MBONE Developments as reported in The Works of DANTE

February 1998 - CHANGING THE EUROPEAN MBONE TOPOLOGY

DANTE in collaboration with the European NRNs is currently reorganising the topology of the European MBONE. MBONE is the part of the Internet that supports multicast, i.e. one-to-many. The reorganisation became necessary as in the existing topology some NRNs use their own access links for MBONE feeds several times resulting in actual costs for the NRNs. In other cases backbone links are used more than once resulting in waste of backbone bandwidth.

DANTE is therefore currently implementing a new topology which introduces MBONE distribution within the network and will make scalable and general solutions possible. The topology of the European MBONE will be modified to match the physical topology of the TEN-34 network. Workstations in the PoPs will run mrouted and tunnels between these and the NRNs will be set up. The advantage of distributing MBONE within the network is that backbone and access links will only be used once per each MBONE feed.
By mid-March all NRNs will have migrated to the new topology.

April 1998 - DANTE COMPLETED MBONE MIGRATION

On Tuesday 7 April UKERNA was connected to the TEN-34 Mbone pilot, thus completing the migration. We can now provide a resilient multicast backbone on TEN-34, the first of its kind in Europe. This achievement resolves the problem of multiple Mbone feeds on the NRNs access lines.

June 1998 - EUROPEAN MBONE DEVELOPMENTS

On 12 June a new workstation was installed in the German PoP. This workstation is equipped with an Ethernet and an ATM interface allowing a finer refinement of the TEN-34 Mbone topology. For a more efficient use of the backbone RENATER and CESNET feeds were moved to this German workstation. Previously, these were configured on the Swiss PoP workstation as an interim solution to cover the lack of a well equipped workstation in Germany. The availability of the German PoP workstation also allows the set-up of backup tunnels for the national research networks directly from TEN-34. These were up to now not available or only available via mutual agreements between national research networks, costing them access capacity to TEN-34.

October 1998 TEN-34 MBONE PILOT

In order to overcome the three major shortcomings of the Mbone (the part of the Internet that supports multicast), namely manageability, bandwidth usage and scalability, DANTE proposed in 1997 to distribute the Mbone within the TEN-34 network, rather than within the national research networks. The migration from the previous Mbone topology to the topology proposed by DANTE was discussed in the beginning of this year and was acknowledged by the community as a very positive and practical answer to the problems related to the Mbone.

Consequently, DANTE reorganised the distribution of the European Mbone and provided a Mbone pilot service to the national research networks. This TEN-34 Mbone pilot service has been accepted with enthusiasm by the national research networks as for the first time the scalability, manageability and bandwidth usage problems were overcome on a European-wide scale.

April 1999 QUANTUM TEST PROGRAMME

With regard to Multicasting (IP and ATM) testing of new technologies and services necessary for the evolution of the operational TEN-155 Mbone will commence shortly. These will involve the set-up of a monitoring and performance measurement environment on selected user premises and on backbone borders with an emphasis on IP multicast routing monitoring and performance measurements. The Cisco and GATED implementation of the Multiprotocol Border gateway Protocol (MBGP, also known as BGP4+) will also be evaluated and tested.