China Unicom taps new data monetization revenue stream with blockchain

Who?
China Unicom, one of China’s ‘big three’ operators, and Whale Cloud, a subsidiary of Alibaba.

What?
China Unicom wanted to share data with enterprise customers, complying with security and privacy and without increasing data storage and costs.

How?
Built a centralized data-sharing platform, based on TM Forum’s Open Digital Framework, to unify data from all data centers across China Unicom Group, including 31 subsidiaries.

Results
Attracted over 1,000 enterprise customers from over 20 industries to use the data-sharing platform to develop and augment services. China Unicom has also saved around $22 million in IT investment related to data storage and management.

By connecting people, information and objects like never before, 5G opens up huge opportunities for enterprises in a broad range of sectors to do things more efficiently and offer new services powered by data – and for telcos to offer new value to these verticals.

However, the true power of this data can only be unleashed if it is broken out of siloes.

This is why China Unicom built a centralized data-sharing platform with technology partner Whale Cloud. The platform unifies data from all data centers across China Unicom Group, including 31 subsidiaries, and enables the operator to share and trade data with enterprise customers to allow them to develop and augment services.

Traditionally data is managed in multiple data repositories from across scattered data silos. China Unicom’s platform is rooted in a ‘One Data, One ID, One Service’ strategy.

The platform uses mobile numbers to verify users and allows data to be referenced between systems, rather than replicated.

This approach has already saved China Unicom around $22 million in IT investment costs related to data storage and management.
The platform is underpinned by decentralized blockchain technology, which also establishes a ‘trust-chain’ between data consumers to producers. This is because users must authorize data transactions and they are traceable and immutable.

Further, the data is desensitized and anonymized via the platform before it is shared.

“Blockchain technology has been adopted to manage data sovereignty, privacy and transparency issues, which, to date, have been obstacles for data-sharing,” said Zhengcang Xiao, CTO, Whale Cloud International.

The platform is already delivering benefits for businesses, consumers and China Unicom.

China Unicom is now sharing data with over 1,000 enterprise customers from over 20 industries, including banking, insurance, technology, e-commerce, aviation, real estate, consulting, handset vendors, government, education, media, manufacturing and tourism.

This includes 74 automotive companies responsible for around 15 million connected cars.

In a finance context, for example, a user could authorize a financial institution to obtain their credit data from China Unicom’s data-sharing platform to determine loan eligibility. This speeds up and simplifies the process for consumers, and allows financial institutions to run checks faster and boost customer experience.

Meanwhile, China Unicom generates new revenue with a charge per API call.

In another scenario, a connected car could obtain a user’s itinerary from the data-sharing platform, such as a concert ticket which has been booked online. The user could then receive a reminder, via their phone, to travel earlier to avoid traffic jams, for instance.

In the insurance sector, in the case of a traffic accident, insurers and rescue companies could get a user’s GIS information from the data-sharing platform to help them faster.

China Unicom’s centralized data-sharing platform

Powered by Blockchain

Unifies data across

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resulting in savings of around $22 million in IT investment costs related to data storage and management.


TM Forum, 2020 (source: China Unicom)
The three-layer platform has an infrastructure-as-a-service (IaaS) layer as its foundation, comprising cloud computing and big data capabilities.

The central platform-as-a-service (PaaS) layer incorporates API enablement and access authorization, and includes a unified data center, an AI capability center and a GIS capability center. This API enablement platform, made up of 771 APIs, contains all China Unicom’s big data and AI capabilities, and exposes them to front-end applications. It sees an average of 200 million API calls per day.

To support this huge frequency in call requests and ensure high system availability, the API gateway uses a cloud-based microservices framework. A Kubernetes open-source container-orchestration system controls resource management and scheduling. Flink and Kafka are used for data caching and real-time computing.

Finally, the top, outward-facing software-as-a-service (SaaS) tier makes data available to external industries.

China Unicom and Whale Cloud built the data-sharing platform based on TM Forum’s best practices and standards, including the Business Process Framework (also called eTOM) and Information Framework (also called SID), Open Digital Architecture and over 25 Open APIs.

They also used guides relating to B2B2X partnering, partnership revenue models, metrics, blockchain use cases and data governance and monetization. Business scenario templates helped the team to map out business relationships and dependencies, and the AI & Data Analytics Maturity Model and Big Data Analytics Big Data Repository were essential for preparing the groundwork and defining data entities.

“TM Forum’s standards and best practices helped China Unicom avoid a variety of issues and reduce potential delivery risks. Thanks to the tools, we were able to achieve IT and business agility, simplified processes, competitive market response and excellent operational efficiency,” said Zhijun Wang, General Manager of Data Center, China Unicom.

The orchestration of data, AI, and GIS capabilities, via the enablement platform’s API gateway, has reduced the time to deliver new data-driven services by 80%.