

Imedlink's test plan

The intent of setting up a wireless microwave link between IMEDLink and COMSAT is to verify the feasibility of deploying ATM traffic over a wireless medium all the way to the CPE premises and to gather operational data from a real-world (environmental data included) test scenario:

The following test bed setup is currently in place at IMEDLink:

ROUTER -- ATM -- ALA -- ADTECH -- ALA -- ATM -- ROUTER

Routers consist of CISCO 72xx series boxes, using OC-3 MM interfaces to communicate with the FORE 200SX ATM switch. The ATM to ALA link is done via a DS-3 coax interface. The ALA to ADTECH interface is clocked at 8.0Mbps.

Our desire is to extend the ATM fabric to the customer premises via the use of a 38Ghz NETRO E3 link as follows:

CISCO -- FORE -- ALA -- ADTECH -- ALA -- FORE -- CISCO

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NETRO (IMEDLink)

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NETRO (COMSAT)

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ATM Workstation -- FORE -- CISCO

The following tests and measurements would be performed:

- 1) Calculation of actual ATM cell tax overhead in above scenario, accounting for both ABR, UBR, and CBR cell traffic (IP and circuit emulation)
- 2) TCP/IP throughput measurements for IP traffic with NT 4.0, Win95, and Solaris machines. Tuning of IP stacks to include RFC1323 extensions, SACK, large windows, slow-start congestion, etc.. Our desire is to provide specific instructions to our customers on what tuning should be done to achieve higher throughput than is currently available using the bandwidth*delay product rules which currently limit throughput at:
 - (a) Microsoft TCP: approx. 109Kbps
 - (b) Solaris TCP approx. 870Kbps
- 3) CISCO router tuning; use of Random Early Drop (RED) and Weighted RED Also, use of VIP2- 40 and VIP2-50 cards with large buffers.
- 4) Test out the SYSTECH 1:1 switch for redundant ALA's
- 5) Effect of double hop propagation delay ($120\text{ms} * 4 * 2 = 960\text{ms}$).
- 6) Path interference tests
- 7) Document installation and alignment procedures for our installation crews.

The above equipment (NETRO, ATM switch, and ATM workstation (UNIX and NT) would be placed at their facility, using some of their high end ATM testers and traffic generators to push the amount of traffic down that pipe.