

LISP & LISPmob

Overview and use cases

ALBERTO RODRIGUEZ-NATAL

ARNATAL@AC.UPC.EDU

Questions

- ▶ Who has heard about LISP?
 - ▶ ... and knows a use case other than routing scalability?
- ▶ Who has heard about LISPmob?
 - ▶ ... and is already using it?

Intro

Use cases

LiSP

LISP 101

- ▶ Locator/Identifier Separation Protocol
 - ▶ RFC 6830
- ▶ Two disjoint namespaces
 - ▶ Endpoint Identifiers (EIDs)
 - ▶ Routing Locators (RLOCs)
- ▶ Map-and-encap approach

LISP encapsulation

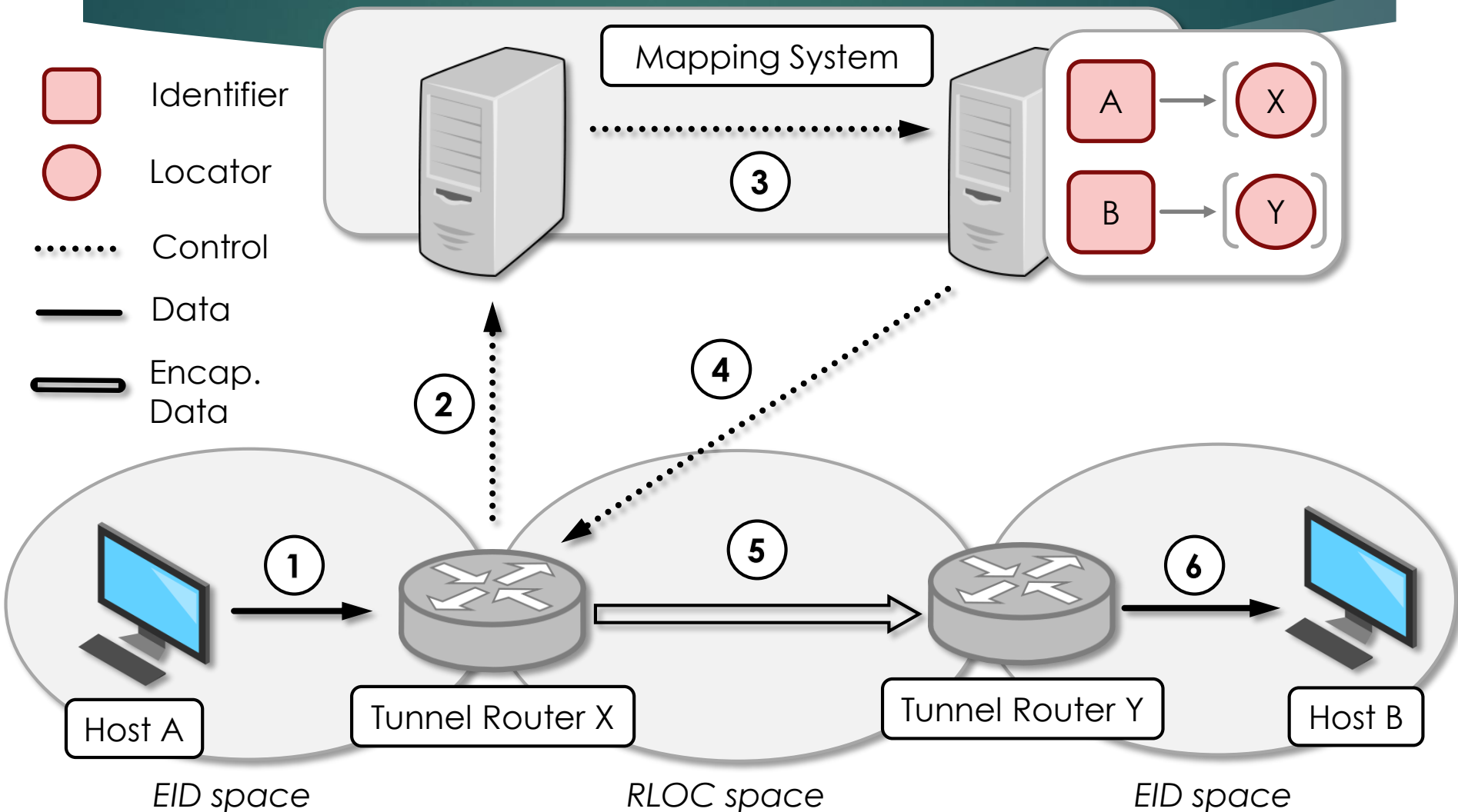
IPv4 Outer Header:
Router supplies
RLOCs

UDP
LISP
header

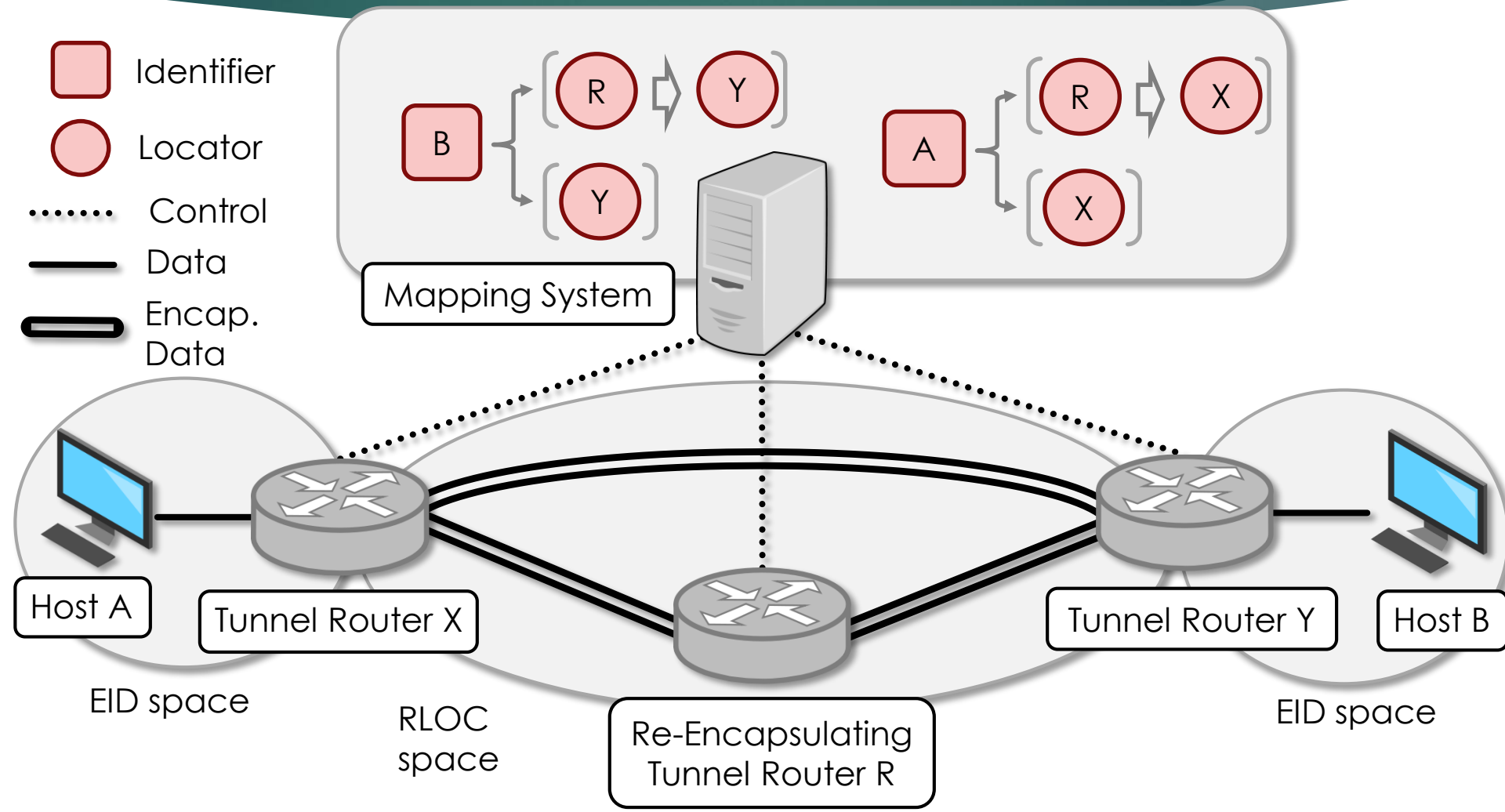
IPv4 Inner Header:
Host supplies
EIDs

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
Version				IHL				Type of Service								Total Length																
Identification												Flags				Fragment Offset																
Time to Live								Protocol (17)								Header Checksum																
Source Routing Locator																																
Destination Routing Locator																																
Source Port (xxxx)																Dest Port (4341)																
UDP Length																UDP Checksum																
N	L	E	V	I	Flags				Nonce/Map-Version																							
Instance ID/Locator Status Bits																																
Version				IHL				Type of Service								Total Length																
Identification												Flags				Fragment Offset																
Time to Live								Protocol								Header Checksum																
Source EID																																
Destination EID																																

LISP architecture at a glance



Traffic Engineering



Use cases

- ▶ Multihoming
- ▶ IPv4-IPv6 co-existence
- ▶ VPNs
- ▶ VM mobility

Future

- ▶ Software Defined Networks
- ▶ Network Function Virtualization
- ▶ Service Function Chaining



Intro

Architecture

Features

Use cases

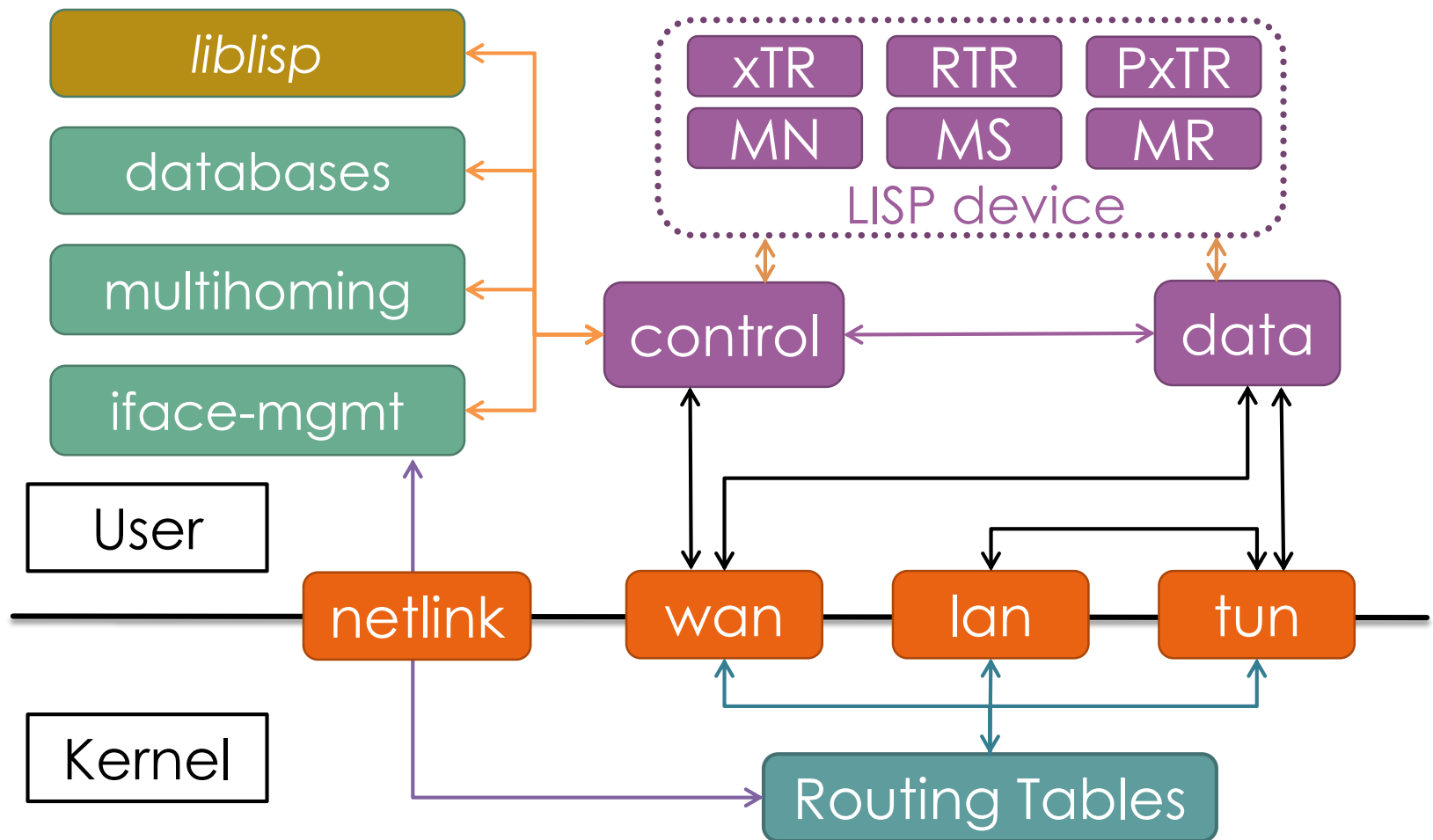
LISPmob

What is LISPmob?

- ▶ LISP open-source implementation
 - ▶ Linux, Android, OpenWrt
- ▶ Full featured implementation
 - ▶ With focus on home xTRs and MNs
- ▶ Growing community
 - ▶ Individuals/companies/academia
- ▶ Since 2011 in active development



LISPmob internals



Features

- ▶ Implementing RFC6830 & companions
- ▶ Full IPv4/IPv6 support
- ▶ Interface management
 - ▶ Handovers
- ▶ Multihoming
 - ▶ Active-Backup / Active-Active
 - ▶ Ingress & Egress Traffic balancing
- ▶ NAT traversal

Use cases: end users

- ▶ IPv6 over IPv4
 - ▶ ...and sometimes the other way around
- ▶ Home multihoming
 - ▶ Two DSL lines

Use cases: industry/academia

- ▶ To learn and prototype
 - ▶ LISP proof-of-concept deployments
- ▶ Easy LISP provision
 - ▶ Plug'n'Play LISP boxes (OpenWrt+LISPmob)
- ▶ Research
 - ▶ LISPmob as a framework

Future

- ▶ Improved configuration
 - ▶ NETCONF & YANG
- ▶ Performance
 - ▶ Intel DPDK
- ▶ Beyond IP
 - ▶ Layer 2 support

Try it!

- ▶ Visit the webpage
 - ▶ <http://lispmob.org>
- ▶ Check out the code
 - ▶ <https://github.com/LISPmob/lispmob>
- ▶ Connect to the LISP beta-network
 - ▶ Fill the form at <http://lispmob.org/contact>
- ▶ Get the binaries

