

Implementing SHIM6 Protocol

Kunwoo Park
Hosik Cho
Indong Jang
Taewan You
Seungyun Lee

Contents

- Implementation overview
- Schedule
- System architecture
- Implementation features
- Testbed & Demonstration
- Further API works
- Collaboration plan

Implementation Overview

- Administrative Data
 - Period: April. 2006 – November. 2006
 - Participants: ETRI & SNU, Korea
- Contact persons
 - Taewan You, ETRI (twyou@etri.re.kr)
 - Hosik Cho, SNU (hscho@mmlab.snu.ac.kr)
 - Kunwoo Park, SNU (kwpark@mmlab.snu.ac.kr)
- Additional info
 - Webpage will be available soon

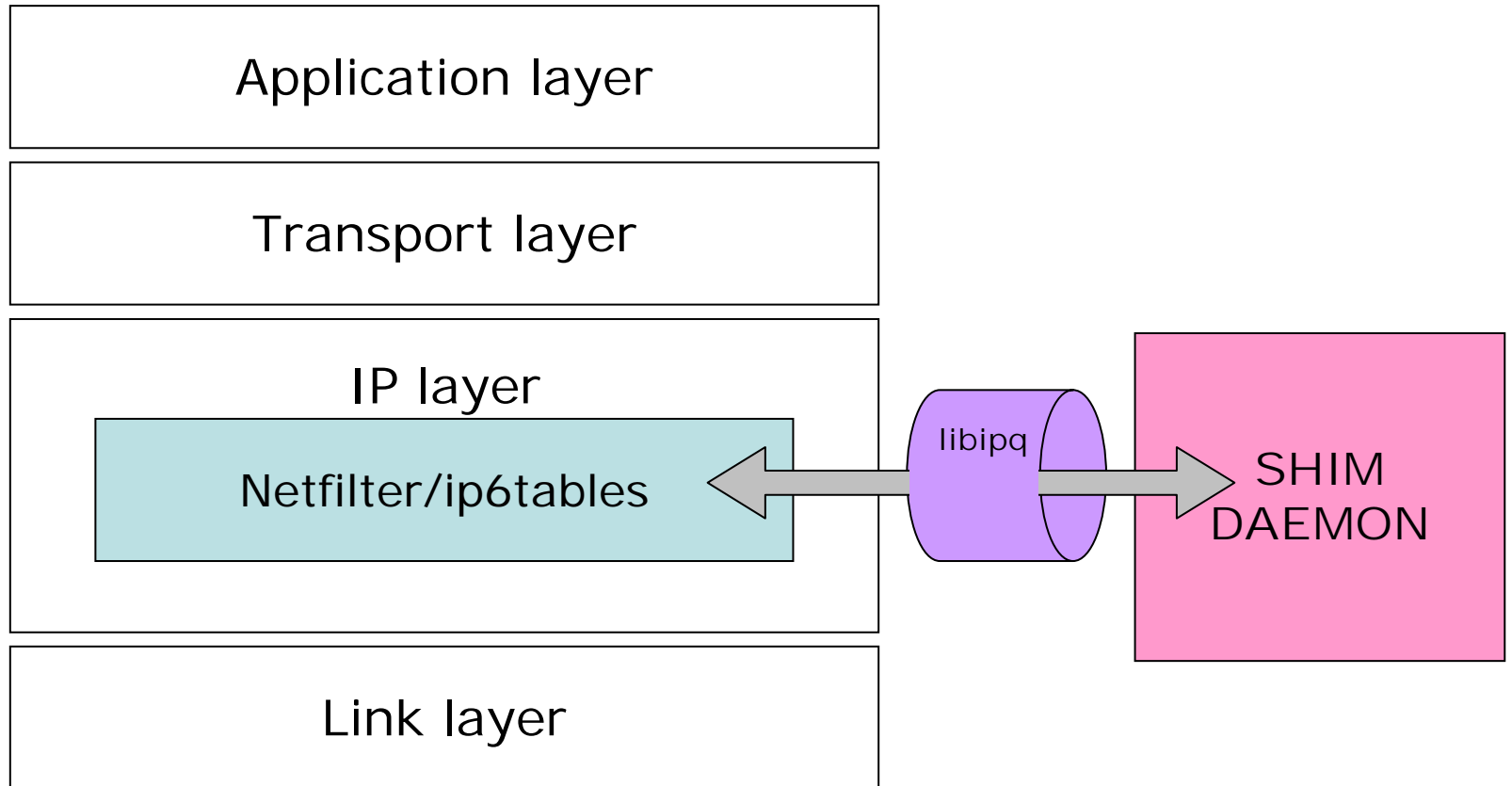
Schedule

- Phase 1: May, 2006 ~ November, 2006
 - SHIM6 core daemon
 - REAP
 - Simple testbed
- Phase 2: January, 2007 ~ TBD
 - Add security aspects
 - SHIM6 Stack via direct kernel patch
 - Library for SHIM6

Environments

- Reference
 - Level 3 multihoming shim protocol
 - draft-ietf-shim6-proto-05.txt
 - Failure Detection and Locator Pair Exploration Protocol for IPv6 Multihoming
 - draft-ietf-shim6-failure-detection-05
- Platform
 - Target OS: Linux
 - Requirement: Linux 2.6.x kernel or higher, Netfilter with iptables 1.3.5

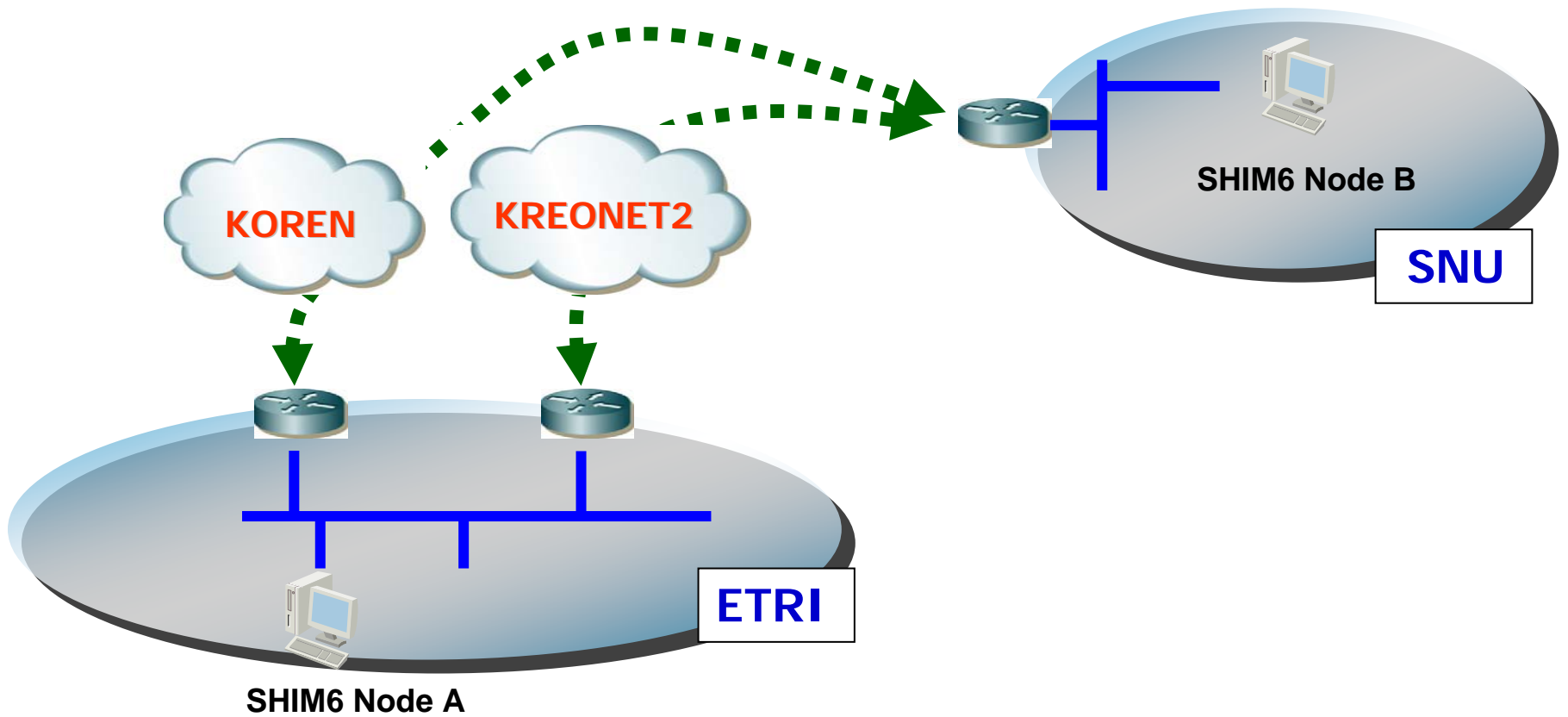
System Architecture



Implementation Features

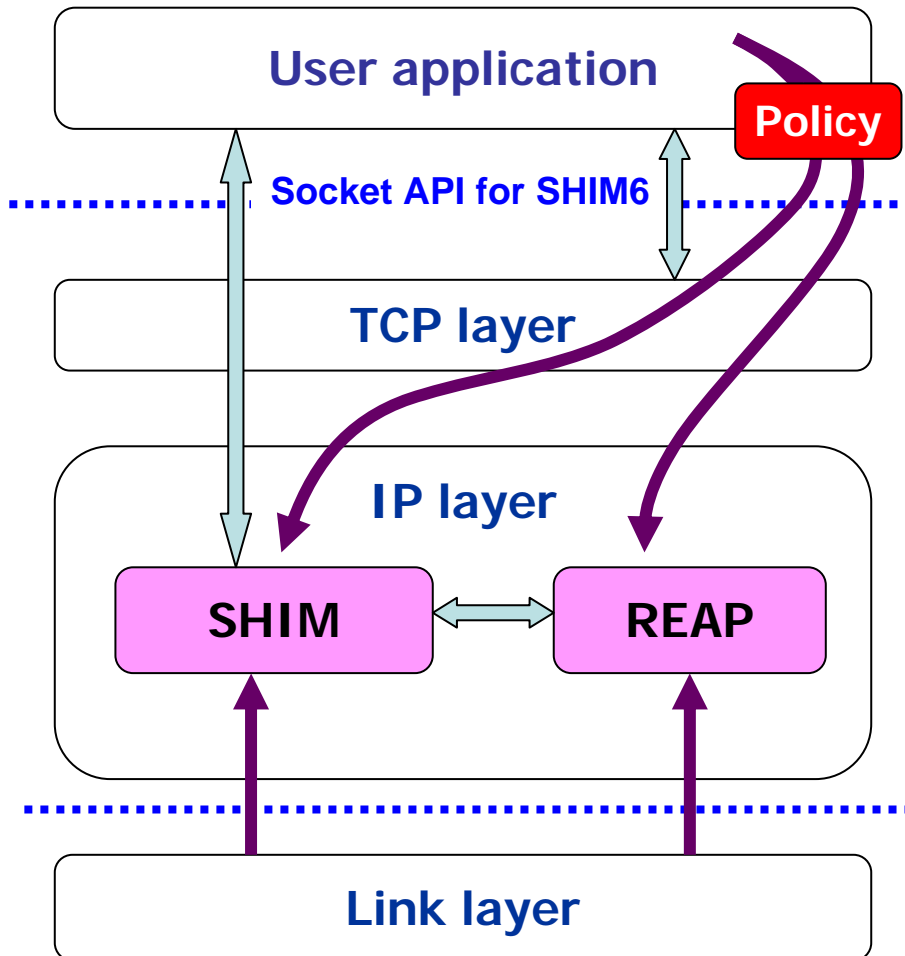
- SHIM6 CORE
 - Observing incoming and outgoing packets in shim6d module
 - Initial handshake (4-way) and locator set exchange
 - ULID / Locator mapping and substitution
 - CGA/HBA parameters
 - Context forking
- SHIM6 REAP
 - Reachability detection – Keepalive
 - Path exploration – Probe
 - Change locators to use alternate path
 - New message format 05 > 06
 - Security issues

Testbed environment



Introduction to further works

API works for SHIM6



- **socket API for SHIM6**
 - Draft-ietf-shim6-multihoming-shim-api-01.txt
- **Make a Policy functions**
 - **Directly control SHIM core and REAP**
 - **Occur address pair changing trigger without failure**
- **Receive Link Information**
 - **Changing address pair without REAP**
- **Inter-process Communication**
 - **Optimize operation**

Collaboration Works

- Members
 - ETRI&SNU (Taewan You, twyou@etri.re.kr)
 - Ericsson (Shinta Sugimoto, shinta.sugimoto@ericsson.com)
 - OpenHIP (Thomas R Henderson, thomas.r.henderson@boeing.com)
- Inter-operability
 - Basic functionality test
 - Advanced functionality test
 - Stress test
- API works