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China Mobile



mobile
connect

Mobile Authentication:
Capitalising on China's
Identity Market

Mobile Authentication: Capitalising on China's Identity Market

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About China Mobile Group

China Mobile is a leading integrated telecommunications operator, operating across mainland China, the Hong Kong Special Administrative Region and Pakistan. It boasts the world's largest mobile network, and the world's largest mobile customer base, holding a total of 878 million mobile clients as of Q3 2017.

China Mobile Internet Company (CMIC) is an entity owned by China Mobile. Founded in 2015, it seeks to drive innovation in six key areas: Rich Communications System (RCS), Cloud business, Open Platforms, Mobile market, Value-added business and Innovative business. CMIC is now in charge of running identity services for China Mobile.



About the GSMA

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organizations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, Mobile World Congress Americas and the Mobile 360 Series conferences.

GSMA Mobile Connect is a global framework based on Mobile Operator APIs, offering a secure universal login solution. By matching users to their account information via their mobile phones, Mobile Connect enables access to websites and applications quickly, without the need to remember login details, allowing them to authorize transactions and other online actions.

1. Abstract

China Mobile have firmly established themselves in the digital identity market. The network operator's identity service, Mobile Authentication, offers a range of authentication capabilities, and is live in several different commercial contexts.

The combination of increasing concerns among Chinese users around online security, diminishing consumer tolerance of spam calls and lengthy registration processes, encourages China Mobile to leverage their unique network assets and offer a high grade login service. The outline findings of this report are as follows:

- With mobile penetration now at a high rate in China, providers of effective mobile identity solutions are well-placed to capitalise on demand for greater security, simplification, and privacy in online transactions;
- Through well-deserved reputation and the comparative security advantages enjoyed by mobile networks, operators offering such solutions can earn the trust of consumers;
- Use cases for Mobile Authentication are already numerous and successful. More than 1,000 apps now use the solution, encompassing industries as various as banking, online shopping, computer gaming, insurance, language teaching, and air travel.

Key highlights of China Mobile Passport



62 MILLION
DAILY ACTIVE USERS



450 MILLION
DAILY TRANSACTIONS



99.8%
SUCCESS RATE



OVER 1,000
APPLICATIONS

What follows is an in-depth case study detailing the market opportunity China Mobile has identified, the successes achieved to date, and the outlook for the near future.

2. The opportunity in China

1. The market opportunity

There are now over 4 million apps in China, and the number is growing fast.¹ The number of mobile phone users in China has reached 1.39 billion as of September of 2017, which makes it a highly attractive market for mobile content.

2. Value proposition

China Mobile sees three key areas of opportunity in the Chinese identity market: **basic authentication** (on voice calls, data, etc.); **interconnection** (linking a user's identity across applications and service providers); and rights and **interests of the customer** (coupons, loyalty plans, vouchers, etc.).

Mobile Authentication aims to address three key challenges:

- a) **Lengthy registration:** customers typically need to enter personal information and create new usernames and passwords. The difficulty in remembering multiple login details frequently leaves users unable to login, and vulnerable to a series of security issues from password reuse.
- b) **Inaccurate registration:** research shows that users registering incorrect details have a direct impact on the profits of 88% of service providers, with losses averaging 12% of total revenue.²
- c) **Interconnection difficulty:** since users create new profiles for each service, each party has its own data silos. Thus, service providers cannot integrate information to figure out clients' demand or offer suggestions accordingly.

These barriers to online commerce can be mitigated by offering an interoperable solution through which identity can be verified with certainty. China Mobile's vision is that, in time, users will be able to login once for all the services they use with a single login, becoming part of an interconnected ecosystem.

1. Source: CAC

2. <https://econsultancy.com/blog/64612-the-cost-of-bad-data-stats>

3. China Mobile's Unified Authentication

(hereinafter referred to as "Mobile Authentication")

1) What is Mobile Authentication?

a) One-click Login

The primary use case of Mobile Authentication is logging in to China Mobile applications and services. Users can authenticate without the need for a username or password, and use China Mobile's portfolio without needing to login again. For customers using the mobile data network and Wi-Fi connection, the authentication is seamless.

Research shows that 87% of users have abandoned an online transaction when asked to register anew.³ China Mobile has recorded login success rates 99.8% with One-click Login, helping users get rid of time-resuming registration processes, thus increasing conversation rate. China Mobile has opened One-click Login to its partners and the service is rapidly gaining traction, serving more than 1,000 apps and being supported by Millet mobile phones now.

b) Secure authentication and account takeover protection

Secure authentication: China Mobile's SIM Shield is a 2-factor authentication tool which secures online remittance and money transfers. Typically, banks in China will issue USB keys to their customers to provide highly-secure signature protection. However, these solutions are cumbersome for customers, and costly for the banks to deploy. China Mobile's SIM Shield removes the need to carry an extra device, as only the mobile phone is needed, but offers an equivalent level of security. Shanghai Pudong Bank has now enabled the SIM Shield to replace the existing USB keys for single payment under 5 million RMB. Now, this solution has been popularised in most provinces of China.



3. https://www.gsma.com/identity/wp-content/uploads/2015/06/mc_factsheet_web_06_15.pdf

Account Takeover Protection: the Account Takeover Protection service prevents recycled number fraud. The closing of mobile accounts and the recycling of phone numbers could pose issues where those numbers are used to identify individuals; China Mobile's recycled number identity detection avoids these by instantly detecting and notifying service providers when a change of number ownership takes place. This helps them verify new users' identities, instantly respond to registration requests, and prevent account disputes, thereby ensuring the integrity of their account management systems.

c) Mobile number verification

Applications frequently need to verify that the mobile numbers they are given match the expected user. Typically, this is carried out via SMS-OTP, which is inconvenient for users – due to the delays associated with SMS, leading to timeout failures – and also vulnerable to fraudulent interceptions such as Trojan hijacking.

China Mobile's 'My Own Number' verification system enables service providers to confirm a number's validity with an imperceptible user experience: while the user accesses the application via mobile network, the Mobile Authentication sever will automatically capture the phone number based on its network ability and respond to the identity request from the application sever.

d) Smart Link

Smart Link is a use case currently deployed in partnership with retail banks. Chinese banks typically provide SMS notifications for account activity such as balance change; China Mobile now allows banks to embed a "Smart Link" within these, uniquely created for each user. When users click on the link, they can access their account's status and activity in a single step.

FIGURE 1: EXAMPLE OF A SMART LINK EMBEDDED IN A TEXT MESSAGE



2) The importance of privacy

Chinese users are increasingly aware of the risks of personal data breaches, and averse to the potential for spam. As a result, they have become reluctant to share personal information such as phone numbers for commercial purposes. Many service providers however still need to comply with the real-name registration policy, and must deny customers access if they do not provide a mobile number. As consumers move away from SMS OTP, they demand solutions which do not require sharing their mobile number.

China Mobile now offers consumers the option to avoid providing their mobile number, while still being able to access websites as they wish in accordance with the regulation. China Mobile creates alternative numbers for their customers (the 'middle number') and a completely new profile (the 'AND Identity', in the form of a URI which user can access). The operator knows who the real user is behind the credentials, but no other party can make the link. These act as a layer between users' real identities and the businesses which ask for their information, protecting them from spam and unwanted communications.

Depending on the service which customers want to access, they can choose what information they want to provide.

3) Covering the full market

When users access third-party applications, they can choose which authentication method they want to use. For example, when accessing the popular application Air Travel Manager, customers can verify their number using China Mobile's imperceptible authentication.

FIGURE 2: USERS CAN SELECT THEIR PREFERRED OPTION TO VERIFY THEIR MOBILE NUMBER



4. Turning identity into a valuable business

1) A successful identity solution

China Mobile's Mobile Authentication is one of the fastest available authentication solutions on the market, with a success rate of 99.8%.

Over 1,000 applications are now connected to Mobile Authentication service – driving 450 million daily transactions from 62 million users – and the solution is steadily gaining market share. Roughly half of this traffic comes from China Mobile's own services, including music, video, etc. The remainder is through external applications, for example VIPshop.com (shopping), Nami Box (English-language learning), etc. Since the launch of single Mobile Authentication, monthly active users of customer service applications have also increased by 20%.

2) Benefits to China Mobile

China Mobile offers a basic authentication service using competitive marketing strategy. However, China Mobile intends to design a business model for higher-value use cases (such as Mobile Number Verification, KYC attribute matching and SIM Shield) according to market demand and the value created for its clients.

China Mobile also anticipates higher value. The Mobile Authentication solution can be easily bundled with other products and services in the portfolio to offer higher value to customers. The basic authentication service drives high usage and helps China Mobile establish trust with service providers, thus helping them to sell their other services to business partners.

Finally, the high usage of the Mobile Authentication service gives China Mobile rich insights into their customers' interests.



5. Conclusions

As elsewhere around the world, original methods of accessing online services via usernames and passwords is reaching the end of its useful life in China. Chinese users are increasingly unwilling to waste their time creating multiple login details, and pay more attention to the protection of personal data such as mobile phone numbers.

Mobile network operators are uniquely placed to alleviate such inconveniences, being imbued both with the most secure infrastructure in the communications industry and a natural responsibility to protect their customers' privacy.

China Mobile's initiative in this regard has yielded a wide array of successful innovations; the Mobile Authentication has recorded a login success rate of 99.8%. This allows us to envision at least a dramatic reduction in the inconvenience of SMS-OTP

authentications, if not their elimination in the years ahead. The influence of such innovations on digital e-commerce is quite exciting. Meanwhile, China Mobile is going to participate actively in the global alliance of operators, draw on advanced industry cooperation experience, and seek for the perfection of its identity products.

China Mobile will continue to support Mobile Connect, the GSMA's global authentication initiative, participate actively with global operator federation and collaborate with industry partners to keep on improving the mobile identity service.





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