ICS 33.040.40
CCS L 67

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 44887.1-2025

IPv6 evolution technical requirements - Part 1: Reference framework

IPv6 演进技术要求 第1部分：参考架构

Issued on: October 5, 2025 **Implemented on: May 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 1 of GB/T 44887 "Technical Requirements for IPv

6 Evolution". GB/T 44887 has published the following parts.

1.Reference Architecture;

---Part 2: IP Bearer Networks Based on IPv

6 Segment Routing (SRv6);

6 Segment Routing Header (SRH);

1 Scope

GB/T 44887.1-2025 is the Chinese national standard covering the framework for what comes after basic IPv6 deployment - the segment routing, network slicing, in-band telemetry and application-aware networking capabilities, the layers they sit in, and the relationship between the parts of the series. Part 1 of the series, first edition, under the Ministry of Industry and Information Technology. In force from 1 May 2026. Issued on 5 October 2025, it has been in force since 1 May 2026.

This document establishes a network reference architecture for IPv6 evolution technology and specifies the deployment of IPv6 evolution technology in carrier and industry networks. Require. This document applies to network construction for operators and industries that support IPv6 evolution technology.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Leveraging the capabilities of the IPv6 protocol, combined with technologies such as software-defined networking and artificial intelligence, it forms a system encompassing segmented routing, security isolation, and quality assurance. A new network technology system for security, intelligent management, and other functions.

3.2 Segment routing Source routing technology applied to MPLS or IPv6 networks to enable customized service paths.

Note. In MPLS networks, segments are encoded as MPLS labels. In IPv6 networks, segments use IPv6 address format and are routed via segmentation paths. The forwarding path is indicated by the header (SRH). [Source: GB/T 44887.10-2024, 3.3]

3.3 Implementation of segmented routing technology in IPv6 networks.

Note. In SRv6, segments are encoded as IPv6 addresses and are carried using a new segmented routing extension header.

3.4 IP network slice IP networks are logically isolated virtual networks provided for specific users or services.

Note. IP network slicing uses dedicated or shared network resources to meet the differentiated connection and quality of service requirements of different users and services. [Source: GB/T 44887.10-2024, 3.2]

3.5 It is a network service formed by integrating new network technologies and functions on the basis of traditional Virtual Private Networks (VPNs).

Note. Enhanced Virtual Private Networks (VPNs) provide enhanced isolation features, isolating resources from different user networks, thereby reducing the load on a particular user network. The change will not affect other users' businesses. [Source: GB/T 44887.10-2024, 3.1]

4 Network Programming Based on IPv

6 Segment Routing (SRv6);

5 Virtual Private Networks (VPNs) Based on IPv

6 Segment Routing (SRv6);

6 Segment Routing (SRv6) Policy;

7 Service Chaining Based on IPv

6 Segment Routing (SRv6). The purpose is to define the data plane technology for service chains based on SRv6. Requirements, technical requirements for the business chain control plane based on SRv6.

6 Segment Routing (SRv6) Based Header Compression. The purpose is to specify header compression applicable to packets supporting SRv6. Development, design, and testing of network devices with compressed headers.

8 Packet Header Compression Based on IPv

6 Segment Routing (SRv6);

9 Network Fault Protection Based on IPv

6 Segment Routing (SRv6);

10.Enhanced Virtual Private Networks (VPNs) Supporting IP Network Slicing;

6 Flow Detection Technology. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This document is under the jurisdiction of the National Telecommunications Standardization Technical Committee (SAC/TC485). This document was drafted by: China Academy of Information and Communications Technology, Huawei Technologies Co., Ltd., China United Network Communications Group Co., Ltd., and China... Mobile (Zhejiang) Innovation Research Institute Co., Ltd., China Mobile (Hangzhou) Information Technology Co., Ltd., State Grid Corporation of China Information and Communication Branch Fujian Wanwuyilian Network Technology Co., Ltd., Beijing Engineering Research Center Co., Ltd. for Key Technologies and Evaluation of Next-Generation Internet, ZTE Corporation Xun Technology Co., Ltd., Beijing Haohan Deep Information Technology Co., Ltd., Northeast Agricultural University, Harbin Far East Institute of Technology, Heilongjiang Vocational College Vocational College, Harbin Huade College. The main drafters of this document are. Ge Jian, Peng Shuping, Ma Dani, Wu Juye, Zhang Liang, Wang Yao, Lei Lei, Liu Jianglin, Lin Zhiyi, Liang Fang, and Wang Jun. Ma Rui, Xie Yuyan, Yu Haisheng, Wei Yuehua, Wu Xiaochun, Zhou Changjian, Guo Changshan, Liu

Jianyu, Wu Di.

According to the "Notice on Accelerating the Large-Scale Deployment and Application of Internet Protocol Version 6 (IPv6)," in order to accelerate the transformation of government applications, To expand industry integration and application, and to promote the standardization of large-scale IPv6 deployment and application innovations, my country has formulated a series of IPv6 standards. Among them, GB/T 44887, "Technical Requirements for IPv

6 Evolution," is a standard developed to regulate the national IPv6 deployment and is proposed to consist of eleven parts.

1.Reference Architecture. The purpose is to define the application scenarios of IPv6 evolution technology in the operator and industry sectors, and in... Deployment in carrier and industry networks.

---Part 2: IP Bearer Networks Based on IPv

6 Segment Routing (SRv6). The purpose is to define IP bearer networks based on SRv6. Overall architecture, SRv6-based device layer technical requirements, and SRv6-based control layer technical requirements.

6 Segment Routing Header (SRH). The purpose is to define the format of the IPv6 segment routing header (SRH), and... SRH's technical requirements for node processing.