

Number portability over enterprise blockchain

A blockchain-based distributed
database solution to manage and
simplify the number portability process



For today's digitally connected consumer, the mobile number has become their primary digital asset and identity, which they need to retain forever as their digital world transactions depend on it. As the Communications Service Providers (CSPs) bring about innovations and newer offerings for their consumer, the consumers require the flexibility to switch operators as they prefer without having to change their mobile number.

Number Portability is therefore an important service that must be enabled by these CSPs and enforced by the national regulatory authority. The national regulatory authorities (NRA) play a key role in bringing CSPs together to serve the consumers better. Creating trustworthy collaboration among CSPs remains a big challenge for the NRAs.

The complex, long-drawn process for Number Porting has come to be a hassle for the end users, CSPs as well as the regulatory authorities. The high operating expenditure (OPEX) due to additional costs of third-party service providers have made it difficult for the CSPs while the lack of transparency and non-compliance to regulations have troubled the NRAs along with the multiple complaints from the users.

In number portability operations, information exchange is possible between CSPs directly or via intermediary, but financial transactions or value exchange is not easy. As new emerging technologies disrupt the Telecom space, these problems can become a thing of the past. Blockchain is one such emerging technology that will power the next generation of internet and has the potential to transform the world by enabling transparent environments that do not rely on trust. It allows non-trusting parties to transact, trade, exchange information and value without intermediaries in between. With the evolution of Blockchain technology, information and value can be exchanged securely, transparently while the porting process itself can be simplified, all without an intermediary.

Number Portability Chain (NPC) – Wipro's Blockchain based Number Portability Solution

The "Number Portability Chain (NPC)" solution manages and simplifies the number portability process through a blockchain-based distributed database solution that removes intermediaries. It is designed to run in the cloud environment utilizing enterprise permissioned blockchain, API-based interfaces with external systems and open source technologies. The solution has been designed to incorporate both donor operator led and receiver operator led approaches and is applicable for fixed or mobile services.

NPC Solution Benefits

Implementing this solution will provide benefits across the value chain from end users to CSPs to the Regulatory authorities. It simplifies and speeds up the porting process - reducing the turnaround time from days to hours, enabling secured exchange of customer information and cost saving pertaining to routing and intermediaries.

The Common Decentralized Application (DApp) ensures transparency and enforces proper compliance to rules and guidelines set by the national regulatory authority. Tracking the Key Performance Indicators (KPIs) brings about auditability and aids evaluation.



Users

- KYC information is directly transferred between operators through user's consent, which saves the trouble of resubmitting, and enrolling as a new customer
- The waiting period is reduced due to simplification and removal of intermediaries
- The porting fees may be reduced as the CSPs save on OPEX
- No loss of prepaid balance with secured financial settlements between CSPs



CSPs

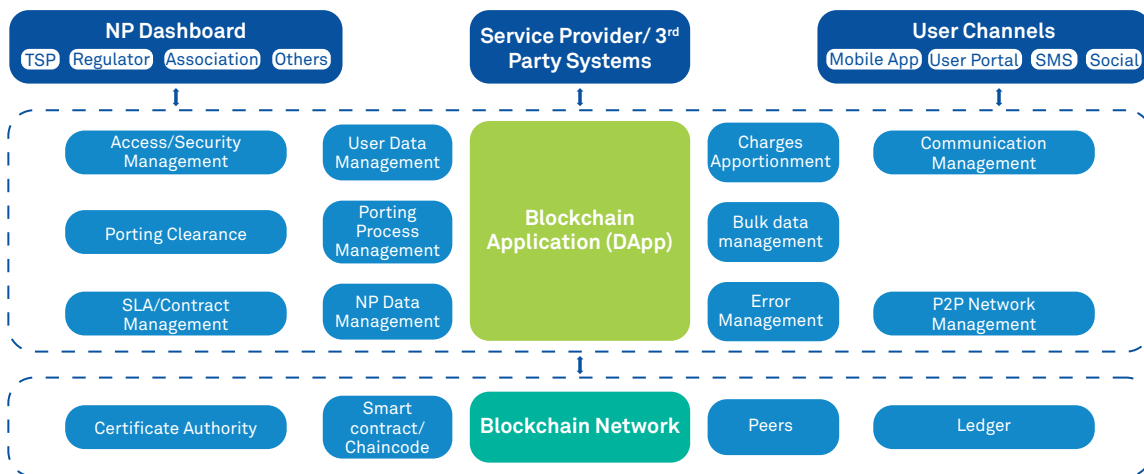
- OPEX savings due to removal of intermediaries
- Self-reliance for routing and lookup services
- Secure sharing of KYC information and data, settling of prepaid balances and unbilled postpaid amounts
- Simplified and faster porting process due to fewer third parties



National Regulatory Authorities

- Faster process due to simplification
- Fewer complaints from users
- Real-time dashboard to help enforce regulatory compliances and ensure transparency of the porting process
- Auditability, Transparency and Security in enterprise data & value exchange between operators
- KPI tracking and penalty calculation on blockchain network

Functional Architecture



NPC Solution Capabilities



Blockchain Technology removing Third Parties

- Decentralized database model utilizing Permissioned Blockchain
- Smart Contracts for KPI tracking & Penalty calculations
- Distributed Ledger to move prepaid credit, postpaid unbilled to Receiver Operator (RO)
- Apportionment of charges between Donor Operator (DO) and RO in various cost sharing models



End-to-end secure and transparent Management of Number Portability

- Common Decentralized Application (DApp) (Dashboard, E2E NP management, etc.) for all participants (SPs, Regulatory bodies)
- Solution built on Open Source technologies
- Cloud-based solution
- Allows consensus and permissioned membership enabling non-trusting parties to transact financially, trade and exchange information
- Transparency and data security ensuring KPI tracking & Penalty Calculation over Smart Contract



Simplified Number Porting Process

- Solution works seamlessly for both RO led and DO led approaches
- KYC information directly shared from DO to RO with user's consent

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