Building blockchain solutions for real-world telco use cases
In 2018, blockchain technology got a lot of attention from enterprises across industries, including telcos. Many big telcos started exploring blockchain use cases and formed consortia with peers to create PoCs. The TM Forum ran a blockchain catalyst program in collaboration with major telcos. Many of our customers wanted to understand how blockchain could solve real-world issues in areas such as SCM, logistics, digital identity, document authentication, etc. The Telecom National Regulatory Authorities showed immense interest as the technology could be used for the benefit of consumers in, say, controlling UCC (Unsolicited Commercial Communication), number portability, international roaming, etc.

Initially, blockchain was seen as being suitable for removing intermediaries such as clearing houses, number portability service providers, etc., to improve process efficiency and cut costs. However, public permissionless blockchain protocols were evolving and had shortcomings in meeting scalability and inter-operability requirements. Enterprise-permissioned blockchains were more stable and promising.

Wipro started discussions with Indian operators to resolve these pertinent issues. We, the Communication BU – Innovation CoE, started looking at number portability issues with respect to process, cost and timelines in India, as well as globally. We found that many countries used a centralized database approach by utilizing a third party provider and took up to 30 days for the porting process completion. In some countries, end-users were being charged up to 30 euros for porting.

Devising blockchain-based solutions using design thinking workshops

We, along with the blockchain CoE and central IP teams, conducted design thinking workshops to simplify the porting process, and conceptualized the solution using blockchain technology. Our innovative approach resulted in ideas that could be executed over blockchain, which was not possible in earlier approaches (central DB or distributed). Once the solution design was finalized, we kickstarted the solution development with a young, energetic, digitally skilled team which had blockchain enthusiasts and practitioners. The whole exercise of building the MVP (Minimum Viable Product) was completed in six weeks using the agile methodology.

This end-to-end solution is designed to run in the cloud environment utilizing enterprise permissioned blockchain, API-based interfaces to external systems and open source technologies.

Issues faced by mobile users, worldwide

In India, mobile users face many issues while porting their numbers to other operators while also constantly receiving spam calls and messages from marketers. Telecom Regulatory Authority of India (TRAI) was looking for blockchain solutions to solve these problems and mandated operators to utilize DLT (Distributed Ledger Technology)/blockchain technologies for this purpose.
In comparison to the traditional central DB or distributed-DB based solutions, a blockchain based number portability solution has the following benefits:

- Simplifies the number porting process
- Utilizes distributed ledger technology to remove third party intermediaries
- Provides E2E number portability management capability to telcos
- Provides real-time visibility to regulatory and operators through dashboards
- Enables secured information exchange and commercial transaction capabilities i.e. settlement
- By removing intermediaries, there is substantial cost savings for the operators
- Faster porting process allows users to switch operators
- Real-time transparency (KPI tracking, penalty calculation, cost management etc.) for all parties
- Faster inter-operator settlements
- The solution is fully demonstrable and suitable for all countries which have any of the global number portability scenarios like those which are donor operator led, receiver operator led, distributed or centralized DB models. The solution is designed to be a common solution for fixed or mobile, and/or IoT numbers portability.

About the authors

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