Designated MSRP Node Handling on CSN Networks

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CSN Network Coordinator Characteristics

- CSN’s Network Coordinator (NC) is most case dynamically selected
- First node to join the CSN network acts as NC
- NC node could move to another node:
  1. Scheduled move - NC Handover
     - a new node with better NC capabilities joins the network and initiates an NC handover
     - the NC node is gracefully shut down and prior to disconnecting, initiates an NC handover with an other node
  2. Unscheduled move – NC Backup
     - The NC node disappeared from the network and the NC backup node takes control
CSN Network - NC Selection [1]

First Node to join the CSN network is the initial NC…
Subsequent Nodes are joining the CSN network…
But the NC node could dynamically change if:

1) a new node with better NC capabilities joins the network
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1) a new node with better NC capabilities joins the network

2) the NC node handovers the control to another node before gracefully shutting down
CSN Network – NC Handover [3]
But the NC node could dynamically change if:

1) a new node with better NC capabilities joins the network
2) the NC node handovers the control to another node before been gracefully shut down
3) **the NC node disappears from the network and the NC Backup node takes control**
NC does not maintain a central BW Reservation database but dynamically queries the nodes on each new BW reservation request …
CSN Network – Bandwidth Reservation [2]
CSN Network – Bandwidth Reservation [3]
CSN Network – Bandwidth Reservation [4]
DMN / CSN Network

Initial DMN node is the NC node…
DMN / NC Handover [1]

2 options to handle DMN node in case of NC Handover:

1) **DMN stays on initial NC node:**
   - the DMN node acts as a proxy toward the CSN’s NC
DMN / NC Handover [2]

2 options to handle DMN node in case of NC Handover:

1) DMN stays on initial NC node:
   the DMN node acts as a proxy toward the CSN’s CN

2) DMN migrates to the new NC
DMN / NC Handover [3]

2 options to manage the DMN DB in case of NC Handover:
1) transfer the DB (not an option for NC Backup)
2) dynamically recreate the DB on the new DMN
In case of NC Backup: dynamically recreate the DB on the new DMN

Proposal: use MRP services to recreate the DB
DMN / NC Backup [2]

In case of NC Backup: dynamically recreate the DB on the new DMN
Proposal:
1) the new DMN generates a leaveAll message
In case of NC Backup: dynamically recreate the DB on the new DMN

Proposal:
1) the new DMN generates a leaveAll message
2) the MRP Participants re-register to the DMN (allowing the DMN to build its database)
MRP Message Traffic Type on CSN

• Unicast (node to node) traffic:
  Pro: non-DMN nodes do not receive MRPDUs
  Cons: non-DMN nodes should be notified of DMN handover/backup. How?

• Broadcast traffic:
  Pro: no DMN address handling in case of handover/backup
  Cons: non-DMN nodes should filter MRPDUs

• Which option is the best?
Is a new interface needed?

Interface/API between the CSN & DMN entities to:
- init/release a DMN based on the CSN’s node attribute?
- other?
Questions?

Thank you!