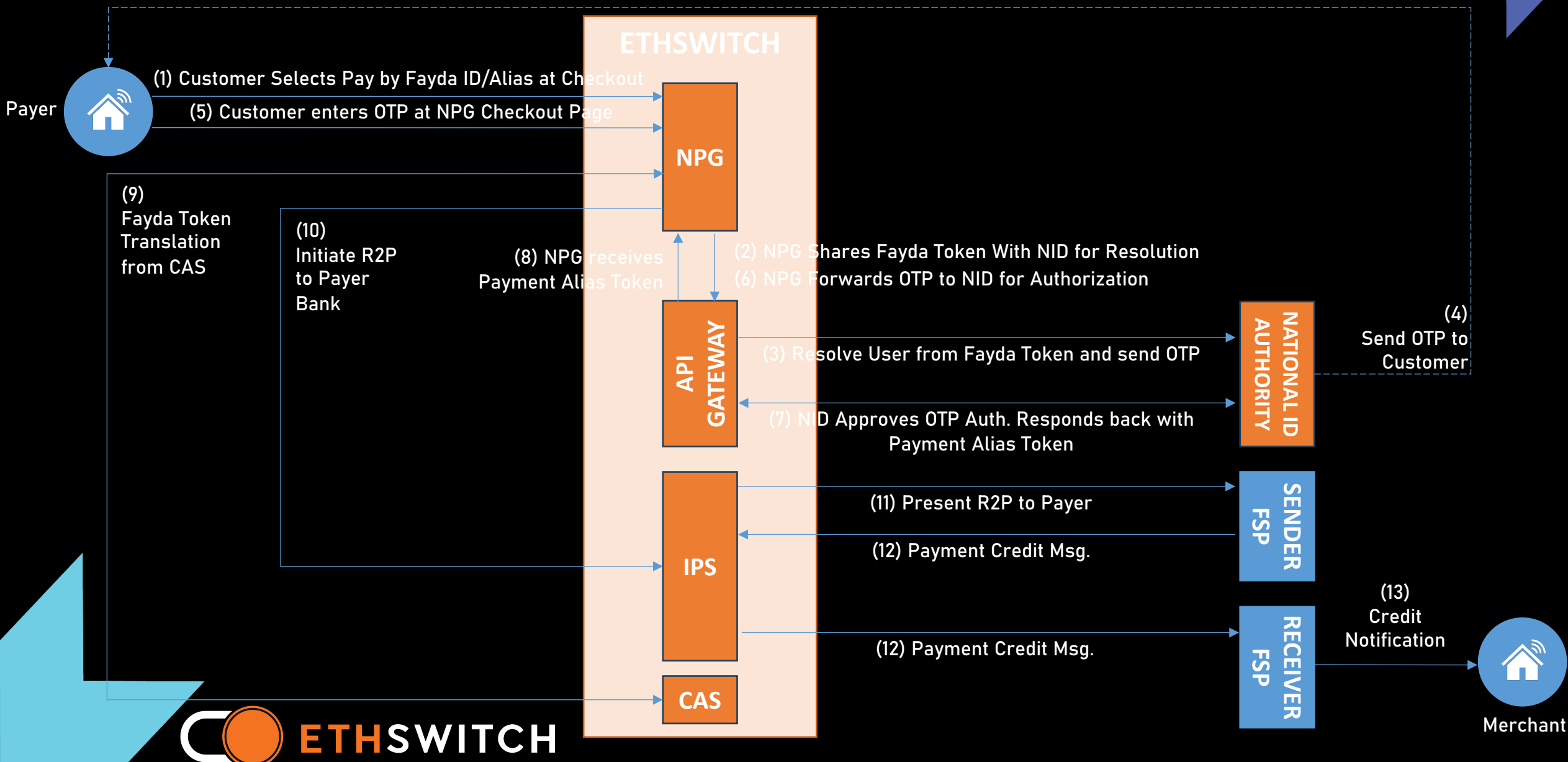
Select Bank,

Enter Account Number



PROXY PAYMENTS – UNIFYING ACCOUNTS VIA AN ALIAS

A Look at the Various Interoperable Use Cases being Rolled out by EthSwitch





THANK YOU

