Réseaux IP Européens

Network Coordination Centre

QUARTERLY REPORT

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RARE

The RARE association provides the framework for NCC operations.

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Table of Contents

Introduction

RIPE (Réseaux IP Européens) is a collaborative organisation open to all European Internet service providers. The objective of RIPE is to ensure the necessary administrative and technical coordination to allow the operation of a pan-European IP network. Much of this work is achieved through voluntary effort. RIPE does *not* operate a network of its own.

The RIPE Network Coordination Centre (RIPE NCC) is a European organisation with a charter to support RIPE. It is specifically focused on undertaking those activities which cannot be effectively performed by volunteers from the participating organisations. As such, it provides a wide range of technical and administrative support to network operators in the Internet community across Europe. [1] The RIPE NCC currently has 3 permanent staff members. The RARE association provides the legal and financial framework for the NCC.

This is the fifth quarterly report produced by the RIPE NCC. This report differs from the previous four issues in that there has been a conscious effort to avoid duplication of information. Instead there will be references to the relevant quarterly report.

As always, comments and suggestions are very welcome.

Note on Statistics

The arrangement of categories including country codes in some statistical tables and figures have been standardised to make the data more easily comparable between different tables and editions of these reports. As a consequence some categories appear with no data and/or seemingly nonsensical combinations. See Appendix D for domain table.

In the PostScript version of this document much information is presented both in graphical and in table form. This apparent duplication is necessary because the graphics cannot be represented in the ASCII version of the document which has to contain the same information as the PostScript version.

1. The charter of the RIPE NCC is formally described in the NCC Activity Plan (document ripe-35 in the RIPE document store)

Management Summary

The European Internet continues to grow steadily as the number of hosts registered in the domain name system will be in excess of 400,000 at the end of the reporting period. All NCC activities have run smoothly during the reporting period.

Delegated Registry

The number of local registries has increased to 61. Together with the NCC they have assigned 3511 class C and 14 class B network numbers during the reporting period. Still only about 10% of the assigned networks are routed on the Internet while usage of the internet protocols and thus demand for addresses continues to expand in all areas. Since the European registry system runs smoothly, the highest priority in this area remains automatic alignment of registry databases with the global Internet registry.

RIPE Database

There are now more that 30,.000 objects in the RIPE database and the NCC is still processing around 500 update requests on an average working day. A complete re-design of the database software has been completed and implementation is progressing. Additional efforts to increase database coverage and to provide pro-active maintenance are required. This and the software implementation will be the highest priorities during the next quarter.

Documentation

The document store is running reliably and is being used worldwide. In addition to a number of new RIPE documents a leaflet describing registry services has been produced.

Joint Projects

The two running projects have almost completed and are successful. While the projects have been very valuable to the NCC and vice-versa they have required more resources from permanent NCC staff than expected. A follow up project PRIDE (Policy-Based Routing Implementation and Deployment in Europe) has been proposed with this experience in mind. Funding for this project has been secured almost completely.

The NCC has started its second year of operation successfully continuing a high level of service. We are looking forward to the results of the first-year review and to the subsequent revision of the NCC activity plan. Based on the growing European Internet community and the increasing demand for service and new activities, the NCC will need additional resources in the medium term.

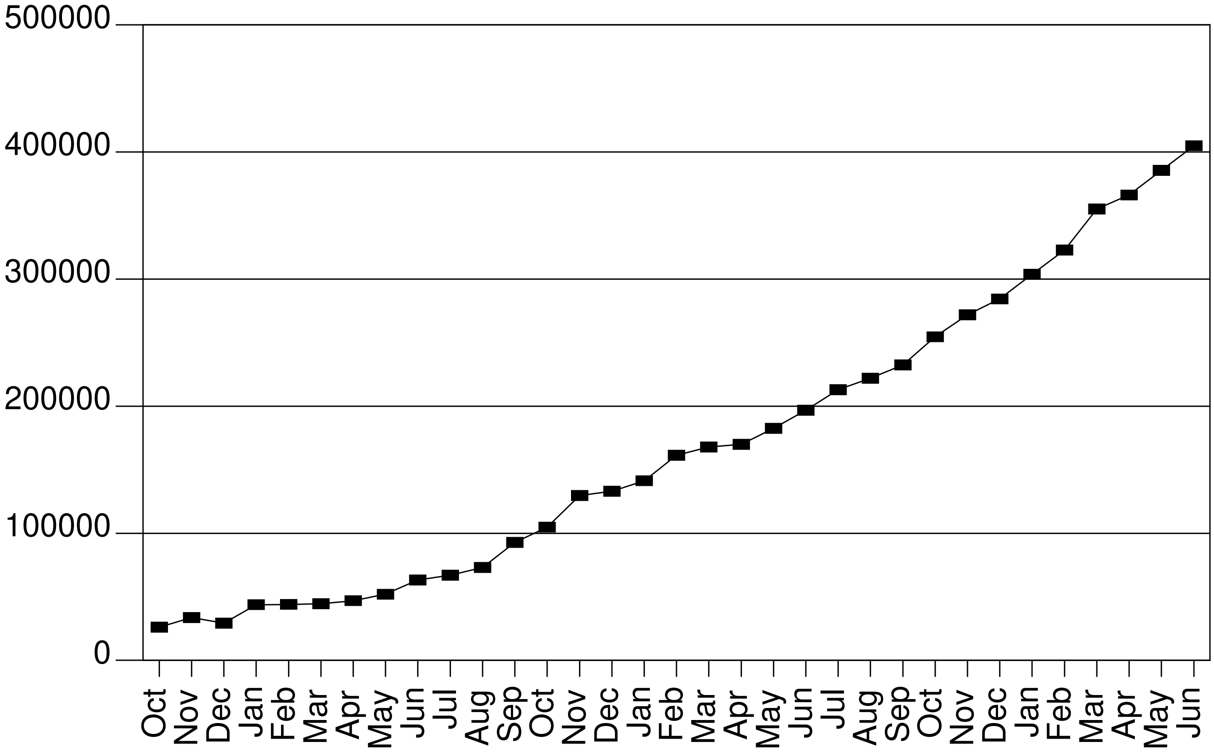
RIPE NCC Core Services

DNS Coordination

DNS Hostcount

Nothing has changed to the hostcount procedure. The June 1993 hostcount shows a total of over 404,900 hosts in Europe, where Cyprus (CY), the Czech Republic (CZ), Egypt (EG), the Faroe Islands (FO), Georgia (GE), Liechtenstein (LI), Malta (MT), the Slovak Republic (SK) and Turkey (TR) are added to the hostcount.

RIPE DNS Hostcount History 1990-1993



In the hostcount, any machine that appears in the Domain Name System with an A record is counted as a host. Hosts with more than one A record are counted once, and hosts with the same A record, but different domain names inside the same top level domain are also counted just once.

All DNS output, not just the A records, are saved and are available in the RIPE document store, two files for each country: the standard output, and the error messages. Please check the README file in ftp.ripe.net:ripe/hostcount for more details.

Hostcount History

1990	Oct	26141
	Nov	33665
	Dec	29226
1991	Jan	43799
	Feb	44000
	Mar	44506
	Apr	46948
	May	52000
	Jun	63267
	Jul	67000
	Aug	73069
	Sep	92834
	Oct	104828
	Nov	129652
	Dec	133000
1992	Jan	141308
	Feb	161431
	Mar	167931
	Apr	170000
	May	182528
	Jun	196758
	Jul	213017
	Aug	221951
	Sep	232522
	Oct	254585
	Nov	271795
	Dec	284374
1993	Jan	303828
	Feb	322902
	Mar	355140
	Apr	366164
	May	385522
	Jun	404930

Internet Registry

Delegated Internet Registry (IR)

The Delegated IR service has been provided successfully by the RIPE NCC for almost one year (the function was officially delegated on July 31st, 1992). On a daily basis, requests for IP numbers are received as faxes, e-mail messages and by telephone.

A new RIPE NCC leaflet has been produced "Delegated Internet Registry" which attempts to clarify the process of acquiring IP network numbers. See the section on "RIPE NCC Information Leaflets" for details on how to obtain copies.

Local Registries

We are pleased to report that the number of local registries in Europe, both provider and non-provider continues to increase. There are now a total of 61 organisations acting as local registries and to whom blocks of class C network numbers have been delegated. Of these, there are now 21 non-provider local IR's.

To date, local non-provider registries exist for the following countries: Austria, Switzerland, Germany, Denmark, Spain, France, Great Britain, Hungary, Israel, Italy, The Netherlands, Norway, Poland, Sweden, The Soviet Union (covering the states/countries which comprised the former Soviet Union), Estonia, Bulgaria and Iceland. New registries since the last quarter are Turkey, Ireland and Finland. Thanks are extended to those who voluntarily perform this activity to serve future Internet users in their country. Furthermore we would like to encourage other organisations or individuals to make themselves known to the NCC if they feel that they are able to undertake this work.

Organisations wishing to become local registries must first confirm that they have read and understood "RIPE NCC Internet Numbers Registration Procedures" (Doc ID: ripe -72).

Common Template

Since the 15th RIPE meeting, the revised European IP network number template has been available. To get some indication of the usage of the template, a poll was taken via the general RIPE mailing list. Of the 61 registries on file, replies were received from 31 organisations. Of these 21 registries currently use the template with a further 8 registries expecting to use the template in the near future. An updated version of the European Common Template (now Doc ID: ripe-88) has been placed in the document store.

Class B Network Numbers

The RIPE NCC performs all actual class B network number assignments to European Organisations. There have been 14 class B allocations this quarter, of which 12 were referred to the RIPE NCC via the local registries.

For details of class B allocation criteria see the revision of RFC1466 (which updates 1366). This revision incorporates a number of comments from RIPE and the RIPE NCC.

Reverse Name Lookup for 193.x.y.0 Networks

At the 15th RIPE meeting in April, the procedures for the delegation of blocks in the 193.in-addr.arpa domain were finalized. They are available as ripe document number ripe-85. In total 57 blocks have been delegated in the 193.in-addr.arpa domain at the end of this quarter. So far, no problems have been reported. The NCC is providing secondary name service for all these blocks. It also performs a check of the initial reverse zone setup before delegation.

NCC Workload and Performance

Once again the NCC has kept a log of the actions related to the delegated registry function. The numbers in brackets relate to the previous quarter.

The total number of applications received over the reporting period quarter was 95 (143). Of these 20 (51) were received from the IR, 14 (5) were received from the local registries and 61 (86) were sent directly to the NCC. Simple referrals to the appropriate local registry without receiving an application are not included in these numbers. More requests are being made directly to the NCC instead of going through the global registry.This positive trend continues from the last quarter. The relative stability of these numbers should not be taken as an indicator of the total number of registration requests, but rather as an increase in the number of requests dealt with by the local registries without the intervention of the NCC.

The portion of requests handled vie E-mail has risen slightly during the reporting period. Of all the requests, 80% (82.5%) were answered (not only acknowledged) the day they were received. 92.1% (97.9%) of all requests were answered within seven calendar days of receipt by the NCC. The average elapsed time of a class C allocation via the NCC is just under four days (previously five). Taking into account that class C allocations via the NCC frequently concern large blocks with all the needed technical justification, this is a good average. The average elapsed time of a class B allocation is just under 15 days (previously 10). Over the reporting period more “difficult” class B applications have been received - many on recommendation from the local NICs. This accounts for the lengthened period of allocation for a class B network number.

Address Space Usage

During the reporting period, the NCC assigned a total of 14 class B network numbers, delegated 14 blocks of class C network numbers and have reserved 7 blocks of class C network numbers. The assignment and reservation of class C blocks was done in accordance with the CIDR scheme to allow route aggregation in the future. It should be noted that blocks are reserved based on usage estimates given by the local registries for a period of about 24 months. Should the assignment rate differ from the estimated one, reserved blocks can and will be used for other purposes.

During the reporting period the European registries have assigned a total of 3511 class C networks to bring the total to 13859 network.s. Out of these 13859, 800-900 were actually observed to be routed in the Internet.

The detailed status of the address space delegated to the RIPE NCC can be found in Appendix B and C for class B and class C network numbers respectively.

RIPE Network Management Database

Database Software

The feasibility and prototype experiments reported in the last Quarterly report (ref. doc ID: ripe-87) have progressed into a complete rewrite of the database software. The system design is complete and various modules have been implemented.

The new design incorporates the following new features:

- fully configurable from a config file;
- separate files (and indices) to store different databases;
- dynamic updates and deletes as opposed to batch only;
- possibility for update protocol other than e-mail;
- guarded fields included in the design;
- dynamic update of secondary database

Features which have been requested but are not designed in:

- preserve the order of tags within object;
- preserve the position of remark or comment lines within objects;

The new software has been implemented in the Perl language. Those who would like to use the RIPE database software should plan to install Perl. Perl will not be needed if you just want to use a whois client and to send in updates by mail. Implementing in Perl instead of shell, awk and C has three benefits:

- coding in Perl is fast;
- subroutines can be used (missing from std awk);
- the result is portable;

The RIPE NCC has a copy of the alpha software; running on a PC. Together with a notebook this gives a “portable” RIPE database.

The first module completed is the whois server (net.c and netdbm.c replacement). This server runs as its own daemon process rather than under inetd. The measured performance on a SUN ELC before optimising is 5 queries/s on average and the server can sustain peaks of 50 queries arriving in parallel. The new server is compatible with the current one and has some added features:

- the source databases (RIPE, MERIT, NIC etc.) can be selected individually rather than either RIPE or all;
- the same connection can be used for multiple queries (nice for tools like prtraceroute);
- a grep type query;
- nice logging.

The RIPE NCC has an alpha version of the whois server and the database indexing tool running. The next part to be tackled is the update procedure including the guarded attributes. The last part will be the current mail interface for the update procedure.

After another announcement the RIPE NCC will begin to use the new server on `whois.ripe.net`. This should be transparent. Once this is running the backlogged new tags will be implemented such as the DMZ specifics in the network and the operational contacts. Shortly afterwards the new updates procedures will be used. This will mean that updates mailed in will appear in the database more quickly. This also means that the NCC will correspondingly be more stringent in checking updates, because there will be less human intervention from NCC staff. More bounced updates should be expected, but they will be received much more quickly. Diagnostics will be improved because the dynamic update procedure will have access to the current database making more checks of updates possible.

Database updates

The frequency of update runs remains at once per working day with an occasional run skipped and some days with multiple runs as demanded by the volume of updates received. This ensures that users perceive the database update process as predictable. During the reporting period the NCC has processed 28110 object updates, an average of 468 per working day. The number of updates received per month varies widely with peaks usually occurring just before RIPE meetings.

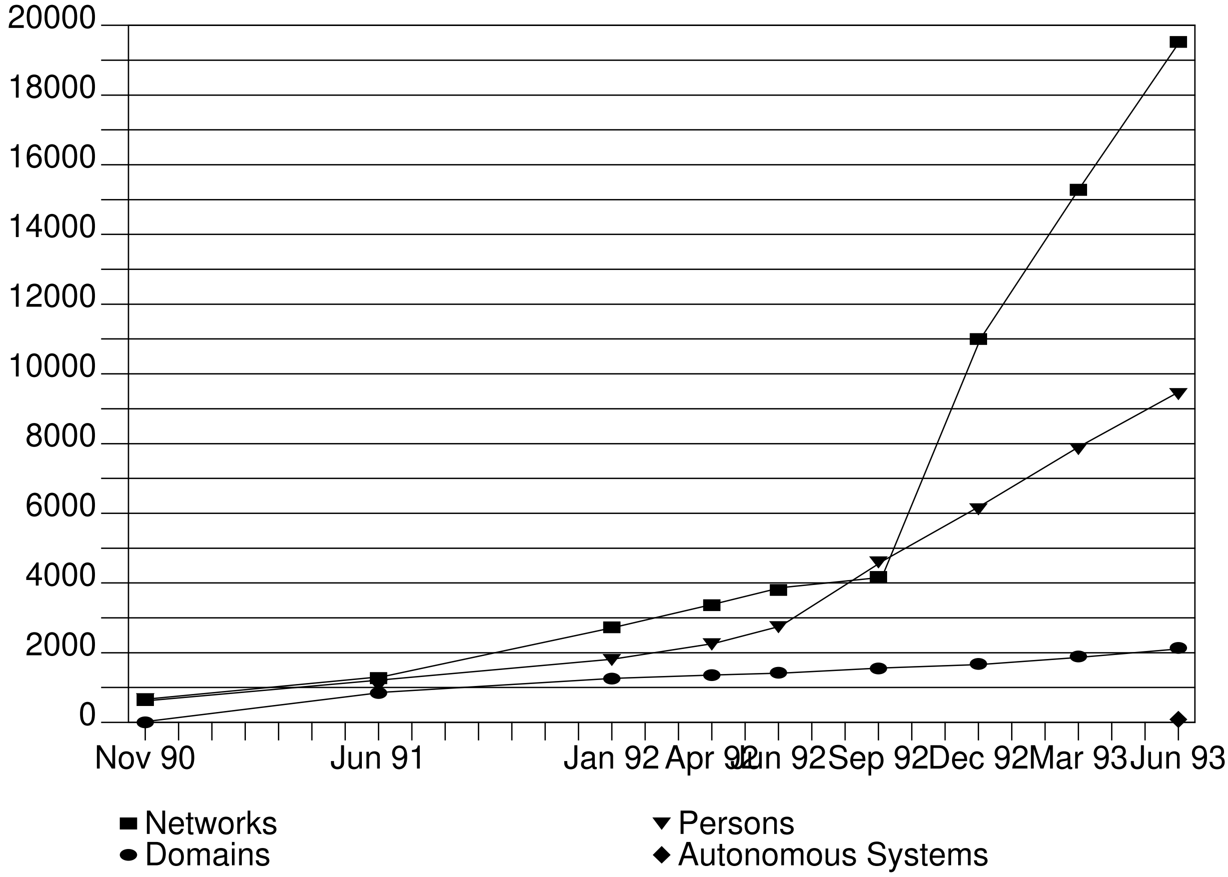
The updates consist of additions and changes as well as so called “NOOPS”. NOOPS are updates received which do not differ from the information already recorded in the database. The NCC accepts such requests because it makes bulk updates from secondary NICs easier: secondary NICs can just send in their whole database without having to select just the records which changed since the last bulk update was sent to the NCC.

Database Action	Q4 1992 (number)	Q4 1992 (perc)	Q1 1993 (number)	Q1 1993 (perc)	Q2 1993 (number)	Q2 1993 (perc)
Updated	9235	64%	18586	66%	12840	46%
Added	3632	11%	3885	20%	4578	38%
NOOP	1558	25%	5467	14%	10692	16%
TOTAL	14425		27938		28110	

Database Statistics

Again the number of networks in the database has increased significantly due to the large number of newly assigned class C network numbers

RIPE Database Objects



Month	Nets	Persons	Domains	Autonomous Systems
Nov 90	643	670	0	
Jun 91	1270	1053	845	
Jan 92	2728	1792	1254	
Apr 92	3365	2242	1360	
Jun 92	3797	2736	1422	
Sep 92	4172	4594	1549	
Dec 92	11080	6116	1680	
Mar 93	15281	7846	1894	
Jun 93	19523	9423	2134	85

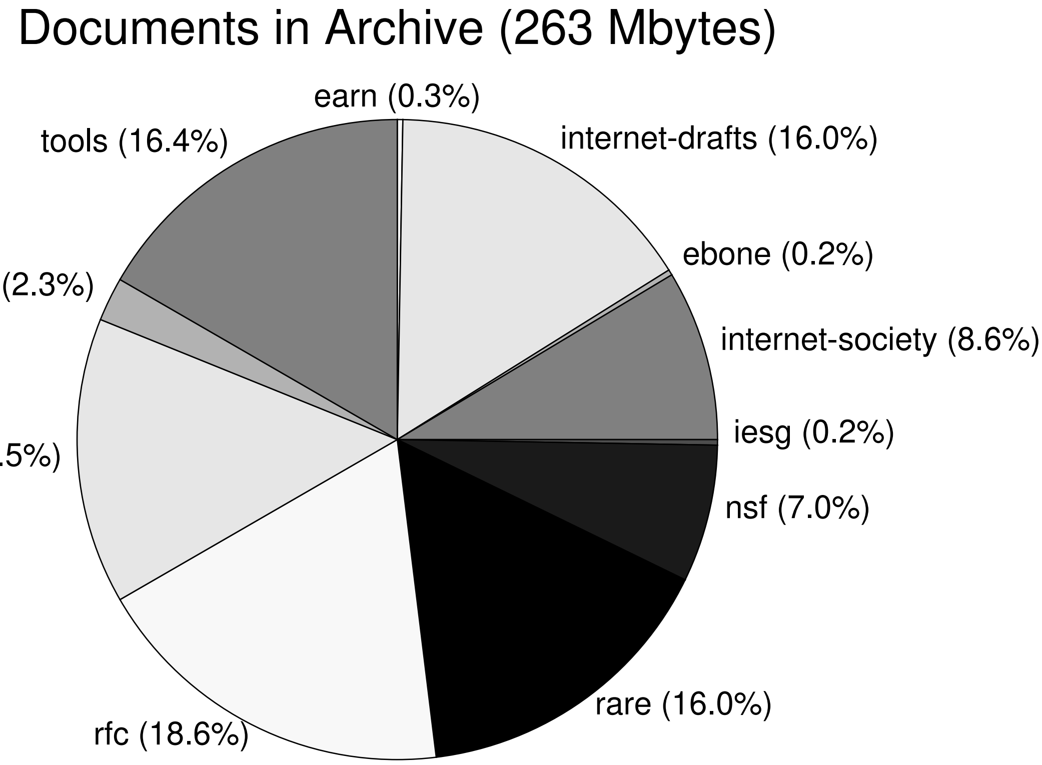
Database Coverage

The following table shows that database coverage has increased slightly but is still lower than we would like in some areas. Any effort to attack this problem requires a high level of resources which need to be applied constantly. These resources are currently not available due to other activities. In our view this is an important area where additional resources are needed and could have significant impact. The importance of this becomes even more pronounced as the database slowly assumes its additional function as European Routing Registry.

Country	Nets in DNS Q2 1993	Nets in DB Q2 1993	Perc. Q2 1993	Perc. Q1 1993	Perc. Q4 1992	Perc. Q3 1992
BG	1	1	100	100	0	0
CY	3	3	100	100	0	0
LV	1	1	100	100	0	0
RO	3	3	100	100	0	0
SK	12	12	100	0	0	0
UA	2	2	100	0	0	0
CZ	36	35	97	0	0	0
PL	35	34	97	92	100	90
HU	25	24	96	100	100	100
BE	19	18	95	82	100	100
AT	108	102	94	89	82	63
FR	575	539	94	91	94	95
CH	129	119	92	87	85	93
ES	36	33	92	87	95	88
DE	535	475	89	87	83	80
NL	152	133	88	86	86	80
IL	52	45	87	75	76	71
PT	87	73	84	86	86	80
UK	402	338	84	70	70	67
IT	180	150	83	81	81	82
IE	41	33	81	82	86	90
GR	20	16	80	73	75	66
HR	5	4	80	83	0	0
NO	88	67	76	76	70	58
IS	28	21	75	84	83	50
SE	227	167	74	70	59	49
TR	7	5	71	0	0	0
LU	10	7	70	50	60	50
SI	16	10	63	75	100	0
EE	24	14	58	0	0	0
LI	2	1	50	0	0	0
TN	4	2	50	100	100	100
YU	2	1	50	50	50	100
FI	298	133	45	44	39	6
DK	33	11	33	35	39	40
SU	34	1	3	16	0	0
CS	43	0	0	27	100	100

Document Store

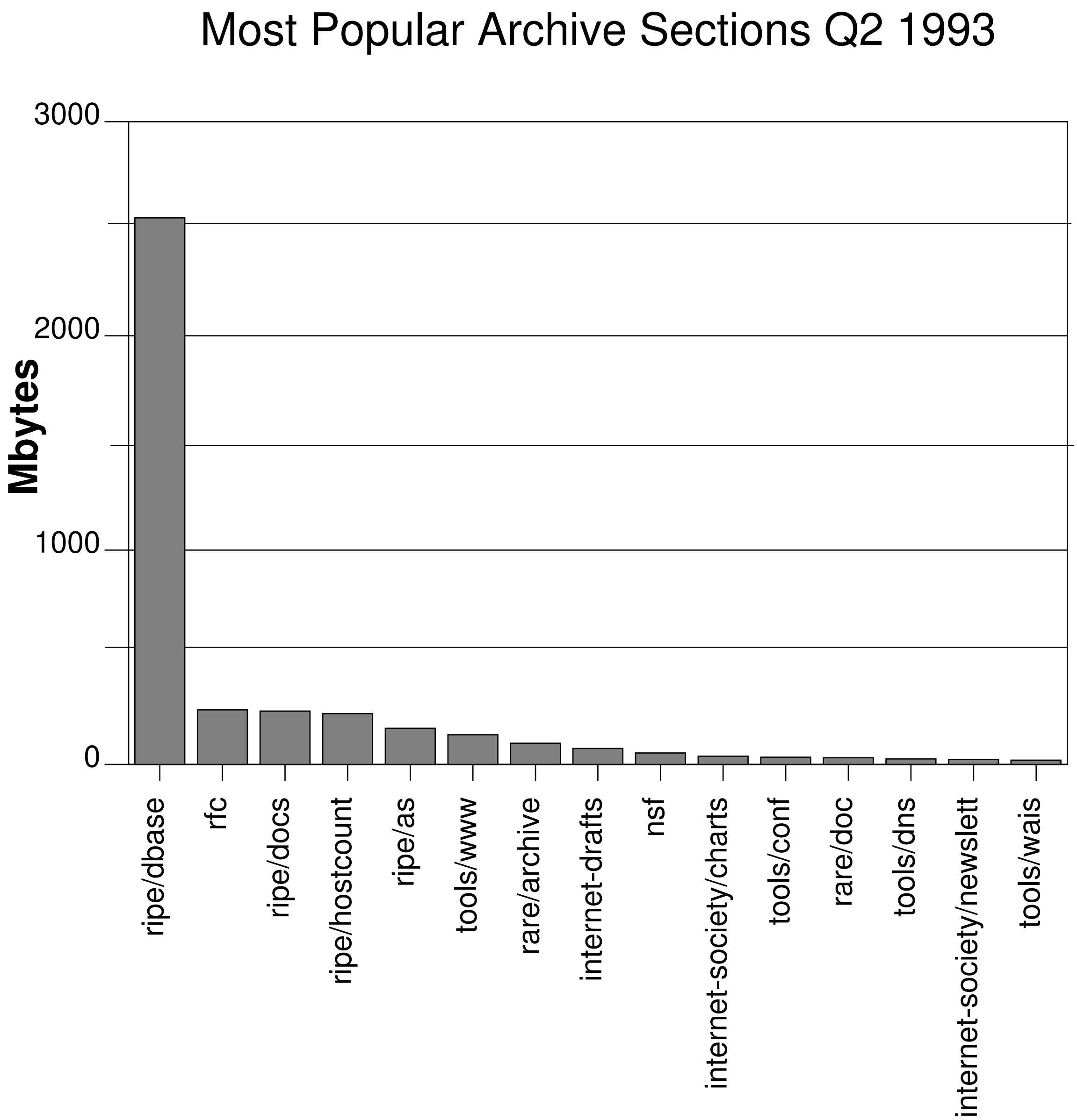
In total the document store contains approximately 5612 documents. By volume, it accounts for over 263 Mbytes. A breakdown of the composition of the document store by mbytes is shown below.



Area	Files	Kbytes
earn	10	730
ebone	36	532
iesg	51	502
ietf	819	5982
internet-drafts	621	41681
internet-society	1019	22590
nsf	157	18321
rare	1023	41710
rfc	862	48667
ripe	634	37826
tools	351	42766
Total	5612	263533

FTP Usage Statistics

The most popular archive sections of the RIPE document store are tabulated below. This displays the top 15 most popular sections which were accessed using ftp.The most popular section is the ripe database, with approximately 3185 Mbytes transferred. This represents more than a 100% increase in Mbytes of the RIPE database transferred compared to the previous quarter.



The number of Mbytes transferred using ftp per top level domain is shown below:

Archive Section	Files Sent	KBytes Sent	% of Files Sent	% of Bytes Sent
ripe/dbase	3185	2551215	5.27	61.13
rfc	4073	254506	6.73	6.10
ripe/docs	3002	249762	4.96	5.98
ripe/hostcount	1817	237619	3.00	5.69
ripe/as	33473	168244	55.34	4.03
tools/www	634	138471	1.05	3.32
rare/archive	1980	98980	3.27	2.37
internet-drafts	1289	74485	2.13	1.78
nsf	459	53266	0.76	1.28
internet-society/charts	121	38056	0.20	0.91
tools/conf	91	33165	0.15	0.79
rare/doc	449	31109	0.74	0.75
tools/dns	348	25330	0.58	0.61
internet-society/newslett	1831	23392	3.03	0.56
tools/wais	241	20204	0.40	0.48

Domain Name	Files Sent	Bytes Sent	% of Files Sent	% of Bytes Sent
IIS	0	0	0	0
IXI	0	0	0	0
LOCAL	0	0	0	0
NCC-X25	0	0	0	0
PSPDN	0	0	0	0
UNKNOWN	4900	293789933	8.10	7.04
at	314	46225428	0.52	1.11
au	21	848291	0.03	0.02
be	42	3801953	0.07	0.09
br	3	363544	0.00	0.01
ca	332	4878434	0.55	0.12
ch	1604	299885312	2.65	7.19
cl	1	33640	0.00	0.00
com	294	23659477	0.49	0.57
cs	297	20601599	0.49	0.49
cz	550	30953822	0.91	0.74
de	1063	282682667	1.76	6.77
dk	52	9247521	0.09	0.22
edu	656	148524949	1.08	3.56
ee	5	73349	0.01	0.00
es	3843	115448091	6.35	2.77
fi	4528	233806797	7.49	5.60
fr	1148	123118992	1.90	2.95
gov	63	4500058	0.10	0.11

Domain Name	Files Sent	Bytes Sent	% of Files Sent	% of Bytes Sent
gr	806	39926605	1.33	0.96
hk	2	4692	0.00	0.00
hr	41	1240278	0.07	0.03
hu	177	23024798	0.29	0.55
ie	167	12488261	0.28	0.30
il	961	245757373	1.59	5.89
in	5	197225	0.01	0.00
int	0	0	0	0
is	4	318904	0.01	0.01
it	728	238029345	1.20	5.70
jp	17161	747944964	28.37	17.92
kr	973	71132396	1.61	1.70
lu	190	35951740	0.31	0.86
mil	30	1428640	0.05	0.03
mx	0	0	0	0
my	2	223493	0.00	0.01
net	16369	847365814	27.06	20.30
nl	1156	126225356	1.91	3.02
no	78	8343461	0.13	0.20
nz	0	0	0	0
org	189	5294024	0.31	0.13
pl	99	7103281	0.16	0.17
pt	599	50884478	0.99	1.22
ro	8	37672	0.01	0.00
se	139	14506064	0.23	0.35
sg	0	0	0	0
si	1	180797	0.00	0.00
sk	436	28273730	0.72	0.68
su	11	232259	0.02	0.01
tr	5	13613	0.01	0.00
tw	0	0	0	0
uk	422	24417414	0.70	0.59
us	7	156384	0.01	0.00
ve	0	0	0	0
yu	6	85336	0.01	0.00
za	1	88303	0.00	0.00

The UNKNOWN category refers to where there is no match found between the IP address and the Domain Name.

These statistics show clearly that the RIPE document store is a very focused resource being used by the right community. It is also evident that it is regarded as an important source for European information worldwide rather than only locally.

Interactive Information Server

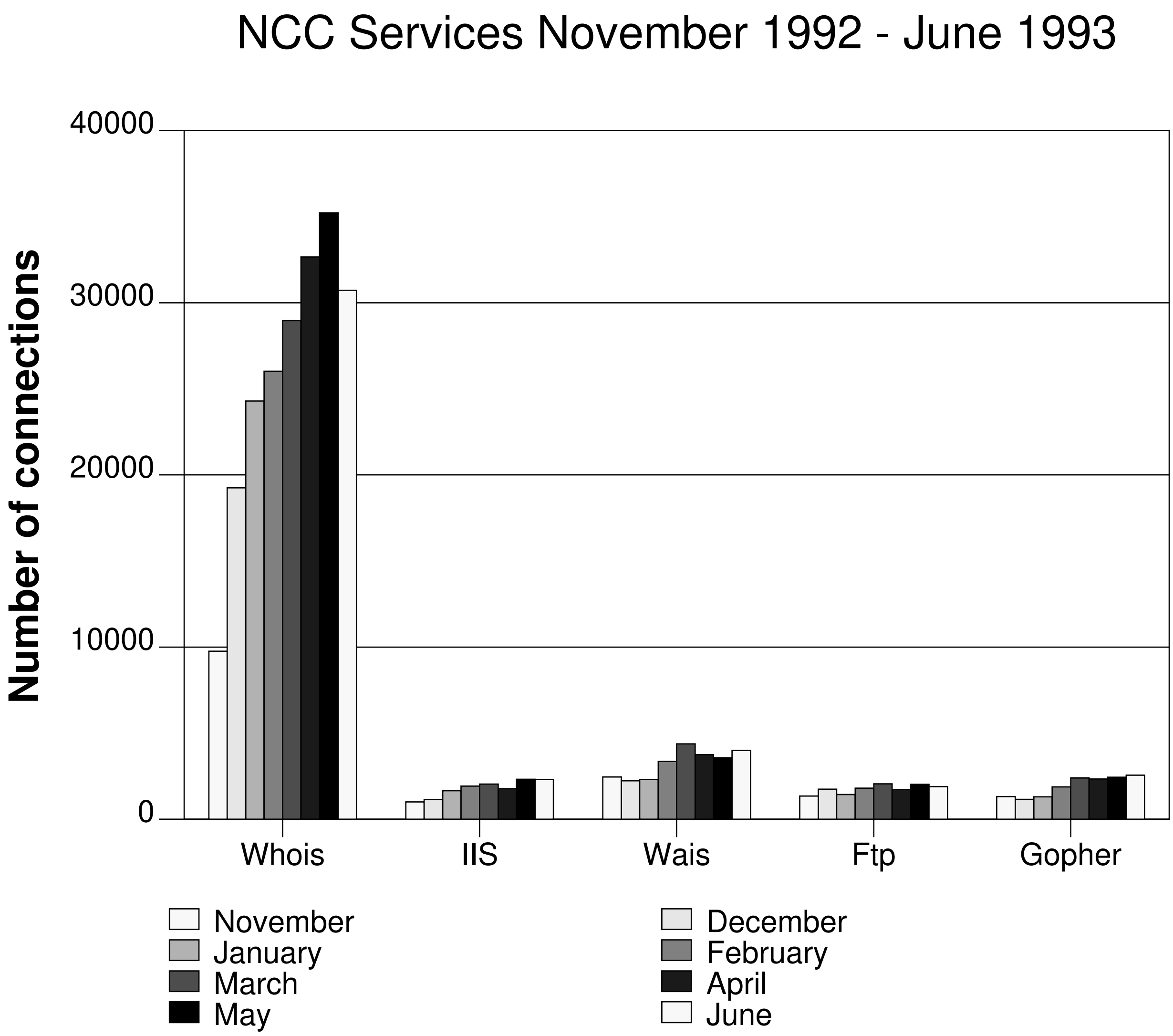
The NCC Interactive Information Server is a popular method of access to the RIPE document store catering for users with minimal hardware and/or software support to access information stored by the NCC. Full details on access methods are given in the RIPE NCC information leaflet “Interactive Information Server” and in the first edition of the NCC Quarterly Report.

General Service Usage Statistics

Statistics for the use of the various NCC information services were collected for the second quarter of 1993. The table below shows the total number of connections made for each service from July 1992 (Whois, IIS, Wais, Ftp and Gopher) contacted either directly from a user client or from the NCC Interactive Information Service. The breakdown is given as total number of connections per month:

Service	Jul	Aug	Sep	Oct	Nov	Dec
Whois	7909	7845	8044	12373	9769	19255
IIS	669	591	628	1027	1018	1148
Wais	1040	682	816	2552	2460	2240
FTP	849	645	625	1173	1344	1757
Gopher	371	337	340	1115	1318	1156

Service	Jan	Feb	Mar	Apr	May	Jun
Whois	24299	26027	28961	32660	35215	30721
IIS	1662	1924	2040	1785	2326	2313
Wais	2316	3359	4375	3764	3564	3994
FTP	1443	1816	2067	1735	2038	1891
Gopher	1310	1882	2394	2345	2439	2559



The number of connections to the various servers at the NCC broken down by the source of the request is shown in the table below. In total there were 6424 connections to the Interactive Information Server, which is queried, on average, 107 times per working day.

The provisional access from the EuropaNet (formerly IXI) network has been used 3100 times during the reporting period, which is approximately 51 times per working day on average. This service will have to be discontinued once the IXI connection at NIKHEF which it uses is disconnected unless alternative access can be found.

Source	Whois	IIS	Wais	Ftp	Total
IIS	10268	0	8727	0	18995
IXI	11	3100	0	0	3111
LOCAL	2158	38	34	281	2511
NCC-X25	17	50	0	0	67
PSPDN	0	6	0	0	6
UNKNOWN	2584	561	72	454	3671
at	211	123	40	179	553
au	64	12	16	11	103
be	511	20	0	54	585
br	1	1	0	4	6
ca	145	28	32	71	276
ch	982	80	35	317	1414
cl	13	0	2	6	21
com	491	81	454	171	1197
cs	183	175	1	99	458
cz	176	53	0	18	247
de	3161	249	22	658	4090
dk	156	13	2	32	203
edu	8672	264	999	607	10542
ee	27	41	0	6	74
es	250	37	4	67	358
fi	298	45	203	109	655
fr	4983	104	40	316	5443
gb	1	0	0	0	1
gov	94	30	30	36	190
gr	520	24	34	118	696
hk	1	0	0	1	2
hr	7	50	0	27	84
hu	281	97	0	40	418
ie	948	55	4	152	1159
il	10	30	1	148	189
in	0	6	1	4	11
int	1	0	0	0	1
is	200	7	40	5	252
it	1461	109	3	259	1832
jp	25	9	17	128	179
kr	8	13	4	91	116
lu	98	10	0	7	115
mil	15	12	0	19	46
mx	0	1	0	0	1
my	0	0	0	2	2
net	2489	67	393	363	3312
nl	2896	301	33	295	3525
no	490	55	3	66	614
nz	6	1	2	0	9
org	8783	45	16	30	8874
pl	183	42	0	60	285
pt	193	11	0	59	263
ro	0	2	0	4	6
se	2642	57	4	54	2757
sg	6	2	1	0	9
si	50	16	0	1	67

Source	Whois	IIS	Wais	Ftp	Total
sk	126	48	0	29	203
su	18	3	0	4	25
tr	28	34	0	6	68
tw	3	4	1	3	11
uk	1307	188	49	182	1726
us	40339	4	0	7	40350
ve	1	1	0	0	2
yu	0	1	3	2	6
za	4	8	0	2	14
Totals	98596	6424	11322	5664	122006

RIPE NCC Information Leaflets

A new leaflet “Delegated IP Registry” has been published by the RIPE NCC. The draft leaflet was first approved by the Local Registries RIPE working group. The aim of the leaflet is to publicise the procedures on how and where to obtain valid IP network numbers. If you would like copies of the new leaflet, please do not hesitate to contact the NCC, stating how many copies you would like. The first print run was for 2,000 copies of the leaflet (so it would be appreciated if you didn’t ask for 2,000 copies!).

Presentations

Presentations given this quarter include the following; at the JENC conference in Trondheim from May 10-14th Daniel Karrenberg gave two presentations on “One years experience with Internet Coordination” and “Joint RARE/RIPE Projects” respectively. At the NSFnet Regional Techs meeting held in Herndon, Va, US on the 9th-10th June Tony Bates and Daniel Karrenberg gave presentations on the Route Server Project.

RIPE Support Activities

RIPE meetings - Minutes

The 15th RIPE meeting, hosted by NIKHEF in Amsterdam was one of the busiest RIPE meetings on record. There were 65 participants and 18 agenda items scheduled. Increasingly the task of compiling the minutes is becoming more time consuming. Thus a proposal was circulated to the RIPE community the aim of which was to improve the quality of the minutes and reduce the amount of time it takes to compile and eventually publish them.

In summary, the speakers at future RIPE meetings will be asked to submit a short summary of their presentation to the RIPE NCC. Without substantial editing the text received will be used in the minutes. Optionally, speakers are invited to make their presentations publicly available by emailing them to the RIPE NCC to be stored in the `/presentations` directory.

In a similar way, the working-group chairs will be asked to submit a summary of the proceedings of their working groups which will not be substantially edited. In addition, support to the working group chairs will be improved as each chairman will receive a "Meeting Pack".

It is hoped that everyone will benefit from the proposal.

Referrals and End-User Enquiries

The number of end-user queries have been insignificant during the reporting period and again relate to either queries concerning the registering of domain names or how to obtain IP numbers. Both have been dealt with by providing further contact names inside the relevant country. Requests for connectivity have been referred to the `ip-provs@ripe.net` mailing list as usual.

Other Activities

Funding Letters

As part of the continued initiative to redefine the current funding model for the RIPE NCC as outlined in the previous quarterly report (Doc ID: ripe-87), letters have been sent to a number of potential contributors, together with relevant supporting RIPE documents. It is hoped that this will stimulate further discussions and encourage many organisations to participate in funding the RIPE NCC for the coming financial year.

Internal Audit - RIPE NCC

It was agreed at the 15th RIPE meeting in Amsterdam to review the activities of the RIPE NCC after one year of operation. The aim of the review is to update the “Activity Plan” (Doc ID: Ripe-35) bringing the future activities of the RIPE NCC into sharp focus with the needs of the RIPE community. Whilst input from all members of the RIPE community is sought and encouraged, specific individuals have been tasked to carry out this activity. These persons include the RIPE chairpersons; the RIPE Working Group chairpersons and the RIPE NCC manager. The deliverable will be a report which will have identified which activities have been successfully implemented, which activities are behind schedule and those which have been taken up but were not foreseen in the original activity plan. The conclusions will summarise and identify the future direction for the RIPE NCC.

Global Database Alignment

The exchange of database information between InterNIC, MERIT and the RIPE NCC is progressing steadily. The exchange format has been defined and programs to convert to and from the exchange format from each of the respective formats have been written. MERIT and the RIPE NCC produce their complete database in exchange format after each update of their respective databases. The NCC copies the MERIT database in exchange format regularly and it will start using that data in the RIPE whois server in the near future.

The RIPE NCC has made the part of the database that is clearly European address space (193.x.y) and the corresponding contact information available in exchange format on request from InterNIC. InterNIC has taken this data, and entered the majority of it into the worldwide network database. There are still some inconsistencies that need development. Currently the update process is being tested before moving to a more regular update mechanism. In conjunction with this, the NCC is discussing with InterNIC to add a flag to each object to define the primary maintainer of that data. This would facilitate the update mechanism in situations of multiple and/or conflicting entries/updates. It will also allow distributed maintenance to be introduced gradually.

Conference Support

Interop Involvement

The RIPE NCC was invited to be one of the team designing and building the Interop Shownet for Interop Europe in Paris in October this year. Marten Terpstra accepted the position of “NOC Team” member. His primary responsibilities are external connectivity and IP addressing. The complete team consists of some 15 persons from various European and American organisations active in internetworking, together with people from Interop Europe and Interop US. The NOC team has met twice in the past quarter to prepare and design the network, and after a prebuild of the network in September, the network will be installed at Interop the weekend before the start of Interop, and will be dissolved again immediately after Interop. The Interop Shownet will be connected to the rest of the Internet.

This activity is certainly not an NCC core activity. It has been undertaken because sponsorship from Interop Europe has been provided and more importantly it is an opportunity for valuable professional development of NCC staff.

Amsterdam IETF Involvement

The RIPE NCC was approached by SURFnet, the local organizers at the July IETF in Amsterdam, to participate in the design and build up of the terminal room and organization of MBONE for the audio and video broadcasts from the IETF. The NCC has supported SURFnet in the design and preparation of the terminal room and the audio visual facilities as well as the IP multicast backbone in Europe.

Global Address Space issues

Class B Retrieval

Due to the scarcity of class B network numbers, the NCC has started an activity to retrieve blocks of class B network numbers that have been allocated to organisations in the past. For this purpose, InterNIC has made available all class B network numbers ever assigned in exchange format. The NCC examine this information closely, and will approach organisations holding a significant amount of class B network numbers still unused, to ask them to return them to the NCC, for assignment in Europe.

ECHO Gateway

The ECHO gateway provided by the RIPE NCC on June 6th was taken over by RESTENA later, after adverse effects on NCC Services had become noticeable.

Joint Projects

The two 6-month Joint Projects “Route Server” and “GISS” have less than one month before they reach the end of the reporting period. They have both been successful in achieving their stated goals. The synergy of NCC activities with the projects has proven to be extremely valuable to both projects but especially to the Route Server development.

The projects have also been beneficial to the NCC, since they enable more proactive development meeting future needs. NCC staff have supported the projects enthusiastically. In retrospect it has become obvious that the projects have demanded significant management and support effort from the NCC itself. Consequently separate resources need to be allocated for project management and support of joint projects at the NCC for future projects. This has already been done for the proposed PRIDE project described below.

In principle staff working at the NCC will have the possibility to divide their time between project work and NCC core activities as much as practical constraints allow. The division will of course be arranged most carefully such that all activities will receive resources in accordance to their funding.

GISS Project Status

The goal of the project is to produce a document describing all aspects of a “useful Internet service”. The intention is to provide guidance to both service providers and customers. All important aspects of Internet services will be covered.

At the 15th RIPE meeting in Amsterdam the results of the Birds of a Feather meeting at the 26th IETF meeting in Columbus, US were presented along further refinements of the intended focus and structure of the GISS document. Within the first working group meeting it became clear that GISS is a topic of large interest and something that would need to be continued after the project was over. There are many overlaps with other groups within RIPE that should be integrated into GISS over time. Of particular note was the work being done within the Connectivity working group where it was clear that there was scope for closer liaison between the groups in the future.

A second draft of GISS has been produced. This essentially has the finished focus and structure of the GISS work. Six areas of interest have been identified and 36 initial service aspects highlighted. The intention is to have aspects contributed from members of the community rather than the authors to make the document as open as possible. Thus far, the response has been somewhat disappointing.

A second ‘Birds of a Feather’ meeting is planned for the forthcoming Amsterdam Internet Engineering Task Force (IETF) meeting. A draft IETF working group charter has been produced to make sure the GISS document can be published to as wide an audience as possible and discussed in a larger forum than just RIPE and RARE. It is expected that the GISS working groups will continue within RIPE and the IETF at least until the document reaches a stable state. The current GISS draft is available from the RIPE document store in:

`docs/ripe-drafts` as either

`giss.ps` (postscript) `giss.txt` (ascii text).

Route Server Project Status

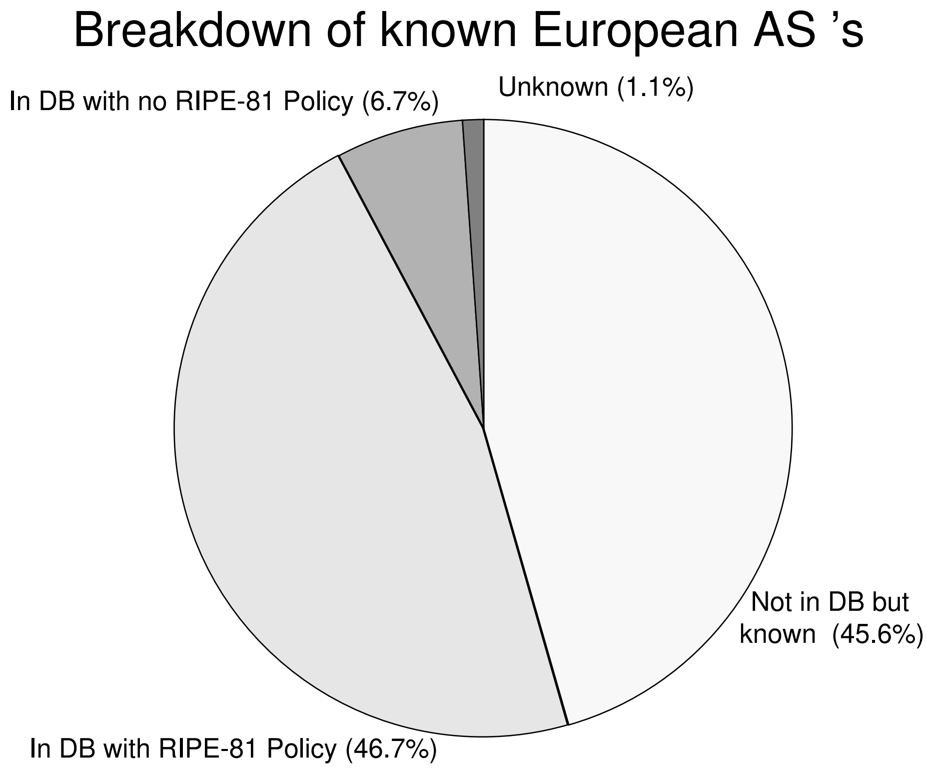
The goal of this project is to produce a functioning Route Server as specified in “Internet Routing in a Multi Provider, Multi Path Open Environment” by Bates, Karrenberg, Lothberg, Stockman and Terpstra. The function of the Route Server will be to present unified routes to European destinations to routers on the proto-GIX in Washington D.C.

This project requires close coordination with the RIPE NCC for the database related aspects and with the operators of transatlantic links, especially EBONE.- The project continues to progress extremely well. The Route Server now peers with all peers on the proto-GIX at MAE-EAST. A large amount of Routing Protocol testing has been done. Specifically in two areas; verification of the BGP NEXT_HOP information and the robustness of the routing software. Bugs have been found to exist in at least two vendor implementations of router software resulting in giving incorrect BGP NEXT_HOP information. These are in the process of being fixed. A local modification has been made to make sure the Route Server can function correctly. The software continues to be very stable and large scale testing has been done using network based access lists in the order 3000 networks with multiple paths which seem to incur no problems. Whilst the Route Server is not used for production traffic, as of today the component parts of the Route Server appear to be ready. The larger and more difficult part of routing policy information is still far from complete and this essentially holds up full deployment of the European Route Server.

Close collaboration takes place with both the Merit Route Server and the CIX Route Server and all three Route Server projects were presented at the NSFnet Regional Techs meeting held in Herndon, Va, US. 9th - 10th June. The main area of collaboration is needed in the Routing Registry aspect of the Route Server project. An agreed ‘exchange format’ for routing policy information needs to be ratified and this will be addressed at a forthcoming IETF once more experience is gained with running Routing Registries.

The method of routing policy representation within the RIPE database, RIPE-81was agreed at the 15th RIPE meeting. A weekly report is produced showing anomalies between the RIPE database and routing tables within Europe. This is sub-directory “as”.

By examining routing tables within Europe we see some 90 European AS’es in use. The breakdown is shown below:-



Although the amount of information continues to grow we still need more Routing policy information in the RIPE database.

More development has been done on the RIPE-81 tool “prtraceroute”. Alpha release 1.8 is available from the RIPE document store and we encourage network operators to try this and make useful suggestions.

As the main emphasis of the Route Server project swings more towards the Routing Registry it is clear more resources need to be put into the gathering of the routing policy information. The outcome of this is the PRIDE project.

Acknowledgements

The RIPE NCC wishes to thank the RARE Secretariat for their excellent support throughout this quarter.

We wish also to thank the local registries for their excellent work, especially with regard to the allocation of IP numbers.

Appendix A

Meetings Attended

The following meetings were attended by staff during the second quarter of the RIPE NCC operations.

Date	Name & Location	Attendee
7-9 Apr	Interop NOC Team Paris, France	Marten Terpstra
10 -12 May	JENC ‘93 Trondheim, Norway	Daniel Karrenberg
9 -10 Jun	NSFnet Regional Techs Meeting Virginia, USA	Tony Bates Daniel Karrenberg
22 Jun	Interop NOC Team Paris, France	Marten Terpstra
30 Jun	Euro-CCIRN meeting Amsterdam, NL	Daniel Karrenberg

Appendix B

Class B Network Number Allocations to Date

The table below summarises all assignments of class B network numbers made through the RIPE NCC to date. The “Via” column indicates through which registry the NCC received the request and solicited the necessary justification.

Network Number	Via
141.92	RIPE NCC
141.93	RIPE NCC
141.94	JANET
141.95	JANET
141.96	RIPE NCC
141.97	JANET
141.98	SWITCH
145.224	JANET
145.225	DE-NIC
145.226	RIPE NCC
145.227	JANET
145.228	DE-NIC
145.229	JANET
145.230	DE-NIC
145.231	INRIA
145.232	SWITCH
145.233	JANET
145.234	SE-NIC
145.235-254	FREE
160.44-160.52	DE-NIC
160.53	SWITCH
160.54-160.58	DE-NIC
160.59	SWITCH
160.60	DE-NIC
160.61-160.62	CH NIC
160.63	SWITCH
160.219	EUnet/CH
160.220	RIPE NCC
163.156-163.157	RIPE NCC

Network Number	Via
163.158	CH NIC
163.159-163.160	RIPE NCC
163.161	SWITCH
163.162	GARR
163.163-163.165	RIPE NCC
163.166	ICNET
163.167	JANET
163.168-163.175	RIPE NCC
164.1	RIPE NCC
164.2	RIPE NCC
164.3	EUnet/AT
164.4	SE NIC
164.5	RIPE NCC
164.6	PIPEX
164.7	RIPE NCC
164.8	ARNES
164.9	SE NIC
164.10	SE NIC
164.11	JANET
164.12	RIPE NCC
164.13	Telecom Finland
164.14	RIPE NCC
164.15	RIPE NCC
164.16-164.34	DE-NIC
164.35	RIPE NCC
164.36	RIPE NCC
164.37	SE-NIC
164.38	PIPEX
164.39	HP
164.40	RIPE NCC
164.61	free
164.128	RIPE NCC
164.129	RIPE NCC
164.130	RIPE NCC

Network Number	Via
164.131	RIPE NCC
164.132	GARR
164.133	DE-NIC
164.134-143	FREE

Appendix C

Class C Block Allocations to Date

The table below summarises the delegation status of the class C network number blocks allocated through the NCC and the number of networks allocated from these blocks. The "p/n" column indicates whether the block in question is delegated to the local registry of a service provider or is used to allocate numbers to organisations without a service provider.

It should be noted that blocks are reserved based on usage estimates given by the local registries for a period of about 24 months. Should the assignment rate differ from the estimated one, reserved blocks can and will be used for other purposes if necessary.

Block	p/n	nets assigned	Country	Registry
192.162	?	26	NCC	Miscellaneous TN,RO,PT
192.164	p	238	AT	EUnet/AT
192.165	?	192	SE	NORDUnet
192.166	?	176	DE	DE-NIC
192.167	?	154	IT	GARR
192.168	p	0	EU	EUnet/NOC
193.0	?	22	none	NCC
193.1	p	22	IE	HEANET
193.2	p	16	YU	ARNES
193.3	?	153	DK	EUnet/DK
193.4	?	57	IS	Iceland everything
193.5	p	136	CH	SWITCH
193.6	p	184	HU	Sztaki
193.7	p	0	DE	chambers of commerce DE-NIC
193.8	n	101	CH	non-provider CH-NIC
193.9	n	179	EU	NCC non-provider European
193.10	p	19	SE	SUNET
193.11	p	resvd	SE	SUNET
193.12	p	120	SE	SWIPNET
193.13-15	p	resvd	SE	SWIPNET
193.16	n	151	DE	non-provider DE-NIC
193.17	n	92	DE	non-provider DE-NIC

Block	p / n	nets assigned	Country	Registry
193.18	n	254	DE	non-provider DE-NIC
193.19	n	0	DE	non-provider DE-NIC
193.20	n	256	DE	non-provider DE-NIC
193.21	n	256	DE	non-provider DE-NIC
193.22	n	177	DE	non-provider DE-NIC
193.23	n	196	DE	non-provider DE-NIC
193.24	n	132	DE	non-provider DE-NIC
193.25	n	140	DE	non-provider DE-NIC
193.26	n	172	DE	non-provider DE-NIC
193.27	n	122	DE	non-provider DE-NIC
193.28	n	26	DE	non-provider DE-NIC
193.29-31	n	resvd	DE	non-provider DE-NIC
193.32	p	220	UK	non-provider UK-NIC
193.33-34	n	resvd	UK	Sainsbury's (multiple B request)
193.35	n	254	UK	non-provider UK NIC
193.36	n	252	UK	non-provider UK NIC
193.37	n	256	UK	non-provider UK NIC
193.38	n	131	UK	non-provider UK NIC
193.39	n	resvd	UK	non-provider UK NIC
193.40	n	13	EE	NCC non-provider EE
193.41	n	resvd	EE	non provider EE
193.42	n	91	IT	non provider IT NIC
193.43	n	resvd	IT	non provider IT NIC
193.44	p	38	SE	TIPNET
193.45-47	p	resvd	SE	TIPNET
193.48	p	162	FR	RENATER
193.49	p	107	FR	RENATER
193.50	p	169	FR	RENATER
193.51	p	94	FR	RENATER
193.52	p	169	FR	RENATER
193.53	n	69	BE	NCC non-provider (dup)
193.54	p	106	FR	RENATER
193.55	p	90	FR	RENATER
193.56	n	58	FR	non-provider FR NIC
193.57	n	6	FR	non-provider FR NIC

Block	p/n	nets assigned	Country	Registry
193.58	n	33	BE	NCC non-provider
193.59	p	52	PL	academic
193.60	p	210	UK	JANET
193.61	p	235	UK	JANET
193.62	p	0	UK	JANET
193.63	p	92	UK	JANET
193.64	p	56	FI	EUnet/FI
193.65	p	0	FI	EUnet/FI
193.66-67	p	resvd	FI	EUnet/FI
193.68	p	8	BG	EUnet/BG
193.69	p	resvd	IS	EUnet/IS
193.70	p	resvd	IT	EUnet/IT
193.71	p	17	NO	EUnet/NO
193.72	p	60	CH	EUnet/CH
193.73	p	resvd	CH	EUnet/CH
193.74	p	34	BE	EUnet/BE
193.75	p	resvd	BE	EUnet/BE
193.76	p	0	HR	EUnet/HR
193.77	p	12	HR	EUnet/HR
193.78	p	79	NL	EUnet/NL
193.79	p	15	NL	EUnet/NL
193.80	p	74	AT	EUnet/AT
193.81-83	p	resvd	AT	EUnet/AT
193.84	p	178	CS	EUnet/CS
193.85	p	56	CZ	EUnet/CZ
193.86	p	resvd	SK/CZ	EUnet/SK/CZ
193.87	p	32	SK	EUnet/SK for SANET
193.88	p	69	DK	EUnet/DK
193.89-91	p	resvd	DK	EUnet/DK
193.92	p	18	GR	EUnet/GR
193.93	p	6	GR	EUnet/GR
193.94	p	5	TN	NCC EUnet/TN
193.95	p	resvd	TN	EUnet/TN
193.96	p	144	DE	EUnet/DE
193.97	p	127	DE	EUnet/DE

Block	p / n	nets assigned	Country	Registry
193.98	p	127	DE	EUnet/DE
193.99	p	0	DE	EUnet/DE
193.100-103	p	resvd	DE	EUnet/DE
193.104	p	65	FR	EUnet/FR
193.105	p	104	FR	EUnet/FR
193.106	p	25	FR	EUnet/FR
193.107-111	p	resvd	FR	EUnet/FR
193.112	p	152	UK	EUnet/UK
193.113	p	67	UK	EUnet/UK (special)
193.114	p	28	UK	EUnet/UK
193.115	p	0	UK	EUnet/UK
193.116-119	p	resvd	UK	EUnet/UK
193.120	p	21	IE	EUnet/IE
193.121-123	p	resvd	IE	EUnet/IE
193.124	p	135	RU	EUnet/RU + xSU
193.125	p	resvd	RU	EUnet/RU + xSU
193.126	p	53	PT	EUnet/PT
193.127	p	5	ES	EUnet/ES
193.128	p	219	UK	PIPEX
193.129	p	10	UK	PIPEX
193.130	p	resvd	UK	PIPEX
193.136	p	65	PT	RCCN
193.137	p	resvd	PT	RCCN
193.138	?	5	SI	NCC general
193.139	p	254	FR	Individual Block allocation
193.140	?	87	TR	NCC general
193.141	p	26	DE	XLINK + reserved
193.142	n	77	FI	NCC non-provider
193.143	n	37	FI	NCC non-provider
193.144	p	156	ES	RedIRIS
193.145-147	p	resvd	ES	RedIRIS
193.148	n	120	ES	non-provider ES NIC
193.149-155	n	resvd	ES	non-provider ES NIC
193.156	p	87	NO	UNINETT
193.157	p	24	NO	UNINETT

Block	p / n	nets assigned	Country	Registry
193.158-159	p	resvd	NO	UNINETT
193.160	n	129	NO	non-provider NO NIC
193.161	n	r0	NO	non-provider NO NIC
193.162	n	21	DK	non-provider DK NIC
193.163	n	resvd	DK	non-provider DK NIC
193.164	n	3	PL	NCC non-provider
193.165	n	resvd	PL	non-provider
193.166	p	32	FI	FUNET
193.167	p	resvd	FI	FUNET
193.168	n	45	LU	NCC non provider
193.169	p	0	UK	AT&T Istel
193.170	p	48	AT	NCC ACONET
193.171	p	resvd	AT	ACONET
193.172	p	52	EU	NCC EMPB
193.173	p	resvd	EU	EMPB resvd
193.174	p	99	DE	DFN
193.175	p	resvd	DE	DFN
193.176	n	229	NL	non provider NL NIC
193.177	n	52	NL	non provider NL NIC
193.178	n	33	IE	NCC non provider IE
193.179	n	resvd	IE	non provider IE
193.180	n	236	SE	non provider SE NIC
193.181	n	243	SE	non provider SE NIC
193.182	n	229	SE	non-provider SE NIC
193.183	n	0	SE	non-provider SE NIC
193.184	p	0	FI	Helsinki Telephone Company
193.185	p	resvd	FI	Helsinki Telephone Company
193.186	n	254	AT	non provider AT NIC
193.187	n	144	AT	non provider AT NIC
193.188	n	26	several	NCC Middle East
193.189	n	64	NG	NCC Nigeria
193.190	p	66	BE	Belgian National Research Net
193.191	p	resvd	BE	Belgian National Research Net
193.192	n	3	PT	NCC non provider
193.193	n	resvd	PT	NCC non provider reserved

Block	p / n	nets assigned	Country	Registry
193.194	?	3	MA	MA general NCC managed
193.195	p	32	UK	UK DEMON
193.196	p	196	DE	DE BelWue
193.197	p	3	DE	DE BelWue reserved
193.198	n	8	HR	NCC non provider
193.199	n	64	FI	National Board of Education
193.200	n	0	BG	BG Non provider
193.201	n	resvd	BG	BG Non provider reserved
193.202	n	161	Pan Eur	NCC
193.203	n	1	YU-SPL	NCC
193.204	n	47	IT	GARR NIS
193.205-207	n	resvd	IT	GARR NIS reserved
193.208	p	63	FI	DATANET
193.209-211	p	resvd	FI	DATANET reserved
193.212	p	1	NO	Telepost Communication AS
192.213-215	p	resvd	NO	Telepost Communication AS
193.216	p	1	NO	DAXnet
193.217	p	resvd	NO	DAXnet reserved
193.218	n	6	GR	NCC non-provider
193.219	n	4	LT	NCC non-provider
193.220	n	resvd	LT	NCC non-provider reserved
193.221	p	79	none	NCC
193.222	n	127	CH	CH non-provider
193.223	n	resvd	CH	CH non-provider reserved
193.224	p	0	HU	HU General Sztaki
193.225	p	resvd	HU	HU General reserved Sztaki
193.226	p	9	RO	RO partly delegated
193.227	n	31	EG	EG non-provider NCC managed
193.228	p	0	UK	UK Chernikeef
193.229-231	p	resvd	UK	UK Chernikeef
193.232-233	n	9	RU	RU xSU non-provider
193.234-243	?	free	none	NCC
193.244-245	p	512	BE	Kredietbank
193.246-247	p	512	BE	Kredietbank

Block	p / n	nets assigned	Country	Registry
193.248-253	p	1530	FR	France Telecom Internal Network
193.254-255	?	free	none	NCC

Appendix D

Domain Table

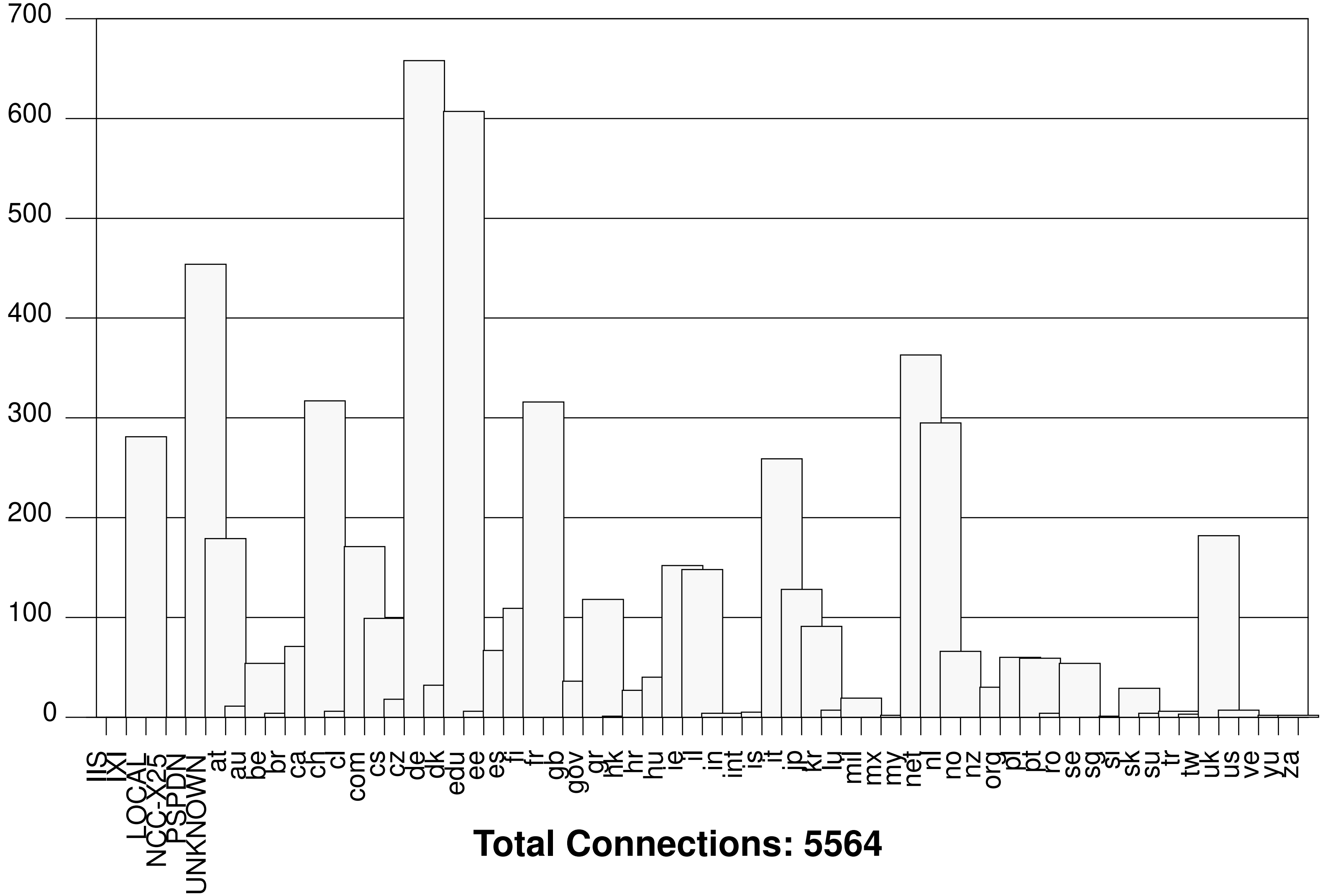
This appendix gives an overview of all top level domains, and other categories mentioned in the tables and graphs.

Domain	Specifying
IXI	EuropaNet (formerly IXI)
IIS	the Interactive Information Server
LOCAL	the NCC itself using IP
NCC-X25	the NCC itself using X.25
PSPDN	the Public Data Network
UNKNOWN	no mapping between IP address and domain name could be found
com	commercial organisations (mainly in the US)
edu	educational organisations (mainly in the US)
gov	US government organisations
mil	US military organisations
net	network providers and related organisations
org	organisations (mainly in the US)
al	Albania
at	Austria
au	Australia
be	Belgium
br	Brazil
bg	Bulgaria
by	Byelorus
ca	Canada
ch	Switzerland
cl	Chile
cs	Czechoslovakia
de	Germany
dk	Denmark
dz	Algeria
ee	Estonia

Domain	Specifying
es	Spain
fi	Finland
fr	France
gb	Great-Britain
gr	Greece
hk	Hong Kong
hr	Croatia
hu	Hungary
ie	Ireland
in	India
is	Iceland
it	Italy
il	Israel
jp	Japan
kr	Korea
lt	Lithuania
lu	Luxembourg
lv	Latvia
mx	Mexico
nl	Netherlands
no	Norway
nz	New Zealand
pl	Poland
pt	Portugal
ro	Romania
se	Sweden
sg	Singapore
si	Slovenia
su	USSR
tn	Tunesia
tw	Taiwan
ua	Ukraine
uk	United Kingdom
us	United States
va	Vatican City State
yu	Yugoslavia
za	South Africa

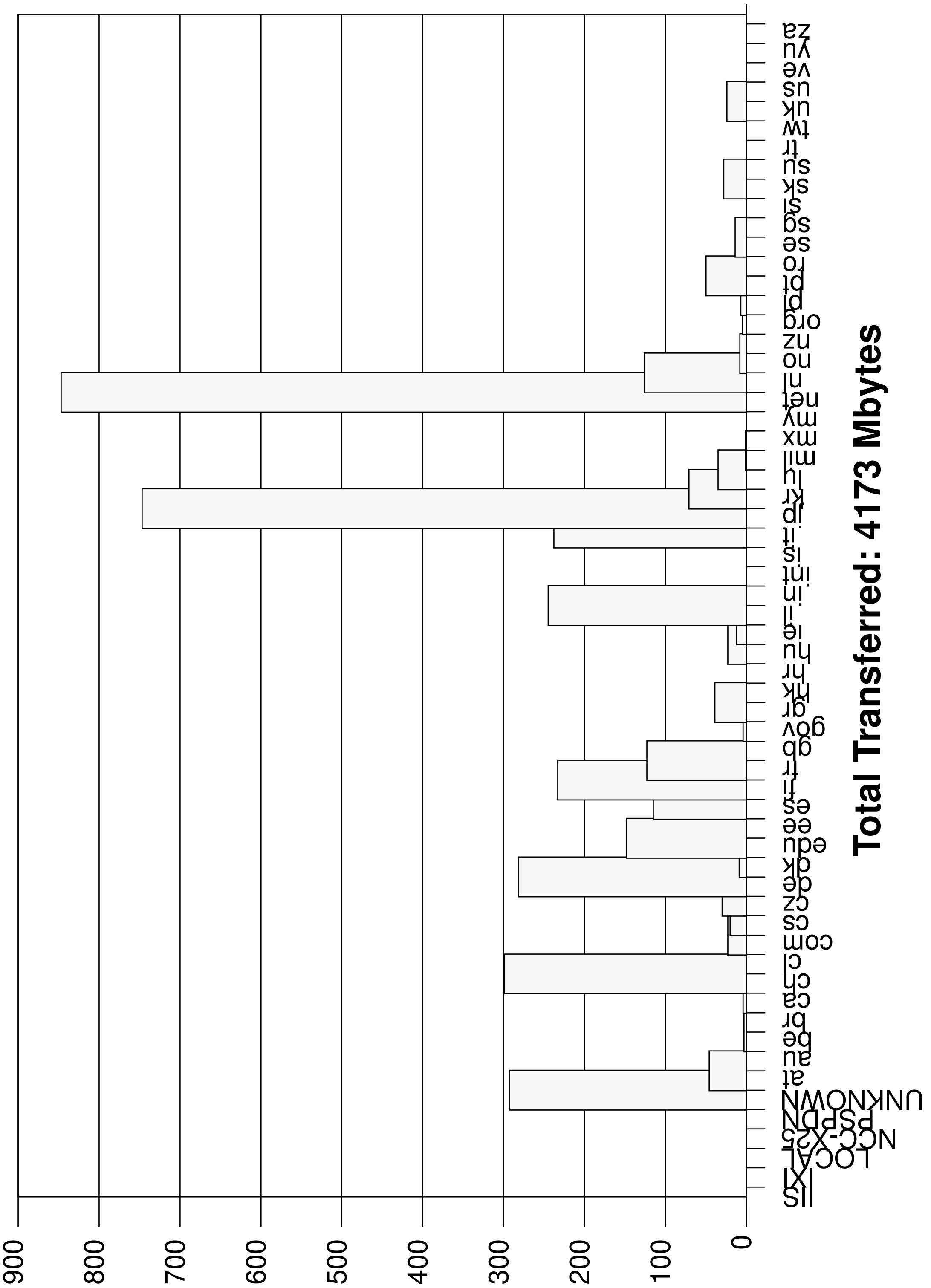
Appendix E

FTP Connections Q2 1993

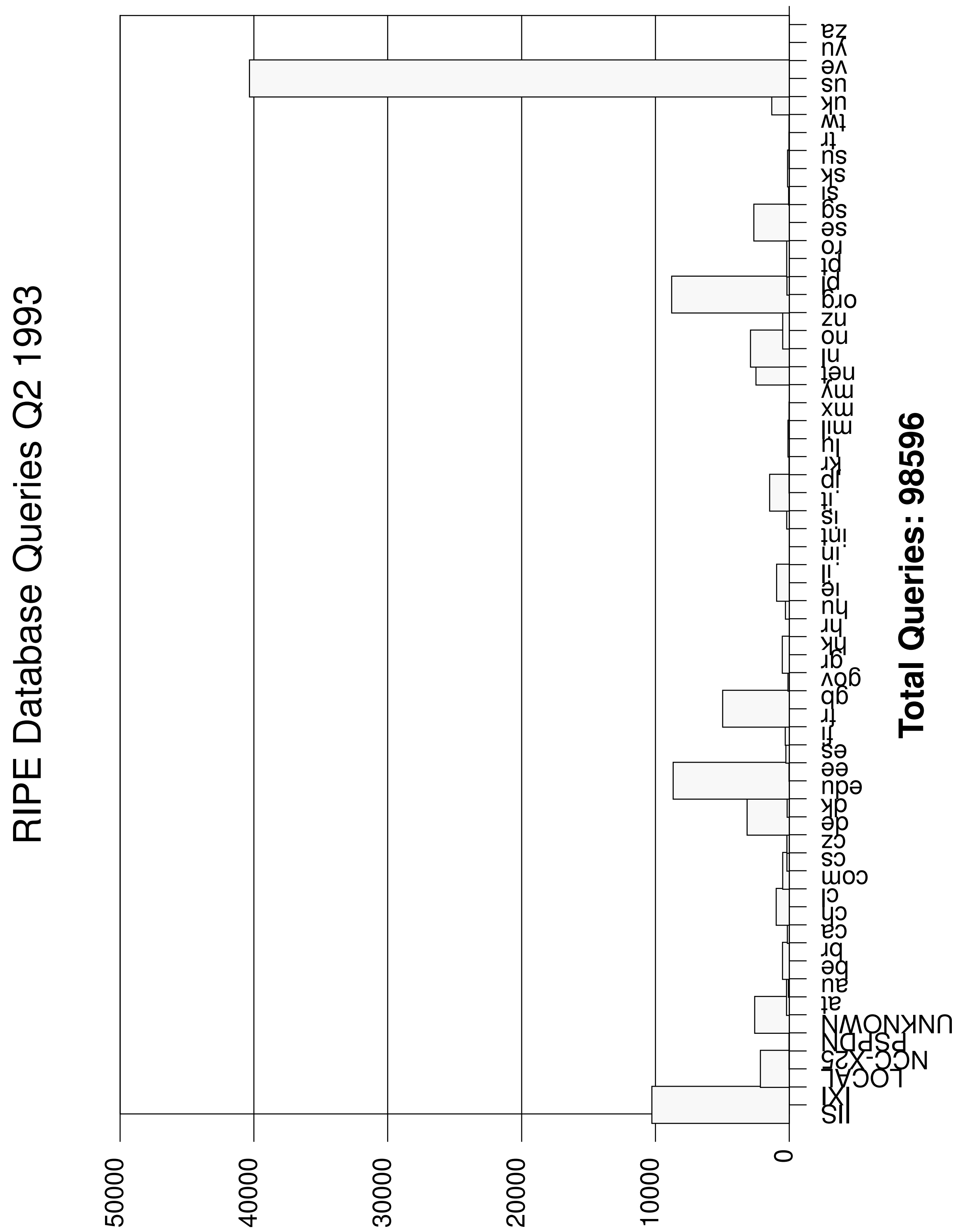


Total Connections: 5564

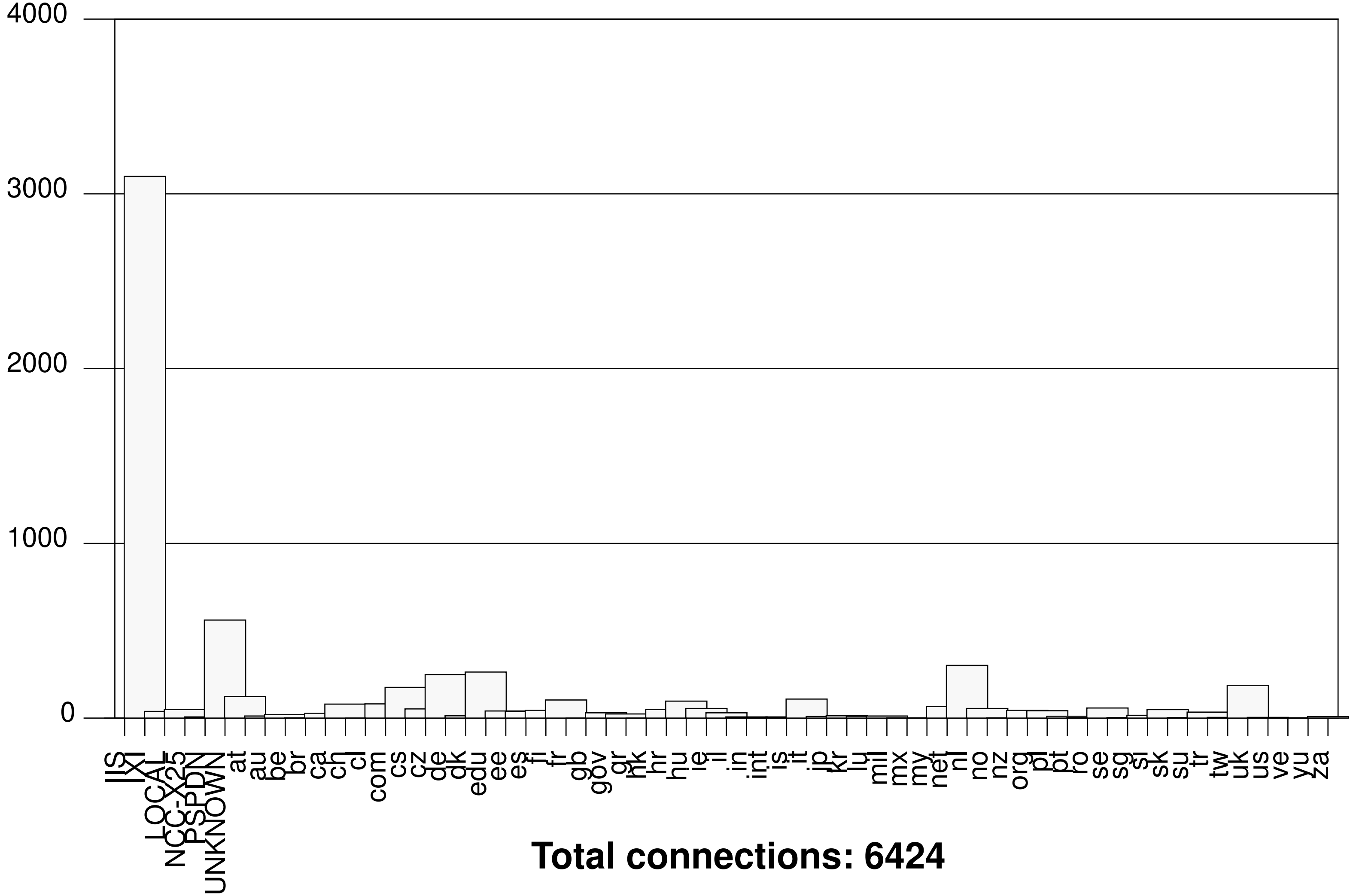
FTP Transfers Q2 1992



Total Transferred: 4173 Mbytes

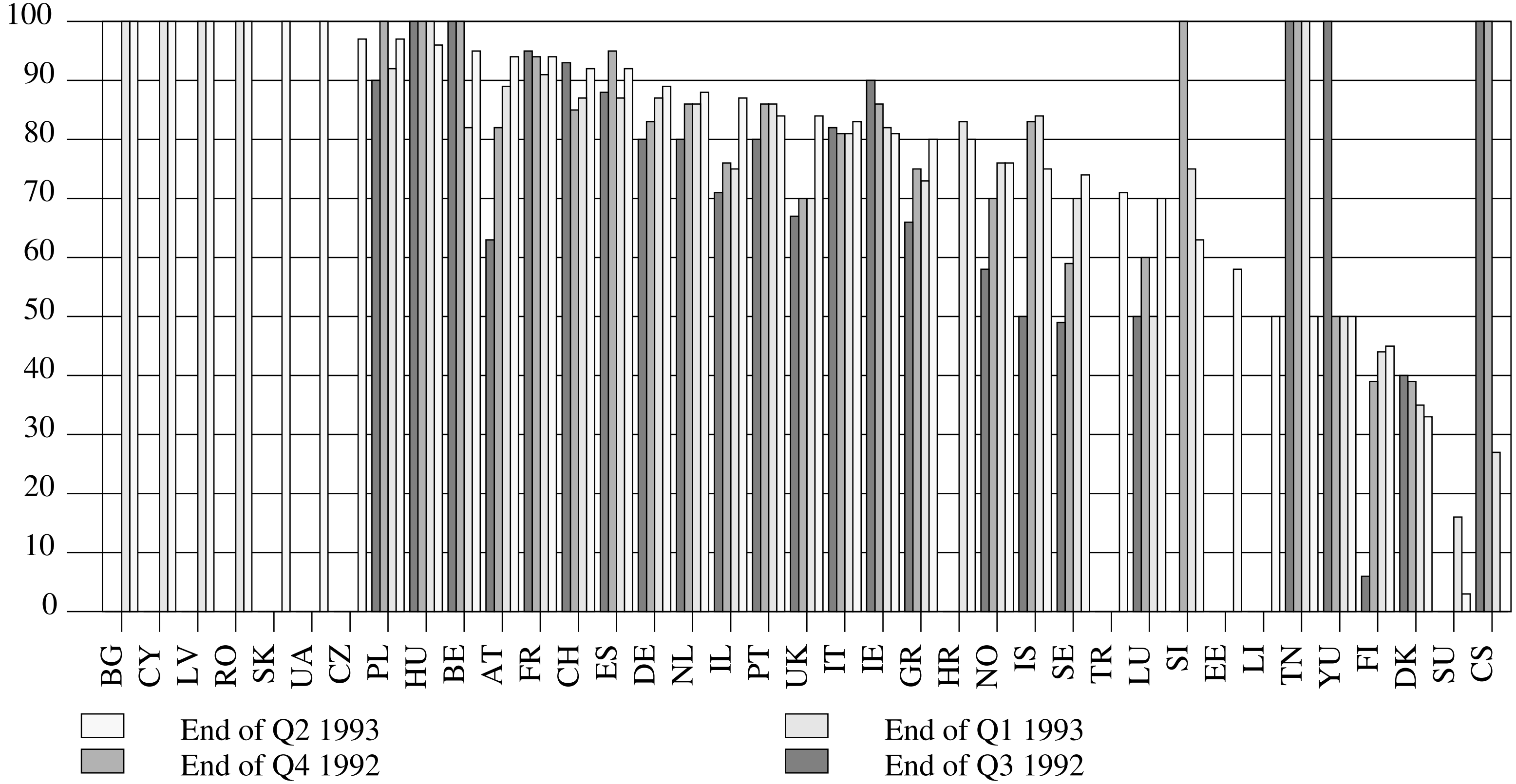

RIPE Database Queries Q2 1993
Total Queries: 98596
0
10000
20000
30000
40000
50000
IIS
IXI
LOCAL
NCC-X25
PSPDN
UNKNOWN
at
au
be
br
ca
ch
cl
com
cs
cz
de
dk
edu
ee
es
fi
fr
gb
gov
gr
hk
hr
hu
ie
il
in
int
is
it
jp
kr
lu
mil
mx
my
net
nl
no
nz
org
pl
pt
ro
se
sg
si
sk
su
tr
tw
uk
us
ve
yu
za

Interactive Information Server Usage Q2 1993

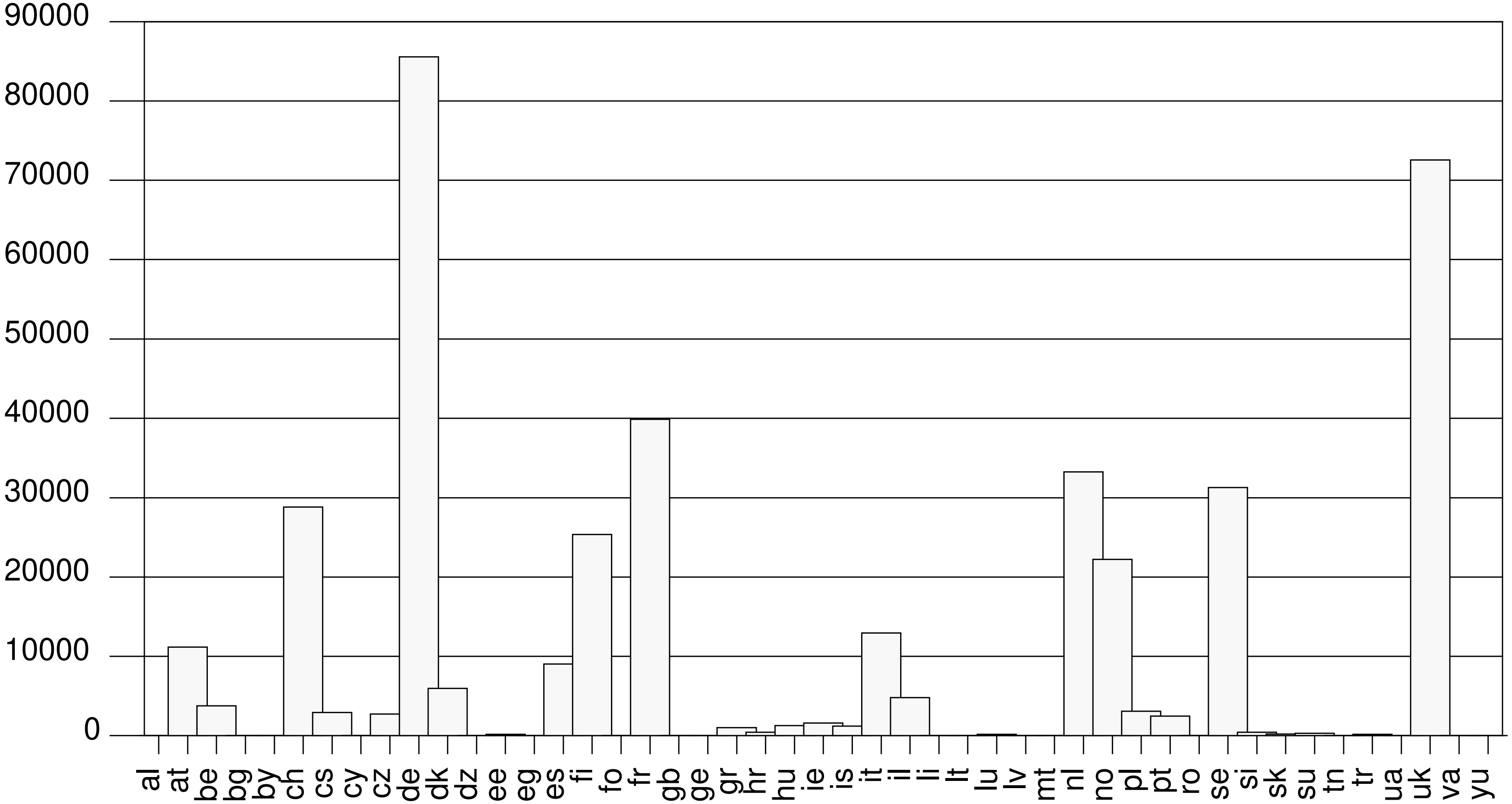


Total connections: 6424

Networks in DNS Registered in RIPE Database 1992-1993



RIPE DNS Hostcount per Country, June 1993



Total machines in DNS in Europe: 404,930