The general office of the Central Committee issued the action plan for the deployment of the sixth edition (IPV6) of the Internet Protocol

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Xinhua News Agency, Beijing, November 26, the Central Committee of the Communist Party of China recently issued the "Promotion of the sixth edition of the Internet Protocol (IPV6) scale deployment action Plan", and issued a notice to require all regions to implement practical implementation.

The action plan for the deployment of the sixth edition (IPV6) of the Internet Protocol is reproduced below.

In order to implement the strategic deployment of the party Central Committee and the State Council on building the network power, accelerate the next generation of Internet scale deployment based on the sixth edition (IPV6) of the Internet Protocol (hereinafter referred to as IPV6 scale deployment), promote the Internet evolution and upgrade and healthy innovation development, according to the National Economic and social Development of the 13th Five-year plan, "National informatization Development Strategy outline", "Thirteen-Five" National informatization Planning, the development of this action plan.

I. Significance

The internet is an important infrastructure which is related to the development of national economy and society, which deeply influences the global economic pattern, interest pattern and security pattern. China is the world's early development of IPV6 test and application of the country, in the technology research and Development, network construction, application innovation has achieved important stage results, has a large-scale deployment of the foundation and conditions. Grasp the global network information technology to accelerate innovation, the historical opportunity of the rapid evolution and upgrading of information infrastructure, strengthening the overall plan, speeding up the IPV6 scale deployment, constructing the next generation Internet with high speed, wide popularization, full coverage and intellectualization, is to quicken the construction of the network power, accelerate the process of national informatization, help the economic and social development, To win the future international competition, the new advantages of the urgent requirements.

(i) The inexorable trend of internet evolution

Based on the Internet Protocol Fourth edition (IPV4), the global Internet is facing the problem of exhaustion of network address, the quality of service is difficult to guarantee, IPV6 can provide sufficient network address and broad innovation space, is the globally recognized next Generation Internet Commercial application solution. To develop the next generation Internet based on IPV6 is helpful to enhance the carrying capacity and service level of our Internet, to integrate into the Internet, to share the achievements of global development, to support the economic and social development and to win the initiative of future development.

(ii) The important opportunity of innovation and development of technology industry

Promoting the IPV6 scale deployment is a comprehensive upgrade of the Internet technology industry ecology, which profoundly influences the innovation and transformation of Network information technology, industry and application. To develop the next generation Internet based on IPV6 is helpful to promote the independent innovation ability of network information technology and the high-end development level of our country, and to support the rapid development of mobile Internet, IoT, industrial Internet, cloud computing, big data, artificial intelligence and so on, and to create new technology, To promote the further prosperity of network applications, to create advanced and open next generation Internet technology industry ecology.

(iii) Urgent need to strengthen network security capability

Speeding up the application of IPV6 scale provides a new platform for solving network security problems, and provides new ideas for improving network security management efficiency and innovating network security mechanism. To develop the next generation Internet based on IPV6 is helpful for further innovating network security means, perfecting Network security guarantee system, enhancing network security situation perception and fast disposing ability, greatly enhancing the level of important data resources and personal information security protection, and further enhancing the security credibility and comprehensive management ability of Internet.

II. GENERAL Requirements

(a) Guiding ideology

Fully implement the 19 major spirit of the party, guided by the socialist thought of Chinese characteristics in the new era of Xi Jinping, it is closely focused on the overall layout and coordination of the "five-in-one" strategy, firmly establishing the new development concept, grasping the unique historical opportunity of the global Network Information Technology's generational transition and the upgrading of network infrastructure. To promote the IPV6 scale deployment as the main line, take the typical application transformation and the characteristic application innovation as the major direction, quicken the pace of network infrastructure and application infrastructure upgrading, actively construct the independent technology system and the industrial ecology, realize the Internet to IPv6 evolution and upgrade, construct the high-speed, mobile, safe, Pan in the new generation of information infrastructure, to promote the Internet and economic and social depth of integration, building the future development of advantages, for the construction of network power to lay a solid foundation.

(ii) Basic principles

--overall planning, key breakthroughs. Strengthen the top-level design and planning, focus on the key links, to make up for IPV6 application of short board, strengthen the demand-driven role of Internet applications, technology, industry, network, application of the synergy.

-Government guidance, enterprise-led. We should strengthen the Government's overall coordination, policy support and application guidance, optimize the development environment, give full play to the role of the enterprise in the IPV6 development, stimulate the market demand and the endogenous power of enterprise development.

Innovation and development, security. Adhere to the development and security, vigorously promote the next generation of Internet and economic and social areas of the integration of innovation, synchronization of the network security system planning, construction, operation, to ensure that the Internet safe and reliable, smooth evolution.

--pay attention to the effectiveness and benefit people's livelihood. The implementation of the people-centered development ideas, tightly around the expectations and needs of the masses, and constantly improve the level of network services, enrich the content of information services, so that millions of people share Internet development results.

(iii) Main objectives

5-10 years to form the next generation of Internet independent technology and industrial ecology, the world's largest IPV6 commercial application network, to achieve the next generation of Internet in the economic and social areas of deep integration of applications, the world's next generation of internet development is an important leading force.

1. By the end of 2018, market-driven benign development environment basically formed, IPv6 active user number reached 200 million, in the Internet users accounted for not less than 20%, and in the following areas fully support IPV6: Domestic users ranked top 50 commercial Web sites and applications, provincial and ministerial level above government and Central Enterprise extranet website system, Central and provincial news and radio and television media web site systems, industrial Internet and other emerging areas of network and applications; domain name hosting services enterprises, top-level domain operators, domain name registration services, domain name server, super large Internet Data Center (IDC), top 5 content distribution Network (CDN), Top 10 Cloud service Platform 50% Cloud products, Internet backbone network, backbone network interconnection system, metropolitan area Network and access network, radio and television backbone network, LTE network and business, new network equipment, fixed network terminals, mobile terminals.

2. By the end of 2020, market-driven benign development environment is perfecting, IPV6 active users more than 500 million, in the Internet users accounted for more than 50%, the new network address no longer use private IPv4 address, and in the following areas fully support IPV6: Domestic users ranked top 100 commercial sites and applications, Municipal Government extranet website system, city level above news and broadcast television media website system; Large Internet Data center, ranked top 10 content distribution network, the top 10 cloud service platform of all cloud products, radio and television network, 5G Network and business, all kinds of new mobile and fixed terminals, international entrance.

3. By the end of 2025, our country IPV6 network scale, user scale, traffic scale ranked first in the world, network, application, terminal fully support IPV6, complete the smooth evolution of the next generation of Internet, and form the world's leading next generation Internet technology industry system.

(iv) Development path

Follow the typical application advance, move fixed simultaneously, increment drive stock development path. With the application as the breakthrough point, we should strengthen the IPV6 upgrade of the typical Internet

application, strengthen the application innovation based on IPV6, and promote the network and terminals to develop together. Grasp the development opportunity of "light into copper retreat" of mobile network upgrading and fixed network, promote the IPv6 development of mobile and fixed network, and realize the network upgrade comprehensively. New network equipment, applications, terminals to fully support IPV6, drive stock equipment and applications accelerated replacement, to achieve the next generation of Internet links smooth evolution.

III. Priority tasks

(a) to accelerate the upgrading of Internet application services, and constantly enrich the network source

1. Upgrade typical applications. Network services and applications such as portals, social networking, video, electricity, search, games, app stores, and online applications are all supported by the IPV6.

2. Upgrade government, central media, Central Enterprise website. Strengthen the government website, news and broadcast television media website and the application demonstration impetus function, in the related government procurement activity explicitly proposed the support IPV6 specific demand, positively carries on the government website, the news and the broadcast television media website, the Central Enterprise extranet website IPV6 upgrades.

3. Innovative feature applications. Support address demand for the characteristics of a large IPV6 application innovation and demonstration, in broadband China, "Internet +", new intelligent city, industrial Internet, cloud computing, networking, intelligent manufacturing, artificial intelligence and other major strategic actions to increase IPV6 application and promotion.

(ii) Upgrading of network infrastructure and upgrading of service levels

1. Upgrading of mobile and fixed networks. With LTE voice (VoLTE) business application, fiber to household transformation as an opportunity, fully deployed to support IPV6 LTE mobile network and fixed broadband access network.

2. Promote mobile and fixed terminal applications. The new mobile terminals and fixed terminals fully support the IPV6, and guide the IPV6 inventory terminals to step back from the net.

3. Solid backbone Network interconnection. Establish and perfect the interconnection system of IPV6 backbone network, upgrade and transform the Internet backbone Interconnection node of our country, realize the interconnection of Internet, broadcasting network backbone network IPV6.

4. Expansion of international access. Gradually expand the IPV6 international access bandwidth, in the premise of safeguarding network security, to achieve and the global next generation Internet efficient interconnection.

5. Upgrade and transformation of radio and television network. Take the opportunity of the national CATV Interconnection platform construction, accelerate the promotion of the platform, network, terminal and other support IPv6 in the field of broadcasting and television, and promote the promotion of business innovation in the field of cultural media.

(iii) Speeding up the application of infrastructure renovation and optimizing the capacity of traffic dispatching

1. Upgrade the Internet Data Center. Strengthens the Internet Data Center access capacity construction, completes the Internet Data Center intranet and the export transformation, provides the IPV6 access channel for the user.

2. Upgrade the content distribution network and cloud service platform. Accelerate the IPV6 transformation of the content distribution network and cloud service platform, and comprehensively improve the IPV6 network traffic optimal dispatching ability.

3. Upgrade the domain Name System. Speed up the comprehensive transformation of Internet domain Name System (DNS), construct the domain name registration, analytic, manage all chain IPV6 support ability, carry out innovation and experiment of new root domain Name service system facing IPV6.

4. Construction monitoring platform. The construction of national IPv6 development Monitoring platform, comprehensive monitoring and in-depth analysis of Internet network, applications, terminals, users, traffic and other IPV6 development, service to promote IPV6 scale deployment work.

(iv) Strengthening network security and safeguarding National network security

1. Upgrade the security system. Further upgrading the existing network security system to improve network security situation awareness, rapid disposal, detection and combat capabilities.

2. strengthen address management. To co-ordinate the management work of IPV6 address application, distribution and filing, strictly implement IPV6 network address coding plan, and promote IPV6 deployment and network real name.

3. Strengthen safety protection. Carry out the work of network security level protection, personal information protection, risk assessment, warning, disaster backup and recovery for IPV6.

4. Build up the security capability in emerging areas. Strengthen the network security technology, management and mechanism research in the fields of industrial Internet, IoT, vehicle network, cloud computing, big data, artificial intelligence and so on in the IPV6 environment, and enhance the network security guarantee ability in the new area.

(v) breaking through the key frontier technology and constructing the independent technology industry ecology

1. Strengthen IPV6 key technology research and development. Support network transition, network security, new routing and other key technology innovation, support network processor, embedded operating system, important application software, terminals and network equipment, security equipment and systems, network measurement instrumentation and other core equipment system research and development, strengthen IPV6 technical standards development.

2. Strengthen the network Frontier technology innovation. We should deal with the relationship between IPV6 development and network technology innovation and the long term evolution of Internet, and strengthen the top design and overall planning of next generation Internet. Advanced layout of new network architecture, address routing, network virtualization, network Intelligence, IPV6 security and trustworthy system, such as technology research and development, speed up the country's future network test facilities and other major scientific research infrastructure construction, support IPV6 Next generation of Internet advanced network infrastructure Innovation platform construction, further increase the network infrastructure, The support of forward-looking and new research.

IV. Implementation steps

(i) 2017-2018 key work

1. Internet applications

(1) Typical Internet application upgrades. Encourage and support domestic leading Internet enterprises to develop and publish the IPV6 upgrade plan of the mainstream Internet application, and define the annual work schedule of the "Thirteen-Five" period. To promote the completion of the mainstream Internet portals, social networking, video, electricity, search, games and other applications of IPV6 transformation, to encourage and support domestic users ranked top 50 commercial sites and applications to support IPV6 access. The promotion of domestic mainstream Internet browser, e-mail, file download and other application software fully support IPV6. Complete the mainstream mobile App Store upgrades, new online and new versions of mobile Internet applications must support IPV6. In the case of Ipv4/ipv6 dual-stack connection, the above-mentioned applications require IPV6 connection access.

(2) Provincial and ministerial level of government website IPv6 transformation. The initial completion of the National E-government Network reform, the completion of the central ministries, provincial government portal site transformation. The new e-government system, information system and service platform fully support IPV6.

(3) The provincial-level news and broadcast television media website IPV6 transformation. Completes the central and provincial news media Portal website transformation, the new news and broadcast television media Network Information system fully supports IPV6.

(4) IPV6 transformation of the Central Enterprise website. Completion of the Central Enterprise Portal site and the public to the Online service window transformation, speed up enterprise production management information system and other internal network and application of IPV6 transformation. System servers such as the portal, mobile Internet application (APP), and App Store support IPV6.

(5) New Intelligent City IPV6 application. In social governance, public security video surveillance, safe production, health care, education, social security and other areas of the system to use IPV6 technology, accelerate the promotion of information huimin.

(6) Industrial Internet IPV6 application. Select a typical industry, key enterprises to carry out factory Enterprise network transformation, innovative industrial Internet applications, the construction of industrial Internet IPV6 standard system.

2. Network infrastructure

(1) LTE network IPV6 upgrade. Carry out LTE network End-to-end IPV6 Business carrying capacity construction, promote LTE network, business and terminal fully support IPV6, mobile Internet IPv6 user size is not less than 50 million households.

(2) backbone network IPV6 interconnection. To promote the IPV6 upgrade of interconnection nodes of backbone network in China, the interconnection bandwidth of IPV6 network is up to 1Tbps, which realizes efficient interconnection.

(3) Renovation of metropolitan area Network and access network. The basic telecommunication enterprise completes the IPV6 upgrade and transformation of the metropolitan Area Network and access network, perfects the

net management and the Support service system, and opens the commercial IPV6 Broadband access service for the public user and the enterprise and business customers.

(4) IPV6 Network International entrance and exit construction. Expansion and upgrade of the Internet international access to ensure that the Internet IPV6 traffic effective interchange interoperability.

(5) Radio and television network IPV6 capacity building. We will accelerate the construction of IPV6 backbone network, upgrade the CATV access network in the Middle East, promote the construction of broadcasting and television application infrastructure and IPV6 application demonstration.

(6) Mobile and fixed terminal upgrades. The mobile terminals and fixed terminals of the basic telecom enterprises have fully supported the IPV6 and promoted the IPV6 broadcast and TV fusion terminals.

3. Application Infrastructure

(1) Super Large data center IPV6 upgrade. Carry out large-scale data center transformation, complete the related system upgrade.

(2) Content distribution network and cloud service platform IPV6 upgrade. Promote the top 5 content distribution network and the top 10 cloud service platform 50% Cloud products to complete the upgrade, to form IPv6 flow optimization scheduling capacity.

(3) Domain Name System IPv6 upgrade. Development of the domain Name System and other important Internet application infrastructure, promote the domain name registration service organizations, top-level domain operators, domain name hosting service Enterprise Domain name server to fully support IPV6 access and analysis.

(4) IPv6 root domain Name Service System experiment demonstration. Promote the introduction of root mirror server, further promote the domain Name System resolution performance. The new root domain Name Service architecture and the application of the technical innovation, the construction of a certain scale test verification network facilities, to carry out the application demonstration.

(5) IPV6 Development Monitoring platform construction. Build a national IPV6 development monitoring platform to form a real-time monitoring and analysis capability for network, application, terminals, users, traffic, etc.

4. Network security

IPV6 Network security Promotion program. Upgrade the existing network security system, improve the IPV6 address and network environment support capabilities. Strictly implement IPV6 Network address coding plan, strengthen IPV6 address record management, cooperate to promote IPV6 deployment and network real name, implement technical interface requirements, enhance IPV6 address precision positioning, detection attack and rapid disposal capacity. Carry out the work of network security level protection, personal information protection, risk assessment, notification warning, disaster backup and recovery for IPV6. Carry out the research work of network security technology, management and mechanism in the fields of industrial Internet, IoT, cloud computing, big data, artificial intelligence in IPV6 environment.

5. Key Frontier Technology

Next Generation Internet technology innovation project. Continuously improve the IPV6 technical standard system, strengthen the network routing, Network Transition, network management, network intellectualization, network virtualization and network security and other core technology research and development based on IPV6.

Accelerate the development of IPV6 network processor, embedded operating system, important application software, terminals and network equipment, security equipment and systems, network measuring instruments and other autonomous controllable core equipment system. Strengthen the next Generation Internet network architecture and key technology innovation, explore the direction of network facilities evolution. Accelerate the construction of the national network test facilities in the future, actively carry out network technology, new applications of experimental validation and application demonstration.

(ii) 2019-2020 Key work

1. Internet applications

(1) Internet application Upgrade (scrolling). Continue to encourage and support mainstream internet portals, social networking, video, electricity, search, gaming applications, and IPV6 upgrades and application deployments for applications such as mainstream mobile app stores, internet browsers, e-mail, and file downloads. Encourage and support the top 100 commercial websites and applications of domestic users to support IPV6 access. In the case of Ipv4/ipv6 dual-stack connection, the above application should give priority to support IPV6 access.

(2) IPV6 transformation of municipal government websites. Continue to promote the existing e-government system upgrade, complete the Electronic government network upgrade. Complete city level above Government portal website upgrade. Complete the comprehensive governance, finance, treatment and other areas of public management, public welfare services such as the transformation of the platform.

(3) The IPV6 of news and radio and television media websites in the city level. To complete the upgrading of news and radio and television media sites above the city level, the new business and application fully support IPV6.

(4) Industrial Internet IPV6 Application (scrolling). Continuously carry out the network transformation of the Factory enterprise, promote the scale deployment of the industrial Internet Innovation application, and constantly improve the relevant standards of IPV6 application, management and safety of industrial Internet.

2. Network infrastructure

(1) Backbone Network IPV6 Interconnection (scrolling). New and expansion of China's IPV6 backbone network interconnection nodes, the interconnection bandwidth reached 5Tbps.

(2) IPV6 Network International Export Expansion (scrolling). Continuous expansion of the IPV6 Network International entrance, and further enhance the Internet with the next generation of international interoperability capabilities.

(3) Radio and television network IPV6 Capacity Building (scrolling). Perfecting the backbone network of radio and TV IPv6, implementing the IPV6 upgrade and transformation of CATV access network in western area, basically realizing the whole process IPV6 deployment of broadcast TV content, platform, network and terminal.

(4) Mobile and fixed terminal upgrades (scrolling). Fully deployed to support IPV6 mobile terminals, fixed network terminals and radio and television fusion terminals, speed up the replacement of stock terminals.

3. Application Infrastructure

(1) Large data center IPv6 Upgrade (scrolling). Carry out large-scale data center transformation, complete the related system upgrade, realize the coordinated development with network infrastructure.

(2) IPv6 upgrades (scrolling) of content distribution networks and cloud services platforms. Completed the top 10 content distribution network and the top 10 cloud service platform all the cloud product transformation, forms the IPv6 flow optimized dispatch ability.

(3) IPV6 Development Monitoring platform Construction (rolling). Increase monitoring target and target, improve the function and performance of monitoring platform continuously. Regularly carry out enterprise, industry, regional IPV6 development situation evaluation.

4. Network security

IPV6 Network security Elevation Plan (scrolling). Continuously upgrade and transform related network security system. In-depth implementation of network security level protection system, network real-name and IPV6 address record management methods, continue to carry out relevant network security technology, management and mechanism research work, strengthen network data security management and personal information protection ability, to ensure network security.

5. Key Frontier Technology

Next Generation Internet Technology Innovation Project (scrolling). Continue to carry out support IPV6 chip, operating system, terminal and network equipment, security system of technical research and industrialization. Further speeding up the new system structure of the Internet, as well as new technology innovations such as address and routing, endogenous Network security, network virtualization and so on, strengthen the new technology of network, test verification and application demonstration, continuously improve the productivity transformation level of innovation achievement, and enhance the independent innovation ability of network information technology, The formation of the future network technology first advantage.

V. Safeguard MEASURES

(i) strengthening organizational leadership. Establish network letter, development and reform, industry and information, education, science and technology, public security, security, press and radio and other departments to promote the mechanism, strengthen co-ordination and coordination, clear responsibility Division of labor, strengthen departments, industries, interregional cooperation, solid push the implementation of action plans, research and promote the IPV6 scale deployment of the key tasks. Sound Expert Consultation system, give full play to research and decision-making advisory role, provide high-quality advice. Encourage industry organizations and third party institutions to participate extensively, improve the communication and coordination mechanism between the enterprise and the enterprises.

(ii) Optimizing the development environment. Coordinate funds, strengthen support, guide social capital investment, give full play to the role of enterprises, promote IPV6 technology innovation, infrastructure reform, application deployment, security and other fields of development. To promote the establishment of IPV6 network interconnection and settlement system, the study of the introduction of IPV6 terminals and traffic concessions, to guide users to IPv6 migration. Speed up the next generation of Internet-related disciplines, strengthen the next generation of Internet technology, management, international governance personnel training efforts to establish an international talent echelon.

(iii) strengthening normative management. Improve the Internet web site, mobile Internet applications and other management requirements, to guide and promote Internet Information services, content distribution network, cloud services, mobile virtual operations, broadband access and other enterprises in the system and business support IPV6. Improve the government procurement requirements, clear related equipment, systems and

service support IPV6. In the basic Telecommunications enterprise performance evaluation, support and encourage enterprises to actively carry out IPV6 related work. Improve the equipment into the network for the detection of IPV6 requirements. Improve the network, applications, terminals and other IPV6 support degree evaluation certification system, regularly carry out enterprise, industry, regional application evaluation.

(iv) Deepening international cooperation. Closely follow the global next generation of internet research, testing, technology, industry and applications. We should strengthen cooperation with ISO, actively participate in the next generation of Internet related standards, expand the international influence of Chinese standards and jointly advance the process of international standardization. We should promote China's institutions and organizations to play a greater role in international basic resources management organizations, enhance cooperation and e8changes between Governments and enterprises, establish more scientific and reasonable IPV6 address distribution, Internet domain name management mechanism, and promote the construction of a new international governance order for the next generation Internet.

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