

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 SAI TRH 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