

Draft Minutes of the 8th TF-TEN Meeting

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held on the 17th and 18th of March 1997 at ETH, Zuerich, Switzerland.

Kevin Meynell 05/04/97

PRESENT

Name	Organisation	Country
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Stefania Alborgheiti	INFN/GARR	Italy
Michael Behringer (Chair)	DANTE	-
Mauro Campanella	INFN/GARR	Italy
Zlatica Cekro	ULB/STC	Belgium
Phil Chimento	U.Twente	The Netherlands
Tiziana Ferrari	INFN/GARR	Italy
Alain Frieden	RESTENA	Luxembourg
Christoph Graf	DANTE	-
Olav Kvittem	Uninett	Norway
Simon Leinen	SWITCH	Switzerland
Olivier Martin	CERN	Switzerland
Kevin Meynell (Sec)	TERENA	-
Fritz Pommer	Telecom Bretagne	France
Victor Reijs	SURFnet	The Netherlands
Guenther Schmittner	JKV/ACOnet	Austria
Robert Stoy	DFN/RUS	Germany
Celestino Tomas	RedIRIS	Spain
Jean-Marc Uze	RENATER	France
Jeroen Venema	U.Utrecht	The Netherlands

Apologies were received from:

Cees de Laat	U.Utrecht	The Netherlands
Paolo Neves	FCCN	Portugal
Baoyu Wang	UKERNA	UK

1. APPROVAL OF MINUTES

The minutes of the telephone meeting on 17th February 1997 were approved.

2. STATUS OF TEN-34

Michael said the first links of the TEN-34 network were already in production. These were the links between the FUDI countries although

there were still problems with Italy as their PNO had only just commenced testing. The Unisource part of network was up, but not yet in production. The UK-Sweden link was due to come into production in mid-April, while the Switzerland-Austria was due to come into production in May. The Austria-Hungary and Germany-Luxembourg links were not expected until after May.

The TEN-34 network was constructed from a VP-bearer service only utilising CBR and VBR. OAM was not currently being implemented because the NOC at ULCC was not convinced it worked properly. They had already tried it on the London MAN without success.

Guenther commented there were serious bugs with earlier versions of OAM, but later versions worked reasonably well.

Victor commented the links would need to be watched carefully as there could be some policing problems. Michael replied the TEN-34 contract required a monthly report for each VP, and should reveal if cells were being policed. He added however, they were not too concerned at present as they were just happy the network was up.

3. STATUS OF EXPERIMENTS

3.1 TCP Performance

Mauro said there was little further to report on the experiments. Only 98% of theoretical bandwidth could be used, and this fell to 85% within Italy. This could possibly be put down to the measurement of cells with TCP instead of an HP Analyser, but there were also discrepancies in the way Kbit/s was used for configuring the VPs. It was also possible the two ends of the GARR-SWITCH VP were mis-configured. He had tried to obtain a definitive answer from Cisco as to whether a kbit/s means 1000 or 1024 bit/s, but it was unclear as to whether this reply was authoritative.

Christoph agreed there was a lot of confusion. The TFD specifies the rate in cells per second, whilst Telecom Italia worked in Mbit/s. Michael added this was a real concern as incorrect information could result in cells being policed. These were basic problems that needed to taken-up with the PNOs.

Olivier thought the problems may be due to the size of the TCP packets. He asked whether different packet sizes had been tried. Tiziana replied that NetPerf didn't allow this.

Simon said he would use ATOMMIB to check granularity on their Cisco LS1010 and send the results to the mailing list.

ACTION 8.1 - Simon Leinen

Victor proposed that a Web page should also be established for current information about this problem. Michael agreed to set this up.

ACTION 8.2 - Michael Behringer

Michael concluded there wouldn't be a lot to gain from conducting further tests in Phase One. He added a test procedure would be more useful at this stage.

3.2 SVCs

Christoph reported he was able to test SVCs by tunnelling them across 2 Mbit/s VPs, using a combination of VBR and CBR. He was able to successfully establish SVCs between different sources and destinations although some cells were dropped when using CBR.

Michael said a 'best-efforts' service was not really acceptable as this proved no advantage over the Internet. Christoph agreed although he said latency was slightly lower. Phil added it was an unwritten rule that radically different services were not mixed on the same VP.

Mauro said his tests had shown that SVC set-up times were longer than expected, and each switch added a substantial delay. Set-up times for SPANS were also considerably longer than for UNI. In addition, many pings failed for an unknown reason that led to the conclusion that SVCs were not stable or robust.

Christoph said the last tests would be held on 24th March at 14.00 CET and would concentrate on set-up reliability, measurement of set-up times and basic TCP throughput.

Jeroen also gave a presentation on SVC testing conducted at the University of Utrecht. They were using DEC and GDC switches connected through an AT&T Globeview.

3.3 ARP

Simon reported he had conducted some tests across JAMES, but had been unable to reach Luxembourg. Using an ARP server on a LAN was acceptable, but there were problems using it across a WAN that could not be tolerated. Final tests still needed to be completed, but this approach was not promising.

Michael asked whether it was worth continuing with these tests if ARP was never likely to be implemented on TEN-34. Mauro thought the scope of such tests was limited as TEN-34 was never likely to progress beyond a fast-IP network. Phil added the NRNs don't control the backbone which would be necessary to implement these services. Victor however, said TF-TEN was not just concerned with TEN-34, but also had a responsibility to TERENA members as well. These ideas may work in other areas such as LANs, or may eventually be adapted for other purposes.

3.4 NHRP

Olav reported that NHRP was being run between Norway, Austria and Switzerland. This could use a routing protocol or static routes. It was planned to add two additional nodes in Germany and Spain before the end of March.

Mauro expressed concern about how BGP would map to NHRP. It could potentially interfere with routing policies and open a back door to individual networks. Whilst this would not be a problem on a network with a single AS number, there needed to be defined transitions between networks with different AS numbers.

3.5 ATM Addressing

Kevin reported there was little progress from last meeting. It was clear however, that most PNOs would decide to use E.164, whilst most NRNs would use NSAPs. This meant that address translation would definitely be required.

Michael asked whether NRNs could undertake their own routing. Victor replied that NRNs shouldn't become involved with that. E.164 routing was not dynamic and routing tables had to be updated manually. In any case, the PNOs would have to be responsible for routing if SVCs were provided. He thought the PNOs should be obliged to route every address they received from the NRNs.

Mauro said he was not interested in address translation if it could not be provided for five years. He questioned why switched services were necessary anyway as there were not yet any applications that could take advantage of them. Olivier also added that switched services had always been too expensive for the academic community as they were designed for low-volume users.

Guenther mentioned the LS1010 now supported address translation and he would try and test this.

3.6 Network Management

Zlatica reported she was using OAM cells to view the switches in Austria, Belgium, Italy, The Netherlands, Norway and Switzerland although access was read-only. She encouraged all participants to use OAM if possible as it made network management easier.

Michael commented that OAM should be supported by JAMES. TF-TEN should complain to the PNOs if such services were not being supported, and should also complain if incorrect information was supplied.

Michael asked whether OAM could be used with SVCs. Zlatica replied it could.

Guenther asked whether OAM cells would keep SVCs up. Zlatica thought they would.

3.7 CDVT

Phil reported a number of tests had been conducted between the University of Twente, the University of Stuttgart, KPN Research and DTBerkom. Unfortunately, some traces had been lost as they were transferred to hard disk, but a number of conclusions could still be drawn.

Raw measurements seem to depend only on path length and not on speed for low-speed streams. Distributions were characterised by exactly the same means (± 10 ns) with variance increasing as path length increases. GCRA analysis also showed significant structures in CDVT for a fixed PCR, and the safest course was a 'loose' GCRA to describe a CBR stream. The possible causes for these observations may be the switches, changes in the physical media (e.g. SDH-SONET and PDH-SONET/SDH) or the measurement instruments themselves.

Work still to be undertaken includes further analysis of the cell streams, the testing of CBR at high speeds and the testing of true VBR connections through JAMES.

3.8 IP over VBR

Olivier reported that JAMES still did not provide VBR services. In fact, the only PNOs offering a VBR service were those in Finland, Germany, The Netherlands and Switzerland. Unfortunately, the Swiss PNO actually charged more for VBR than for CBR!

Michael said such pricing was illogical and TF-TEN should bring this to the attention of the PNOs.

3.9 RSVP

Olav reported he had lost contact with Dresden and was looking for another test partner. He was hoping to perform some simple experiments across JAMES.

3.10 Security

Paulo Neves was not present at the meeting to report on progress of this experiment. Nevertheless, he had sent details to the mailing list. All activities had been theoretical so far as FCCN were still waiting for access to the JAMES network.

ACTION 8.3 - Jean-Marc Uze?

4. FINAL RESULTS OF PHASE ONE

Michael reminded everyone that Deliverable 11.3, The Results of the Phase 1 Test Programme, was due at the European Commission by the 30th April. As this needed to be sent for peer review, final reports would be required by the 31st March. Reports should preferably be sent as HTML, but Microsoft Word format was also acceptable. He added most reports had been received anyway.

ACTION 8.4 - All Experiment Leaders

Michael said Deliverable 14.1, Specification of Phase 2 Test Programme, was due by the 31st May. This meant a new work programme needed to be specified during April. He thought however, the timescales for Phase 1 had been too optimistic and it would not be advisable to include rigid deadlines in official documents in the future.

5. PREPARATION FOR JENC

Michael said he had received most of the contributions for the JENC Paper, but he still needed something on VBR. OM replied he would be unable to produce anything by the deadline, and asked MB to use parts of his INET paper instead.

Michael asked who should be credited in each section of the paper. Some contributions only listed authors, whilst some listed the participants. Phil thought the authors name should be listed at the top of the article, with participants listed in a summary. Mauro however, thought all participants should be listed at the top of the article. It was agreed instead, to take out the names of the authors

and simply list the participants at the end of the articles.

It was agreed there should be a single list of references at the end of the paper, rather than at the end of each section.

Michael expressed concern the paper would exceed the ten-page limit imposed by the Proceedings. Kevin said he would try and obtain a relaxation on this limit from the TERENA Conference Officer.

ACTION 8.5 - Kevin Meynell

6. PRESENTATIONS

6.1 ATM Addressing for RENATER II

Jean-Marc gave a presentation on the ATM Addressing scheme that has been adopted for RENATER II. They will use a DCC NSAP-based scheme that is organised geographically. This provides a lot of flexibility for sites connected to RENATER II, although it will not easily accomodate any academic and research organisations using a different service provider.

6.2 ABR

Victor gave a presentation on ABR (Available Bit Rate). There were three types known as EFCI (Explicit Format Congestion Indication), ER (Explicit Rate Control) and VS/VD (Virtual Source/Virtual Destination).

Christoph commented that many people were unhappy with ABR. It had not been proved to work, and it's use may prove dangerous. There were also rumours about a radically different approach being proposed to the ATM Forum by France. He agreed to investigate this further.

ACTION 8.6 - Christoph Graf

6.3 TCP-ONIP

Fritz gave a presentation about testing TCP and UDP over ATM. He added they were now looking for two or three additional participants to help with the testing. There were problems running TCP without IP as they were both closely related, but they hoped to test WWW sessions and MPEG-I streams in addition to ping and rlogin.

Michael asked how prospective participants obtained the necessary software. Fritz replied they would provide it. The software ran

under Solaris.

Simon said he might be interested in participating, but he would be unable to conduct any multimedia testing. His test machine had to be accessed over a relatively slow link which restricted him to simple tests only.

Olav mentioned one of his colleagues at Uninett might be interested as well, but his timescale would be longer.

Victor asked whether an ATM connection would be available at JENC as this would make an interesting demonstration. Kevin replied he wasn't aware of this.

7. TF-TEN OVERLAY NETWORK

Michael said the VPs for the TF-TEN Overlay Network were due to come down on the 31st March. This network had been very successful he felt it was necessary to continue with it. He proposed to ask for a six-week extension to allow preparation of a new JUD.

It was agreed a new overlay network would be requested from JAMES that generally retained the status quo. The only differences were the cancellation of the UKERNA-SURFnet and RENATER-GARR VPs, and the establishment of SWITCH-ACOnet and RENATER-DFN VPs. It appeared the VP between RENATER and RedIRIS was not currently operational, whilst the VP between Uninett and KTH never actually existed.

Christoph agreed to prepare a new JUD with an end-date of July 1998.

ACTION 8.7 - Christoph Graf

There was a discussion as to whether a permanent IP-network should be established across the Overlay Network to assist further testing.

Christoph suggested a reserved Class A address could be used for this purpose, although they would have to be sure routes were not announced to the Internet if a routing protocol was used. He thought NTP would be a good application to test.

Olav thought such a network would be ideal for Mbone as this application suffered from congestion over the Internet. Michael however, said the Mbone required two machines at each site which was something few had.

It was decided this should be discussed further at the next meeting.

8. DATE OF NEXT MEETING

A telephone meeting will be held on Monday, 7th April at 10.00 CET (09.00 BST).

The next face-to-face meeting was scheduled to be held on Sunday, 11th May at JENC8 in Edinburgh. Michael however, thought an extra day would be necessary so it was agreed this would be provisionally scheduled on Thursday, 15th May. Kevin said he would arrange a room at the University of Edinburgh.

ACTION 8.8 - Kevin Meynell

9. ACTIONS FROM LAST MEETING

- 7.1 Mauro Campanella and Guenther Schmittner to contact Cisco about the 1024 vs 1000 and granularity problems.
 - Done. Cisco could not provide a definitive answer.
- 7.2 Christoph Graf to change the JUD to incorporate the CH-AT VP.
 - Done
- 7.3 Christoph to send FORE ATM-ARP configuration to the mailing list for reference.
 - Done
- 7.4 Simon Leinen to propose a set-up for the experimeny using two ARP servers.
 - Ongoing. Simon asked for some volunteers to collaborate.
- 7.5 All to check availability of VBR services from their PNOs.
 - Done. Only PPT Telecom (NL) and Deutsche Telecom (DE) are currently providing this.
- 6.7 Kevin Meynell to include in the ATM Addressing Test Report, a summary of the schemes that will be used by the NRNs and PNOs.
 - Done

10. Open Actions

- 8.1 Simon Leinen to use ATOMMIB to check granularity of the Cisco LS1010 and send the results to the mailing list.
- 8.2 Michael Behringer to set-up a Web Page for information about the 1000 vs 1024 Kbit/s and granularity problems.

- 8.3 Jean-Marc Uze to contact Paolo Neves about the VP between RENATER and FCCN. (?)
- 8.4 All experiment leaders to send their final reports to Michael Behringer by 31st March.
- 8.5 Kevin Meynell to speak with the TERENA Conference Organiser about obtaining a relaxation on the ten-page limit for JENC Papers.
- 8.6 Christoph Graf to investigate rumours of a new type of ABR.
- 8.7 Christoph Graf to prepare the JUD for the new TF-TEN overlay network.
- 8.8 Kevin Meynell to arrange a room for the extra TF-TEN meeting at JENC.
- 7.4 Simon Leinen to propose a set-up for the experimeny using two ARP servers.