

Mobile IPv6 Remote Interop Testing Design Team Report

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Overview

- **Purpose**

A guideline for uniform testing over the IPv6 internet

Promotes implementation interoperability

Early detection of implementation problems

Similar effort to 6-bone testing

Does not replace regular MIPv6 interop events

WG Chairs decided to form a design team to produce a draft on guidelines of remote testing

Overview

- **Design Team Members**
 - T.J. Kniveton**
 - Basavaraj Patil**
 - Hesham Soliman**
 - Henrik Petander**
 - Samita Chakrabarti**
- **First Draft (individual submission temporarily)**
draft-kniveton-mipv6-remote-testing-00.txt
- **This is an informational document only**

What is remote interop testing?

- **Some implementors will dedicate stable Mobile IPv6 systems in the internet**
(HA, CN and perhaps MN)
- **Other implementors, during development phase, can check basic interoperability of their Mobile IPv6 implementation against those already reachable via IPv6 internet**

Requirements to participate

- **All nodes must register through ETSI web-page**
Receive accounts, home-addresses, keys for MNs from a HA on the test network.
- **Dedicated Home Agents, Mobile nodes and Correspondent nodes in the test network**
Must have a stable implementation and must pass basic level of TAHI conformance tests. They need to be maintained in order to minimize any down-time.
- **All participating implementations must support Mobile IPv6 Base Spec. version 24 or its equivalent RFC or later version.**
- **A technical contact person is required for each implementor's registered node**

Registering at MIPv6 Test Network

- **Central registration web page URL: list.etsi.org/plugtests-mip6.html**
- **A registering Home Agent**
 - **must update central web page with**
 - **List of assigned home addresses**
 - **Security options (ESP, none) – some cases AH**
 - **Keys, encryption algorithm, SPI (for protected BUs)**
 - **Home Agent address, Prefix**
 - **List of supported functionalities (RO handling, DHAAD etc.)**
 - **Web URL for Mobile IPv6 binding status log-file**
 - **Company/contact information**
 - **OS/platform**

Registering at MIPv6 Test Network

- **A registering Correspondent Node**
 - **must update central web page with**
 - **IPv6 global address of the node**
 - **Route Optimization protocol it supports**
 - **Whether can act as HA (feature turned off or on)**
 - **Whether it supports IPSec functionality for testing**
 - **Company and contact information**
 - **Web URL for Mobile IPv6 binding status log-file**
 - **OS / Platform information**

Registering at MIPv6 Test Network

- **A registering Mobile Node**
 - **must update central web page with**
 - **IPv6 global Home Address and COA (if dedicated node)**
 - **Whether it supports Correspondent node function as well**
 - **Whether it supports IPSec functionality for testing**
 - **Company and contact information**
 - **OS / Platform information**

Test Applications

- **For Route Optimization and Tunneling testing**

Connection-oriented apps:

HTTP

FTP

SCP

Connectionless apps with UDP/ICMP:

Echo

Ping

Note: Some of the above applications require configuration of services at the nodes

IPv6 Address Allocation

- Machines in the test network are connected through the IPv6 Internet and have static or dynamically configured addresses
 - 6bone or IPv6 Internet (preferred)
 - Tunnel Broker
 - ISATAP
 - Teredo
 - Freenet6
 - Add 6to4 ?? Are people going to also use this?
- Home Agents are routers and should have a static address
 - Registered with MIPv6 Interop Web Page
- Home Agents assign a prefix for use by MN Home Addresses
 - Also registered
- MNs get a static home address and security info delegated by web page and configure the MN manually
- MN CoA comes from autoconfiguration or any means on visited net
- CNs also use autoconfiguration, or can use static address if permanently connected for testing by other nodes.

Security Association

- Three methods for MN to authenticate BU to HA, in increasing preference:
 - **None**
 - Unprotected
 - **Authentication Headers**
 - Not currently defined; was defined; some implementations support it.
 - Could create a companion draft to define it.
 - **IPsec ESP Security Association**
 - Most secure; defined in Mobile IPv6 companion draft.
- Home Agents can choose to support any combination of these options
- For second method, the HA operator provides a manual key for each home address, and registers them on the web page so they can be handed out to MNs as they sign up
 - This procedure was followed for Mobile IPv6 users at IETF55
- For third message, similar procedure is followed, but web site must contain enough additional info for MN user to configure a manually keyed ESP SA.

Virtual Home Link

- When doing remote testing, it is hard for the MN to pretend it is returning home.
 - By definition, it looks for on-link Router Advertisements from Home Agent advertising home network prefix
- Proposed solution: create a virtual tunnel interface from Home Agent to Mobile Node. Whenever Mobile Node is supposed to return home, configure the tunnel as up.
- In practice, this means the MN will then see two links: the visited network, where it is attached at the tester's site, and the virtual home link, which appears to be at the remote HA's site.
- By MIPv6 spec, the MN should de-register when it sees the home link. Thus, visited link (the real link) addresses will be ignored.
- There can be additional ways to simulate this, but this should work for most/all implementation environments.
- Other suggestions or corrections to this method are encouraged; this is not a well-developed area.

Diagram of Nodes

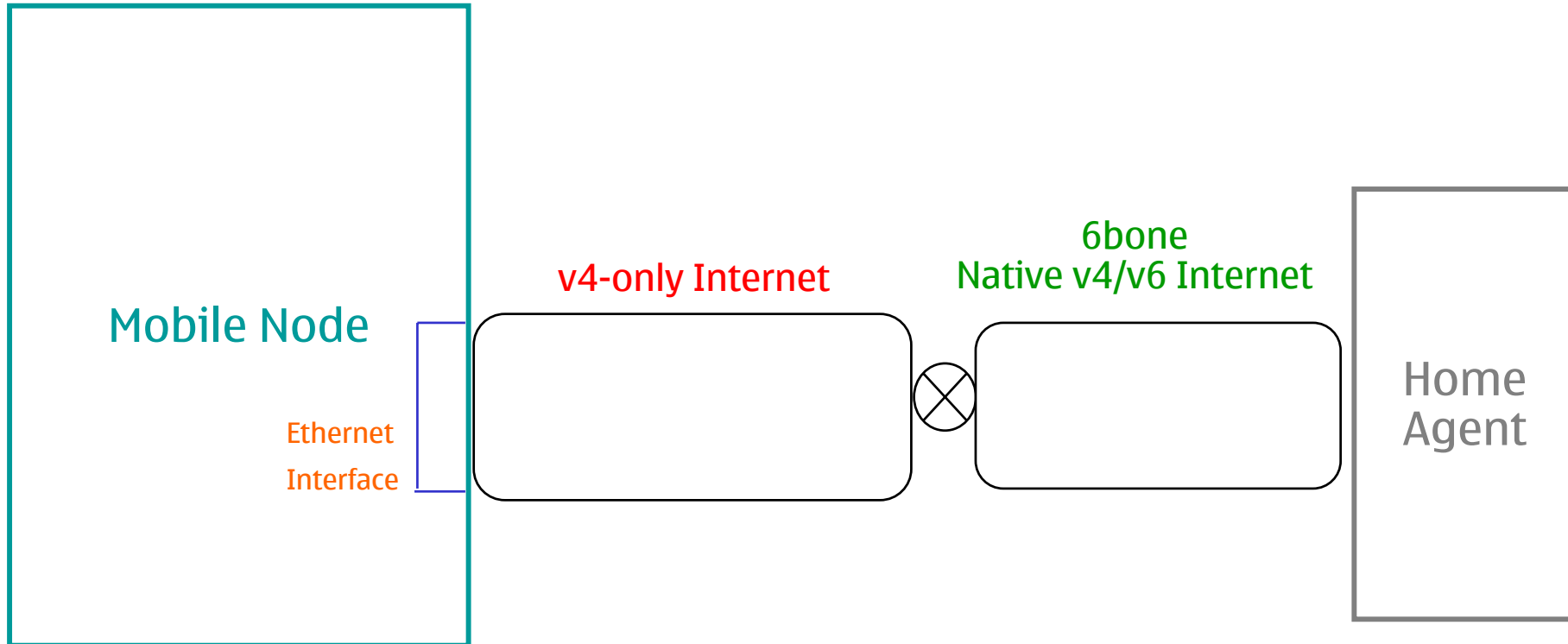


Diagram of Nodes with v6 Tunneling

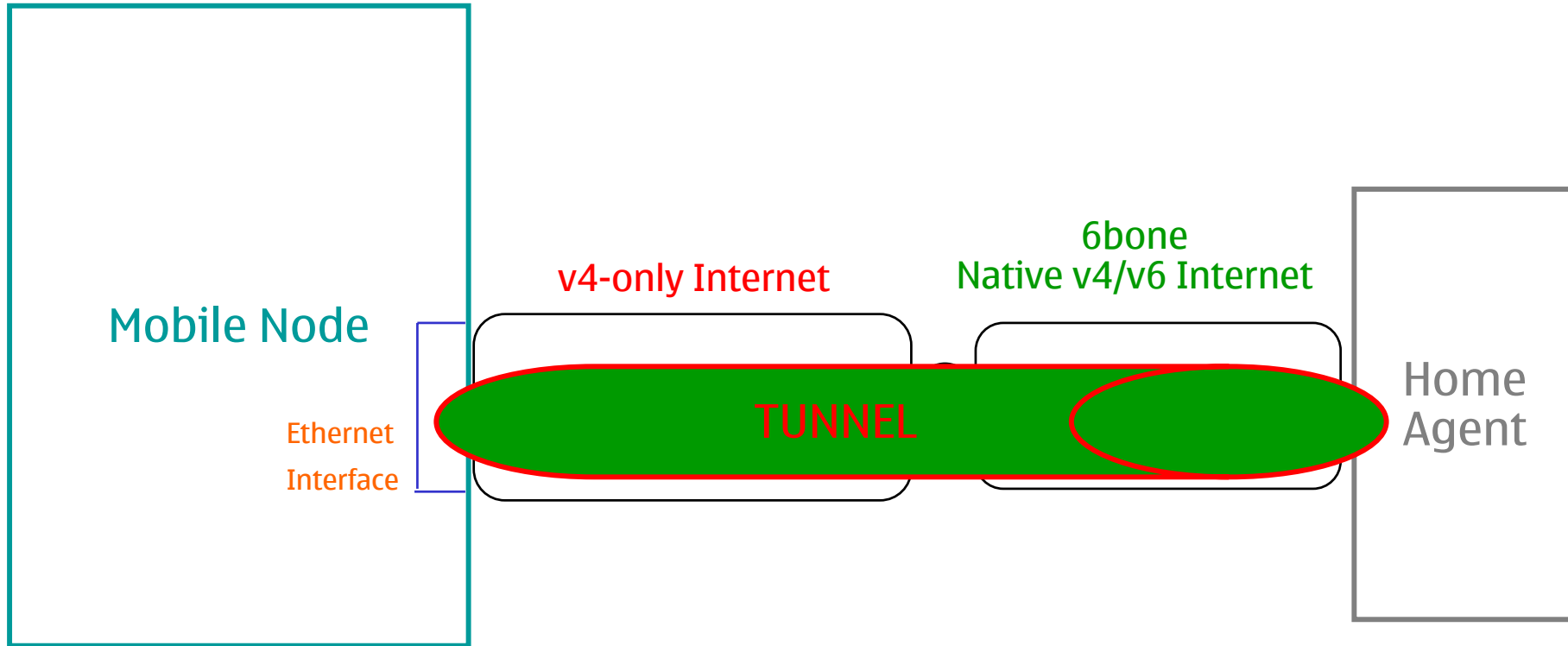
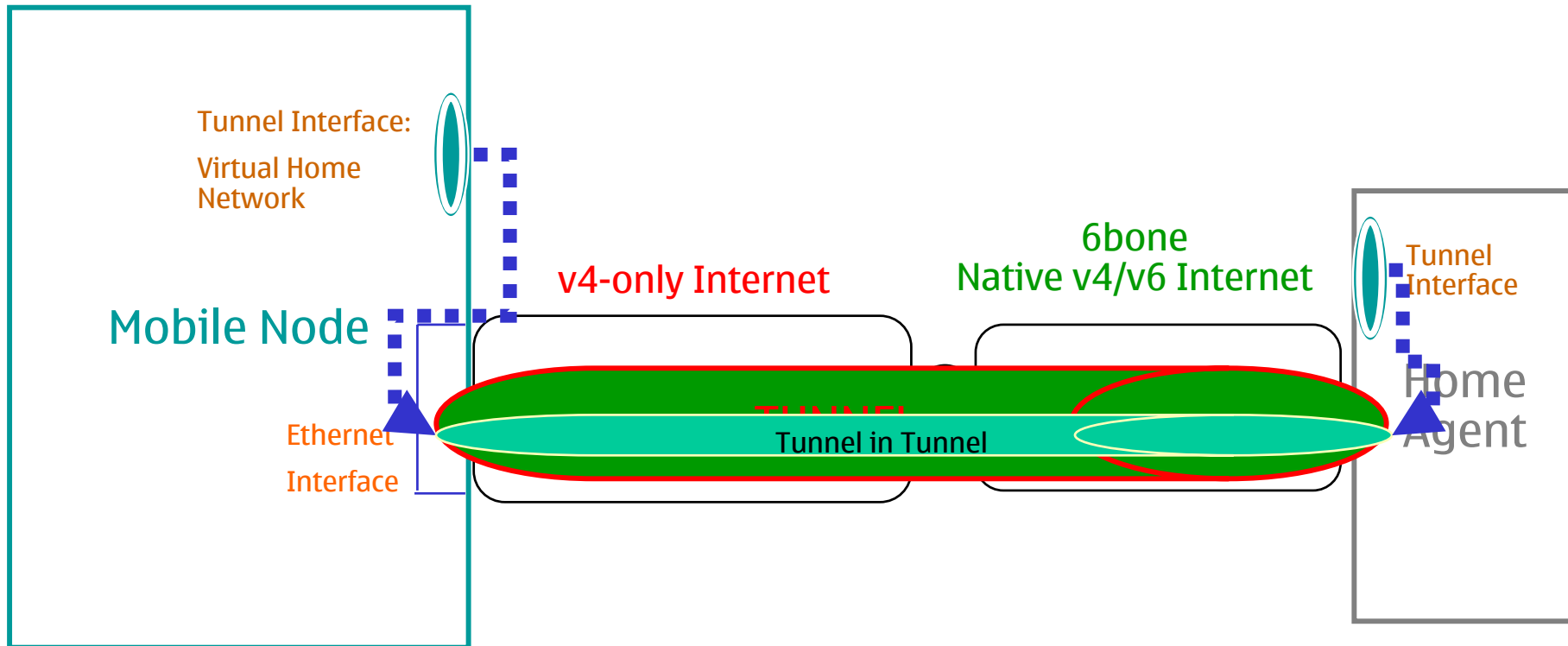


Diagram of Virtual Home Network



What's Next?

- **We have received two sets of comments**
 - **More implementors' comments are welcome.**
- **There is a group of people working on implementing this system**
- **HAs are being put up on this network**
- **Open Issues**
 - **Tunneling mechanisms in v6**
 - **Untested: how to open up log files of HA or MN to other testers**
- **What should happen next with this personal I-D?**
 - **Should be Informational?**
 - **Should this remain an individual submission?**
- **ETSI Mobile IPv6 plugtest team will start offering service as per guideline of this draft**

Connectathon 2004

- www.connectathon.org
- Feb. 19th - Feb 26th, 2004
- Testing:
 - [draft-ietf-mobileip-ipv6-24.txt](#)
 - [draft-ietf-mobileip-mipv6-ha-ipsec-06.txt](#)
 - Perhaps NEMO basic support draft

New MIPv6 Co-ordinator :

Hiroshi Miyata along with UNH