SECURE AND CONTROLLABLE NETWORK: CREATING A CLEAN CYBERSPACE

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It is essential for the information network to be secure and controllable, which serves as the solid foundation for healthy and sustainable growth of the information and communications industry. In 2017, the Company upheld proper cybersecurity ethics and continued to enhance communication security and safeguarding measures. It acted proactively in guarding emergency communication, protecting user information security and privacy, and curbing malicious contents, thereby fostering a secure and clean cyberspace and providing strong support for national security and social stability.

Measures adopted in 2017

- Established a steering working group to formulate specific protection plans and organised more than 1,500 emergency drilling sessions.

- Carried out emergency repair of communication facilities during typhoons, floods, earthquakes and other natural disasters, as well as safeguarding communication for important events including the "19th National Congress of the CPC", "Belt and Road" Forum, and the BRICS Summit.

- Improved the operating mechanism for information security, vigorously implemented real-name registration system, intensively executed special initiatives against information fraud, and completed dispatch of 1.27 billion various SMS reminders on information security.

- Developed network products and services positive to the healthy growth of minors and prevented the use of Internet to engage activities endangering the physical and mental health of minors.

Actions in 2018

- To continue perfecting the mechanism for safeguarding information and communication during emergencies and actively undertake communication assurance missions in relation to natural disasters and significant events in diligent fulfillment of the social responsibility as central stated-owned enterprise.

- To enhance information security management and further build systems, as well as intensifying execution against communication and information fraud.

- To actively implement the requirements set in "19th National Congress of the CPC" to create a clean cyberspace, developing a secure and healthy environment for minors on the Internet.

ASSURING EMERGENCY COMMUNICATION

Improving the system for the protection of emergency communication

Offering relief and help in times of crisis and danger is the social responsibility of large-scale state-owned enterprise. For telecommunications enterprises, assuring the security of communication during emergencies is an even more important mission. In 2017, China Unicom further amended its emergency planning for safeguarding communication to effectively ensure emergency modulation during the flood season. A working steering group was established to formulate specific protection plans to ensure fully smooth communication during important events. To enhance the capability of the emergency communication unit in handling emergency situations and offering general protection ability, more than 1,500 emergency drilling sessions were organised at various levels of China Unicom.

On-site Campaign in Shanghai

The Shanghai leg of China Unicom's emergency communication drilling and presentation initiative entitled "Quality Network Nationwide Tour" ("匠心網絡萬里行") was successfully completed, demonstrating the ability of the China Unicom's professional communication protection team to "be ready to serve whenever called upon, combat problems in service, and overcome hurdles in combat".

Technical Staff Learning About Equipment Functions in the Emergency Communication Vehicle

China Unicom Heilongjiang has formulated a detailed mobile communication protection training program to provide comprehensive training to all personnel involved in emergency communication, conducting external and internal trainings in different sessions designed for staff in various levels, in order to further improve the servicing ability of our technical staff.

Responding to Severe Natural Disasters

In 2017, certain regions in China suffered from serious floods, battered by hill torrents, mudslides, slippery slopes and other natural disasters. Typhoons "Nesat", "Haitang", "Hato" and "Pakhar" landed in China successively, while Jiuzhaigou of Sichuan and Milin of Tibet struck by earthquakes. In response to the disasters, all officers and cadre staff of China Unicom were committed to safeguarding communication for important clients, such as the CPC, government and military organisations, as well as flood and drought management authorities. With a strong sense of responsibility, careful preparations and a dauntless spirit to overcome difficulties, China Unicom ensured communication security during the flood season. Throughout the year, China Unicom has committed RMB159,670,000 in relief funds, 172,776 man-shifts of disaster-relief workers, 61,678 per-unit outings of emergency vehicles, 7,597 per-unit applications of emergency equipment and 78,713 per-unit applications of emergency oil machines.

◀ China Unicom Guizhou committed full efforts to safeguard the "lifeline" for communication.

▲ China Unicom Fujian fully geared up to counter the onslaught of the double typhoons.

▲ China Unicom Guangxi strived to assure smooth communication is maintained.

◀ China Unicom Hunan safeguarded communication while taking relief actions against the floods.

▲ China Unicom Tibet battled the Linzhi earthquake.

▲ China Unicom Sichuan in relief action in the aftermath of the Jiuzhaigou earthquake.

Safeguarding Communication Requirement of Important Events

Safeguarding communication at the "19th National Congress of the CPC"

In October 2017, "19th National Congress of the CPC" was convened in Beijing. To ensure smooth communication and the safety and controllability of Internet information during the Congress, China Unicom provided 268,000 man-shifts of maintenance staff and 67,000 outings of emergency vehicles. China Unicom Beijing, in particular, fielded 1,330 man-shifts of technical staff with 417 workers carrying out non-intermittent inspection of wire lines with a total distance approximately to 60,000 km over 10 consecutive days, thanks to meticulous planning devised over a period of 5 months. As a result, China Unicom achieved "best assurance" in 5 areas: fastest Internet connection, broadest wireless coverage, best communication quality, best response in technical support and best customer experience. The Company was widely recognised for the successful completion of the mission, with the provision of a full range of high-quality services for the efficient proceedings and extensive broadcast of the Congress.

Safeguarding communication at the "Belt and Road" Forum

In May 2017, the "Belt and Road" Forum for International Cooperation was held in Beijing, with the highest specifications since the proposition of the "Belt and Road" initiative more than three years ago. China Unicom was involved in communication assurance throughout the entire period of the forum, deploying more than 7,950 maintenance staff and 2,690 emergency vehicles while connecting 76 Internet access lines and 7 10G Internet leased lines for 2 news centres and 37 hosting hotels, in addition to setting up 1,290 wireline information outlets and 123 telephones, as well as providing full WiFi coverage for 2 news centres. The Company accounted for nearly 60% of international roaming services utilised, and offered first-time ever "Gigabit to desktop" ultra-high speed Internet access to international journalists, enabling them to timely dispatch diverse reporting to all parts of the world. The great convenience afforded to the media earned China Unicom unanimous commendation.

Safeguarding communication at the BRICS Summit

In September 2017, the 9th BRICS Summit was successfully held in Xiamen, Fujian. China Unicom Fujian established an "all-rounded range, coverage and time" protection regime on the solid basis of "4 principles". 15 special working groups were formed, RMB690 million were invested, along with the deployment of 1,533 maintenance staff, 127 vehicles and 35 emergency communication vehicles, all together succeeded in fulfilling the mission in information communication and network security protection on the back of seamless high-speed network and meticulous communication services. The outstanding contributions of China Unicom Fujian in safeguarding communication for the summit have been highly recommended by the MIIT, the Provincial CPC Committee and Provincial Government and various departments of major customers, as testified by 34 letters of appreciation received from government authorities at various levels and major customers.

PROTECTING INFORMATION SECURITY

In 2017, China Unicom conscientiously implemented the important guidance of General Secretary Xi Jinping that "Without cybersecurity, there is no national security". Along with support to resolute execution of relevant important national plans, the Company continued to enhance the development of its information security protection mechanism, improve its ability to introduce innovative support to information security, commence special initiatives for the prevention and curbing of communication and information fraud, and consistently drive educating activities on information security, with a view to building an impenetrable stronghold for the protection of network information security and user privacy.

Improving information security working systems

China Unicom has worked vigorously to build a network and information security assurance system underpinned by "active prevention, timely identification, fast response and assiduous recovery" and conducted itself in stringent implementation of the "Cybersecurity Law of the People's Republic of China" and "Provisions on Protecting the Personal Information of Telecommunications and Internet Users". The Company has also promulgated the "China Unicom Network and Information Security Management Measures" and increased promotional and training efforts to enhance staff awareness on the importance of legal compliance.

- Enhancing administration of disclosure and confidentiality of user information through stringent implementation of regulations governing the administration of customer information, unequivocal execution of the "7 prohibitions", as well as more rigorous administration over employee numbers in the system of production and operation, along with an augmented mechanism for secondary SMS verification, in addition to label hiding in relation to user names and personal information to strengthen protection of users' privacy.

- Building a comprehensive regime for the protection of user information security, perfecting the system for the administration of user information security, adding encryption for the protection of sensitive information, monitoring daily logs of data visits via jump server, developing a security audit mechanism for internal and external use of data, improving the protocol for the protection of information system security, and enhancing entry threshold and risk assessment in relation to information system security.

- Earnestly implementing real-name registration with consistent good records on new user registration, perfecting the process for handling disputed phone numbers in different regions under the requirement of "5 cards nationwide for 1 ID number", increasing the accuracy of registration information of old users, launching case-by-case clearance of users holding multiple numbers with one ID number, improving the accountability system for violations at channels, rectifying the filing and investigation mechanism for non-compliance and punishment, strengthening supervision and appraisal, and active launching application of facial recognition technologies at physical channels on a trial basis.

Focused monitoring of
1,247 sensitive information sheets

Monitor
1.50 million data visits daily

Over
8,000 sensitive data visits audited

Severe Measures Against Information Fraud

Special initiatives against communication fraud

China Unicom has intensively commenced special initiatives against communication and information fraud and ensured the effectiveness of such initiatives with three major operations: "Operation Charge" enabled 100% real-name registration of phone users; "Operation Source Clearance" realized 100% real-name registration for 400 and leased voice lines and 100% caller authentication; and "Operation Stronghold" has executed precise blocks against scam calls.

Strengthening network system security management

China Unicom's ability in safety monitoring, early warning and emergency response in relation to network system information security has been further enhanced, as system loopholes and cyber-attacks were being countered in swift actions. The Company continued to pursue innovative information security solutions, such as rolling out the exclusive anti-fraud public service, which has received 3 major awards from the People's Daily, the Internet Society of China, and Security Notification Centre for State-owned Enterprises and has been widely recommended by users.

Procuring regulated operations of MVNOs

The Company has helped MVNOs to regulate their operations in various ways to safeguard network information security. Stronger efforts have been made in the network to block junk SMS and shorten the transmission time for call records. The implementation of real-name registration and user quality have been linked to the policy of phone number allocation to guide the enterprises towards healthy development. Meetings have been held to call for stronger emphasis on service quality and junk SMS reporting on the part of MVNOs, and requests for rectification have been made to questionable enterprises.

At the 2017 China "Internet +" & Digital Economy Summit held in Hangzhou on 20 April, China Unicom's anti-fraud public service was named one of the 2016 China Internet + Top 10 Outstanding Exemplary cases.

The Big Data-based anti-fraud public service has developed a set of effective governance measures. Since coming into operation, the service has helped users to avoid potential economic losses amounting to more than RMB870 million.

- Extensive coverage

- Precise positioning

- Prompt reminder

- Rapid linkage with public security organisation

China Unicom Beijing has built a governance regime against communication fraud under a model covering different dimensions in various segments such as internal and external corporate governance, types of telecommunication services susceptible to scams and the end-to-end process of user applications based on the core concept of the "co-governance model", aiming at all-rounded joint governance by multiple parties.

- Intercepted more than 18 million illegal or violated SMS messages and close to 100,000 outgoing phone numbers, while dealt with nearly 40,000 various scam/harassment calls and censored close to 15,000 illegal websites throughout the year.

- Cooperated with public security authorities in a number of on-site arrests at pseudo base stations with the suspension of suspect phone numbers for the collection of evidence.

The anti-harassment reminder and communication guard public services have been launched as part of a communication security regime covering the mobile voice and data network. The communication guard service already covers more than 10 million users. As at 2017, a total of 16,679.24 million blocks was made, while up to 2,845,700 users had subscribed for the anti-harassment service, making an average of approximately 300,000 pop-up reminders daily and developed a database containing 1,269,200 harassment phone numbers.

Public Education on Cybersecurity

China Unicom has launched an extensive program to promote user security awareness, dispatching 1.27 billion various SMS reminders related to information security.

At the 4th "China Cybersecurity Week" held at the National Exhibition and Convention Centre in Shanghai, China Unicom promoted to the public protective measures to deal with scam calls, to block junk SMS and malicious programs, and to protect privacy.

To enhance mass user security awareness, China Unicom Qinghai organised a promotional campaign on the World Telecommunication and Information Society Day (May 17th) to educate the public on ways to prevent communication and information fraud and maintain mobile phone security, through media such as display boards and colour pamphlets and activities such as joint military-civil protection of lines, in a bid to increase public knowledge on the importance of communication facilities.

To foster a safe environment for voice communication and Internet surfing while assuring the safety of people's information and properties, China Unicom Liaoning organized the "Cybersecurity in the Community" program in September 2017 to show common examples of phone and Internet scams to the residents and educate them on basic knowledge in communication security.

DECONTAMINATING THE CYBERSPACE

In active implementation of the "Cybersecurity Law of the People's Republic of China", along with the requirements as laid in the "19th National Congress of the CPC" to enhance the development of Internet contents, to build a general network governance regime, and to create a clean cyberspace, China Unicom has engaged in the research and development of Internet products and services conducive to the healthy growth of minors and in the prevention of any use of the Internet activities which could harm the physical and mental health of minors, in order to provide a safe and healthy environment for minors on the Internet.

In order to better facilitate the scientific development of the mobile game industry, Wostore Technology Company Limited (a subsidiary of China Unicom) established the "Big Data United Laboratory" in collaboration with Shanghai Jiao Tong University in active response to the Nation's administrative requirements for world-leading online gaming for the joint development of a system to prevent mobile phone addiction with the application of efficient and precise monitoring system based on comprehensive data collection and analysis. By checking game hours and consumption amounts of a user, the identity of such user is authenticated and the gaming status of a minor is accurately identified, whereby excessive gaming will be restrained to help users to develop healthier and more eco-friendly mobile gaming habits.

To address the issue of teenager addiction to the Internet, China Unicom Liaoning launched the "Sunshine Protection" program to help parents to effective control their children's Internet surfing behavior on mobile phones. The program is targeted to various characteristics of teenagers' mobile online behavior and set up online management, location guard and behavioral analysis accordingly, so as to provide assistance to parents who seek to guide their young children towards healthier surfing on the Internet.