

MANET Autoconfiguration

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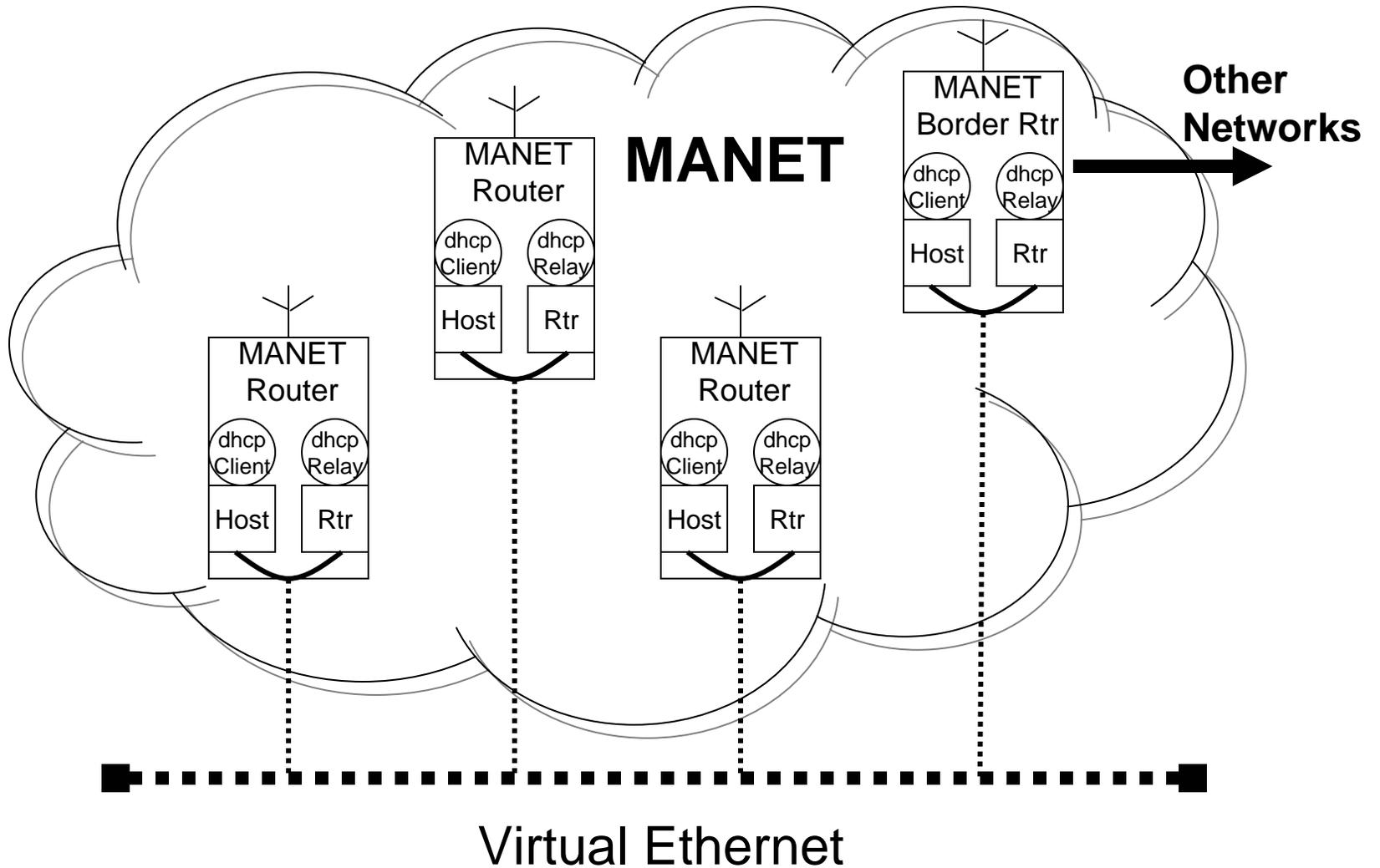
Goals

- Automatically configure addresses, prefixes and other information
- Avoid address duplication
- Avoid multilink subnet issues ('draft-ietf-multilink-subnet-issues')
- Use existing mechanisms

Virtual Ethernet

- Each MR connects to an imaginary shared link (i.e., a “virtual ethernet”) that connects all MRs in the MANET
- Each MR configures a virtual ethernet interface over its (underlying) MANET interfaces

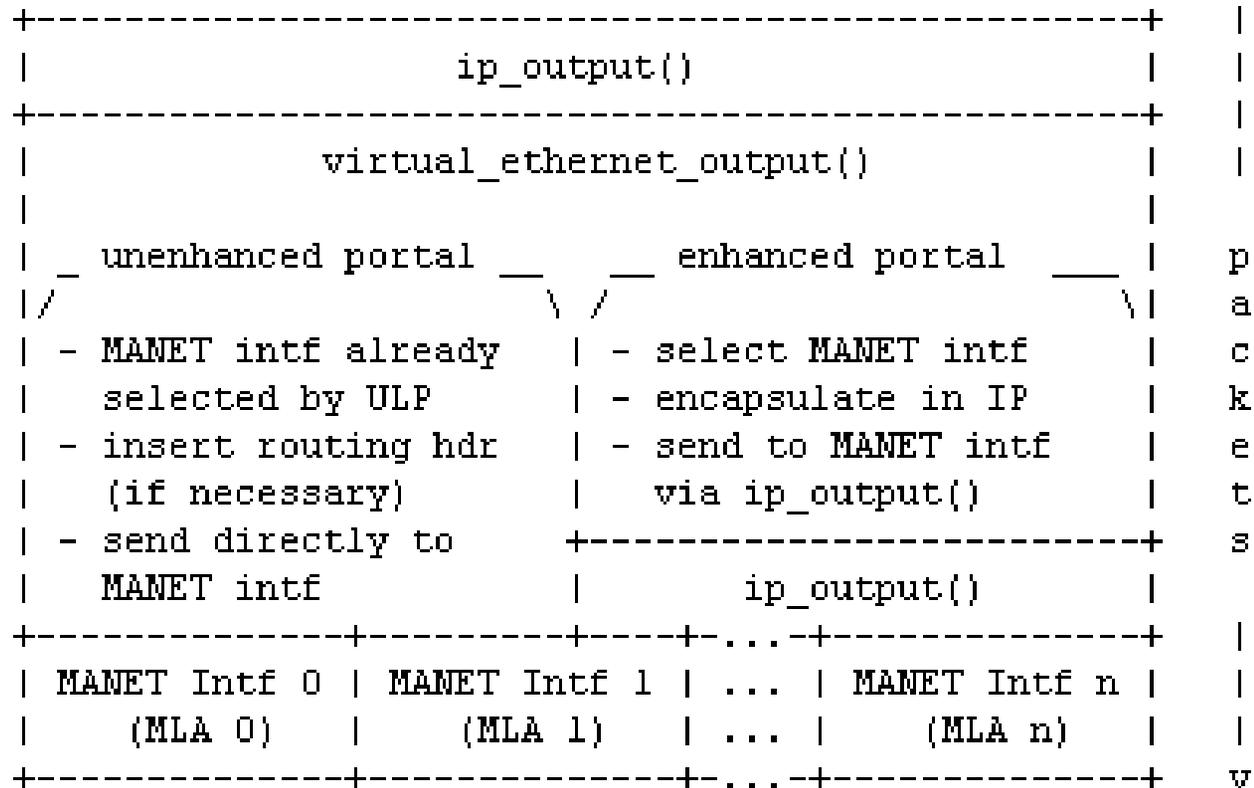
Virtual Ethernet



Virtual Ethernet Interface “Portals”

- enhanced portal (i.e., IP-in-IP encaps):
 - MANET appears as a unified link
 - TTL not decremented
 - all MRs are neighbors
 - standard ND works as-normal
- unenhanced portal (i.e., non-encaps)
 - MANET appears as a multilink site
 - TTL decremented
 - multiple IP hops between MRs
 - need a “site-scoped” equivalent of ND

Virtual Ethernet Output Routine



MR Autoconfiguration Procedure

- configure MANET Local Addresses (MLAs) on each MANET interface
- configure a virtual ethernet interface over underlying MANET interfaces
- engage in the MANET routing protocol
- discover MANET Border Routers (MBRs) (FQDN, routing protocol info, etc.)
- perform RS/RA exchange with MBR(s)

MR Autoconfig Procedure (2)

- send DHCP request to MBR to get global address/prefix delegations
- assign addresses/prefixes to internal virtual interfaces and/or downstream-attached physical interfaces
- MR can now send packets with global source addresses using RFC4191 router selection

Operation with Multiple MBRs

- RFC4191 (“Default Router Preferences and More Specific Routes”)
- Further discussion on multiple MBRs in draft sections 3.1 and section 4

MLA DAD Considerations

- MLAs assigned to MANET interfaces should be statistically unique so MANET-wide *pre-service DAD* not needed
- Passive *in-service DAD* to detect other MRs using the same MLA

Global Address DAD Considerations

- No DAD needed for DHCP prefix delegation because each MR receives a unique prefix
- Could use SLAAC and passive in-service DAD – but, multilink subnet and DAD issues

Drafts

- The combined draft:
 - draft-templin-autoconf-dhcp
- The all-tunneling draft:
 - draft-templin-autoconf-virtual
- The non-tunneling draft:
 - draft-templin-autoconf-multilink