Email from David Zoller 20150329

Hello all,

Please find below is a summary for our two days of testing in Pasadena.

It was good to meet everybody who made it to the CCSDS Conference in Pasadena and I hope everyone made it home without undue delay.

Best regards,

DZ

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**Day 8 - March 25, 2015**

**OTH.i 1-5**  Success sending a bundle without special priority from Node A to Node D.

* One bundle received at Node D via the expected paths (A->B->D)

**OTH.i 6-7**  **Fail** sending critical bundle over multiple paths from Node A to Node D

* DTN2 Node B crashed trying to transmit the critical bundle over an alternate CL
* *Fixed and re-tested; see below.*

**OTH.i 8-10** Success sending critical bundle over multiple paths from Node A to Node D while CLA between C and D blocked

* ION Node C sent bundle to DTN2 Node B which forwarded it to A, C and D
  + ION Node C resent the bundle received from B back to B
    - ION relies on the Previous Hop Insertion Block to prevent returning to the sender
      * DTN2 had Previous Hop Insertion Block disabled due to incompatibility
  + ION Node A sent 2 copies of the bundle when the LTP SDA triggered
    - Bundle received from B was forwarded on to A
    - Second bundle copy had the ECOS block removed
  + Node D received 2 copies of the bundle from DTN2 Node B
    - DTN2 recognizes both the "induct" and the "outduct" as viable paths to Node D

**OTH.i 11-16** **Fail** sending critical bundle over multiple paths from Node A to Node D while CLA between B and D blocked

* ION Node C sent bundle to DTN2 Node B which forwarded it to A, C and D
  + ION Node C resent the bundle received from B back to B
    - ION relies on the Previous Hop Insertion Block to prevent returning to the sender
      * DTN2 had Previous Hop Insertion Block disabled due to incompatibility
  + ION Node A sent 2 copies of the bundle when the LTP SDA triggered
    - Bundle received from B was forwarded on to A
    - Second bundle copy had the ECOS block removed
* DTN2 Node B crashed in the TCP CLA while it was firewalled at Node D
* Node D received 3 copies of the bundle from ION Node C
* *Fixed and re-tested; see below.*

**OTH.j 1-5**  **Fail** sending a bundle without special priority from Node D to Node A.

* Later determined to be a time sync issue
* *Fixed and re-tested; see below*

**OTH.j 6-7** **Fail** sending critical bundle over multiple paths from Node D to Node A

* Several attempts with various levels of success/failure:
  + Communications issues between D and A
    - Later found that if the host Windows goes to sleep then the firewall seems to restrict VM access to the NIC
    - DTN2 Node B crashed trying to send a dtnping to Node A while in this state
  + Node D sent bundle to Node C but not Node B
    - Probably timing on the TCP connections which retries to connect every 5 to 15 minutes
  + Node B sent the bundle to Node C but not to Node A
    - Continuing communications issues?
* >> Decided to fix issues in DTN2 and re-test critical bundles on Friday
* *Fixed and re-tested; see below*

**CFO.g** Success canceling a bundle on Node C (ION) which was sent from A->B->C

**CFO.h** Success canceling a bundle on Node B (DTN2) which was sent from D->C->B

**TC1.b 41-52** Success sending 600 10k bundles with custody transfer from Node D to Node A

* Initially overran the ION SDR size at 5 bundles per second so dropped to 2 per second and succeeded
* All bundle fragmentation and custody issues seen in earlier testing were resolved with code changes

**BDO.b 1-9** Success with ION Node C handling an unrecognized block with the delete bundle flag set

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**DTN2 was updated prior to continuing testing on Friday:**

* Critical bundles were being deleted after being sent out the first CLA causing the additional transmissions to either not be done or to crash depending on the timing
  + A change was made so that the DTN2 server did not automatically delete Critical bundles after a transmission
    - the external router can make the determination when those bundles can be deleted
* Modified the Previous Hop Insertion Block to be compatible with the ION implementation and included it later testing
  + Eventually, both implementations need to be updated to conform to RFC-6259

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**Day 9 - March 27, 2015**

**OTH.i 1-5**  Success sending a bundle without special priority from Node A to Node D.

* One bundle received at Node D via the expected paths (A->B->D)

**OTH.i 6-7**  Success sending critical bundle over multiple paths from Node A to Node D

* Node D received 4 copies of the bundle:
  + 2 were received from DTN2 Node B - 1 over the B "induct" connection and 1 over the B "outduct"
  + 2 were received from ION Node C - both over the C outduct
    - ION Node C received the bundle from Node A and Node B

**OTH.i 8-10** Success sending critical bundle from Node A to Node D while CLA between C and D blocked

* Node D received 2 copies of the bundle from DTN2 Node B :
  + 1 over the B "induct" connection and 1 over the B "outduct"

**OTH.i 11-16** Successsending critical bundle from Node A to Node D while CLA between B and D blocked

* Node D received 2 copies of the bundle from ION Node C :
  + 2 were received from ION Node C - both over the C outduct
    - ION Node C received and forwarded the bundle from Node A and Node B

**OTH.j 1-5**  Success sending a bundle without special priority from Node D to Node A.

* One bundle received at Node A via the expected paths (D->C->A)

**OTH.j 6-7** Success sending critical bundle over multiple paths from Node D to Node A

* Node A received 3 copies of the bundle
  + 1 was received from DTN2 Node B
  + 2 were received from ION Node C - both over the C outduct
    - ION Node C received and forwarded the bundle from Node D and Node B

**OTH.j 8-10** Success sending critical bundle from Node D to Node A while CLA between C and A blocked

* First couple attempts did not properly block the CLA
* Node A received 1 copy of the bundle from DTN2 Node B

**OTH.j 11-16** Successsending critical bundle from Node D to Node A while CLA between B and A blocked

* Node A received 2 copies of the bundle from ION Node C :
  + 2 were received from ION Node C - both over the C outduct
    - ION Node C received and forwarded the bundle from Node D and Node B