

Research on IPv6-IPv4 network address translation technology and its application in fire alarm systems

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Abstract: In the context of the strong transition from IPv4 to IPv6, developing network address translation methods between these two standards has become an urgent need. This topic focuses on researching and deploying an automatic conversion system from IPv4 to IPv6 in the application context of a fire alarm system. The goal is to build a solution that enhances the efficiency of managing and monitoring the fire alarm network through the use of network address translation technology. The research method combines theoretical analysis and experimentation to ensure the accuracy and reliability of the system. The expected result is that the application of IPv6 technology in the fire alarm system not only brings technical benefits but also enhances the ability to respond quickly to incidents. The research and application of IPv6 address translation technology in fire alarm warning systems will help improve system reliability and management efficiency. This study not only focuses on theoretical analysis but also validates the effectiveness of these methods through actual deployment and testing.

Keywords: IPv6-IPv4 address translation, fire risk early warning system, network protocol conversion, intelligent firefighting, address compatibility