

TEN-155

Frequently asked questions

Q What is the relation between TEN-155 and the Quantum project?

A Quantum is a project prepared in response to the Fifth Call under the EC's (Fourth Framework) Telematics Applications Programme. The proposal was submitted to the EC by a consortium of European national research network and foresees the exploration and implementation of providing Quality of Service across a pan-European network of very high speed (up to 155 Mbps). The Quantum proposal also calls for experimentation and validation of new IP and ATM technology using a Wide Area and International test network.

TEN-155 is the operational network built as a result of the Quantum proposal.

Q How long will TEN-155 stay in place?

A The contract with Unisource Belgium for the supply of the bulk of the capacity has been signed for a period of 3 years, with the roll-out starting in December 1998. It is anticipated in the contract that the network can be upgraded to 622 Mbps during the contract period.

Q What will happen after TEN-155?

A We anticipate a Gigabit network to be deployed across Europe after TEN-155.

Q Which applications can be used now that couldn't be used before TEN-155 was in place?

A The network will permit the use of real-time multi-media applications such as video-conferencing, multi-media broadcast, etc.

Q Has TEN-155 anything to do with Internet2?

A Internet 2 is a US initiative aimed at developing new applications; this will require the re-creation of a dedicated infrastructure in the USA to support co-operative research. As such, it has very similar objectives to TEN-155. We can expect both the USA and Europe to wish to interconnect the two networks.

Q Has TEN-155 anything to do with JAMES?

A Not directly. The JAMES network was supported with 15 MECU from the EC and heavily supported by the European Telecom Operators. TEN-155 will build on the experience of JAMES. However, use of TEN-155 will not be free of charge, as the use of JAMES was.

Q Why can't I connect directly to TEN-155?

A TEN-155 is an international network to connect national networks.

Q Is there an AUP on the network?

A Yes. The network is provided to support the needs of co-operative research in Europe and for that reason there will be no purely commercial customers. Bona fide research activity by commercial organisations (eg those participating in other EC-funded projects) can be supported and interconnection via gateways to the commercial Internet will be provided.

Q What about the links that are not provided by Unisource?

A DANTE has contracted with other telecom operators to supply connectivity to Austria, the Czech Republic, Greece and Hungary. Negotiations are still being undertaken for connectivity to Portugal and Slovenia. It is envisaged that contracts covering all these countries will be signed by the end of 1998.

Q Who are your international peering partners?

A It depends very much on what you mean by peering partner. We will connect to the Global Internet in the USA and are arranging limited connections to certain pan-European commercial providers. We also expect to connect TEN-155 to similar research networks in the USA and Asia Pacific.

Q Who benefits directly from TEN-155?

A Researchers at universities and research institutions all over Europe benefit directly from TEN-155. They will notice an improvement in the international communications and will be able to run applications that were not feasible before.

Q Why do you use SDH, IP and ATM technology?

A SDH, ATM and IP are different and complementary elements of a telecommunications network, especially one like TEN-155, which seeks to provide guaranteed Quality of Service.

Q Why are you implementing Managed Bandwidth?

A There is a considerable demand from co-operative research and development projects across Europe for guaranteed bandwidth to support their activities. Current IP technology is not capable of supporting such a guaranteed service.

Q How will you implement Managed Bandwidth?

A We will make use of the underlying ATM infrastructure to provide a combination of virtual path and virtual private network services to users.

Q Will there be a separate charge for Managed Bandwidth?

A If differentiated Quality of Service is provided then there must be some element of charging in order to justify the differentiation in the first place. Part of the development element of the project will be to look at simple commercial models to offer such service.

Q Won't Internet developments provide this anyway?

A There is development work going on to provide enhanced Quality of Service in the Internet but we see a combination of ATM and IP as being the only proven way of achieving this today.

Q Who is responsible for the TEN-155 network management?

A As was the case for the TEN-34 network, day-to-day operation of the best efforts IP service has been subcontracted to UKERNA (the organisation responsible for the development and operation of the UK national research network) and the University of London Computer Centre. They will use their existing facility at the University of London Computer Centre. The responsibilities of the Network Operations Centre include monitoring and operations of the IP network infrastructure and applications, software and hardware maintenance, operating a trouble ticket system and the provision of service reports.

The ATM Managed Bandwidth Service provided to all national research networks participating in TEN-155 will directly be managed by Unisource Belgium and the TEN-155 ATM Network Operations Centre operated by KPN.

Q Does the network provide for Quality of Service?

A Yes. Quality of Service is an integral part of the planned service.

Q Will there be an advanced testing programme?

A In addition to the operational TEN-155 network, the Quantum project will implement an advanced testing programme called Quantum Test Programme (QTP) 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 QTP will be managed by DANTE as the Co-ordinating Partner in the Quantum project.

Q Why did you choose Unisource Belgium as the supplier?

A Unisource Belgium made the most competitive offer in terms of price/performance, in response to an open invitation to tender.

Q Will Unisource Belgium be responsible for the day-to-day operations of the managed bandwidth service?

A Yes, in conjunction with their parent KPN.

Q How much does the TEN-155 network cost?

A Over a three year period TEN-155 will cost about 120MEuro.

Q Why does the network have to be subsidised?

A The EC aims to promote new technology, to increase Europe's competitive strength. With the help of the EC funding, TEN-155 will be able to meet the bandwidth requirements of the European research community.

Q How much is the contribution of the European Commission?

A The EC will support the TEN-155 network with 20 MECU for the first 18 months of service.

Q With liberalisation, telecommunications is becoming much cheaper, why does TEN-155 still cost so much?

A TEN-155 takes advantage of all the price cuts which have already come along with liberalisation in large parts of Europe. The result is that TEN-155 is on average 7 times more cost-effective than its predecessor TEN-34. The liberalisation of the European telecommunications market is by no means complete and prices have come down most notably in the competitive markets, where prices have dropped by a factor of 12!

Q Where does DANTE come in?

A DANTE is Co-ordinating Partner in the Quantum Consortium, which means that the company is responsible for the day-to-day management. This includes planning, project management, technical, commercial and administrative aspects of the work.

Q DANTE is such a small organisation, how can you cope with such a big activity?

A By very effective sub-contracting and management of sub-contractors, we have done it twice before and very successfully, which shows that not the quantity but the quality counts. We can also call on the national research networks and their staff for further support, especially on technical matters.

Q Can you evaluate the success of TEN-34?

A TEN-34 was the first pan-European network to allow any serious deployment of multimedia applications including broadcast multimedia. TEN-34 provided researchers for the first time with an

adequate pan-European backbone strengthening pan-European co-operation in many different research areas. Despite its complexity and the number of different telecom operators involved, TEN-34 also provided a very reliable service.

Q Which networks are involved in TEN-34? Is there an extended involvement in TEN-155?

A The national research networks of all EU member states and also those of the Czech Republic, Hungary, Slovenia and Switzerland connected to TEN-34 and also connect to TEN-155. There are plans to make TEN-155 accessible to the research networks of other countries and regions.

Q DANTE chose Unisource Belgium. How much competition was there for the tender?

A We received 15 serious responses to our Invitation to Tender. 6 of these responses were comparable to the one made by Unisource Belgium.

Q How do you work with the national research networks? Can you take DFN as an example?

A DANTE and the national research networks are all members of a common consortium. DANTE and the national research networks co-operate both formally and informally concerning the planning and implementation of TEN-155.

DANTE contracts with Unisource Belgium and other suppliers; DFN pays a single access charge for its use of the network. The charging scheme is set so that total revenue matches total cost, including DANTE management costs, and is approved by the Quantum Policy Committee on which DFN is represented.

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