

# Analysis of IPv6 Relocation Delays draft-vogt-dna-relocation-01.txt

Christian Vogt, Roland Bless, Mark Doll, Gregory Daley  
chvogt@tm.uka.de, bless@tm.uka.de, doll@tm.uka.de,  
greg.daley@eng.monash.edu.au

Problem Statement, Proposed Solutions, Discussion

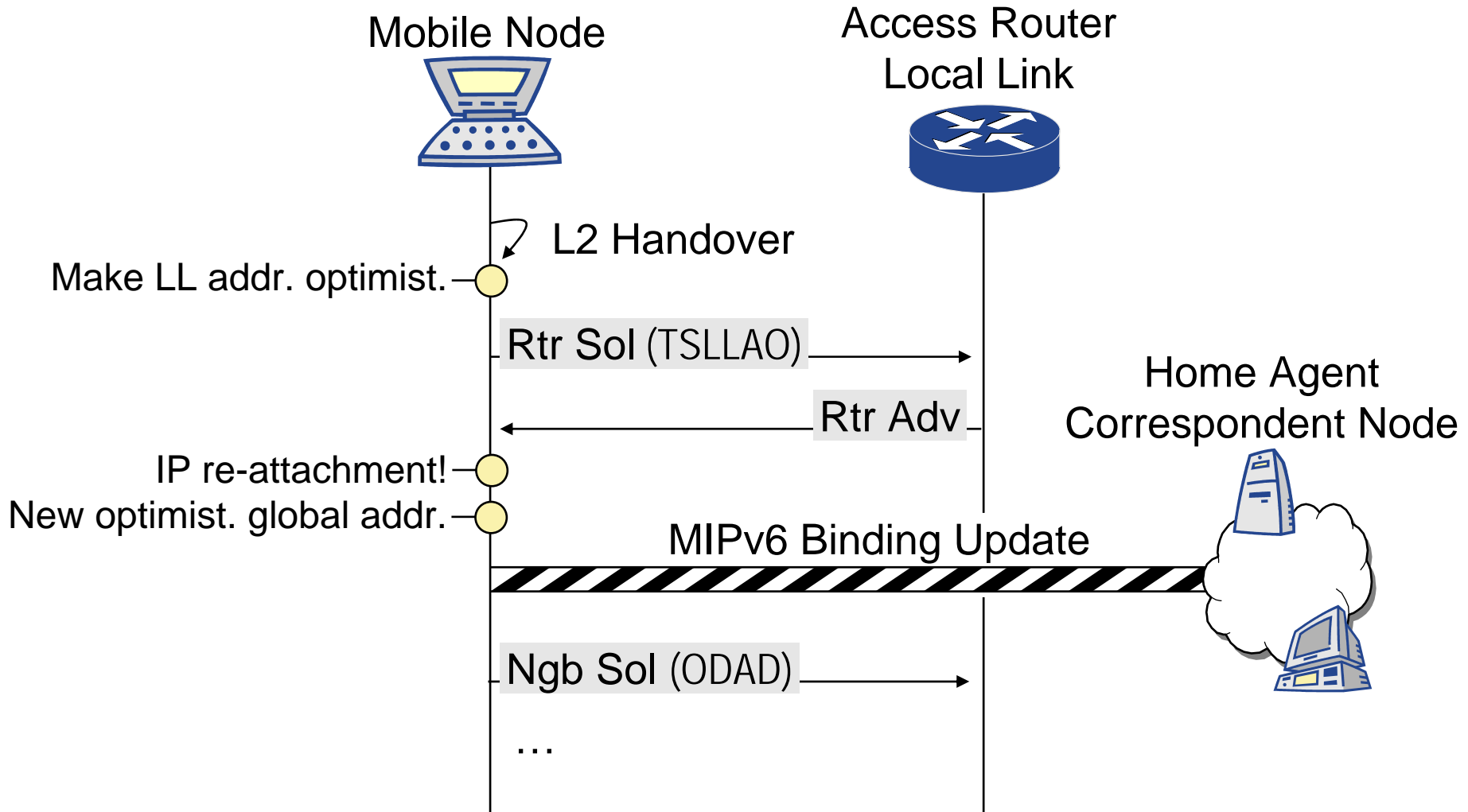
63th Meeting of the Internet Engineering Task Force  
DNA Working Group Session, August 4, 2005

When a mobile node undergoes L2 handover...

- Mobile node determines whether it changed IP attachment
- This involves router discovery
- Mobile node configures new addresses in case IP attachment changed

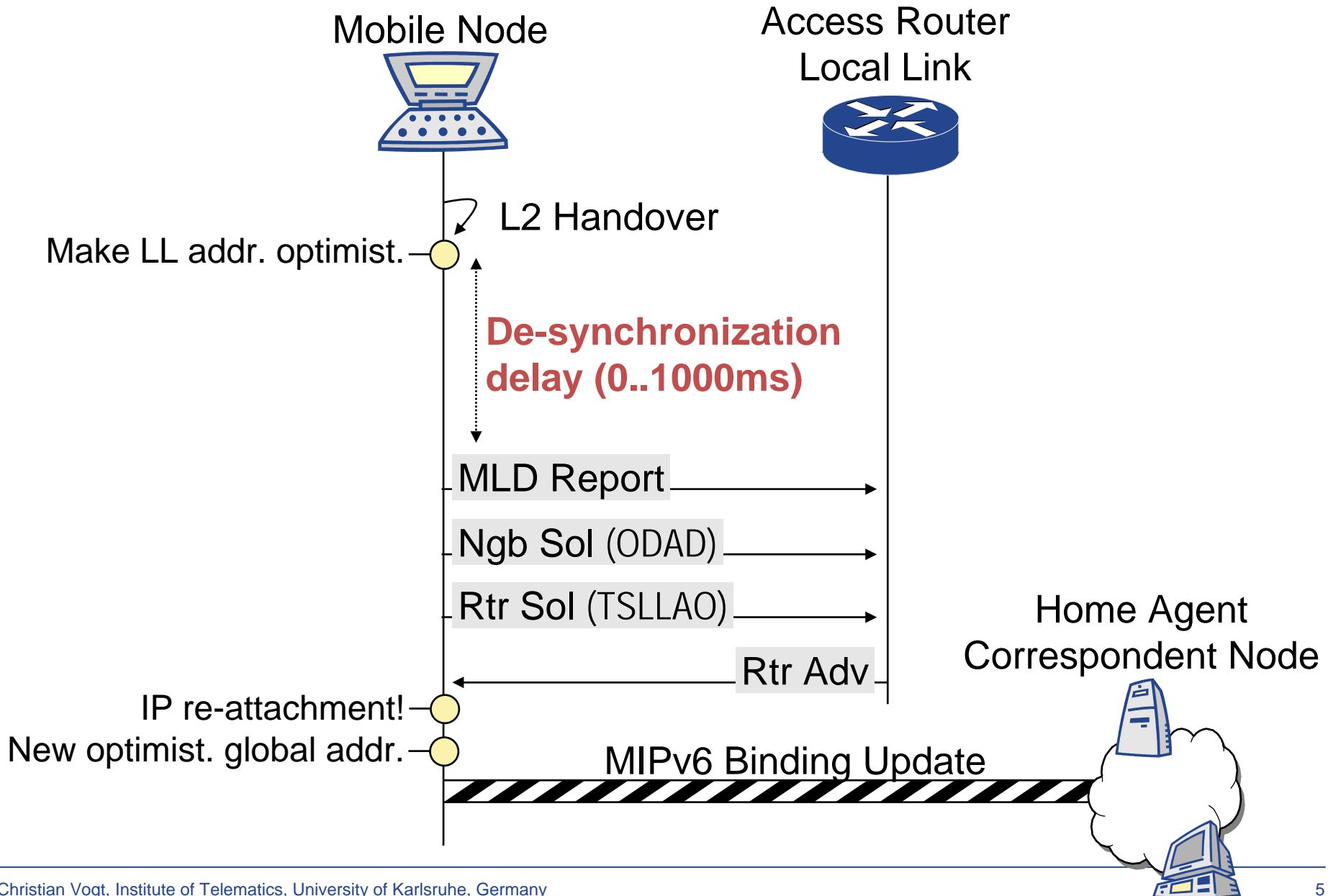
This should be fast

# How This Should Look Like



- Optimistic addresses require prior transmission of an NS
- Sending NS requires prior transmission of an MLD Report
- MLD Report "SHOULD" be randomly delayed by up to 1 second when sent during interface initialization [RFC 2461/62 bis]
  
- Objective of delays: de-synchronize simultaneous boot-up of multiple hosts
- But: prevents fast IP re-attachment (and detection of it)

# How It Really Looks Like



## Omit delay for initial MLD Report upon movement

- De-synchronization delay is tailored to stationary scenarios
- Mobility introduces inherent "natural" de-synchronization
- Omit delay when mobile node receives L2 trigger indicating that an interface, which was operational, went down and came up again

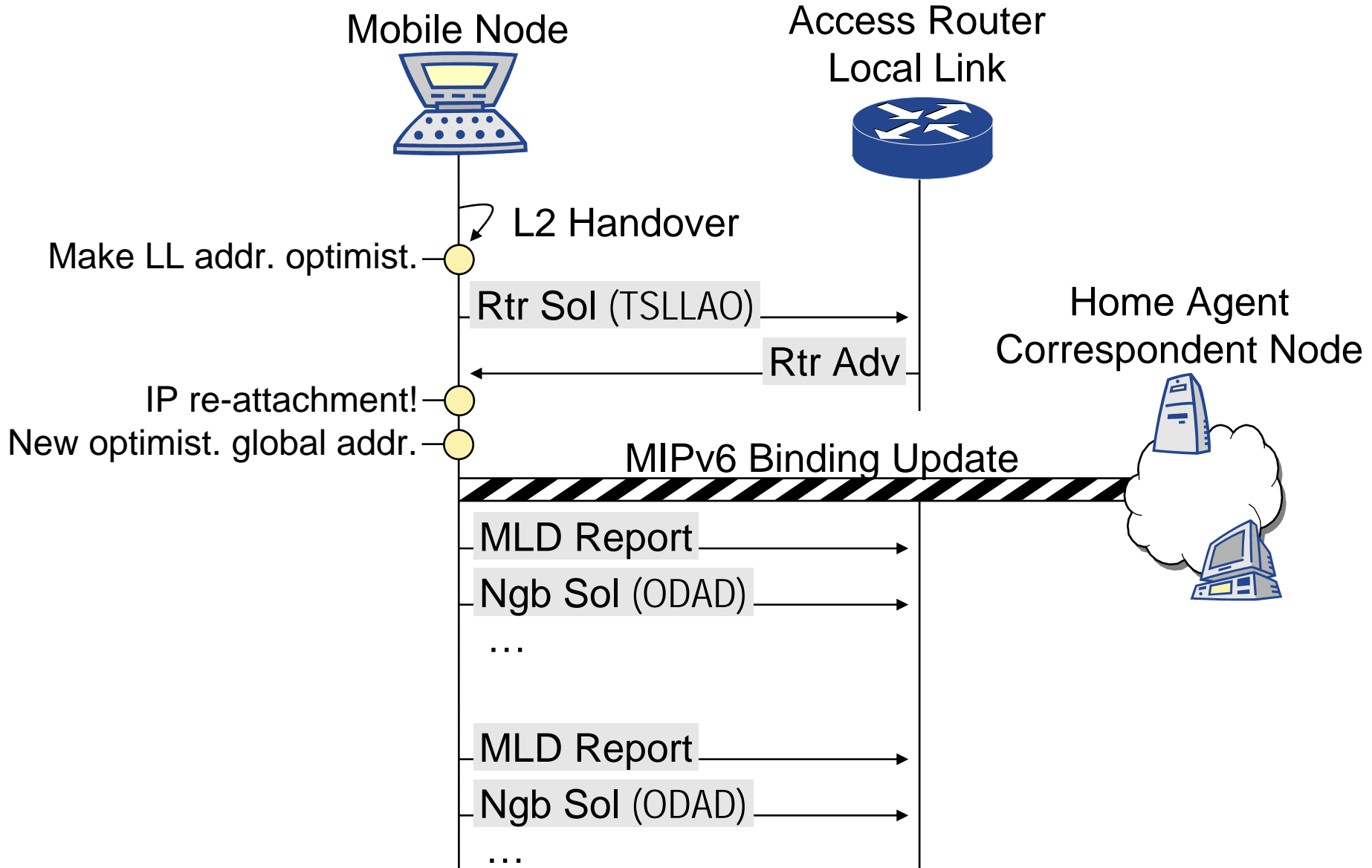
## Start using optimistic addresses before initial NS

- No technical reason why initial NS must be sent first

## Adding Robustness: Retransmit MLD Report and NSs

- Both MLD and ODAD are unreliable since messages may get lost
- Multiple MLD Reports and NSs increase robustness

# This is How it Would Look Like



- Problem statement
  - Current IPv6 Autoconfiguration procedures prevent efficient detection of IP re-attachment due to de-synchronization delays
  - One scenario where this is problematic has been shown
  - More problematic scenarios in draft-vogt-dna-relocation-01.txt, with and w/o TSLLAO, with and w/o RS
- Proposed solutions
  - Omit delay for MLD Reports upon movement
  - Start using optimistic addresses prior to initial NS (modification to draft-ietf-ipv6-optimistic-dad-05.txt)
  - Retransmit MLD Reports and NSs for robustness