ForCES CE HA update + Demo

IETF – 83 Paris

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Since last meeting

- More implementation experience
- Leave FEPO BackupCEs alone
  - AllCEs table as new read-only component
- Introduce HAMode
  - none/cold-standby/hot-standby
- CEFailoverPolicy is per RFC5810
- Introduce capability for hot-standby
  - Old HA capability is essentially cold-standby
FEM configures the FE with multiple CEs (in this case 3)
  - The FE at any time is only associated to one master CE
  - On failure
    - We could keep using the forwarding state if configured (FEPO::CEFFailoverPolicy)
    - Associate to first CE on the backup CE list (FEPO::BackupCEs)
Failover could be induced by:
- Connectivity failure
- Heartbeat dead interval
- CE issuing a failover by setting `FEPO::CEID`
Demonstration

• Show failure of non HA capable FE
• Show Cold standby
  – Failure of CE
  – Forced failover by master CE
CE HA draft: Hot-standby

- FEM configures the FE with multiple CEs
  - The FE attempts to associate to all CEs
  - On failure
    - We could keep using the forwarding state if configured \((FEPO::CEFailoverPolicy)\)
    - Declare the first Associated CE as master \((FEPO::AllCEs)\)
CE HA draft: Hot-standby

Failover could be induced by:
- Connectivity failure
- Heartbeat dead interval
- CE issuing a failover by setting \textit{FEPO::CEID}

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CE HA draft: Hot-standby

- FE attempts to re-associate to any failed CEs
- FE sends HBs to all associated CEs
- FE sends events to all associated CEs
- Only master CE can send messages to the FE
Demonstration

- Show Hot standby
  - Failure of CE
  - Forced failover by master CE
Extending Backup CE interaction

- Found it very useful to have backup CEs to query the FEs for discovery purposes
  - Recommend we allow all CEs to do GET ops
  - Only master to do SET ops