

# Securing Banking Eco-System Through PKI

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# About IDRBT

- Institute for Development and Research in Banking Technology (IDRBT) is an Autonomous Institution established by Reserve Bank of India in March 1996 for Research and Development in Banking Technology

# Technology Initiatives by IDRBT

- INdian Financial NETwork (INFINET)
- Structured Financial Messaging System (SFMS)
- Certifying Authority (CA)
- National Financial Switch (NFS)
- Other Activities
  - Research & Development in Banking Technology
  - Training programs for banks
  - Academic programs – PhD, PGDBT etc.
  - Technology consultancy to banks

# About IDRBT Certifying Authority

- Functioning as a Certifying Authority since August 2002
- Caters exclusively to the Banking and Financial sector, primarily to Members of Indian Financial Network (INFINET)
- Service to about 700 organisations
- Issued over 300000 Digital Certificates

# PKI and Payment Systems

- IT Act 2008 recognizes electronic signature as legally valid
- RBI proactively promotes use of PKI in electronic payment systems for security
- Uses in its payments systems
- and internal applications

# Payment Systems/Infrastructure

- Next Generation Real Time Gross Settlement System (NG-RTGS)
  - Large value payment system, since 2004
- National Electronic Fund Transfer (NEFT)
  - Retail funds transfer system introduced in the late 1990s
  - Enables an account holder of a bank to electronically transfer funds to another account holder with any other participating bank
- Structured Financial Messaging System (SFMS)
- NPCI Applications
  - UPI, NACH, IMPS, Cheque Truncation System (CTS), AEPS
- Card Networks
- POS
- ATM
- Mobile Wallets/PPIs

# Growth of Digital Transactions

- The payment and settlement systems recorded a robust growth
- During 2018-19, volume and value grew at 54.3 per cent and 14.2 per cent respectively
- The share of electronic transactions in the total volume of retail payments increased to 95.4 per cent in 2018-19, up from 92.6 per cent in the previous year

# Payment System Indicators – Annual Turnover

| Payment System | Volume (million) |         |         | Value (₹ billion) |           |           |
|----------------|------------------|---------|---------|-------------------|-----------|-----------|
|                | 2016-17          | 2017-18 | 2018-19 | 2016-17           | 2017-18   | 2018-19   |
| 1. RTGS        | 107.8            | 124.4   | 136.6   | 981,904           | 1,167,125 | 1,356,882 |
| 2. NEFT        | 1,622.1          | 1,946.4 | 2,318.9 | 120,040           | 172,229   | 227,936   |
| 3. IMPS        | 506.7            | 1,009.8 | 1,752.9 | 4,116             | 8,925     | 15,903    |
| 4. UPI         | 17.9             | 915.2   | 5,353.4 | 69                | 1,098     | 8,770     |
| 5. NACH        | 2,057.3          | 2,503.3 | 3,035.2 | 7,916             | 10,736    | 14,762    |

Source: RBI



# PKI Usage

- NEFT/RTGS
  - Message signing and encryption
- Forex Clearing, Govt. Securities Clearing Systems
- Unified Payments Interface(UPI)
  - Secure communication between UPI and PSPs/Banks
  - APIs signed and verified by PSP/Bank
  - Secure credentials are encrypted using public key by PSP

# PKI Usage

- Bharat Interface for Money (BHIM)
  - Mobile app to BHIM Web server secure communication (SSL)
  - PSP to UPI secure Communication
- Cheque Truncation System (CTS)
  - Signing of files
- National Automated Clearing House (NACH)
  - Digital Signing of File

# New Applications of PKI

- Submission of reports by banks
- Report on the Group on Enabling PKI in Payment System Applications (2014) – recommendations
  - Two factor authentication for Internet banking applications
  - Banks to provide option for the customers to use PKI for authentication
  - PKI for transaction verification
- Use of ECC by NPCI
- Use in email – Issues with mobile apps

*Thank  
You*