The MANET Link Type
draft-clausen-manet-linktype-00

Thomas@ThomasClausen.org
http://www.ThomasClausen.org
History

draft-ietf-autoconf-manetarch
• IETF’67 - “MANET Architectural Proposal”
  • rough consensus at that time (?) for that approach
History

draft-ietf-autoconf-manetarch

- IETF’67 - “MANET Architectural Proposal”
  - rough consensus at that time (?) for that approach
- Sept. ’07 - WGLC
History
draft-ietf-autoconf-manetarch

• IETF’67 - “MANET Architectural Proposal”
  • rough consensus at that time (?) for that approach
• Sept. ’07 - WGLC
• Dec. ‘07 - publication requested
History

draft-ietf-autoconf-manetarch

- IETF’67 - “MANET Architectural Proposal”
  - rough consensus at that time (?) for that approach
- Sept. ’07 - WGLC
- Dec. ‘07 - publication requested
- IETF’71 - “animated discussion” re. PS
  - request for “link type” document
Background - why?

- D. Thaler:
  - `draft-iab-ip-model-evolution-01`
- This I-D:
  - Unofficially “Commissioned work” at IETF’72
  - Aims to adhere to Thaler I-D observations
Status

draft-clausen-manet-linktype
Status

draft-clausen-manet-linktype

• Individual Submission
  • Does not pretend to represent anything but an individual point of view
Status

draft-clausen-manet-linktype

• Individual Submission
  • Does not pretend to represent anything but an individual point of view

• Obviously, work in progress
Status

draft-clausen-manet-linktype

- Individual Submission
  - Does not pretend to represent anything but an individual point of view

- Obviously, work in progress

- Credits, pre-publication:
  - thought-provoking feedback from
    - Narten, Dearlove, Chakeres, Perkins, Arkko, Herberg
  - Obviously: Thaler’s ID

Thomas@ThomasClausen.org
http://www.ThomasClausen.org
Content

draft-clausen-manet-linktype

• Background Stuff:
  • MANET “node taxonomy”
  • MANET Interfaces
  • MANET Network Dynamics

• Link Type Stuff:
  • Symmetry, transitivity, continuity
  • Subnet model and addresses
  • Multicast and broadcast scopes

• Addressing Architecture

Thomas@ThomasClausen.org
http://www.ThomasClausen.org
Content

draft-clausen-manet-linktype

• Background Stuff:
  • MANET “node taxonomy”
  • MANET Interfaces
  • MANET Network Dynamics

• Link Type Stuff:
  • Symmetry, transitivity, continuity
  • Subnet model and addresses
  • Multicast and broadcast scopes

• Addressing Architecture

Essentially, from IETF’67 presentation
Node Taxonomy
draft-clausen-manet-linktype

Essentially, from IETF’67 presentation
MANET Interfaces

draft-clausen-manet-linktype
MANET Interfaces

draft-clausen-manet-linktype

• Connectivity on a MANET link
• Connectivity on a MANET link
• can not be assumed symmetric
• Connectivity on a MANET link
  • can not be assumed symmetric
  • can not be assumed transitive
Network Dynamics

draft-clausen-manet-linktype
Network Dynamics

draft-clausen-manet-linktype
Network Dynamics

draft-clausen-manet-linktype

N2
N1
N0
N5
N6

N2N1 N0 N5N6
Connectivity on a MANET link
- cannot be assumed continuous
- not even between “neighbors”
- not discrete connectivity events

Thomas@ThomasClausen.org  http://www.ThomasClausen.org
Subnets - Addresses

draft-clausen-manet-linktype

- draft-iab-ip-model-evolution-01
  - “a subnet is smaller than, or equal to a link”
  - “destinations with addresses in the same subnet can be reached with TTL = 1”
Subnets - Addresses

draft-clausen-manet-linktype

- draft-iab-ip-model-evolution-01
  - “a subnet is smaller than, or equal to a link”
  - “destinations with addresses in the same subnet can be reached with TTL = 1”
Multi/broadcast

draft-clausen-manet-linktype
Multi/broadcast

draft-clausen-manet-linktype

- RFC3972/4291/3330, on L3:
  - “thou shall not forward LL multicast / limited broadcast”
Multi/broadcast
draft-clausen-manet-linktype

- RFC3972/4291/3330, on L3:
  - “thou shall not forward LL multicast / limited broadcast”
- MANET: “Neighborcast”
Characteristics
draft-clausen-manet-linktype
Characteristics

draft-clausen-manet-linktype

• Connectivity within MANET link:
  • cannot be assumed symmetric
  • cannot be assumed transitive
  • cannot be assumed continuous
Characteristics

draft-clausen-manet-linktype

- Connectivity within MANET link:
  - cannot be assumed symmetric
  - cannot be assumed transitive
  - cannot be assumed continuous

- Point of attachment entails network view
Characteristics
draft-clausen-manet-linktype

• Connectivity within MANET link:
  • cannot be assumed symmetric
  • cannot be assumed transitive
  • cannot be assumed continuous

• Point of attachment entails network view

• Link Local multicast/broadcast:
  • becomes “neighborcast”
Characteristics
draft-clausen-manet-linktype

• Connectivity within MANET link:
  • cannot be assumed symmetric
  • cannot be assumed transitive
  • cannot be assumed continuous

• Point of attachment entails network view

• Link Local multicast/broadcast:
  • becomes “neighborcast”

• Subnet/addressing:
  • a subnet is smaller than a MANET Link
  • addresses can not be assumed part of an on-link subnet
Consequences

draft-clausen-manet-linktype

- **MANET Interface Configuration:**
  - no two MANET interfaces shall appear within the same subnet
  - i.e. with the same prefix and prefix length

- **Non-MANET interface configuration:**
  - NO consequences
  - Business entirely as usual
Addressing
draft-clausen-manet-linktype

Essentially, from IETF’67 presentation
Features
draft-clausen-manet-linktype

- MANET Interface and MANET Link Type
  - one IP hop away from any “hosts”
  - “hides” MANET characteristics
    - similar to e.g. NBMA behind OSPF router
- Inclusive
  - an Ethernet works a perfectly fine MANET Link
How it really looks?

MANET Routers, MANET Interfaces & MANET Link Model

Classic IP Link Model
Looks Familiar?

OSPF Routers, NBMA Interfaces & NBMA Link Model

Classic IP Link Model