Detection and Defense Mechanisms on Duplicate Address Detection Process in IPv6 Link-Local Network: A Survey on Limitations and Requirements

ABSTRACT

The deployment of Internet Protocol Version 6 (IPv6) has progressed at a rapid pace. IPv6 has introduced new features and capabilities that is not available in IPv4. However, new security risks and challenges emerge with any new technology. Similarly, Duplicate Address Detection (DAD), part of Neighbor Discovery Protocol in IPv6 protocol, is subject to security threats such as denial-of-service attacks. This paper presents a comprehensive review on detection and defense mechanisms for DAD on fixed network. The strengths and weaknesses of each mechanism to Secure-DAD process are discussed from the perspective of implementation and processing time. Finally, challenges and future directions are presented along with feature requirements for the new security mechanism to secure DAD procedure in an IPv6 link-local network.