

This thesis extends HelenOS operating system in order to be IPv6 capable. New IPv6 protocol implementation is on the same level as previous IPv4 protocol implementation. HelenOS networking stack now offers three modes of networking: IPv4-only, IPv6-only and dual stack mode. Dual stack mode enables usage of both protocols at once.

The thesis describes previous state of HelenOS networking stack, analyzes differences between IPv4 and IPv6 protocols and gives reasons for single strategic decisions. In fine, it describes used implementation and debugging techniques, concludes results and compares HelenOS with other microkernel operating system from the IPv6-capability perspective.