DTN Reference Implementation Update

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Outline

- Current status (2.4.0 release)
- Upcoming features
- To do list (what's not working)
- Release status & timeline

Current Status: Protocols

- Bundle Protocol (I-D version 10)
  - All features implemented
- Convergence Layers:
  - TCP (I-D version 00)
  - UDP (unspecified, one bundle / packet)
  - Bluetooth (similar to TCP)
  - Ethernet (unspecified, unsupported)
  - External CL API

Current Status: Routing

- Delay-Tolerant Link State Routing
  - Research paper in NSDR '07 workshop
- Prophet
  - Based on (expired) ID w/ minor changes
- Flood
  - Naive flooding algorithm
- External
  - XML-based IPC interface

Current Status: Applications

- dtnsend, dtnrecv, dtncat, dtnping
  - Simple experimentation apps
- dtntraceroute
  - Uses status reports to probe network
- dtntunnel
  - Proxy TCP / UDP traffic over dtn
- dtnperf
  - Characterize end-to-end throughput

Other Features

- Multiple-endpoint forwarding and delivery via wildcard EIDs
  - e.g. dtn://*.dtn/ping
- dtnsim simulator fully-functional
  - Test identical routing and forwarding implementation as deployment
- Neighbor discovery
  - Uses mDNS (aka Bonjour) or IP multicast

Upcoming Features

- Bundle Security Implementation
  - Mostly complete, needs integration
- SWIG interface for scripting languages
  - Initial version of TCL bindings in CVS
- Pub/sub API
  - More convenient for applications
  - Help bridge DTNs to the “core” internet
- Other contributions?

To Do List

- Proactive fragmentation
- Persistent link database
- Persistent route database
- Scheduled contact links
- Link rate control
- File-based interface
- SWIG bindings for other languages

Release Status & Timeline

- 2.4.0 was released July 13
- 2.4.1 planned before end of July
  - Bug fixes in external APIs, DTLSR, etc
  - SWIG API and small other features
- 2.5.0 target for September/October
  - Security Implementation
  - Persistent link & route databases
  - Rate control