

# Static Routing for DTN

## draft-dowdell-dtn-static-routing-00

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# Previous works

- Static Routing in non-Delay Tolerant networks
  - RFC1812 “Requirements for IP Version 4 Routers”, section 7.4
  - Unable to find an RFC for IPv6 static routing.
- Static Routing implementations in DTN
  - DTN2 - available on SourceForge
  - ION - DTN for spacecraft, also on SourceForge

# ONE

- Opportunistic Network Environment
- It's "THE" simulator to use for DTN
- Widely used in research papers
- Doesn't take into account node address
- Still no clear definition of addressing in DTN context
- Especially for terrestrial use cases
  - Suggestions have been done for Interplanetary networks (DTN Naming and Addressing- Keith Scott July 11, 2008 )

# To route, you must address

- How to address a node that has no known IP address?
- Use domain name? But what is the domain?
  - Nodes owned by a single organisation? Eg node\_id.example.com
  - Nodes in a common area? node\_id.example.area
  - Local nodes? nodes.near.me
  - Nodes used as mules for distant networks? anyone.going.that.way
- Domain membership could be static or transitory
- ... which leads to the problems of addressing single and multiple (multicast?) nodes
- ... and then somehow tie a resolved address to an interface

# Terrestrial Use cases

- Accessing a particular bus for M2M purposes, e.g. engine health?
- Accessing a particular bus for driver information, e.g. roadworks, congestion or accident notification?
- Accessing a particular bus for security purposes, e.g. monitoring CCTV after driver presses alarm button?
- Asking {any, a particular} bus to deliver or retrieve some user data to an area beyond static network coverage or mobile network dark area?
- Asking any bus to take custody of some user data to be relayed to another specified bus?
- Notifying all busses in a geofenced area, e.g. security alert?
- Hoping to transfer some information via a non-DTN network extended to a nominated bus stop?

# Routing Table Entry

- What should a DTN static routing table entry contain?
  - Address - DTN uses Endpoint Identifiers
  - Interface - DTN uses Convergence Layers
  - Metric - relative preference of this route
  - Time - Earliest (and Latest?) time this entry is valid for