jLISP
Andreas Stockmayer, Mark Schmidt, Michael Menth

http://kn.inf.uni-tuebingen.de
Contents

- Motivation
- Components
- Programming
- Modules
- Plugins
Yet another LISP implementation?

Yes!
Yet another LISP implementation?

- Other LISP Implementations difficult to extend
  - Last OpenLISP version from 2011
    - All features available only with FreeBSD
  - OOR
    - C code hard to read
  - Lispers.net
    - Closed source

- Objectives of jLISP
  - Rapid prototyping for experimentation with new features
  - Easily portable, in particular to smartphones
  - Open source
Components

► xTR
  ▪ ETR and ITR, normally combined

► Mobile Node
  ▪ xTR with EID on LISP interface

► RTR
  ▪ Support for LCAF ELP Type

► Mapping System
  ▪ Simple Mapping System with hash-based entries
  ▪ Integrated Map Resolver
  ▪ Both communicate over a simple API
    - One or both components can be exchanged easily
About jLISP

- Object oriented
  - Classes for each message type

- Integrated parser for all types of LISP packets

- Platform independence
  - Java as programming language
  - Tun interfaces
  - Android version with VPN API possible
Module Networking
- IPv4, IPv6
- UDP

Module Control plane
- All message types from RFC 6830
- LCAF
  - All types implemented
  - ELP / NAT types included in xTR/RTR

Module Data plane
Plugins

Extensions without knowledge of the code

- Predefined hooks

  ```java
  public byte[] sendRawData(byte[] data);
  public DataMessage sendLispData(DataMessage data);
  public DataMessage receiveLispData(DataMessage data);
  public byte[] receiveRawData(byte[] data);
  public ControlMessage sendControlMessage(ControlMessage data);
  public ControlMessage receiveControlMessage(ControlMessage data);
  ```

- Control messages can be modified
  - Before transmission
  - Upon reception

- Data plane messages can be modified
  - Raw data before encapsulation and after decapsulation
  - Encapsulated data before transmission and after reception
Questions?

ITC Demo:  http://kn.inf.uni-tuebingen.de/demos/itc16_jlisp
Source Code: https://github.com/jLisp/jlisp