

QUANTUM Developments as reported in The Works of DANTE

April 1997 – August 1998

April 1997

LIFE AFTER TEN-34...THE QUANTUM PROPOSAL

At the request of a sub-set of the members of the TEN-34 Consortium DANTE has prepared a proposal in response to the Fifth Call under the EC's Telematics Applications Programme. The outline proposal, called QUANTUM (QUALity Network Technology for User-oriented Multi-media), was submitted by a consortium consisting of CSIC/RedIRIS (Spain), DANTE, DFN (Germany), GR-NET (Greece), INFN (Italy), Renater (France) and SWITCH (Switzerland) together with Telebit (Denmark) on 18 April 1997.

The broad objectives of the proposed QUANTUM Project are to explore and subsequently to implement ways of providing improved Quality of Service, particularly for multi-media applications, across a very high speed (up to 155 Mbit/s) international network. Three phases defined in the project proposal cover experimentation/validation of alternative approaches using a test network in which Telebit would play a significant role, planning and procurement of a network service which would come into operation after the end of the TEN-34 Project, followed by an operational service period.

DECEMBER 1997

QUANTUM and TEN-???

Following the positive evaluation by the EC of an outline proposal for a new project named QUANTUM (Quality Network Technology for User-Oriented Multi-Media), the EC has invited the participants to submit a detailed proposal with a deadline of 25 December 1997 (Happy Christmas for some).

In parallel with the EC's evaluation process, DANTE and the NRNs have already been planning the successor service to TEN-34 which has the working name of TEN-155. A specification of the service as seen by the NRNs which will use it has been agreed. In addition to a conventional IP-based service with access capacities up to 155 Mbps, the specification provides for additional services with guaranteed Quality of Service which will be supported by a combination of ATM technology and new developments from the IP world. The possibility of creating multiple Virtual Private Networks (VPN), with the highest capacity VPN being used to support the IP service, has been allowed for.

A new consortium has been created to submit the detailed QUANTUM proposal to the EC and to create the TEN-155 network. The consortium includes all the TEN-34 NRNs and again has DANTE as the co-ordinating partner. The proposal for QUANTUM includes a programme of testing of new techniques for supporting defined QoS as well as funding support for the operational network. DANTE, acting on behalf of the NRNs, issued a Request for Expressions of Interest (the first stage of the standard procurement procedure under EC rules) on 10 November 1997 and will issue an Invitation to Tender on 23 December 1997 to organisations selected from those which have confirmed their interest. The deadline for responses will be early in February 1998. The intention is to start replacing components of TEN-34 as soon as possible after 31 July 1998 when many of the TEN-34 contracts with PNOs terminate. It is expected however that migration to the new service will extend over several months and it may be that some of the TEN-34 circuits (eg those to countries where there will continue to be a PNO monopoly for international services) will continue to be used in TEN-155.

FEBRUARY 1998

QUANTUM - TENDER RESPONSES RECEIVED

On February 13, DANTE, acting on behalf of the QUANTUM consortium received 16 responses to the Invitation to Tender issued on 23 December 1997. These responses are being evaluated under strict confidentiality by a team made up of DANTE staff and four technical experts from some of the National Research Networks. The responses cover a range of offers from point-to-point connectivity to complete subnetworks and it is expected that a much more cost effective network can be built from these offers.

APRIL 1998

THE QUANTUM PROJECT

The Quantum proposal for EC support of the new network and related activities has been approved by the EC's Esprit and Telematics committees. Altogether 17 MECU will be made available by the EC towards the building and maintaining of the new network until the funds from the 5th Framework Programme will take over. The Quantum Policy Committee agreed on 27 March to DANTE's proposal to prepare three alternative costed proposals, based on the tenders we received, for a further meeting at the end of May. The speed of decision making after that will depend on how clear-cut the choice of supplier(s) appears at that stage. There are still a large number of technical issues to be resolved with most of the potential suppliers. Delivery commitments, location of PoPs, provision of local access circuits (if necessary), and management of the managed bandwidth service are still major topics which continue to require discussion and negotiation.

JUNE 1998

QUANTUM: MAJOR ISSUES DECIDED

At the end of May, the QUANTUM Policy Committee decided on major issues concerning the QUANTUM network, the successor of the TEN-34 network. Next to a set pricing scheme, the committee members agreed on the principle that ATM will be used as a bandwidth management tool to optimise the use of the SDH circuits. The individual national research networks will have the choice between ATM or IP-over-SDH access to the network. The QUANTUM network will receive co-funding from the EC ESPRIT and Telematics for Applications programmes. The QUANTUM Policy Committee has also mandated DANTE to negotiate detailed arrangements with the EC ACTS programme for the support of ACTS projects as well as with the Commission in general to prepare the final EC contract for QUANTUM. Towards the end of 1997, the Israeli government signed a scientific cooperation agreement with the EC. One of the consequences is that Israeli organisations now qualify to participate in Fourth Framework projects and can receive funding support in the same way as EU organisations. A more specific consequence is that Israel, via its national network organisation MACHBA/ILAN, expressed a strong wish to join the TEN-34 and QUANTUM projects.

A parallel set of discussions has been proceeding for several months in the context of the EC's MEDA Programme which provides for promotion and support of Internet technology and applications in the Mediterranean regio. These two strands have now been brought together with the preparation and submission to the EC Telematics Programme for a new Q-MED project. Q-MED will be a complementary project to QUANTUM and will provide for the connection of MACHBA/ILAN to the TEN-34 successor (at a location which is yet to be determined and which will depend on the cost of international access circuits) and the connection of the University of Cyprus/CYNET to the Greek node in Athens. DANTE will act as the Coordinating Partner in this complementary project; other partners in addition to MACHBA/ILAN and the University of Cyprus/CYNET are GSRT (Greece), INFN/GARR (Italy) and NTUA (Greece). The Q-MED proposal is currently being evaluated by the EC.

AUGUST 1998

TEN-155: EUROPE MOVES INTO THE FAST LANE

Work on the successor of the TEN-34 network, the new TEN-155 network, has progressed immensely in the past months and is currently DANTE's major activity. The supply contract for the bulk of the capacity was signed at the end of August and will officially be announced during an international press conference in Brussels on 17 September. The press releases and further information on TEN-155 concerning the technology and topology will be made available on the DANTE web after the press announcement.

QUANTUM TEST PROGRAMME (QTP) - THE SUCCESSOR OF TF-TEN

What TF-TEN was for the TEN-34 network, the QTP will be for TEN-155. QTP is the test programme included in the Quantum project which has the objective of testing and validating new technologies, products and services with a view to introducing them into the operational TEN-155 service at some future date. The Quantum Test Programme is managed by DANTE as the Co-ordinating Partner in the Quantum project.

Much of the effort to carry out the QTP is expected to come from the national research networks as the Partners in the Quantum project and from Telebit Communications A/S. Telebit is Associated Partner in the Quantum project and will provide technical support including laboratory testing facilities when appropriate.

In addition to the involvement of the national research networks, participation in the QTP is open to any individual or organisation which is able to make a contribution in the form of manpower, equipment or services. The work of the QTP will be conducted in an open fashion and the results, including the EC Deliverables, will be public.

An initial list of topics which will be studied in the QTP is available from the web here. There are also links to further descriptions of those topics for which more detailed planning has already been carried out.

Please note that in later TWODs reporting was either specifically on the TEN-155 network or the QUANTUM Test Programme.