

Draft-ermagan-lisp-nat-traversal update

IETF November 2020 Interim

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Motivation

- NAT is a critical point for LISP-MN
- NAT Traversal Draft not covers some aspects of mapping update:
 - ~ Handover between NAT to no NAT
 - ~ Change of RTRs

Mapping Update

- Info Request process
 - NAT and using same RTR: Update RTR using ECM-Map-Register
 - Other scenarios: Notify remote ITRs / PiTRs
- Notify methos: Redirect to 6830bis, 6833bis and PubSub draft
- Recommend the use of PubSub
 - Faster mechanism
 - Avoids increase of the path
- Option for no NAT devices to use an RTR if exist possibility to move to NAT

Unregister from RTR

- All mapping updates that needs to be notified involves unregister an EID from an RTR
- Procedure:
 - ~ xTR sends Map-Register to MS with the new mapping
 - ~ MS sends Unsolicited Map-Notify to leaving RLOCs (RTR)
 - ~ Note: It is mandatory that xTR register the local RLOCs with R bit to 0

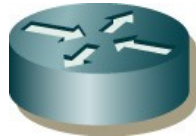
Unregister from RTR



MS

EID:

- xTR-ID A
 - RTR RLOC
 - Local RLOC A (R=0)
- xTR-ID B
 - RTR RLOC
 - Local RLOC B (R=0)



RTR

EID:

- xTR-ID A
 - Global RLOC A (Local RLOC A)
- xTR-ID B
 - Global RLOC B (Local RLOC B)

Global RLOC A

NAT

Local RLOC A



Global RLOC B

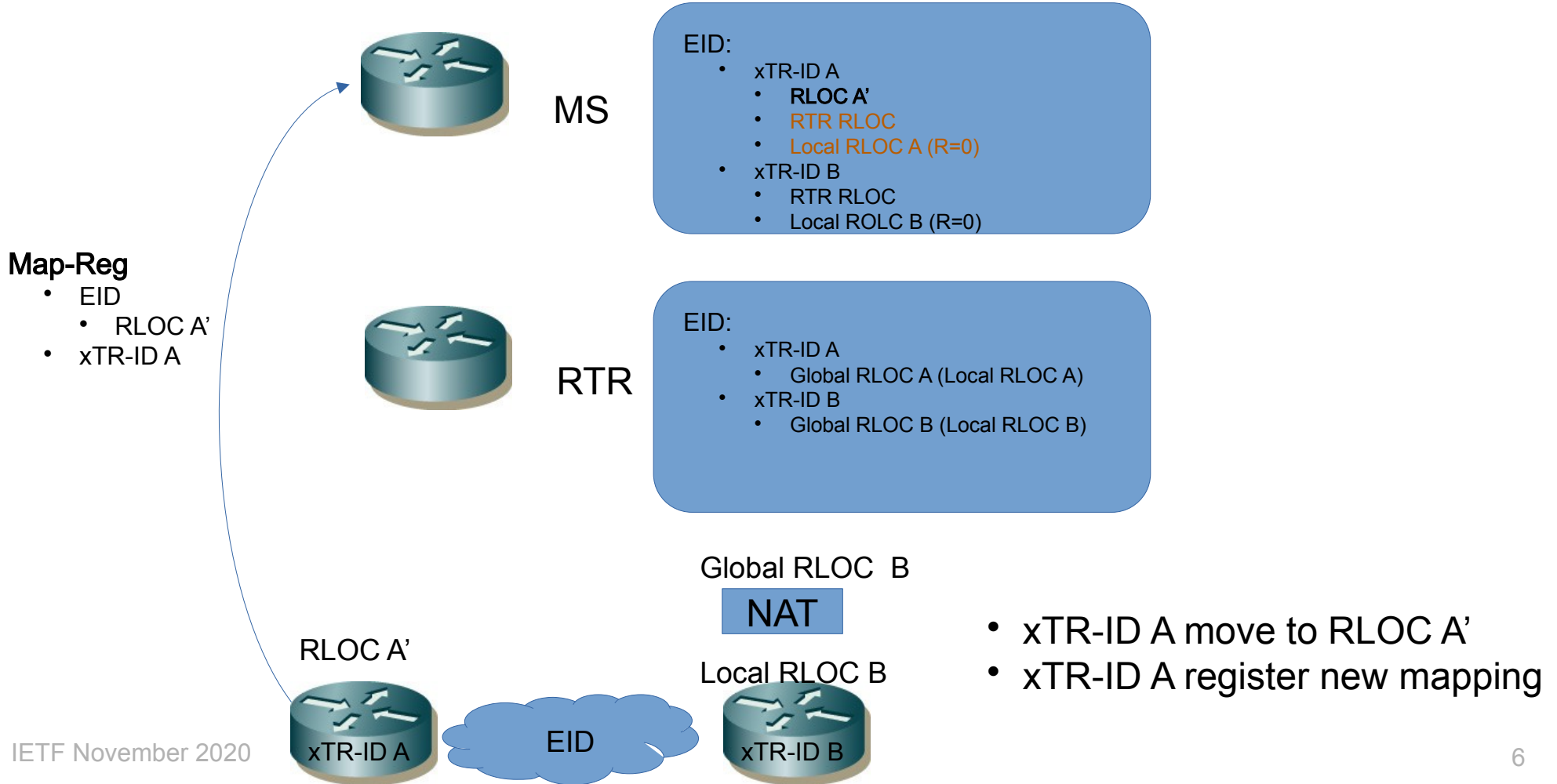
NAT

Local RLOC B



EID

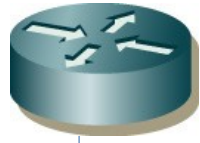
Unregister from RTR



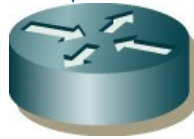
Unregister from RTR

Map-Notify

- EID
 - RLOC A'
 - RTR RLOC
 - Local RLOC B (R=0)
- xTR-ID A



MS



RTR

EID:

- xTR-ID A
 - RLOC A'
 - RTR RLOC
 - Local RLOC A (R=0)
- xTR-ID B
 - RTR RLOC
 - Local RLOC B (R=0)

EID:

- xTR-ID A
 - Global RLOC A (Local RLOC A)
- xTR-ID B
 - Global RLOC B (Local RLOC B)

Global RLOC B

NAT

Local RLOC B

RLOC A'



xTR-ID A



EID



xTR-ID B

- MS send unsolicited Map-Notify to departure ETRs → RTR RLOC

Unregister from RTR

RTR receiving unsolicited Map-Notify

Map-Notify

- EID
 - RLOC A'
 - RTR RLOC
 - Local RLOC B
- xTR-ID A



RTR

EID:

- xTR-ID A
 - Global RLOC A (Local RLOC A)
- xTR-ID B
 - Global RLOC B (Local RLOC B)

IF (any of **local RLOCs of xTR-ID**) IN (Map-Notify record locators):

Rewrite Dest @ of Map Notify to **local RLOC**

Send Data Map-Notify

ELSE:

Store Map-Notify

Send Map Request

IF (Map-Reply record == Map-Notify record):

Remove xTR-ID locators

IF (no more locators):

replace Mapping with Map-Notify record

ELSE:

Drop

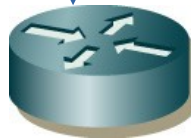
Unregister from RTR

Map-Notify

- EID
 - RLOC A'
 - RTR RLOC
 - Local RLOC B (R=0)
- xTR-ID A



MS



RTR

EID:

- xTR-ID A
 - RLOC A'
 - RTR RLOC
 - Local RLOC A (R=0)
- xTR-ID B
 - RTR RLOC
 - Local RLOC B (R=0)

EID:

- xTR-ID A
 - Global RLOC A (Local RLOC A)
- xTR-ID B
 - Global RLOC B (Local RLOC B)

RLOC A'



Global RLOC B

NAT

Local RLOC B

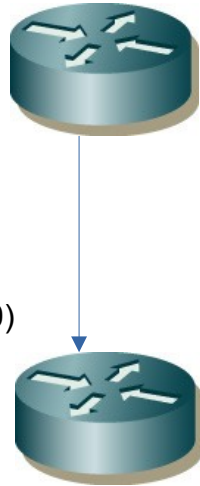


- RTR check if local RLOC A (xTR-ID A) is in Map-Notify record
- Not present → can not forward to xTR
- Need validate Map-Notify → Send Map Request

Unregister from RTR

Map-Reply:

- EID
- RLOC A'
- RTR RLOC
- Local RLOC B (R=0)



MS

EID:

- xTR-ID A
 - RLOC A'
- xTR-ID B
 - RTR RLOC
 - Local RLOC B (R=0)

RTR

EID:

- ~~xTR-ID A~~
 - ~~Global RLOC A (Local RLOC A)~~
- xTR-ID B
 - Global RLOC B (Local RLOC B)

Map-Notify

- EID
 - RLOC A'
 - RTR RLOC
 - Local RLOC B
- xTR-ID A



- Map-Reply confirms Map-Notify
- Remove xTR-ID A locator from mapping

Unregister from RTR

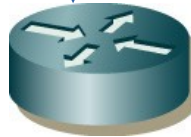
Map-Reply:

- EID
- RLOC A'



MS

- EID:
- xTR-ID A
 - RLOC A'



RTR

- EID:
- ~~xTR-ID A~~
 - ~~Global RLOC A (Local RLOC A)~~
 - RLOC A'

Map-Notify

- EID
 - RLOC A'
-
- xTR-ID A



- If no more locators: replace NAT cache entry with the new record
- Optionally send reactive SMRs (lisp-eid-mobility)

RTR receiving SMR

- Send Map-Request
- IF (RTR's RLOC) IN (Map-Reply record):
 - ~ Drop Map-Reply
- ELSE:
 - ~ Replace Map-Cache entry

Map Request / Reply handling

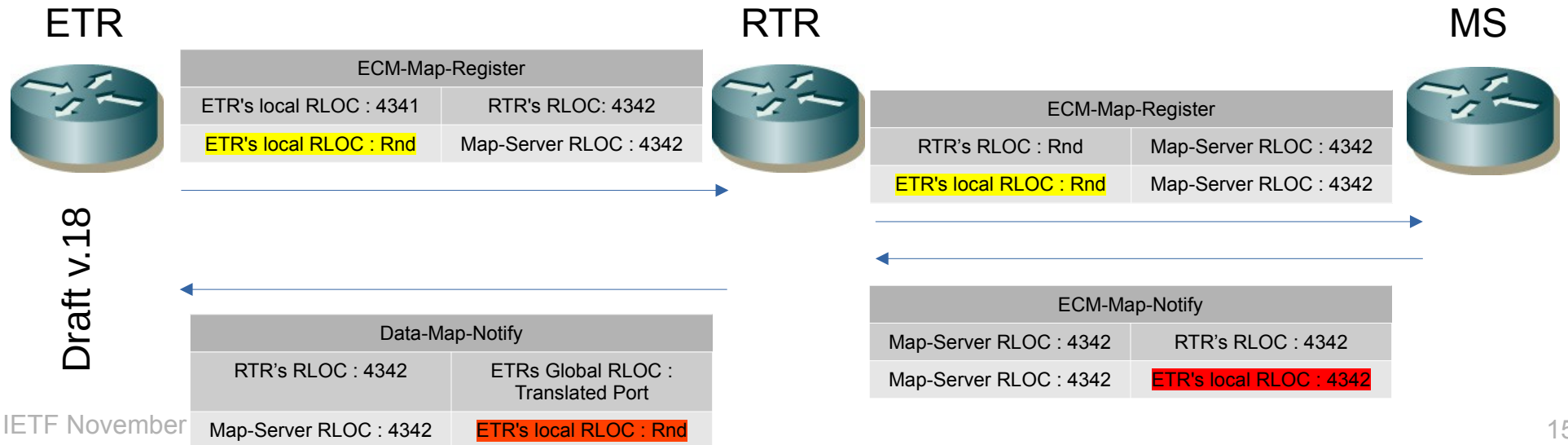
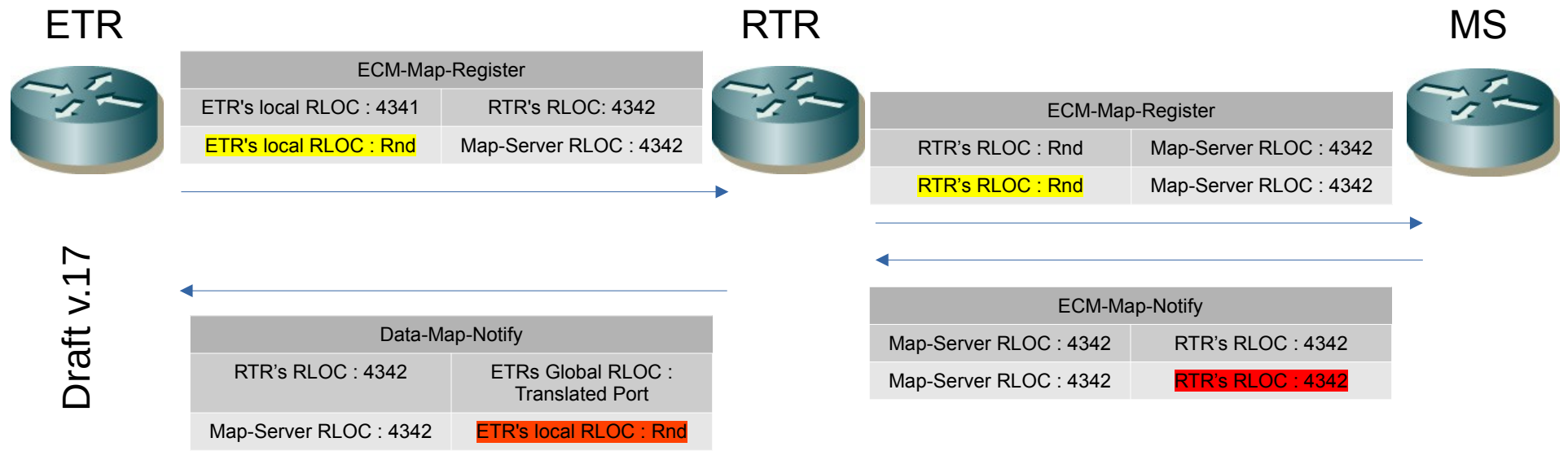
- If Map Reg proxy bit 0
- MS registered info:
 - ~ EID:
 - NAT LCAF: Forward Map Requests
 - RTRs RLOCs: Priority 255
 - Local xTR RLOCs: R = 0
- ETR Map Reply info:
 - ~ EID:
 - RTRs RLOCs

Map Request / Reply handling

- If Map Reg proxy bit 0
 - MS registered info:
 - ~ EID:
 - NAT LCAF: Forward Map Requests
 - RTRs RLOCs: Priority 255
 - Local xTR RLOCs: R = 0
 - ETR Map Reply info:
 - ~ EID:
 - RTRs RLOCs
- Not compatible with PubSub
 - Extra state in the NAT device



Proxy bit → 1



Thank you !