Networks Research Lab (NetRL)

Mobility
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Mobility support in Hierarchical Mobile IP-over-MPLS Network

- propose framework that integrates **MPLS** and **HMIPv6** in a RAN in a simple overlay fashion for handling mobility and handoff
  - need for such a framework stems from increased drive toward high-speed multimedia-intensive services
  - overlay method improves on existing MIP-MPLS interworking based on MIPv4 and HMIPv4 and utilizes HMIPv6 as the micromobility protocol

- scheme is
  - *scalable* due to its flexible and distributed implementation
  - allows *gradual deployment* since it co-exists with other protocols in an overlay fashion
  - does not need protocol enhancements, but only *node colocation*
  - can *provide QoS* using underlying MPLS traffic Engineering capabilities

- ability of protocol to handle mobility events (handover) illustrated for intra and inter-RAN cases

- MPLS, when paired with a suitable mobility protocol, can function well in RAN and provide same benefits it offers in wired networks

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Reference network

signalling prior to data transfer

signalling diagram, part
Mobile IPv6 Handover in IEEE 802.11b

- performance evaluation of standard Mobile IPv6 and the effectiveness of the smart handover extensions

- correct combination of smart MIPv6 handover extensions (L2 Triggers, ODAD and FSRA) can be beneficial in reducing handover delays from the 2.6 s delays of standard MIPv6 to around 350 ms

Overall handover latency components and IPv6 address configuration delays in MNs:
- D1 time at link-layer to switch to new access medium
- D2 time to detect new IPv6 network, complete DAD and configure new CoA,
- D3 delay to update HA and all other communication partners