Umbrella organization for all retail payment systems in India

Promoted by 10 commercial banks and 46 shareholder banks under the aegis of IBA and guidance of RBI

Not-for-Profit organisation under Section 25 of Companies Act, 1956 now Section 8 of Companies Act 2013.

Started operations from Jan. 1, 2010

Working towards Touching every Indian with one or other payment services

VISION

To be the best payments network globally

MISSION

Touching every Indian with one or other payment services
Contribution of NPCI in Financial Inclusion

- Aims to touch every Indian by 2020 with one or other electronic payment product to support RBI’s vision on “less cash society”
- Introduction of digital payment products/facilities to facilitate basic financial services
- AEPS allows online financial inclusion transactions at PoS (Micro ATMS) through BCs in remotest locations
- Cash Benefit transfers through Aadhaar Payment Bridge System
- Accident Insurance benefits in RuPay Debit Cards for PMJDY accounts
- NUUP service for Aadhaar status and basic banking as part of PMJDY by dialing *99# from GSM mobile phones
Launch of PMJDY by Prime Minister of India, Shri Narendra Modi on August 28, 2014
PMJDY & NPCI

RuPay
- 200 Mn. Cards issued to PMJDY account holders
- Accidental Insurance Cover of Rs. 1 Lac: per cardholder without additional cost to bank and beneficiary

Aadhaar
- Increase in usage of Aadhaar Mapper and Aadhaar Payment Bridge System (APBS) substantially
- 367 Mn. Aadhaar mapped in NPCI’s Aadhaar Mapper

DBT
- Direct Benefit Transfer (DBT) from Govt. schemes e.g. LPG Subsidy & MNREGA disbursement
- Govt. decided to roll out all DBT thru NPCI’s Aadhaar Payment System/ NACH

Mobile
- Introduction of *99# USSD Based Channel for banking services
- Caters to the segment having normal feature phone- internet connectivity not required
NPCI Products

RuPay

IMPS
IMMEDIATE PAYMENT SERVICE

AePS
AADHAAR ENABLED PAYMENT SYSTEM

NFC
NATIONAL FINANCIAL SWITCH

*99#

NACH
NATIONAL AUTOMATED CLEARING HOUSE

NCMC

UPI
UNIFIED PAYMENTS INTERFACE

BBPS
BHARAT BILL PAYMENT SYSTEM

NETC
NATIONAL ELECTRONIC TOLL COLLECTION
India’s Own Domestic Card Scheme

RuPay
The President of India dedicating RuPay to the Nation at Rashtrapati Bhavan, New Delhi on 8th May 2014
RuPay Domestic Card Scheme

- RuPay is India’s own Domestic card Scheme
- Operational since March, 2012- Now fully functional card scheme & network
- Accepted at all ATMs, almost all (98%) PoS merchants & 50,000+ eCom merchants
- Supports signature, Pin & biometric authentication, settlement in INR
- 750+ Issuing Banks including major RRBs and State Co-operative Banks
- 315 Million + RuPay Cards issued, switching fees minimal
- Tied up with Discover for international acceptance
  - Accepting Discover Cards in India by network to network arrangements
  - Similar discussion with China Union Pay & JCB, Japan
鲁Pay E-commerce

- 299 E-COMMERCE ENABLED ISSUING BANKS
- 11 ACQUIRING BANKS
- 13 AGGREGATORS

<< E-commerce coverage
Transaction flow >>

<< Key Acquiring stakeholders

34 no of government merchants are live on Rupay E-commerce
National common mobility card (NCMC): Tap N Go

Smart Cities - Transforming Life - Transforming India
MOBILE BASED PRODUCTS
Immediate Payment Service (IMPS)

Launch of IMPS by the then Deputy Governor of RBI Ms. Shyamala Gopinath on November 22, 2010
IMPS: At a Glance

An innovative “**real-time**” payment service that is available “**round-the-clock**” (even on holidays) and facilitates interbank (available with select PPIs also), Account to Account (or to wallets* also) fund transfer.

<table>
<thead>
<tr>
<th>Service</th>
<th>Fund transfer (Using)</th>
<th>Merchant /Utility service payment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Products</strong></td>
<td>P2P</td>
<td>P2M (PUSH)</td>
</tr>
<tr>
<td><strong>Inputs Needed</strong></td>
<td>Receiver’s mobile number &amp; MMID</td>
<td>Receiver’s bank A/C no. &amp; IFS code</td>
</tr>
<tr>
<td><strong>Initiating channels</strong></td>
<td>Mobile/Internet/ATM/Branch</td>
<td></td>
</tr>
<tr>
<td><strong>Access mechanism</strong></td>
<td>SMS/Mobile APP/USSD/WAP/POS/IVR</td>
<td></td>
</tr>
<tr>
<td><strong>IMPS enabling process</strong></td>
<td>Remitter: Needs to be Mobile banking registered, however the registration is not required for initiating transaction using Internet/ATM/Branch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beneficiary : No need to be Mobile banking registered for receiving funds using bank account details or Aadhaar Number</td>
<td></td>
</tr>
</tbody>
</table>
IMPS: Benefits

- Real-time domestic fund transfer
- 24 X 7 X 365 availability
- Simple, fast and easy to use
- Fast, Inexpensive, Safe and secure
- Channel Independent (INET, Mob, ATM, Branch, USSD, SMS)
- AADHAAR No. based transaction enabled
*99# - Bank in your mobile phone

Available across all handsets - basic & smartphone

Send money even on bank holidays

Dial *99# and bank from your mobile phone

Use in English, Hindi and 10 Indian languages

Works in all 10 GSM network: Airtel, Vodafone, Idea, BSNL, MTNL etc

Register your mobile number with your bank or at any ATM
*99# Services & Benefits

**Banking**
- Send Money
- Account Balance
- Mini Statement

**Aadhaar**
- Aadhaar linked account status
- PMJDY Over draft status

**Other Services**
- Show MMID
- Change MPIN
- Generate MPIN
- Generate OTP
- Simplicity - User required to just dial a short code *99#
- Convenient - Simple and easy to use services
- Round the Clock Availability - Works 24*7*365
- Real Time Transaction - Immediate in nature
- Language Flexibility - Available in 12 languages
- Easy Accessibility - No internet connection required
Unified Payments Interface (UPI)

Offer an architecture and a set of APIs on top of existing systems to facilitate online instant payments and financial inclusion.

<table>
<thead>
<tr>
<th>Push &amp; Pull Payments</th>
<th>• The payments can be both sender (payer) and receiver (payee) initiated and are carried out in a secure, convenient, and integrated fashion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy Instant Payments</td>
<td>• The unified payment system is expected to further propel easy instant payments via mobile, web, and other applications</td>
</tr>
<tr>
<td>Scalable Architecture</td>
<td>• This next generation payment system provides an ecosystem driven scalable architecture and a set of APIs taking full advantage of mass adoption of smartphone</td>
</tr>
<tr>
<td>1 Click 2FA &amp; Virtual address</td>
<td>• Virtual payment addresses, single click 2 factor authentication, Aadhaar integration, use of payer’s smartphone for secure credential capture, etc. are some of the core features</td>
</tr>
</tbody>
</table>

Authentication Mechanism

Benefits
UPI: Use cases (Utility bill payment using UPI app)

Mobile Recharge/ Gas payment / Electricity /DTH / Data Card Payment
UPI: Use cases (Government Bill Based Payments)

**PROPOSED**

**Offline / online Payment**

Customer Handset

Success Confirmation
UPI: Use cases (Web Based Model)

Web Based Collect (Pull Transaction)

Website Payment Page

Entry of VPA

Success confirmation

Website details Page

Customer PSP App

Amount Paid

Policy No.128128293
Payable Amount: 2394 Rs
Enter VPA anurag@axisbank
Proceed
UPI: Use cases (COD Solutions)

COD Solutions

Customer verifies the transaction and authenticates

Delivery boy receives the confirmation of the payment
Aadhaar Enabled Payment System (AePS)

It allows online financial inclusion transactions at Micro-ATM through the business correspondent using the Aadhaar authentication.

Can handle both ONUS and OFFUS requests

Services Offered

FINANCIAL TRANSACTIONS
- Cash Withdrawal
- Cash Deposit
- Aadhaar to Aadhaar Fund Transfer

NON - FINANCIAL TRANSACTIONS
- Balance Enquiry
- Demographic Authentication
- BFD - Best Finger Detection
- e-KYC
- Aadhaar Mobile Update

1000 Million Unique IDs issued
AePS in public distribution system

AePS: Aadhaar enabled payment system
NPCI: National Payments Corporation of India
UIDAI: Unique Identity Authority of India
NIC: National Informatics center
PDS: Public Distribution System
CBS: Core Banking Solution
**National automated clearing house (NACH)**

- **Bulk Transactions - Subsidies, Interest, Pension, Salaries**
- **Aim to consolidate multiple ECS systems**
- **Supports UID- Aadhaar based transactions**

- **Credit & Debit Functionality**
- **T+0/ T+1 Settlement**
- **1200 + Banks are part of the system**
- **4 Million Transactions per day**
<table>
<thead>
<tr>
<th>DBT Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions through account &amp; aadhaar based</td>
</tr>
<tr>
<td>1,232 live banks - (864 - APB / 1,225 - ACH)</td>
</tr>
<tr>
<td>Aadhaar numbers seeded - 3,677 lakhs</td>
</tr>
<tr>
<td>6 settlements in a day</td>
</tr>
<tr>
<td>Aadhaar based DBT - 999.30 lakhs (Jan,16 to Nov,16)</td>
</tr>
<tr>
<td>Account based DBT - 2,359.43 lakhs (Jan,16 to Nov,16)</td>
</tr>
</tbody>
</table>
Bharat Bill Payment System (BBPS)

An integrated bill payment system that offers accessibility, convenience and enhances consumer trust

“Anytime anywhere” Interoperable Bill Payment System

Will set common standards across the country

Allows Multiple Payment Modes

Instant Confirmation of Payments

Two Tier Structure

BBPCU (NPCI)
Bharat Bill Payment Central Unit (BBPCU) will be the single authorized entity operating the BBPS

BBPOUs (Banks and Non-Bank Entities)
Bharat Bill Payment Operating Units (BBPOUs) will be the authorised operational units
BBPS: System Participants

Customer

Agent Institutions/Agents

Banks
  - Sponsor Banks
  - BBPOU

BBPCU

Aggregator / Service Providers
  - BBPOU

Billers
National electronic toll collection (NETC)

Introduction

- 360 toll plaza on the National Highway.
- National Highway Authority of India (NHAI) manages 40% of these toll plaza
- Balance 60% is managed by Concessioners
- NHAI along with IHMCL (Indian Highway Management Company Ltd.) has given the responsibility to NPCI for implementing the National Electronic Toll Collection (NETC) system at toll plazas of National Highways

Benefits

- Toll collection without the vehicle stopping at the toll plaza.
- Reduce congestion around toll plaza
- Create an ecosystem, which will facilitate inter-operability across banks in a safe and secured manner.
- Reduce cash handling and enhance audit control by centralizing user accounts
<table>
<thead>
<tr>
<th>Product Name</th>
<th>Total count (in Mn.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFS ATM (600+ Banks &amp; WLAOs)</td>
<td>544.69</td>
</tr>
<tr>
<td>IMPS (135+ Banks &amp; Institutions)</td>
<td>160.41</td>
</tr>
<tr>
<td>AEPS (100+ Banks)</td>
<td>87.36</td>
</tr>
<tr>
<td>RuPay Card : POS/ECOM (600+ Banks)</td>
<td>18.29</td>
</tr>
<tr>
<td>ECS Clearing (750+ Banks)*</td>
<td>31.22</td>
</tr>
<tr>
<td>NACH DR (265+ Banks)**</td>
<td>6.20</td>
</tr>
<tr>
<td>NACH CR (555+ Banks)*</td>
<td>27.12</td>
</tr>
<tr>
<td>APBS: Direct Benefit (1000+ Banks)**</td>
<td>169.13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1045.02</strong></td>
</tr>
</tbody>
</table>
NPCI - Touching Every Indian

NPCI aims to touch every Indian by 2020 with one or the other electronic payment product and support the RBI’s Vision of a “Less Cash” society.
ANNEXURE
**Supported Languages & Points to remember**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Languages</th>
<th>Short Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English</td>
<td>*99#</td>
</tr>
<tr>
<td>2</td>
<td>Hindi</td>
<td><em>99</em>22#</td>
</tr>
<tr>
<td>3</td>
<td>Marathi</td>
<td><em>99</em>28#</td>
</tr>
<tr>
<td>4</td>
<td>Gujarati</td>
<td><em>99</em>27#</td>
</tr>
<tr>
<td>5</td>
<td>Tamil</td>
<td><em>99</em>23#</td>
</tr>
<tr>
<td>6</td>
<td>Kannada</td>
<td><em>99</em>26#</td>
</tr>
<tr>
<td>7</td>
<td>Telugu</td>
<td><em>99</em>24#</td>
</tr>
<tr>
<td>8</td>
<td>Punjabi</td>
<td><em>99</em>30#</td>
</tr>
<tr>
<td>9</td>
<td>Bengali</td>
<td><em>99</em>29#</td>
</tr>
<tr>
<td>10</td>
<td>Malayalam</td>
<td><em>99</em>25#</td>
</tr>
<tr>
<td>11</td>
<td>Assamese</td>
<td><em>99</em>31#</td>
</tr>
<tr>
<td>12</td>
<td>Oriya</td>
<td><em>99</em>32#</td>
</tr>
</tbody>
</table>

- User to register Mobile Number with the Bank
- User to keep the Beneficiary details handy
- User to keep the last 4 digits of the remitter account no. & MPIN handy
- User to use GSM phone & keypad to have special character like * & #
- User to have sufficient mobile balance (applicable for prepaid connections)
<table>
<thead>
<tr>
<th>RuPay E-commerce - Govt depts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All India Management Association</td>
</tr>
<tr>
<td>Maharashtra Natural Gas Ltd. - MNGL</td>
</tr>
<tr>
<td>Mponline.gov.in</td>
</tr>
<tr>
<td>BWSSB - Bangalore Water Supply &amp; Sewerage Board</td>
</tr>
<tr>
<td>BEST Online Pass System</td>
</tr>
<tr>
<td>Bharat Gas Ltd.</td>
</tr>
<tr>
<td>Chennai Metro Water - CMWSSB</td>
</tr>
<tr>
<td>Haryana Urban Development Authority - HUDA</td>
</tr>
<tr>
<td>Karnataka State Tourism Development Corporation</td>
</tr>
<tr>
<td>Maharashtra Tourism Development Corporation</td>
</tr>
<tr>
<td>Nagpur Municipal Corporation - Water Works Department</td>
</tr>
<tr>
<td>Sikkim Tourism Development Corporation</td>
</tr>
<tr>
<td>University of Petroleum &amp; Energy Studies</td>
</tr>
<tr>
<td>Greater Hyderabad Municipal Corporation - GHMC</td>
</tr>
<tr>
<td>NESCO - North Eastern Electricity Supply Company of Odisha</td>
</tr>
<tr>
<td>Delhi Transport Department</td>
</tr>
<tr>
<td>Pune Municipal Corporation</td>
</tr>
</tbody>
</table>
AePS: e-KYC in Action

eKYC (Identity, Address, Photograph confirmation while Account Opening)

Biometric Capture while UID- Aadhaar enrolment

Data shared in e-KYC:
1. Name,
2. Gender,
3. DOB,
4. Photo,
5. Address,
6. Mobile No. (if available);
7. e-mail id (if available)
BBPS: BENEFITS

- Convenience, Transparency in pricing, Instant Confirmation of payment
- More revenue opportunities for OUs under BBPS brand
- Host of value-added services can be offered by the participants
- Integrate with multiple aggregators reduced leading to lower costs of running BOCPs
- Unified Dispute Resolution and Customer Grievance Redressal Mechanism
## UPI: Authentication Mechanism

### Simplified Authentication:

<table>
<thead>
<tr>
<th>Authentication</th>
<th>First Txn</th>
<th>Authorised by</th>
<th>Subsequent Txn</th>
<th>Authorised by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Factor</td>
<td>Mobile Number (OTP)</td>
<td>Issuer</td>
<td>Device Fingerprint</td>
<td>PSP</td>
</tr>
<tr>
<td>2nd Factor</td>
<td>PIN or Biometrics</td>
<td>Issuer</td>
<td>PIN or Biometrics</td>
<td>Issuer</td>
</tr>
</tbody>
</table>

**Simplified Issuance Infrastructure:** One can specify the beneficiary details in the form of A/C Number, Mobile Number, Aadhaar Number & also Virtual address depending on the privacy concerns of the customer. Mobile phone is used for authorization.

**Simplified Acquiring Infrastructure:** India has nearly a billion phones and 150 million smartphones (expected to be at 500 million in next 4-5 years), massive scale can be achieved if effective use of mobile is made compared to creating costly physical acquiring infrastructure.

**Innovation:** Innovations such as reminders, using multiple accounts via single mobile applications, using special purpose virtual addresses, etc. allow users to enjoy superior UX.

**1-click 2-FA Transactions:** Since mobile number is bound to the device, the mobile phone itself becomes the first factor of authentication and M-Pin/Biometric is used for second factor authentication.

**Creating National Interoperability:** Proactively creating this unified interoperable interface allows all players to innovate and provide superior customer experience and still provide a secure, standard based, interoperable payment scheme.
UPI: Benefits to Banks

- Protection against migration to wallet
- Leveraging existing Infrastructure
- Security
- Cost Effective
- Payments basis Single/Unique Identifier
- Opportunity to tap E-commerce & M-commerce (PULL Initiated)
- Opportunity to tap C2B segment
- Simplified (Single click 2FA)
NETC: Transaction Flow

1. Toll Plaza System
2. Acquirer
3. ETC System (Online)
4. Issuer

- ETC Transaction downloaded from ETC Switch for clearing and settlement after cut
- NPCI ETC Switch & EGCS is accessible to member through close network

**EGCS System**

**Major Modules of EGCS**

1. Transaction auto presented for clearing
2. Debit/Credit Adjustment
3. Dispute Management