

# LISP for ILA

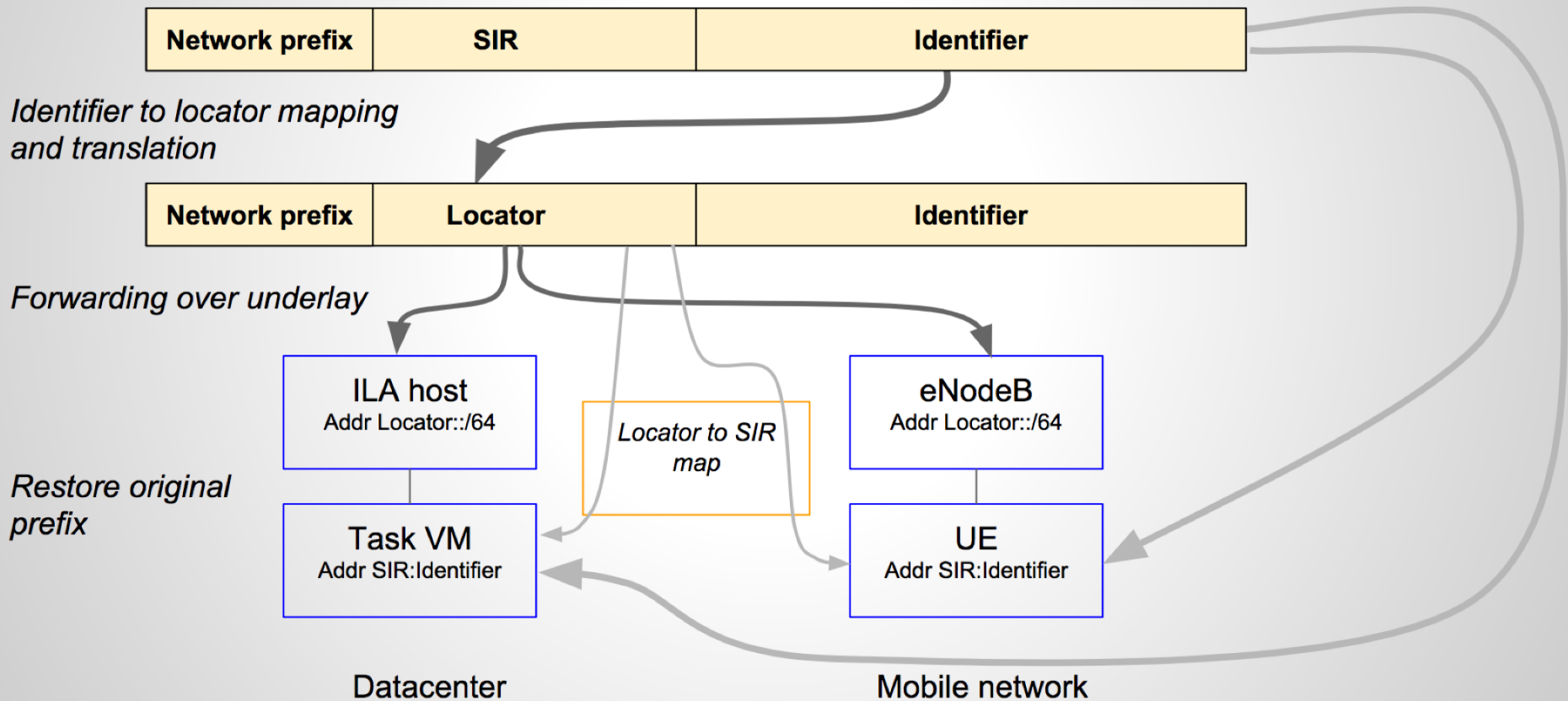
**draft-rodrigueznatal-ila-lisp-00**

IETF 101 - London

# Overview

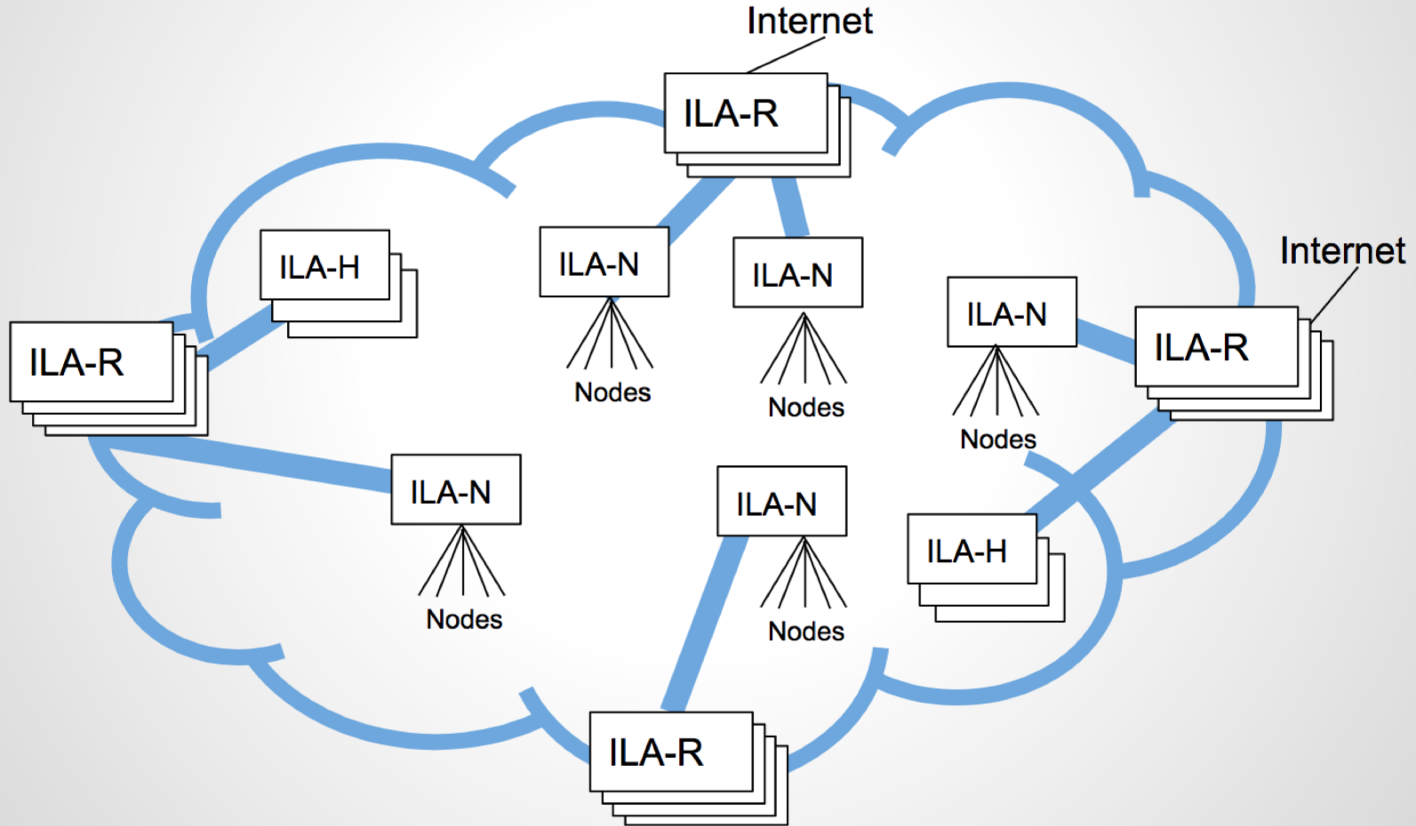
- Identifier-Locator Addressing (ILA)
  - ID-LOC split data-plane leveraging IPv6 “address transformation”
- LISP can be used as control-plane for an ILA data-plane
  - Without changes in ILA or LISP architectures
- Current ILA-LISP spec based on **draft-herbert-intarea-ila-00**

# Singleton addressing in ILA



# Reference topology

Slide from Tom Herbert's presentation in INTAREA @ IETF 100 Singapore

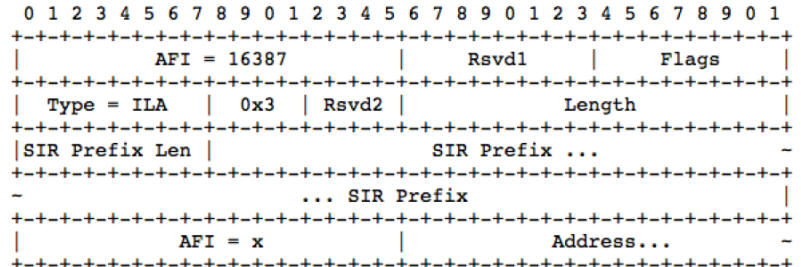
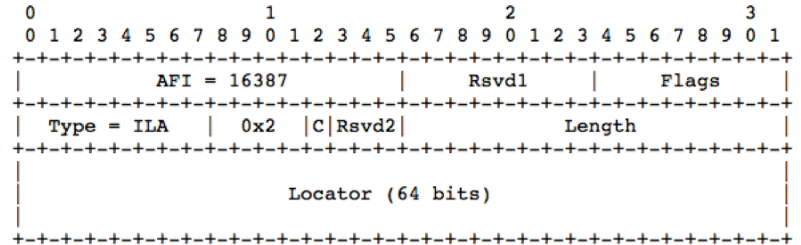
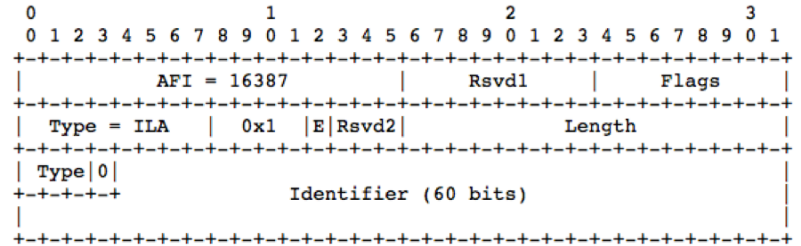


# Devices and Roles

- MSMR
  - Stores all mappings in the domain (or shard)
- ILA-R
  - Complete map-cache for the mappings in the domain (or shard)
  - Subscribed to the MSMR or co-located
  - Announcing anycast SIR prefix into the underlay
  - Default path for data packets
- ILA-N
  - Incomplete map-cache (population on demand)
  - Connected to endpoints

# ILA Address Encoding in LISP

- ILA LCAF types
  - Explicit length
  - Explicit ILA meaning
  - Metadata bits
- Alternatively
  - Plain IPv6 encoding



# Mapping Resolution

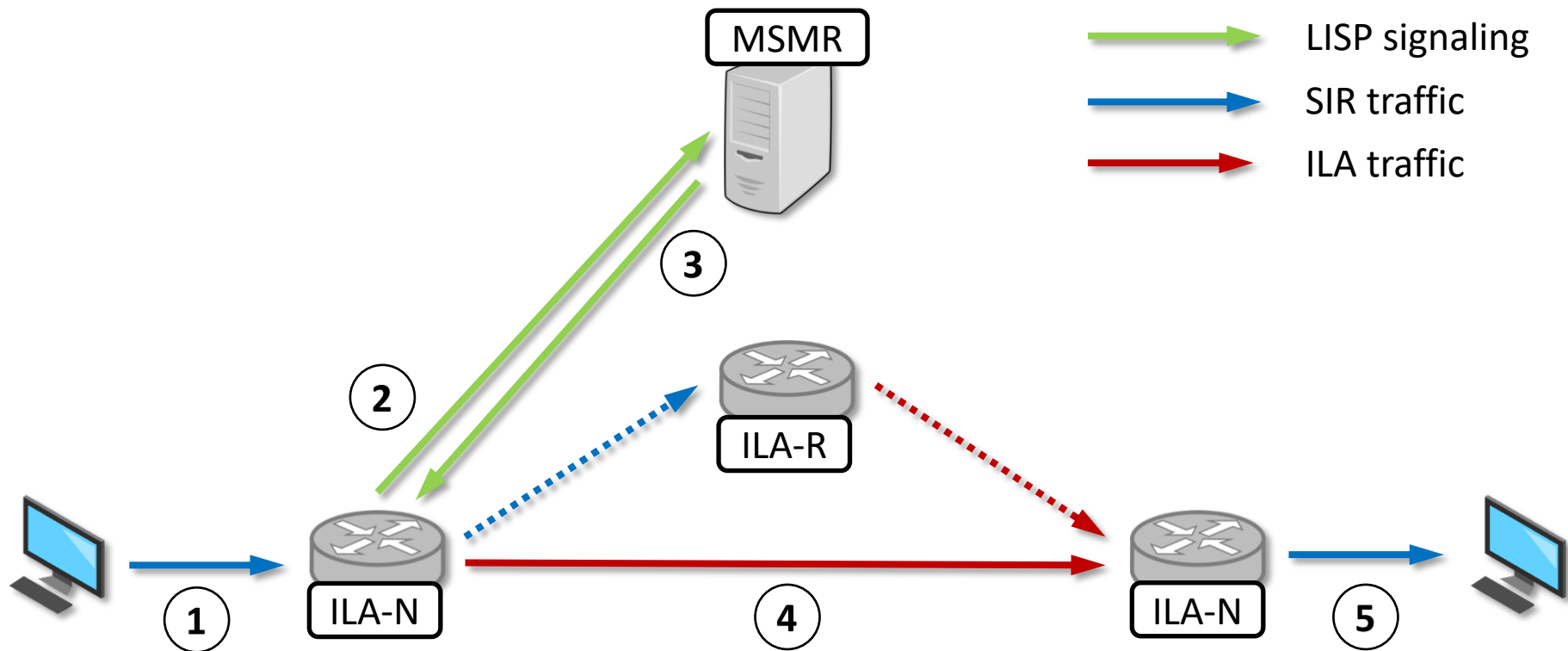
## Identifier Resolution

- Retrieve Locator
- Basic Operation

## Endpoint Address Resolution

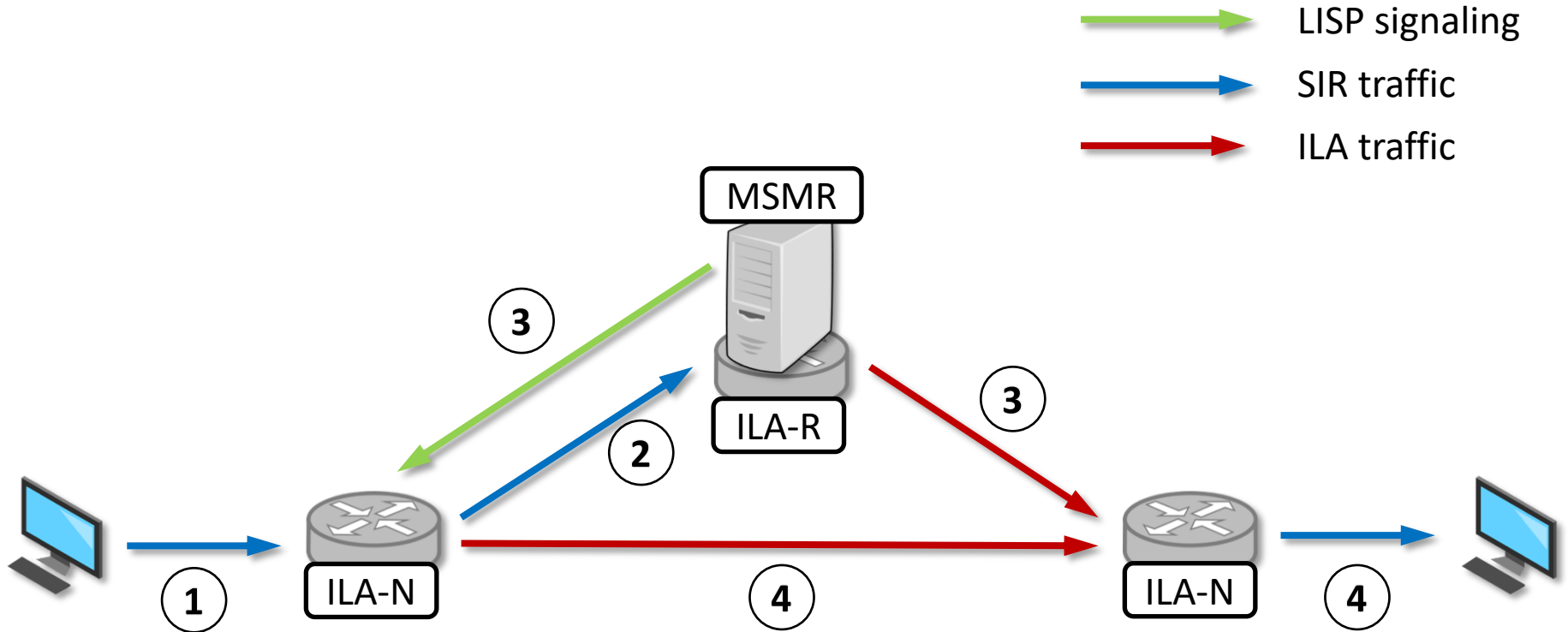
- Retrieve Identifier (and Locator)
- Virtualization
  - Tenant Prefix to VNID
- Non-Local Address
  - NLA to Identifier

# Map-Request/Map-Reply





# Map-Notify



# Deployment Considerations

- Transport
  - UDP or TCP
- ILA-R and MSMR co-location (no need to subscribe)
- Pro-active mapping push to destination ILA-N
- Multiple ILA domains
- Checksum adjustment per locator

# LISP Control-Plane for other Data-Planes

## LISP-MS Site Information:

Site Name	EID-Prefix or (S,G)	Registered	Last Registerer	Last Registered	First Registered	Registration Flags
SRv6	[1545]	(ams)	--	never	never	--
	[1545]'facebook'	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
	[1545]2001:5:face:b00c::/64	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
	[1545]'google'	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
	[1545]2001:5:6006:1e00::/64	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
ila	[1540]	(ams)	--	never	never	--
	[1540]2001:5:face:b00c::1/128	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
	[1540]2001:5:face:b00c::2/128	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n
	[1540]'facebook-sir-prefixes'	yes (dynamic)	[0]127.0.0.1	0:00:19	3:57:26	p-s-l-t-r-m-n

ILA SIR-Prefix

IPv6 EID

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Scalable Open Overlay Networking

Site name: ila, EID-prefix: [1540]2001:5:face:b00c::1/128, registered: **yes**, dynamic  
 Description:  
 Last registerer: [0]127.0.0.1, xTR-ID: 0xda6fed03124e6bea, site-ID: 0  
 First registered: 3:59:42, last registered: 0:00:34, auth-type: sha2, registration flags: p-s-l-t-r-m-n  
 Default registration timeout TTL: 180 seconds  
 Forcing proxy Map-Reply: yes  
 Forcing proxy Map-Reply for xTRs behind NATs: no  
 Send drop-action proxy Map-Reply to PITR: no  
 Proxy Map-Reply action: not configured  
 Allowed RLOC-set: any

Registered RLOC-set (replacement-semantics):  
 [0]2a03:2880:f10d:83:face:b00c:0:25de, state: up-state, up/uw/mp/mw: 0/0/255/0

Individual registrations: none

**ILA Locator**

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Scalable Open Overlay Networking

ms2

Site name: SRv6, EID-prefix: [1545]2001:5:face:b00c::/64, registered: **yes**, dynamic  
 Description:  
 Last registerer: [0]127.0.0.1, xTR-ID: 0xda6fed03124e6bea, site-ID: 0  
 First registered: 3:59:13, last registered: 0:00:06, auth-type: sha2, registration flags: p-s-l-t-r-m-n  
 Default registration timeout TTL: 180 seconds  
 Forcing proxy Map-Reply: yes  
 Forcing proxy Map-Reply for xTRs behind NATs: no  
 Send drop-action proxy Map-Reply to PITR: no  
 Proxy Map-Reply action: not configured  
 Allowed RLOC-set: any

Registered RLOC-set (replacement-semantics):  
 [0]no-address, state: up-state, up/uw/mp/mw: 0/0/255/0  
 elp: 2001:5:3:6666:1:1 (Rps), 2001:5:3:6666:1:2 (Rps), 2001:5:3:6666:1:3 (Rps)

**SRv6 SIDs**

Thanks!