Backbone Router

draft-thubert-6lowpan-backbone-router-03

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6TSCH informal Meeting
86th IETF Meeting
Orlando
What’s a Backbone Router?

Common ND based abstraction over a backbone

Scales DAD operations (distributes 6LoWPAN ND LBR)

Scales the subnetwork (high speed backbone)

Allows interaction with nodes on the backbone or in other subnets running different operations

6TSCH reference model

Classical Router

Backbone Router

PCE

Server

Internet

6TSCH WSN

6TSCH WSN
Initial time

---+----------------------
|   External Network   |
|                     |
| +-----+              |
| | Router            |
| |                   |
| +-----+              |
|                     |
| | Subnet backbone   |
| +------------------+|
|                     |
| +-----+ (root)      |
| | Backbone          |
| | router            |
| +-----+              |
|                     |
| +-----+              |
|                     |
| +-----+ (6LBR)      |
| | Backbone          |
| | router            |
| +-----+              |
|                     |
| +-----+              |

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Initial time

A single subnet model for the backbone and the wireless sensor networks

External Network

Default Route

Subnet Route

Routing Information Base (RIB)

Subnet backbone

Backbone router

PCE/NME
Registration (1st step)

Registration has:
- Lifetime
- Unique ID
- TID (SeqNum)
Registration (2\textsuperscript{nd} step one second later)

The BR maintains a binding state to the WSN node for the registration lifetime.

Opt NA(O)

Opt NA(O)

NA (ARO)

DAC
Registration (3rd step)

The BR maintains a route to the WSN node for the DAO.

Lifetime over instance VRF.

DAO

Host Route In RIB

(RPL root) Backbone router

DAO

Host Route In RIB

(RPL root) Backbone router

DAO

Host Route In RIB

(RPL root) Backbone router
DAD option has:
• Unique ID
• TID (SeqNum)

Defend with NA if:
• Different OUID
• Newer TID
DAD option has:
- Unique ID
- TID (SeqNum)

Defend with NA if:
- Different OUID
- Newer TID
Resolution

NA option has:
- Unique ID
- TID (SeqNum)
Resolution (2)
Enhanced Address Registration Option

- Used to resolve conflicts
- Need In ND: TID to detect movement -> eARO
- Need In RPL: Object Unique ID if we use RPL for DAD

Figure 2: EARO
????? Questions ?????