**OLIVE CRYPTO SOLUTION BRIEF**

**SOLUTION:**

Olive Crypto provides various payment-processing switches to financial institutions.

a. **Unified Payments Interface (UPI) product** is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience.

Olive UPI Product and Services are designed for High Performance, Scalability, High-quality, Cost-effective, High availability. Olive UPI Solution offer features and services including Mobile Apps, Merchants Integration, UPI SDK P2P, Web Collect, UPI P2M Support, Integration with App Partners like Google, Samsung, WhatsApp etc.

One of the core security features of UPI is the UPI-PIN (UPI Personal Identification Number). UPI PIN is a 4–6-digit pass code that a customer create/set during first time registration. NPCI and the FI will share keys which will be used to encrypt the data exchanged between them during transaction processing. These keys are securely stored using Thales HSM. During transaction processing, PIN is encrypted by the key and sent to bank. At the bank end, Olive System will communicate with HSM to get the decrypted hash value. Olive Switch validates the hash value with the one already stored in Olive database. Transaction is allowed post successful validation of the PIN.

**The flow will be as follows:**

1. The Customer accessing his/her mobile (Payer PSP App) initiates UPI transaction.

2. Through Payer PSP payment requests will be received to NPCI, then NPCI will process further requests with downstream psp and Banks.

3. Olive UPI Switch as Bank, will receive the payment request from NPCI and perform some security validations. One of the core security validation is UPI PIN validation.

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- These keys are securely stored using Thales HSM.
- During transaction processing, PIN is encrypted by the key and sent to the bank.
- At the bank end Olive UPI switch will send a request to HSM to get the decrypted hash value.
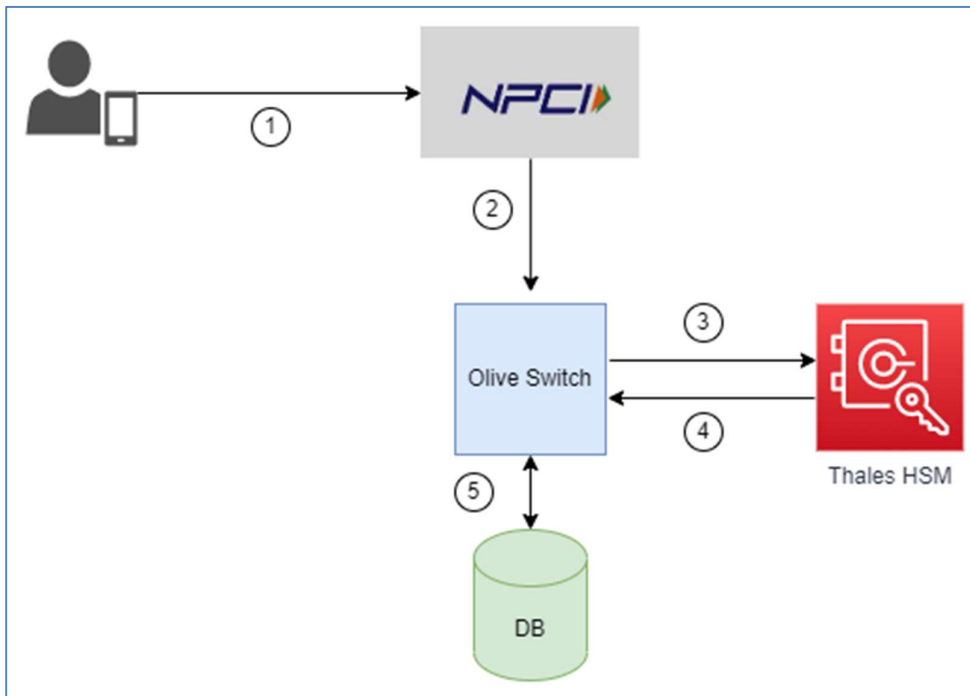


4. HSM will validate the request received from Olive UPI Switch and provide the decrypted hash value.

5. Olive UPI Switch validates the hash value with the one already stored in the Olive database. Transaction is allowed post successful validation of the PIN.

b. **Olive IMPS Switch** provides Robust, Real Time Fund Transfer. Full compatible and compliance with NPCI specification. Olive IMPS Switch each module have well-defined APIs to Integrate with various channels and outside entities. It supports Person to Person (P2P), Person to Account(P2A), Branch IMPS, Foreign Inward Remittance (FIR), API based integration with Mobile Banking / Internet Banking / SMS Banking /Core Banking / internal system of clients.

c. **Olive Payment (EFT) Switch** consist of few high-performance products designed to take care of almost all payment related requirements of Banks and Financial Institutions. Olive Payment Switch includes Card

Management Service (Card Issuance, Card Renewal, Card Replacement, Card Blocking / Unblocking etc), for Prepaid, Debit and Postpaid Cards. The Payment Switch offers support to handle EMV and non-EMV transactions with all basic transactions sets, data structure validation, transaction settlement & activity reports. Thales HSM is used with Payment Switch for PIN generation and validation.

d. **Olive AePS/FI Gateway Switch** provides complete range of Financial Inclusion services that includes Customer Enrollment, Account Opening/Closure, Transactions management, BC Management, Deposits, Rupay card transactions, Biometric and e-KYC support.

e. **Olive Bharat Bill Pay Solution (BBPS)** offers integrated, accessible and interoperable bill payment services with certainty, reliability and safety of transactions. It is fully compatible with NPCI guidelines and offers bill payment services to through various Payment channels, Payment modes to support Online and Offline bill payment.

Olive provides highly reliable and scalable payment transaction processing systems that run on off the shelf hardware. There is no need to procure any specialized hardware to handle load. Olive systems are designed with Security in mind during design. Olive products have the flexibility to integrate with various models and versions of Thales HSM devices depending on customer need.

Thales HSM's that work with Olive Products

| Olive Products | Thales Products |
|---|---|
| Olive IMPS Switch | payShield HSM |
| Olive Payment (EFT) Switch | payShield HSM |
| Olive AePS/FI Gateway Switch | Luna GP HSM , payShield HSM |
| Olive Bharat Bill Pay Solution (BBPS) | Luna GP HSM |