Interview with the Inventor of the Future Network IPV9

Guoshao Chen School of Computer Science and Engineering Xi'an Technological University Xi'an, 710021, China E-mail: 1825247141@qq.com

Abstract—With the rapid development of the Internet, from the PC terminal to the mobile terminal, from big data systems to intelligent hardware, technology has shown the unique charm of the Internet. With the development of the Internet, the network information security and network sovereignty issues involved have become increasingly prominent. Therefore, only in an environment of security, equality, and mutual assistance can the Internet play its due economic and social value. The emergence of a new generation of Internet IPV9 marks a key step for China to move towards an autonomous and controllable future network. IPV9 is to further safeguard national network sovereignty on the basis of fully guaranteeing network information security. But the defamation of IPV9 still exists. Recently, in order to further clarify the facts, we hereby interviewed Xie Jianping, the inventor of the Decimal Network, to conduct an in-depth discussion on the new generation Internet IPV9.

Keywords-IPV9; Future network; Decimal Network

I. INTRODUCTION

The core of the current Internet (also known as the Internet) technology is IPv4 and IPv6, and its technical core is completely controlled by the United States. On December 14, 2017, the US Federal Communications Commission (FCC) officially abolished the net neutrality rule, making Wang Yubian Department of Railway Transportation Control Belarusian State University of Transport 34, Kirova street, Gomel, 246653, Republic of Belarus E-mail: alika_wang@mail.ru

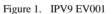
the Internet with obvious political color and posing a serious threat to Internet applications in various countries. The address space of the IPv4 protocol is 2 to the power of 32. Due to the insufficient estimation of the development trend of the Internet in the early stage of Internet, the insufficient setting of the address space length caused the unreasonable IP allocation. By 2010, there were no addresses to allocate. In theory, IPv6 has 2^{128} addresses, but only one eighth of the addresses can be assigned to end users, so there are only 2^{125} addresses, which is equivalent to 10^{37} . The 128 bar code in the Internet of Things is already 10^{128} , which cannot be covered, so IPv6 also has certain limitations.

Since the establishment of the Decimal Network Standards Working Group of the Ministry of Industry and Information Technology in August 2001, Shanghai Decimal Network Information Technology Co., Ltd. has conducted more than 20 years of research in the future network field, developed a complete network framework system, and completed IPV9 with independent intellectual property rights. The patent obtained by IPV9 (2001, patent number CN98122785) has been recognized by many countries including China, the United States, the United Kingdom, Russia and other countries. This innovative and internationally strategic new achievement has been vigorously endorsed by the Ministry of Industry and Information Technology, the National Standards Committee and other ministries Supported the establishment of a second network system other than the United States.

II. FUTURE NETWORK IPV9

In Dr Zhang's article, IPV9 is the legal version of the American IETF. The IPV9 is a version that the United States has publicly declared unsuccessful, but has never abandoned.

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As early as 1994, the United States admitted that IPV6 address length was inadequate and announced that the old system was behind The Times, and began working on IPV9, but it was never successful. At present, IPV10 is being developed in the United States. What is the concept of IPV10? Because IPV4 and IPV6 are not compatible, IPV10 solves the problem of communication between IPV4 and IPV6 mutual group machine, and the address length should reach 256 bits. The main reasons for the insufficient length of the IPV6 address are as follows: First, the length of the current bar code EAN • UCC on the Internet of Things is 10 to the 128th power, while IPV6 can only achieve 10 to the 32th power. Second, ISO has clearly mentioned that the length of the new future network should exceed 128 bits. Third, the United States is developing a new network (IPV10) with 256-bit IP addresses. This is the same as the NEW IP proposed by Huawei, which is unanimously inclined to the viewpoint that the IPV6 address length is not enough. Evidence No. 1 of IPV9 EV001 indicates that the statement "IPV9 is a joke on April Fool's Day" disseminated by Shenyang, Fang Zhouzi and a few academicians and authoritative network experts in China is a lie. IPV9 is a protocol with an official version number and a specific technical background. The original technical documentation for IPV9, TUBA, was published by IETF two years before IETF1606 and IETF1607. IPV9 is a technology officially approved by the IETF and issued with a version number.

IPV9 is not a closed network, but is connected to the Internet in foreign countries. IPV9 can completely build a pure IPV9 network, and then connect to the old network through a gateway. The relationship between the future network and the Internet is like the relationship between the new highway and the old highway, which can operate independently or be interconnected. IPV9 information can be used in IPV9 network content circulation, digital domain name is owned by China's own root server, in foreign countries to cut off the network channel and stop the exchange of top-level domain (TLD), the use of digital domain users are not affected. In the event of foreign intervention or accident to cut off the overseas access to the Internet, China's network can still maintain a safe and stable operation. The IPV9 address of the future network is basically 256 bits long, and can be expanded to 1024 and 2048 bits. It can be expressed in simplified decimal or variable length to meet various application scenarios, while IPv6 address only 48, 64, 128 bits version and incompatible.

The future network IPV9 effective address length 256-2048 bits, can be independently and bidirectionally addressed, and can meet the needs of the Internet of Things and digital currencies. The address block architecture of IPv6 restricts its cross-city mobile and bidirectional addressing. It must deduct the 32-bit network number of each international and operator. The effective URL is only 64 bits, which cannot meet the needs of the Internet of Things mobility and the number of URLs. Therefore, IPV9 is a milestone for China to maintain national network sovereignty, guarantee the security of network information, break the monopoly of the US Internet, and promote the rapid development of a new generation of Internet with independent control and secure interconnection.

III. FUTURE NETWORK PATENT

China IPV9 has found a way to implement it, applying for patents and copyright protection. And there are many innovations in the concept of technology, and the development achievements have been remarkable. The main results are as follows: First, the program is complete. China's future network IPV9 has formed a complete technical solution. including manv core technologies, such as naming and addressing technology. three-and-four-layer composite architecture technology, character direct routing technology, terminal technology, analysis compatible interoperability technology and new network security technology. Second, it is well equipped. China has developed the key equipment for the future commercial application of network IPV9, including root server, core router, parsing server and so on. Third, the standard is leading. In the domestic standard, the country has issued a number of technical standards based on decimal network and IPV9. Internationally, the core technology concept of IPV9 has been adopted into the international standard, and many technical solutions are about to apply to the international standard for approval. It is shown in figure 2.

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Figure 2. Official document of the future network

Domestic standards for future Networks (ISO-29181/IPV9) include: Electronic industry standard of the People's Republic of China SJ/T-11603-2016, SJ/T-11604-2016, SJ/T-11605-2016, SB/T-10530-2009, SJ/T-11271-2002. It is shown in Figure 3.

Future Network IPV9 has obtained 8 patents in China (2 inventions, 6 utility models). The method by which the computer assigns the address of the computer by the whole decimal algorithm (patent no.: ZL001351826). A method for the uniform compilation and distribution of addresses of networked computers and intelligent terminals (patent No.: ZL001168738). The method of assigning addresses to computers on the Internet by using full-digit code (patent No.: ZL981227856). Guidance code and its application system for goods and Commodity Code networking (patent No.: ZL200510027910X). A networked tax control system and its application method (patent No.: ZL2004100160308). Digital remote video monitoring system device (patent No.: ZL2004200207687).

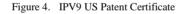
The future network has also been awarded a US patent. It is shown in Figure 4.



Figure 3. Future Network China Standard Content



1	Unite Xie et al	d States Patent	(10) Patent No.:(45) Date of Patent:		US 8,082,365 B1 Dec. 20, 2011		
(54)) OF USING WHOLE DIGITAL) ASSIGN ADDRESS FOR FR	(56) References Cited U.S. PATENT DOCUMENTS				
(76)		Kenping Xie, Shanghai (CN); Mengen Wei, Shanghai (CN)	6,014,711 A 6,061,738 A 6,070,154 A 6,178,455 B1	5/2000 C 5/2000 T 1/2001 S	Brown 709/245 Diaku et al. 709/245 Eavor et al. 705/55 Schutte et al. 709/228		
(*)	Notice:	Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.					
(21)	Appl. No.:	09/763,246	1000		21012-001		
(22)	PCT Filed		Primary Examiner (74) Attorney, Ag Mueller & Larson,	ent, or	Vinder Firm — Hamre, Schumann,		
(86)	PCT No.:	PCT/CN99/00166	(57)	ABSTR	ACT		
	§ 371 (c)(1), (2), (4) Date: Feb. 20, 2001		This invention relates to a method for assigning addresses to online computers by using full digital code. The method constitutes using a full digital coding address ("FDCA"),				
(87)	PCT Pub.	No.: WO00/34884	which is the combination of an online number, telephone number and category number. An E-mail box address, which is composed of a user name digital number and a domain				
	PCT Pub.	Date: Jun. 15, 2000					
(30)	F	oreign Application Priority Data	name digital number of the mailbox server where the mailbox is located, can also be assigned using the FDCA. The E-mail box can be accessed, or the Internet can be browsed, by				
D	Dec. 4, 1998	(CN) 98 1 22785	inputting to the m	odem of th	the computer by dialing up a e or the keyboard of the com-		
(51)	Int. Cl. G06F 15/1	6 (2006.01)	puter; by linking the verting the digital of	correspon ode with de	ding digital code; and by con- dicated software. The method		
(52)	U.S. CL	709/245; 709/236	is easy to remember and administer, and the assigned addresses are unique.				
(58)		lassification Search	13 Claims, No Drawings				



IV. TYPICAL APPLICATIONS OF IPV9

At present, my country has built demonstration projects of IPV9 address space, root domain name server and IPV9 backbone optical cable system in Jiangsu Beijing, Shanghai, Shandong, and Zhejiang, and is building а national military-civilian fusion IPV9 backbone optical cable and gateway bureau. The IPV9 network has now completed multi-point testing applications and has obtained good test data.

At present, China has established an "N" financial root domain name server which supports 256 bit address space. It has laid a foundation for the unified format of digital currency in China and even the whole world. In the process of issuing digital currency, the root domain name server and the top-level domain name server in the United States can avoid the management control of the digital currency overall issuing network communication system in China.

digital China's currency network communication system must have a financial root domain name server parallel to the United States and a "chn" national top-level domain name server and its supporting digital currency electronic vouchers, payment processing and other security service facilities, and adopt advanced advanced authentication before communication Technology and supporting domestic encryption technology completely solve the problem of financial information security, ensure China's financial stability, and safeguard national sovereignty. At the same time, the establishment of a third-party platform for digital currency and physical currency conversion, electronic bills and electronic business path and identity and qualification certification based on the decimal network root domain name server, and unified national prior identification and management.

The project of Healthy Tai 'an IPV9 big data platform relies on the existing backbone optical cable and user transmission and access network of Tai 'an Branch of Shandong Radio and Television Network Co., LTD., and USES IPV9 network technology for upgrading and reconstruction. The network covers medical and health institutions at city, county, township and village levels as well as Tai'an City financial bureau, medical insurance bureau and administrative departments of Tai'an. The bandwidth meets the requirements of big data business of Tai'an health and sustainable expansion, and the compatible and safe operation of IPV9 network and IPV4 network is realized.

V. CONCLUSION

IPV9 is a new generation network architecture researched and developed by Chinese scholars. It is fully autonomous and controllable, with large address space and safe high-speed large code stream transmission. The distributed analysis of the network has low latency and is compatible with the current Internet system. Future Network is a method of empty cup design and new architecture to develop a Network system independent of the existing Internet to achieve a more secure, more economical, faster and more flexible Network. The future network will be developed in 15 years and put into preliminary commercial use around 2020.

REFERENCE

- [1] RFC Internet Standard. Internet Protocol, DARPA INTERNET PROGRAM PROTOCOL SPECIFICATION, RFC 791, 1981.09.
- [2] S.Deering, R. Hinden, Network Working Group. Internet Protocol, Version 6 (IPv6) -Specification, RFC-1883, 1995.12.
- [3] M. Crawford. Network Working Group. Transmission of IPv6 Packets over Ethernet Networks. RFC-2464, 1998.12.
- [4] J. Onions, Network Working Group. A Historical Perspective on the usage of IP version 9. RFC1606. 1994.04.
- [5] V. Cerf, Network Working Group. A VIEW FROM THE 21ST CENTURY, RFC1607. 1994.04.