Academic Journal of Science and Technology
ISSN: 2771-3032 | Vol. 4, No. 3, 2022

Discussion on the Networking Scheme of Communication Equipment Localization in Modern Communication Technology

Baibing Chen, Nan Ding

School of Engineering, Guangzhou College of Technology and Business, 510008, China

Abstract: The rapid development of the Internet, greatly promoted the development and progress of human society, in the change of people's production, life and way of thinking at the same time also on the development of the international community has brought extremely far-reaching impact. With the rapid development of the Internet and the coming of the information technology revolution, information security has gradually become the most prominent and core issue in national security. However, the core information technology has been mastered by foreign enterprises for a long time, our information construction has been limited, information security can not be effectively guaranteed, how to gradually get rid of technical restrictions, break technical barriers, to achieve independent technology research and development and equipment production has become the inevitable trend of domestic construction of information equipment in the future. Based on this problem, this paper summarizes the status quo of localization of information equipment, analyzes the purpose and significance of localization of information equipment, summarizes the current research focus and difficulties of localization of information equipment, and intends to solve the networking scheme of localization of communication equipment in modern communication technology. To sum up, in the current information age, no country can exist independently of the international community, and the development of the Internet has been irresistible.

Keywords: Information equipment, Domestic, Networking scheme.

1. Current Situation of Localization of Information Equipment

The rapid development of the Internet has greatly promoted the development and progress of human society, but also represents the arrival of the information technology revolution. Information security has gradually become the most prominent and core issue in national security. Moreover, the rapid development of small and medium-sized enterprises and continuous improvement of information level under the new economic situation, the enterprise's dependence on the computer network is becoming more and more high. Therefore, we make deep understanding of the existing information security system of the country, the status quo and space of the development of the domestic industry, and the overall strength of the country. In September 2021, the State Administration for Market Regulation issued the latest document, "Guidance on Further Deepening Reform to Promote the Industry to be Better and Stronger", which mentioned promoting the "import substitution" of domestic instruments and equipment, and made it clear that the "import substitution verification and evaluation system" of domestic instruments and equipment should be established to promote the quality improvement and "import substitution" of instruments and equipment. "Import substitution" of domestic equipment has never been a mere phrase. How to break the inherent networking technology of imported equipment construction, better promote the implementation of domestic equipment instead of imported equipment networking scheme, so as to strengthen the application and innovation of our equipment technology from the function realization, network security performance, cost and other aspects.

2. The Purpose and Significance of Localization of Information Equipment

2.1. Purpose of localization of information equipment

Get rid of technical restrictions, break technical barriers, achieve independent technology research and development and equipment production, better promote the implementation of domestic equipment instead of imported equipment networking scheme, so as to strengthen the application and innovation of our equipment technology from the function realization, network security performance, cost and other aspects.

2.2. Significance of localization of information equipment

Localization of information equipment is an important decision on the road of information development in China, and also the inevitable trend of information development in our country. Localization of information equipment has the following three significance (1) to improve information security. For a long time, the core information technology has been controlled by foreign enterprises. China's information construction has been restricted, and information security cannot be effectively guaranteed. We must gradually get rid of technical restrictions, break technical barriers, and realize independent technology research and development and equipment production. (2) Industrial development. Localization of equipment can not only resist the market encroachment of foreign information equipment, but also create a large number of jobs for the development of the national economy. Drive industrial development and

economic transformation. 3) Enhancing overall national strength. Represented by Huawei, its communication equipment construction business has been carried out in many countries around the world, which has immeasurably enhanced the prestige of China's information construction, created new opportunities for national economic development, and seized the initiative in information technology.

3. Current Research Emphases and Difficulties of Localization of Information Equipment

3.1. Most enterprises and universities use Cisco equipment

At present, most enterprises have adopted Cisco equipment, Cisco series architecture is specially designed to meet the needs of small and medium-sized branches and small and medium-sized enterprises for the present and future applications. Moreover, in the teaching of computer network, networking technology and network management, most of the universities use Cisco simulation software to simulate computer experiments. This will make it difficult to estimate the cost required to realize the localization of information equipment in enterprises, and need to bear large risks, and will make the information security can not be effectively guaranteed.

3.2. There are few security networking schemes based on domestic network equipment, especially those suitable for the actual network environment of the park

With the progress and development of today's information technology, under the environment of the continuous development of social needs and information technology, the optimization and improvement of information construction programs continue to upgrade and online, through the specific analysis of enterprise office needs, to create the best network program, concentrate on creating a pleasant, safe and convenient network living environment for small and medium-sized enterprise office staff. However, there are few security networking schemes based on domestic network equipment.

3.3. Lack of innovation in design

At present, most enterprises have adopted Cisco equipment, most of the design schemes are based on CISCO platform, and the localization of information equipment is relatively backward, so most of the experimental designs copy the previous cases and lack of innovation.

It is intended to solve the networking scheme of communication equipment localization in modern

4. Communication Technology

With the development of network technology, network security has attracted wide attention in various industries in China. Under the blockade of imported technology and equipment from abroad in the new economy, we want to develop our own communication and network information industry, and the trend of domestic equipment replacing imported equipment is imperative. In September 2021, the State Administration for Market Regulation issued the latest document, "Guidance on Further Deepening Reform to Promote the Industry to be Better and Stronger", which mentioned promoting the "import substitution" of domestic instruments and equipment, and made it clear that the "import substitution verification and evaluation system" of domestic instruments and equipment should be established to promote the quality improvement and "import substitution" of instruments and equipment. "Import substitution" of domestic equipment has never been a mere phrase.

4.1. Logical Network Planning

According to the overall design and experimental requirements of the security park network, the three firewall ports correspond to the TRUST zone, UNTRUST zone, and DMZ. Plan three vlans for the TRUST zone. VLAN 10,VLAN 20, and VLAN 30 correspond to SW1,SW2, and SW3 switches respectively. VLAN 10 can access the Internet and DMZ, VLAN 20 cannot access the Internet and DMZ, and VLAN 30 cannot access the Internet and DMZ. VLAN 50 is planned for SW0 to communicate with the FW. VLAN 100 of the firewall corresponds to three servers in the DMZ.

4.2. IP Address Planning

In this example, five public IP addresses are used. 202.1.1.1 and 202.1.1.2 are used for the interface addresses of the egress firewall FW and the extranet router R0 respectively. 202.1.1.3-4 is used for the public IP address pool of the internal network 192.168.10.0/24 dynamic NAT. 202.1.1.5 Used for NAT port mapping.

4.3. Implementation of key network device configuration

In this project, the configuration of the firewall is the most important and difficult point. The NAT based configuration of the TRUST zone, UNTRUST zone, and DMZ is all configured on the firewall. SW0 in the TRUST zone implements interworking within the LAN, and the external router R0 mainly simulated the Internet access test of Intranet users. And test the availability of NAT configuration on the extranet.

4.4. Experimental verification

The experimental verification includes link aggregation test, Intranet access to the Internet and DMZ test, and NAT configuration verification.

4.5. Cabinet Combination

The simulation structure is tested and realized on the organic cabinet. At the same time, the same networking scheme is compared with Cisco equipment in structure, networking function and cost, and the technical feasibility report of using domestic equipment to replace imported equipment is obtained.

4.6. Strengthening Networking Tests

Increase the testing intensity of this scheme in domesticated equipment, and conduct special tests for the stability, performance and compatibility of domesticated equipment. In order to ensure that this networking scheme can meet the needs of enterprise business and security, stability and reliability, and provide strength for promoting the localization of Chinese information equipment. And as soon as possible to form a mature and reliable network scheme to meet the enterprise localization strategy.

5. Summarize

In summary, the localization of information equipment is a crucial decision on the road of information development in China, but also the inevitable trend of information development in China, get rid of technical restrictions, break technical barriers, achieve independent technology research and development and equipment production, better promote the implementation of domestic equipment instead of imported equipment networking plan, Thus, to strengthen the application and innovation of our equipment technology from the function realization, network security performance, cost and other aspects, and how to scientifically, normalize and efficiently establish and manage an enterprise computer network, so as to provide support for the enterprise's business and development is the focus of enterprise network development.

References

[1] Li Chengfan, Gu Shanming, Guo Gang et al. Alarm method of communication intelligent manhole cover based on multiple event fusion [J] EURASIP Journal on Wireless Communications and Networking, 2021, 2021(1).

[2] Juan Wu, Shuai Huang, Ziming Kou Research and optimization of intelligent diagnosis algorithm based on rope tension[J] Measurement, 2019, 147(C).

[3] Zhe Sun, Huaqiang Jin, Jiangping Gu et al. Studies on the online intelligent diagnosis method of undercharging sub-health air source heat pump water heater[J] Applied Thermal Engineering, 2020, 169(C).