

Pahol Sotthivirat 2008: Fast and Robust Duplicate Address Detection (FR-DAD) Method in Mobile IP version 6. Master of Science (Computer Science), Major Field: Computer Science, Department of Computer Science. Thesis Advisor: Assistant Professor Sukumal Kitisin, Ph.D. 196 pages

In Mobile IPv6 networks, duplicate address detection (DAD) process is necessary for confirming uniqueness of IPv6 address when Mobile Node moves to a new network. In standard IPv6 protocol, DAD delay takes at least 1 second. It is desirable to reduce DAD delay especially if nodes wish to run real-time applications on the Mobile IPv6 networks. This research proposed the new DAD Method, Fast and Robust DAD (FR-DAD), to improve handover delay and provide reliability and backward compatibility with standard IPv6 networks. FR-DAD is a semi-stateful address assignment system. It utilizes a server that manages a list of unique IPv6 addresses.

The experiment results from OMNET++ simulator show that FR-DAD successfully reduces delay by 99.74% of standard DAD delay, in best case. In the worst case, FR-DAD still outperforms a similar stateful DAD technique by 23%.

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Thesis Advisor's signature

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