

Host Identity Protocol for Mobile WLAN Access

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Abstract

The Host Identity Protocol (HIP) is an internetworking architecture and an associated set of protocols, developed at the IETF since 1999 and reaching their first stable version in 2007. HIP enhances the original Internet architecture by adding a name space used between the IP layer and the transport protocols. This new name space consists of cryptographic identifiers, thereby implementing the so-called identifier / locator split. In the new architecture, the new identifiers are used in naming application level end-points (sockets), replacing the prior identification role of IP addresses in applications, sockets, TCP connections, and UDP-based send and receive system calls.

IPv4 and IPv6 addresses are still used, but only as names for topological locations in the network. HIP can be deployed such that no changes are needed in applications or routers. Almost all pre-compiled legacy applications continue to work, without modifications, for communicating with both HIP-enabled and non-HIP-enabled peer hosts. The architectural enhancement implemented by HIP has profound consequences. A number of the previously hard networking problems become suddenly much easier. Mobility, multi-homing, and baseline end-to-end security integrate neatly into the new architecture. The use of cryptographic identifiers allows enhanced accountability, thereby providing a base for easier build up of trust. With privacy enhancements, HIP allows good location anonymity, assuring strong identity only towards relevant trusted parties. Finally, the HIP protocols have been carefully designed to take middle boxes into account, providing for overlay networks and enterprise deployment concerns [1]

This talk provides an in-depth look at HIP, discussing its architecture, design, and benefits [3]. We also describe an ongoing Mobile Access Project for deploying HIP in the city of Aachen in Germany [2].

Index Terms: Security, mobility, WLAN, handover, multihoming, denial-of-service, IPv6.

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