

# DANTE MailFLOW Service

## Deliverable D.2.4 Fourth Quarterly Report 1995

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## Help Desk Activities

Three Danish Networks participated in MailFLOW until October 15th. MINERVA and DENET then switched to SMTP-only connectivity. Their systems were removed from the routing tables. The network DKNET remains connected to MailFLOW. The mapping tables containing 124 entries for Denmark are managed by Eiril Lawaetz of UNI-C.

INESC in Portugal, INCIP in Ireland and ERNET in India experienced severe system crashes of their WEPs which resulted in service interruptions of several days. It was possible to use SMTP instead of X.400 to reach INESC and INCIP.

UNINETT in Norway connected the first system which supports real MIME/X.400(84/88) gatewaying to the MailFLOW WEPs. More systems will follow during the first half of 1996. (For example these systems are capable of mapping X.400 G3 Fax body parts into correctly labelled MIME fax body parts, or X.400 T.61 text into ISO-8859-1 text used within MIME.) This offers transparent usage of X.400 and MIME for multimedia documents and finally also basic character set support for many european languages.

RED in France has already disconnected its WEPs during the first quarter of 1995. The maintenance of the mapping tables remained unsolved. In the meantime a solution was found: The French NIC is coordinating the mapping table entries for France. They can be contacted at <URL: <http://www.nic.fr/>>

## The MailFLOW Managers Meeting

On Monday Oct. 23 the 2nd 1995 MailFLOW Managers Meeting was held in Utrecht (NL) in conjunction with the WG-MSG Meeting.

The experiences with X.400(88) were collected in a round table presentation:

SWITCH: operational connection with Hungarnet, ADMD 400net offers X.400(88)

DFN/EUnet: operational connection with UKERNA, recommends to set up more connections but to restrict its usage to IA5 body parts due to body part mapping problems

UKERNA: reports many operational connections within UKERNA

BELNET: operational connection with the European Commission, planned connection with EWOS, some other clients seem interested

FUNET: phases out X.400

UNINET: phases out X.400(84)

SURFnet: no X.400(88) customers, no hurry, some tests with local customers failed

GARR: no X.400(88) internally, no hurry

ARNES: no X.400(88) internally, no hurry, their ADMDs will support it in 1996

The conclusion is that X.400(88) connections are stable and operational. No separate network is needed for tests as proposed in earlier meetings. The connections can be switched to X.400(88) step by step.

Most of the managers accept the table based mapping table distribution as a pragmatic and workable solution and do not plan to invest much time in distributed mechanisms based on DNS or X.500. Both distributed mechanisms are deployed and could be used on an operational basis. The authoritative source of the distributed information is currently the MailFLOW server with the archived tables. These tables are then uploaded into the X.500 and the DNS directories. A real distributed mapping table service based on directories requires to make a choice between the DNS and the X.500 based solution. The authority for the entries can only be delegated to one directory. There is no solution yet for the synchronisation between the directories and the table based approach once the authority is delegated.

## **34th IETF Dallas**

Urs Eppenberger of the MailFLOW Project Team attended the 34th IETF at Dallas. He chairs the MIXER and the RECEIPT working groups.

The MIXER working group reviews the RFC1327 specification which defines the gatewaying between Internet e-mail and X.400. The updated specification includes support for delivery notifications and multimedia body parts. The MIXER working group meeting was attended by 32 experts, four of them being implementors of the specification. Especially helpful was the participation of EMA members since an EMA XAPI profile would need to be changed to allow for optimal mapping of the File Transfer Body Part. The authors (Steve Kille and Harald Tveit Alvestrand) will produce new documents in January 96. It is expected that the work will be finished by end of February 1996.

The RECEIPT working group defines receipt notification support for Internet

e-mail. This functionality is available in X.400 since the very beginning. The meeting was attended by 43 experts. A first draft specification was distributed. The technical base principles are agreed upon whereas many details need to be worked out.

Security being a very hot topic at the IETF meeting, the e-mail related working groups study security related issues:

A framework has been defined for Internet e-mail with MOSS (MIME Objects for Security Services), but no implementation has appeared yet.

PGP is catching on, but the current implementations do not use MOSS. A controversial draft specification is discussed now.

Receipt notifications have implications in the privacy area, for example distribution list member disclosure.

The complications introduced by gateways are for further study.

## Annex A Statistics

The layout of this section remains more or less the same for each quarterly report. Highlighting has been used to indicate changing figures in plain text paragraphs.

## Help Desk

Queries to the MailFLOW Project Team are primarily handled by Marcel Parodi and Bernard Stern. An additional SWITCH staff member acts as backup.

Country	Number of Queries			
	Q1/95	Q2/95	Q3/95	Q4/95
Austria	1	0	1	0
Belgium	1	0	3	2
Canada	1	0	0	0
China	1	0	0	0
Croatia	0	1	0	0
Denmark	2	1	1	1
Finland	0	0	0	0
France	11	1	1	3
Germany	3	2	2	1
Greece	0	2	0	0
Korea	0	0	0	0
Hungary	2	0	5	0
India	0	0	0	2
Ireland	0	0	1	1
Italy	2	0	4	4
Lituania	0	0	0	0
Luxemburg	0	0	2	0
Norway	0	2	1	3
Poland	0	2	0	0
Portugal	0	0	0	5
Slowenia	0	0	6	0
South Africa	0	0	0	0
Spain	2	2	2	0
Sweden	3	1	0	0
Switzerland	1	1	2	3
The Netherlands	1	1	0	0
Tunisia	0	0	0	0

United Kingdom	2	2	5	4
United States	0	2	0	0
Total	33	20	36	29

During the fourth quarter of 1995 the Project Team handled **29 queries**. They were registered in a trouble ticket system. The above list indicates the originating country of the query. Please note that a large number of queries do not mean a lot of trouble in that country. On the contrary, it often means that there are MHS managers who closely monitor the behaviour of the network. They are able to report problems earlier than the responsible managers in the remote network.

## File Server

A file server is operated by SWITCH, reachable via FTP, e-mail or TELNET. The procedures for the service and all relevant information for the operation are archived on this server.

The server contains **497 files** with about **10 Mbytes** of data of which about 1.2 MByte is operational data needed for the configuration of the WEPs and gateways. **21'123 files** (19'860 3Q95) have been retrieved from the file server with a total amount of **309 MBytes** (246 MB 3Q95). On average each file has been retrieved **42 times**.

**50 files** (73 files 32Q95) have been updated **manually** during the fourth quarter of 1995.

## Routing Co-ordination

The Project Team maintains a collection of **153 routing documents**. The syntax is checked with a tool and the content is checked for correctness by testing the connections with the operational X.400 system of SWITCH. Correct documents only get archived on the server and published via a separate distribution list.

Please refer to Appendix B for a complete list of the routable domains within the MailFLOW relaying service. Currently **225 routes** are registered. On **185 routes X.400 is the preferred** communication protocol.

The complexity of the routing can be seen while studying the table on the next page. Each network participating in the DANTE MailFLOW Service is listed together with the number of Well known Entry Points (WEP) which form the backbone of the X.400 network. There are two important points to note:

There are networks without their own WEP.

Some WEPs can't connect to each other since they do not share a common network, for example CRN in China to ESNET in US, or HUNGARNET in Hungary to GARR in Italy.

A procedure has been worked out in RARE WG-MSG and IETF X400-OPS which enables mail routing between all participants in the service. The procedure and document formats are described in RFC1465. It enables all participants to exchange mail using third party WEPs with appropriate network connectivity. Where more than one common network exists, managers can define their preferred network.

Almost all systems in the service running PP/ISODE use a tool written by Felix Kugler, SWITCH, which generates directly usable routing tables out of the routing documents which follow RFC1465.

Country	Network	WEP	Network connectivity
			Inter- Public Europa-

			net	X.25	net X.25
Austria	aconet	1	x	x	
Belgium	belnet	1	x	x	
China	crn	2		x	
Croatia	carnet	0			
Denmark	denet	0			
Denmark	dknet	1	x	x	x
Denmark	minerva	0			
Finland	fuNET	1	x	x	
France	red	0			
Germany	dfn	1	x	x	x
Greece	ariadne	1	x	x	x
Hungary	hungarnet	1	x		
India	ernet	1	x		
Ireland	incip	1	x	x	
Italy	garr	2		x	x
Lituania	litnet	0			
Luxemburg	restena	0			
Norway	uninett	3	x	x	
Poland	NASK	1	x		
Portugal	inesc	3	x	x	x
Slowenia	arnes	1	x	x	
Spain	iris	2	x	x	x
Sweden	sunet	2	x	x	
Switzerland	switch	2	x	x	
The Netherlands	surfnet	2	x	x	x
Tunisia	irsinet	1		x	
United Kingdom	janet	1	x	x	x
United States	esnet	2	x		
United States	xnren	1	x		

Legend: Well known Entry Point

Internet connection with TP0/RFC1006/TCP/IP to the Internet

Public X.25 connection with TP0/X.25 to the public X.25 service

Europenet X.25 connection with TP0/X.25 to Europanet

(The table above has been update January 15, 1996)

## Mapping Tables

A tool developed during the COSINE-MHS service is used to automatically handle mapping table updates sent in by validated mapping table managers. During the reported period **46 valid updates** (3rd Quarter 1995: 21) and **9 invalid updates** (3rd Quarter 1995: 11) have been received. After reception of a valid update a new international mapping table is created and archived on the file server for retrieval. The tables are also actively distributed once every month according to an agreed schedule. All four tables together contain **6'685 mapping rules** (3rd Quarter 1995: 5'808).

Correct mapping tables and correct function of the tools is of major concern for the Project Team. Errors can lead to lots of routing and addressing problems immediately perceived by end users.

The Project Team handles problems if there are conflicting rules. This has not been necessary during the reported period. Since the address of the Project Team is included in the two Internet RFCs defining gateway behaviour and operation, two organisations approached the Project Team to understand the mapping registry procedures and to get the tables.

## Annex B Routable Domains through MailFLOW

C ADMD PRMD O OUI Relaying network

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```
AT ADA ACGATE at.aconet
AT ADA ACONET at.aconet
AT ADA JOANNEUM at.aconet
AT ADA TU-WIEN at.aconet
AT ADA UNI-GRAZ at.aconet
AT UMI-AT ACGATE at.aconet
BE 0 KBR be.belnet
BE RTT ALCATEL-BELL be.belnet
BE RTT ALCATEL-ETB be.belnet
BE RTT BBL-TEST be.belnet
BE RTT BELSPO be.belnet
BE RTT CEC be.belnet
BE RTT CENCLCBEL be.belnet
BE RTT COMTECH be.belnet
BE RTT EFTA-SURV-AUTH be.belnet
BE RTT EUREKA be.belnet
BE RTT EWOS be.belnet
BE RTT IIHE be.belnet
BE RTT JRC be.belnet
BE RTT RMA-BRUSSELS be.belnet
BE RTT SAITRH be.belnet
CH 400NET ABB CHCRC ch.switch
CH 400NET ALCATEL ch.switch
CH 400NET CERBERUS ch.switch
CH 400NET ECMA ch.switch
CH 400NET FIRMENICH ch.switch
CH 400NET HICOM ch.switch
CH 400NET ILO ch.switch
CH 400NET LANDIS+GYR ch.switch
CH 400NET LANDISGYR ch.switch
CH 400NET NESTRD NESTECCH ch.switch
CH 400NET OSILABMAIL ch.switch
CH 400NET PLUSNET ch.switch
CH 400NET RAIL RAIL ch.switch
CH 400NET RAIL SBB ch.switch
CH 400NET RS ch.switch
CH 400NET SANDOZ ch.switch
CH 400NET SWISSLIFE ch.switch
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CH 400NET SWITCH ch.switch  
CH 400NET SWX ch.switch  
CH 400NET UBS ch.switch  
CH 400NET XMIT ch.switch  
CH 400NET ZELCOM ch.switch  
CH ARCOM ABB CHCRC ch.switch  
CH ARCOM ALCATEL ch.switch  
CH ARCOM CERBERUS ch.switch  
CH ARCOM ECMA ch.switch  
CH ARCOM FIRMENICH ch.switch  
CH ARCOM HICOM ch.switch  
CH ARCOM ILO ch.switch  
CH ARCOM LANDIS+GYR ch.switch  
CH ARCOM NESTRD NESTECCH ch.switch  
CH ARCOM OSILABMAIL ch.switch  
CH ARCOM PLUSNET ch.switch  
CH ARCOM RS ch.switch  
CH ARCOM SANDOZ ch.switch  
CH ARCOM SOFFEX ch.switch  
CH ARCOM SWISSLIFE ch.switch  
CH ARCOM SWITCH ch.switch  
CH ARCOM UBS ch.switch  
CH ARCOM XMIT ch.switch  
CH ARCOM ZELCOM ch.switch  
CH SWITCHGATE ch.switch  
CH UMI-CH ACGATE at.aconet  
DE BUND400 de.dfn  
DE D400-GW de.dfn  
DE D400 de.dfn  
DE DBP de.dfn  
DK DK400 MINERVA MAINZ dk.dknet  
DK DK400 MINERVA TDR dk.dknet  
DK DK400 NATIVE dk.dknet  
ES IRIS es.iris  
ES 0 ALCANET es.iris  
ES 0 BITNET es.iris  
ES 0 DATA-GENERAL es.iris  
ES 0 INTERNET es.iris  
ES 0 UUCP es.iris  
ES MENSATEX ERITEL es.iris  
ES MENSATEX IBERDROLA es.iris  
ES MENSATEX IBERMATICA es.iris  
ES MENSATEX INISEL es.iris  
ES MENSATEX IRIS es.iris  
ES MENSATEX JRC es.iris  
ES MENSATEX MAP es.iris  
ES MENSATEX MOP es.iris  
ES MENSATEX SITECAL es.iris  
ES MENSATEX Y-NET es.iris  
FI FUMAIL fi.fumail  
FI MAILNET DANTE MAILFLOW ch.switch

FI MAILNET DANTE gb.janet  
FI MAILNET ISODE gb.janet  
GB BNR gb.janet  
GB LEVEL-7 LTD gb.janet  
GB NEXOR gb.janet  
GB NORTEL gb.janet  
GB UK.AC gb.janet  
GB UK.BL gb.janet  
GB 0 CRN:EW2309360 gb.janet  
GB 0 HMG CCTA gb.janet  
GB 0 HMG DFE gb.janet  
GB 0 JANET MAIL-RELAY gb.janet  
GB ATTMAIL ECMWF gb.janet  
GB ATTMAIL NEXOR gb.janet  
GB CWMAIL HMG HOME OFFICE FEPD gb.janet  
GB CWMAIL HMG HOME OFFICE RPU gb.janet  
GB CWMAIL NEXOR gb.janet  
GB GOLD 400 HMG DTI gb.janet  
GB GOLD 400 LEVEL-7 LTD gb.janet  
GB GOLD 400 NET-TEL gb.janet  
GB GOLD 400 UK.AC gb.janet  
GB GOLD 400 Y-NET gb.janet  
GB MARK400 NEXOR gb.janet  
GB OSPMAIL EUDRA gb.janet  
GB TMAILUK UK.AC gb.janet  
GR ABC gr.ariadne  
GR ARIADNE-T gr.ariadne  
GR CTINET gr.ariadne  
GR DATAPLEX gr.ariadne  
GR GSRT gr.ariadne  
GR HITEC gr.ariadne  
GR INTRANET gr.ariadne  
GR PANTEION gr.ariadne  
GR SUNMED gr.ariadne  
GR ZENON gr.ariadne  
GR 0 NTUA gr.ariadne  
GR 0 Y-NET gr.ariadne  
HR CRO400 CARNET ETF X400 hr.carnet  
HR CRO400 CARNET IRB X400 hr.carnet  
HR CRO400 CARNET SRCE X400 hr.carnet  
HU 0 HUNGARNET hu.hungarnet  
IE EIRMAIL400 EUROKOM ie.incip  
IE EIRMAIL400 NRN ie.incip  
IE EUNET IEUNET IEUNET ie.incip  
IN ERNET in.ernet  
IT GARR it.garr  
IT MASTER400 ESA it.garr  
IT MASTER400 SSGRR it.garr  
IT MASTER400 Y-NET it.garr  
IT MASTER400 ASSOCIATI it.garr  
IT MASTER400 DLC it.garr

IT MASTER400 ROME it.garr  
IT MASTER400 TELEO it.garr  
KR X400-GW AC kr.konkuk.mOLD  
LT LITPAK LITNET lt.litnet  
NL 400NET SURF nl.surfnet  
NL 400NET Y-NET nl.surfnet  
NL SWITCHGATE ch.switch  
NO UNINETT no.uninett  
NO no.uninett  
NO UNINETT no.uninett  
PL NASK400 GDA pl.nask  
PL NASK400 GLIWICE pl.nask  
PL NASK400 INTERNET pl.nask  
PL NASK400 KATOWICE pl.nask  
PL NASK400 KRAKOW pl.nask  
PL NASK400 LODZ pl.nask  
PL NASK400 LUBLIN pl.nask  
PL NASK400 POZNAN pl.nask  
PL NASK400 SZCZECIN pl.nask  
PL NASK400 TORUN pl.nask  
PL NASK400 WAW pl.nask  
PL NASK400 WROC pl.nask  
PT INESCA pt.rccn  
PT INESCB pt.rccn  
PT INESCC pt.rccn  
PT INESCN pt.rccn  
PT INESC pt.rccn  
PT UMINHO pt.rccn  
SE SUNET se.sunet  
SE SUNET se.sunet  
SI MAIL si.arnes  
TN PTT IRSIT tn.irsinet  
US ANL us.esnet  
US COS us.xnren  
US ESNET us.esnet  
US XNREN us.xnren  
US ATTMAIL CDC us.xnren  
US ATTMAIL GOV+USDOE.G02 us.esnet  
US ATTMAIL USDOE us.esnet  
US INFONET IUCNHQ IUCNCH ch.switch  
US INFONET WWF MISWP ch.switch  
US MCI HUGHES us.xnren  
US TELEMAIL ARC us.xnren