Multicast Mobility in MIPv6: Problem Statement Update

- draft-schmidt-mobopts-mmcastv6-ps-*.txt -

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Scope

- Status of the Draft
- Analysis of ‘Moving’ Distribution Trees
- Two New Approaches:
  - Shared Tree Based (Romdhani et al.)
  - Source Specific Tree Based (Schmidt & Wählisch)

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Status of the Draft

- Version update delayed ☹
  But: to appear this summer
- Several reviews on version 0 –
  more welcome!
- Thorough section on proposed solutions
- Include overlay or hybrid multicast ?
- Hope for more discussions (in conjunction with new SAM IRTF group ?)

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Analysis of ‘Moving’ Distribution Trees

- Multicast Distribution Trees subsequent under Mobility are highly correlated
- Results in frequent re-use of Mcast Routers
- Two characteristic measures
  - ‘Step-Size’: pDR-to-nDR Distance
  - Tree evolvement: Number of Receivers

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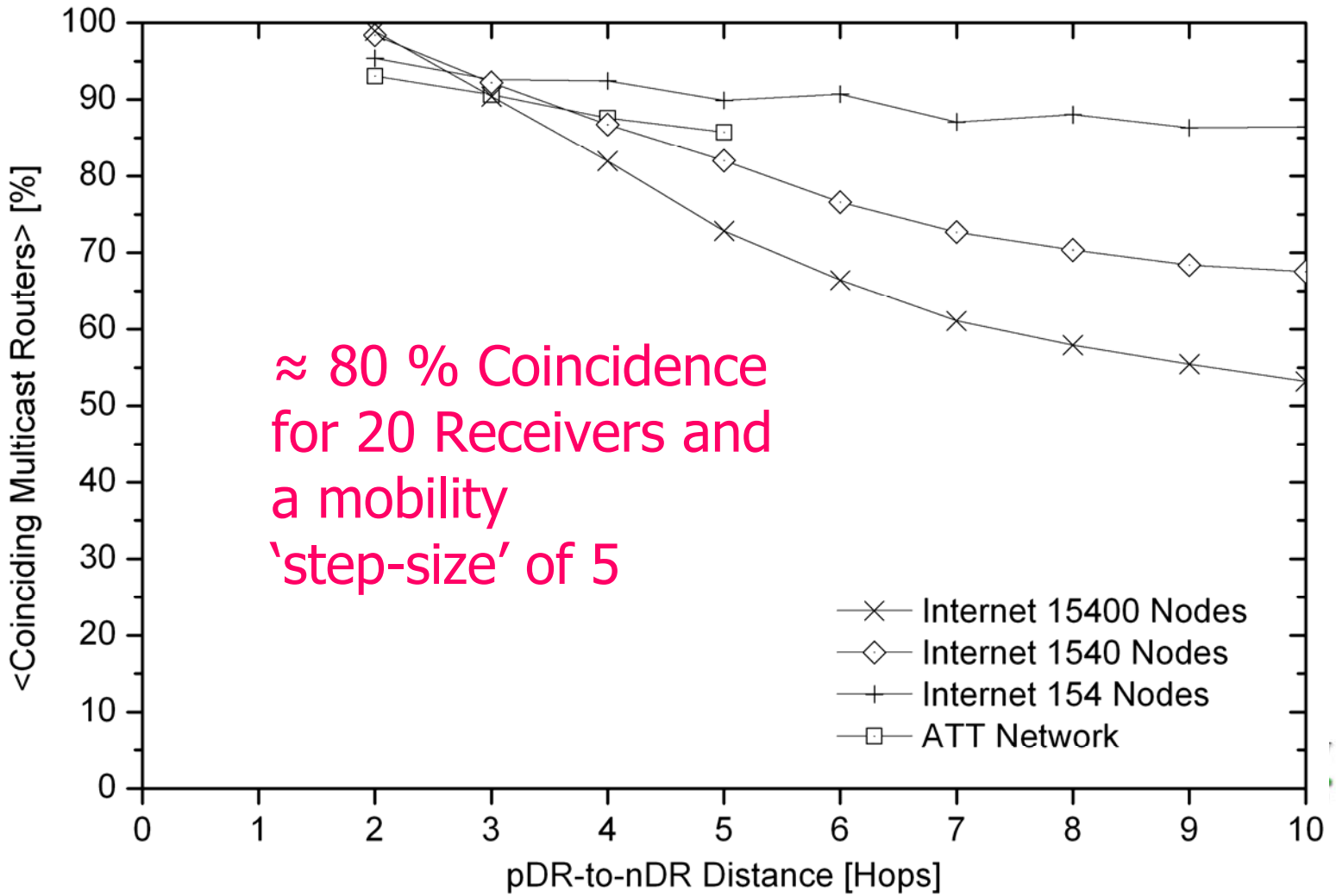
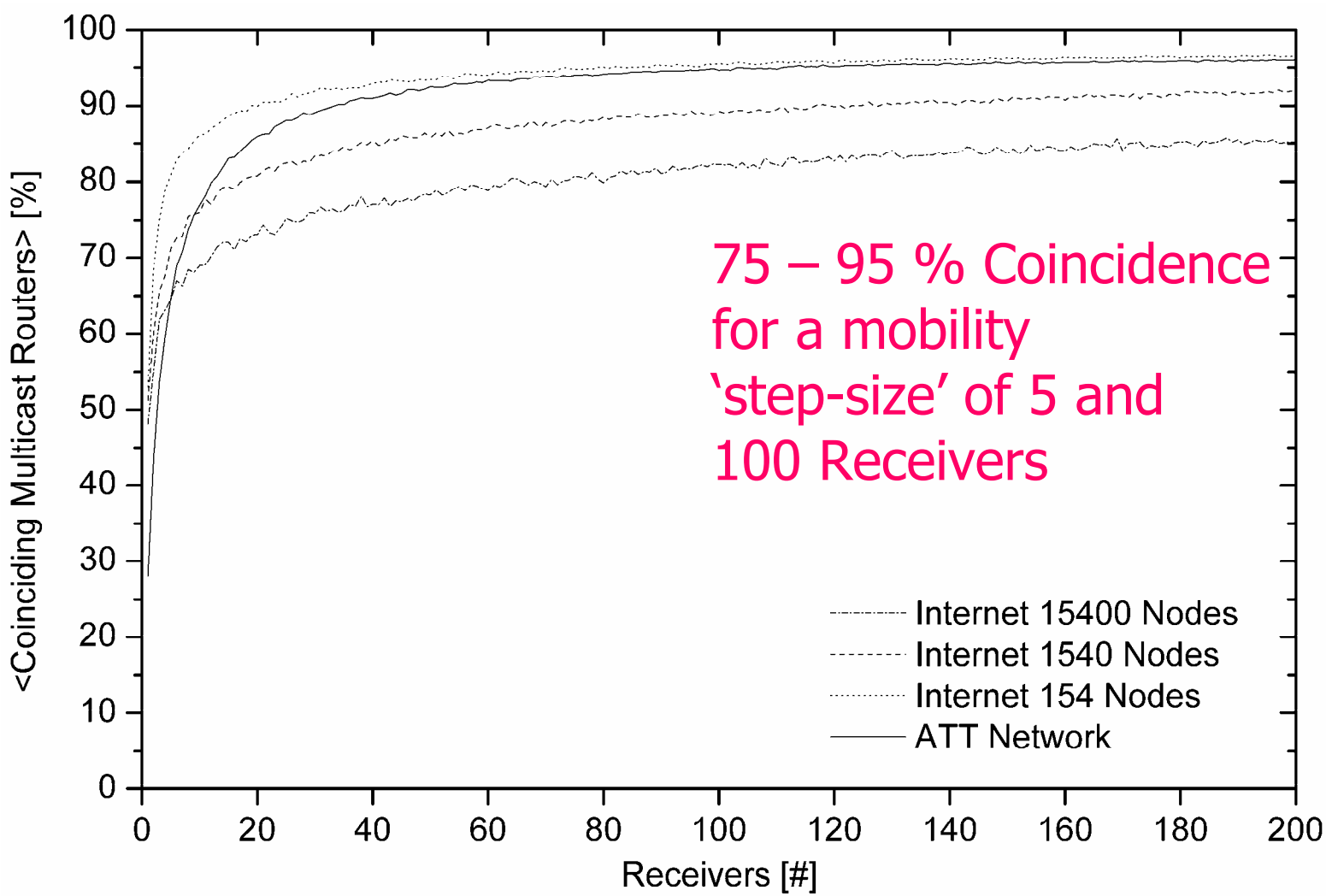
Source: Schmidt & Wählisch to appear in Telecommunication Systems, 2006

Simulation Study:
Tree Coincidence wrt. ‘Step-Size’



Simulation Study:
Tree Coincidence wrt. Tree Evolvement



Shared Tree Mobility

- Use Rendezvous Point as Mobility Anchor: Mobility-aware Rendezvous Point (MRP)
- Need to Change Routing:
  - Extend (*,G) states to (HoA, G, MRP-ID)
  - Modify RPF-Check to identify CoA* sources with HoA
  - Operate interdomain handovers via MRP-ID

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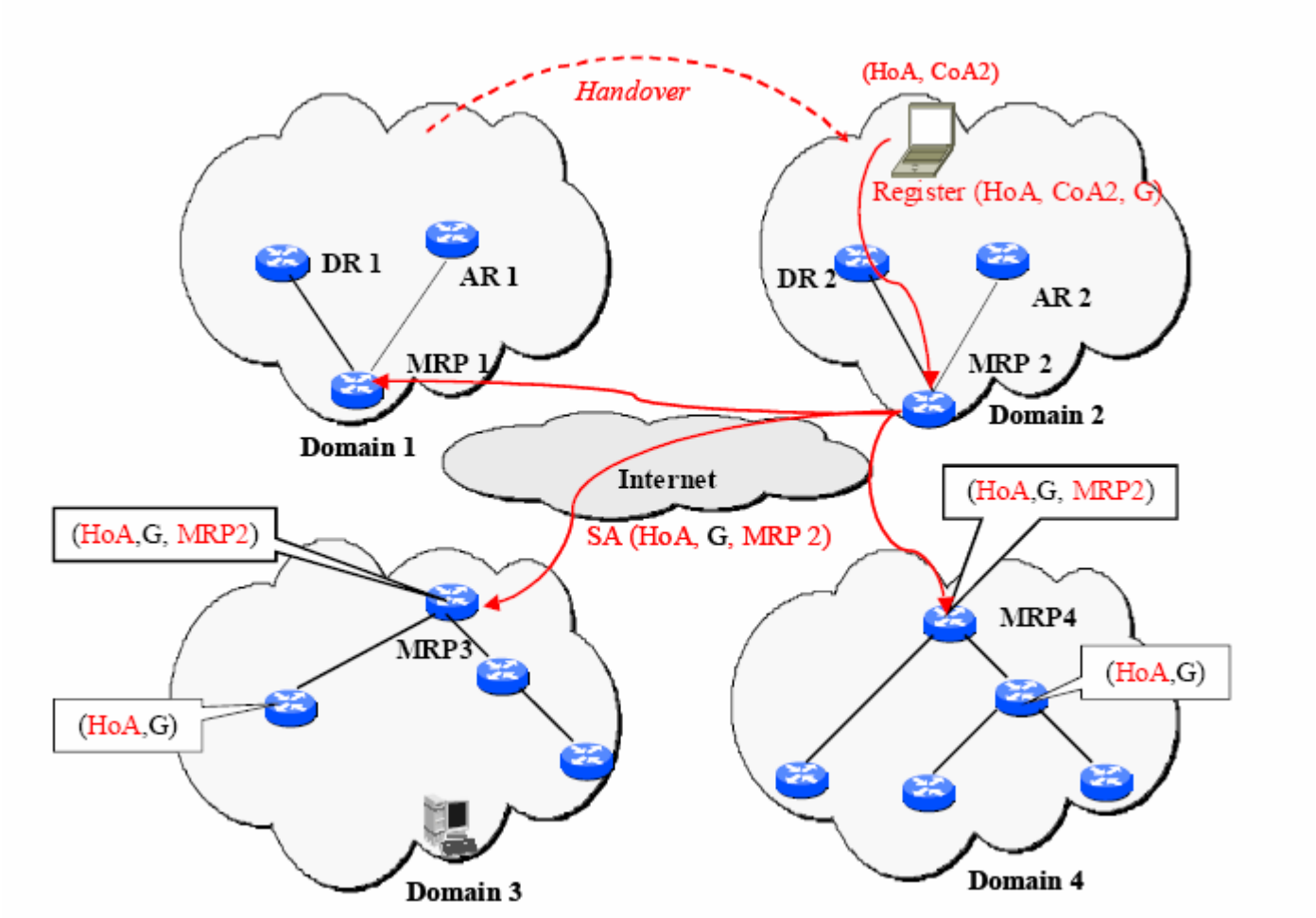
Source – Romdhani et al: *Transparent Handover for Mobile Multicast Sources*, In: Proceedings of the IEEE ICN'06, IEEE Press, April 2006

Mobility-aware Rendezvous Points



Source Specific Tree Modification

Need to Change Routing:

- Extend (CoA,G) states to (CoA,G,HoA)

Need to Preserve Previous Trees:

- Keep contact subsequent to handover

Idea: Morph Previous into Next Tree:

- Elongate root (modify RPF Check)
- Discover shortcuts
- Dismiss unneeded branches

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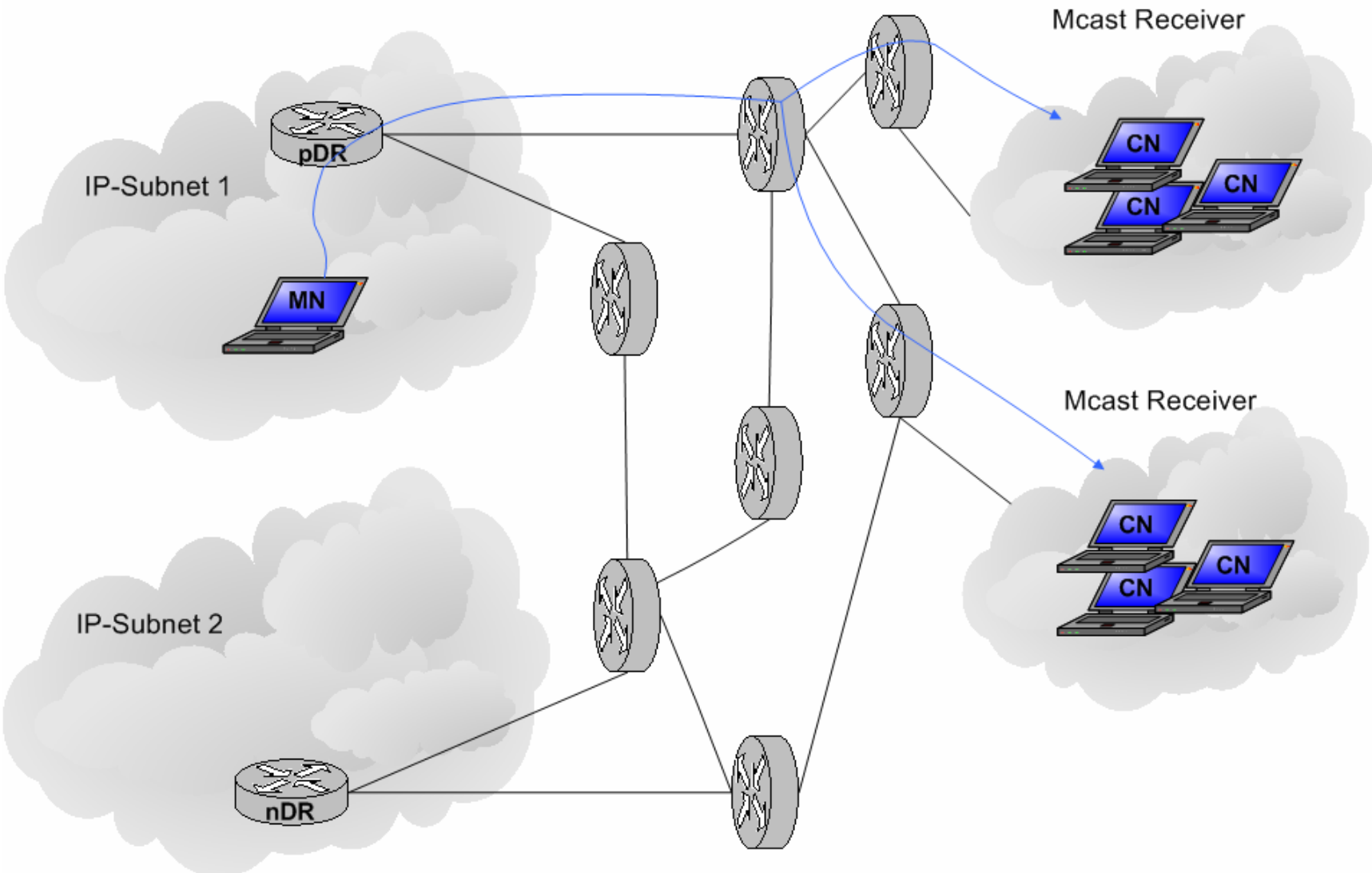
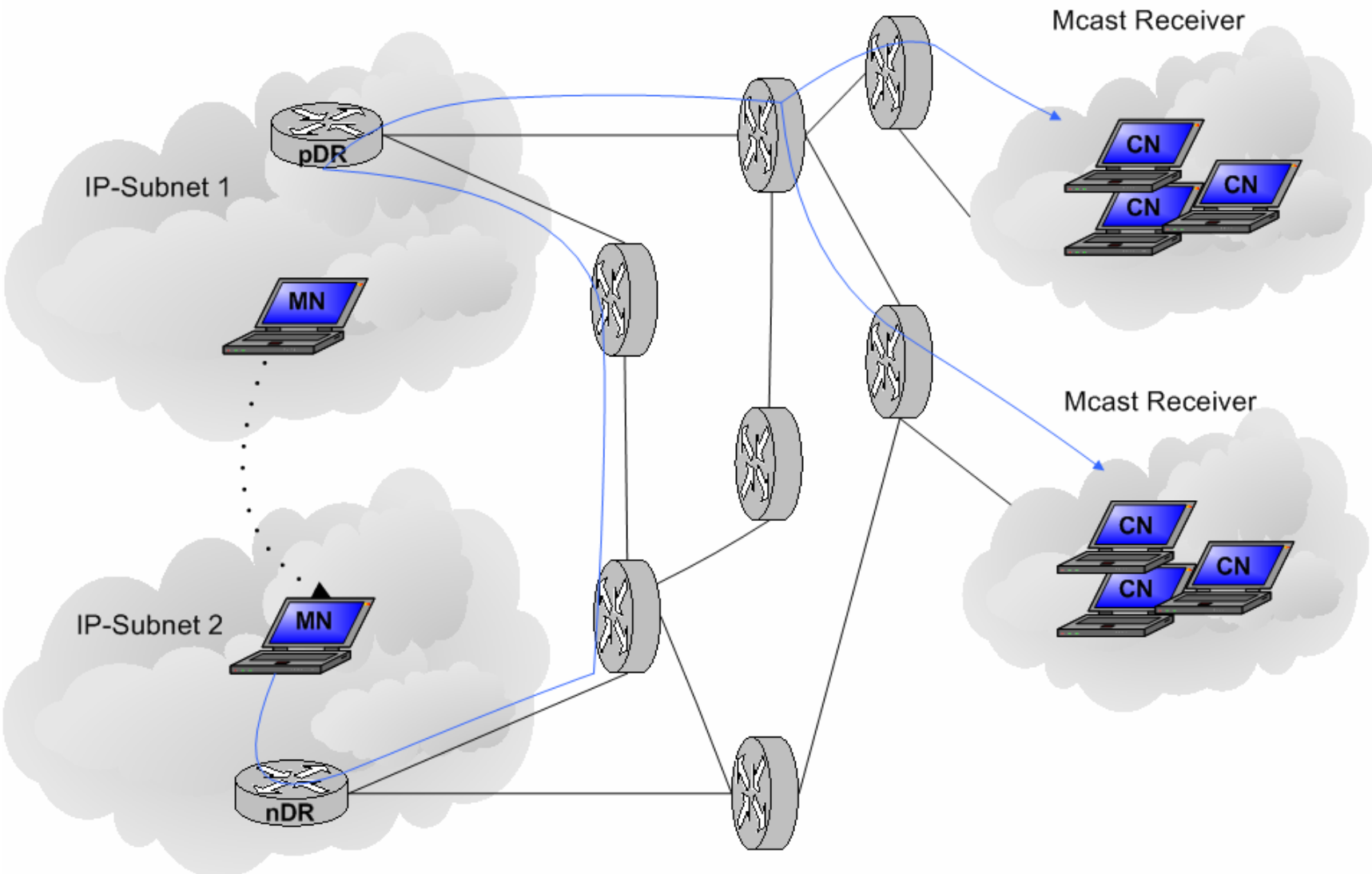
Source - Schmidt & Wählisch: *A First Performance Analysis of the Tree Morphing Approach to IPv6 Source Mobility in Source Specific Multicast Routing*, In: Proceedings of the IEEE ICN'06, IEEE Press, April 2006

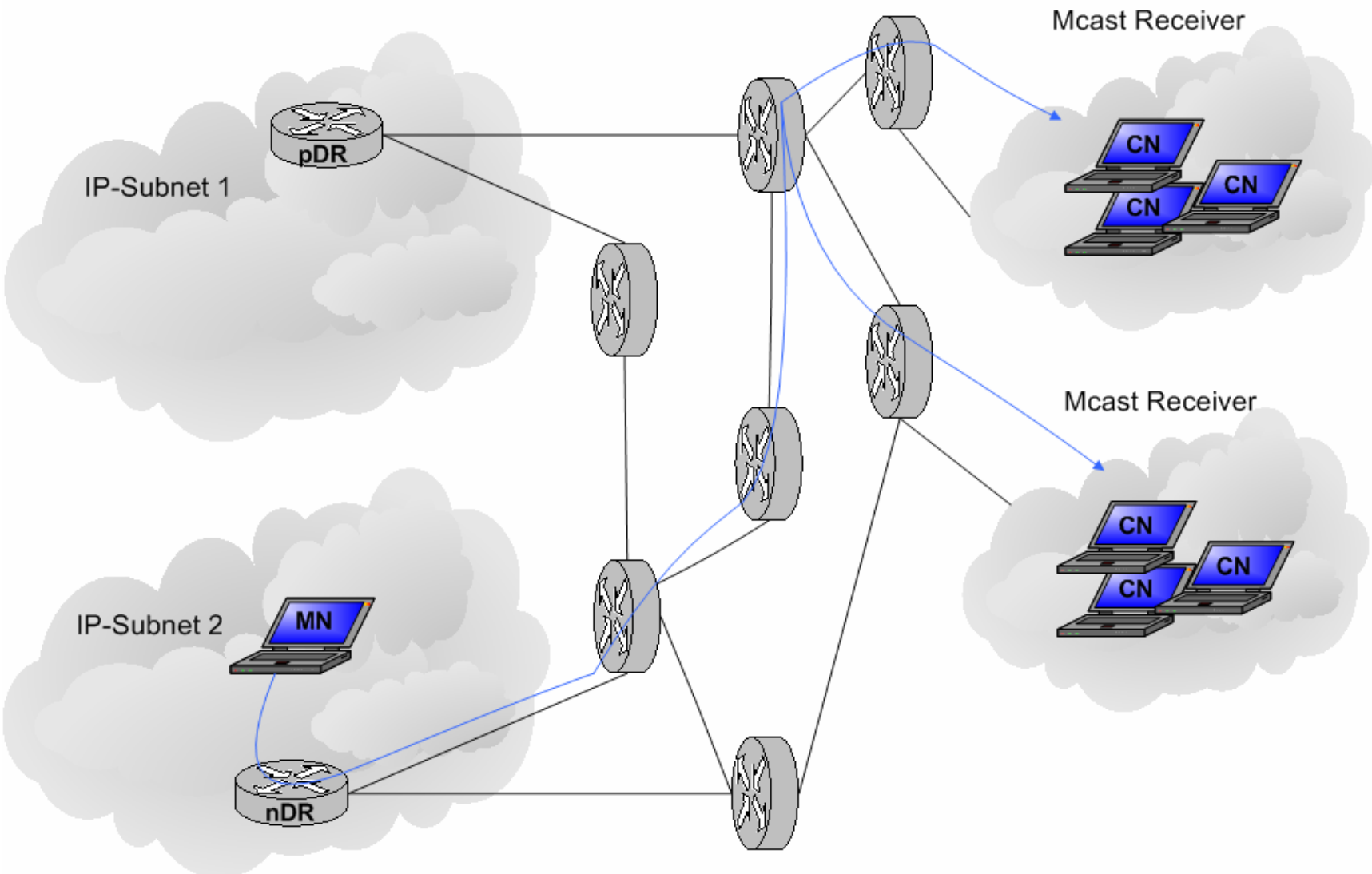
Tree Morphing



Root Elongation Phase



First Shortcut



Optimized Tree