Réseaux IP Européens

Network Coordination Centre

RIPE ncc

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.

The work of the RIPE NCC is divided into two areas: Core Activities and Development Projects. The former are defined in the RIPE NCC activity plan (document ripe-035) and are funded by European Internet Service Providers. The development projects are defined within RIPE and funded separately by interested organisations. Currently all development projects are run under the auspices of the RARE Technical Programme.

This is the seventh quarterly report produced by the RIPE NCC and covers the core activities during the period October to December 1993. Brief reports on the development projects is also included, though they are fully reported in a separate document. Again there has been a conscious effort to avoid duplication of information by including references to previous reports. As always, comments and suggestions are very welcome.

Management Summary

The European part of the Internet as counted by the RIPE hostcount has grown by 18% during the reporting period.

Internet Registry

The European Internet Registry system is running smoothly. A number of local registries has been added to the system. The amount of resources necessary at the RIPE NCC to provide the registry function is still increasing significantly. During the reporting period the amount of requests has been increasing again and their average complexity remains high. Currently the registry binds about one FTE. This is significantly more than expected.

Database

The new automated database software is running well. The almost immediate response is appreciated by the RIPE community, especially by the local registries. The reduction of manual processing at the NCC has freed some resources which are now needed by the registry. Due to staff and time constraints the database software has not been officially released yet.

Other Core Activities

All other NCC core activities are being carried out as usual.

Joint Projects

The PRIDE project is making excellent progress considering it has not reacheds its final staffing level yet. This will occur in January 1994. PRIDE has produced the first PRIDE Tools release.

Staffing

Because of the increasing resources needed by the Internet Registry, more personnel resources are needed. Arrangements are being made to obtain temporary help within the 1994 budget as a short-term solution. A structural increase of NCC staff is needed in 1994 in order to retain the high level of service the NCC currently provides.

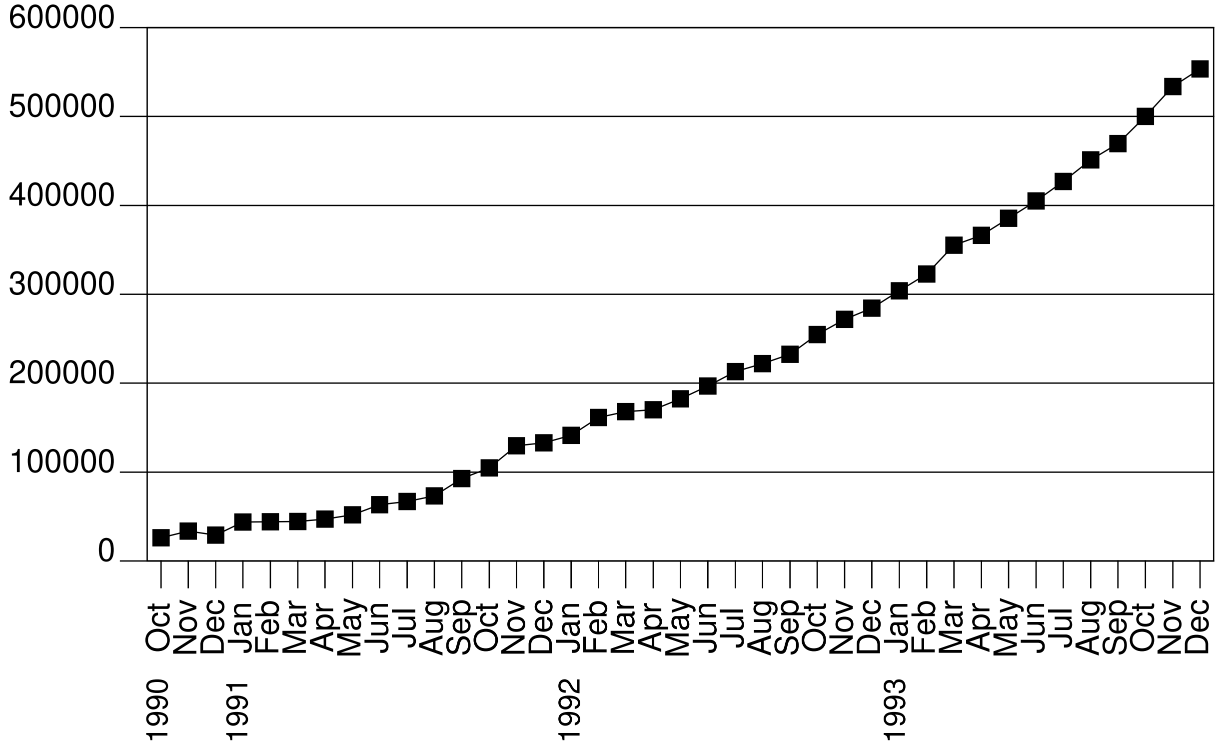
RIPE NCC Core Services

DNS Coordination

DNS Hostcount

The December 1993 hostcount shows a total of over 553,000 hosts in Europe. During the reporting period more than 84,000 were added, which represents an approximate 18% increase.

RIPE DNS Hostcount History 1990-1993



Nothing has changed to the hostcount procedure. 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.

Hostcount History

Below is a table showing the totals of the RIPE DNS hostcount from October 1990 up till December 1993.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 for more details.

`ftp.ripe.net:ripe/hostcount/README`

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
	Jul	426827
	Aug	451116
	Sep	469356
	Oct	500018
	Nov	533701
	Dec	553357

Internet Registry

NCC Workload and Performance

The number of registry requests received by the NCC has increased again. Incoming mail messages to the registry are up from an average 11 per working day to just above 15. The majority of requests are complex ones asking for delegation or assignment of significant amounts of address space which need an in-depth technical analysis by engineering staff. Still we manage to respond to the vast majority of all requests within one working day.

The registry consumes about one FTE at this point and other activities are beginning to suffer. Because we expect further growth, arrangements are being made to obtain temporary personnel for the NCC core activities within the 1994 budget. Currently we plan to combine this with 3-6 months work experience stays for people from central and eastern European countries. However this cannot be a structural solution to the staffing problem.

New List of European Local Registries

There is now a publicly accessible list of European local registries. It was decided by the Local-IR working group at the 16th RIPE meeting to publish such a list. Thus, the draft list was circulated to all the local registries for verification and subsequently published. It is available from RIPE document store via

`ftp.ripe.net/ripe/docs/ripe-docs/ripe-101.txt`

If any of the details are incorrect, please let us know as soon as possible.

Circulation of the draft list of local registries raised a discussion concerning the appropriateness of the terminology used to describe the function of the “non-provider Local IR‘s”. A consensus was reached on replacing “non-service provider” local IR with “registry of last resort” IR.

Local IR’s

As before the number of local registries continues to increase. There are now 83 local registries allocating class C network numbers in Europe. Organisations wishing to become local registries must first confirm that they have read and understood “European Internet Registry: IP Address Space Assignment Procedures” (Current doc ID: ripe -104).

There are now a total of 24 “registries of last resort” providing registry service to organisations not served by an Internet service provider yet. A new registry of last resort since the last quarterly report is operating in The Czech Republic. Again the RIPE NCC is grateful to all those who perform this valuable service to the community.

Address Space Assignment Policy

The new address space assignment procedures have been published as document ripe-105. This recommends to cut down on address space reservations made to improve aggregation possibilities (CIDR). This change was made in the light of experience which shows that the decrease in address space utilisation caused by these reservations is high while the aggregation gain is low.

Reverse Name Lookup for 193.x.y and 194.x.y

The procedure document for the DNS delegation in the in-addr.arpa domain has been published to update ripe-085. The document ID is ripe-105. This document deals with the delegation of direct subdomains of 193.in-addr.arpa and 194.in-addr.arpa and gives some guidelines for delegation of domains below that.

Address Space Usage 193.x.y.0 and 194.x.y.0

During the reporting period from October - December, the NCC assigned a total of 10 class B network numbers, 6 of which were referred via local registries, delegated 19 blocks of class C network numbers and have reserved 1 block of class C network numbers. During the reporting period the European registries have assigned a total of 5478 class C networks.

The NCC has also started to delegate blocks of network numbers from the 194.0.0 - 194.255.255 address space.

The NCC thanks the following organisations for returning class B network numbers to the RIPE NCC, some because they were no longer used, others because they were replaced by class C network numbers: Norwegian Telecommunications Administration, Norwegian School of Economics and Business Administration, ACOnet and the Austrian Academy of Sciences. As usual class B network numbers returned to the RIPE NCC remain at the NCC for reassignment in Europe. The NCC welcomes any organisation that wishes to return class B network numbers.

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 updates

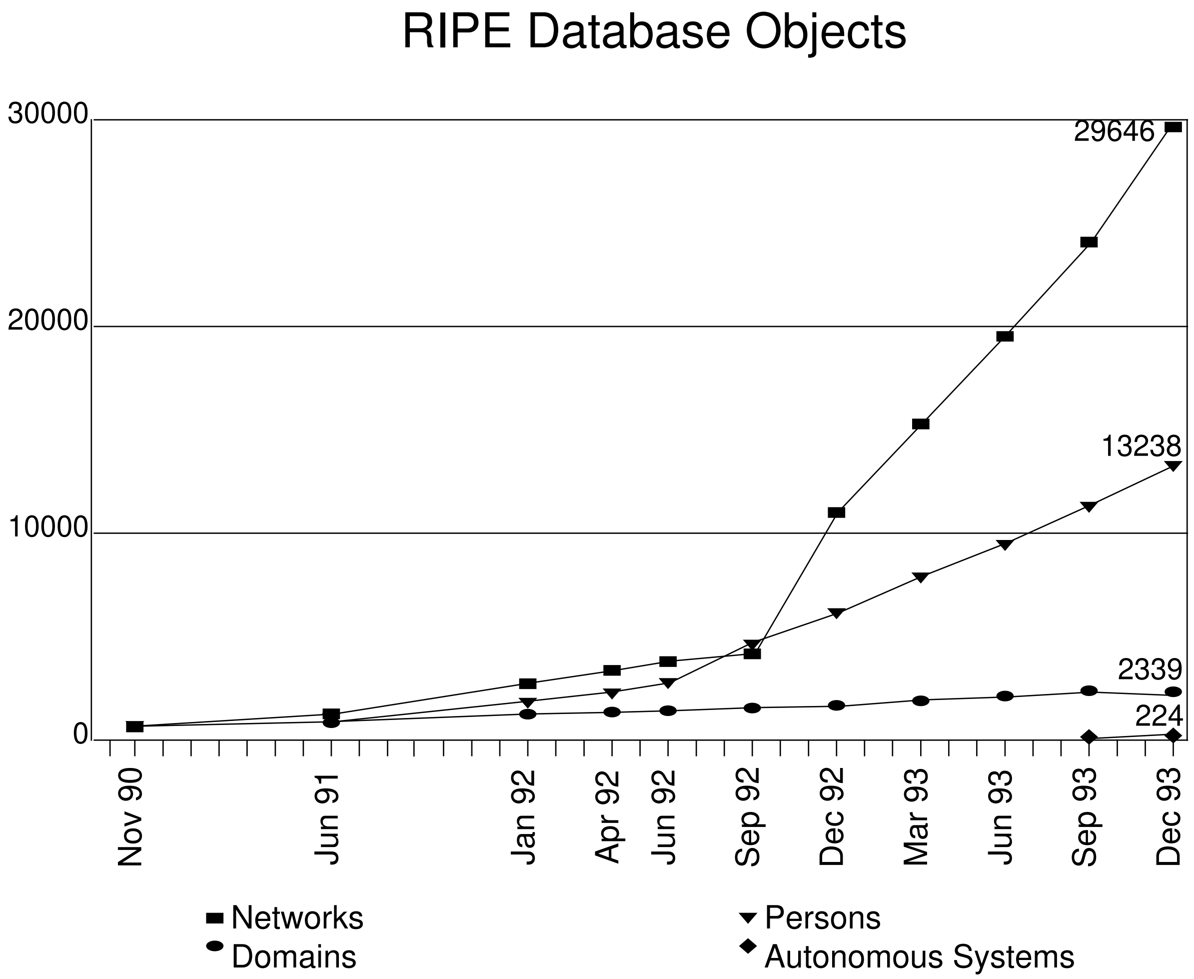
The database software has processed 3575 e-mail messages containing 42,767 database objects in the past quarter. The total number of database objects processed at the NCC over the last quarters is tabled below.

Database Objects Processed	Q1 1993	Q2 1993	Q3 1993	Q4 1993
TOTAL	27938	28110	58189	42767

Due to the change of database software at the RIPE NCC, the detailed statistics of the number of updates, additions and noops will be available again in 1994.

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.



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
Sep 93	24077	11267	2382	153
Dec 93	29646	13238	2339	224

For the first time in the history of the RIPE Database, the number of domain entries has actually decreased since last quarter. Several reasons can explain this decrease. The number of domain entries that were in the database with syntax errors was high, and with the new software, the syntax checking has become more strict. Another -more important- reason is that many top level domain administrators do not see the need to register their domains in the RIPE database. This is encouraged by the fact that for most purposes the DNS itself is quite sufficient. Thus the RIPE database has much less of an operational role with regard to domains as it has for the other objects. Nonetheless TLD administrators are requested to register at least their immediate subdomains. The benefits of registration are easy access to those responsible for a domain in case of problems, the possibility of consistency checks and last but not least a uniform standard of domain registry data. The RIPE NCC will provide assistance to TLD administrators if they request it.

Database Coverage

The following table shows the database coverage as compared against previous quarters. The table is sorted by coverage percentage in this quarter (Q4 1993). It will not be a surprise that most of the smaller countries in network terms appear on the top of the list. Generally coverage seems to be stable or increasing slightly, which is a good sign. Coverage is particularly low in Finland and in Denmark. Czecho-Slovakia (CS) is low due to the name change to CZ and SK. There are still nets mentioned in the DNS for CS, whereas they appear in the database as CZ and SK. Also, special processing is used for UK and SU, since the country codes that appear in the database for these countries is usually GB for UK and RU for SU. This has been corrected in the table and graph for those two countries. Any effort to attack the low coverage 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 and this is one area where effort applied by the local registries (where resources permit) could have an 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 Q4-1993	Nets in DB Q4-1993	Perc Q4 1993	Perc Q3 1993	Perc Q2 1993	Perc Q1 1993
BG	2	2	100	100	100	100
CY	3	3	100	100	100	100
EG	3	3	100	0	0	0
LI	1	1	100	100	50	0
LV	1	1	100	100	100	100
YU	1	1	100	50	50	50
CZ	79	78	99	96	97	0
PL	59	57	97	100	97	92
FR	885	828	94	93	94	91
HU	64	60	94	97	96	100
EE	43	40	93	90	58	0
AT	148	136	92	92	94	89
IL	80	73	91	87	87	75
CH	182	161	89	90	92	87
DE	740	656	89	89	89	87
SK	18	16	89	100	100	0
BE	48	42	88	80	95	82
ES	59	52	88	92	92	87
PT	100	88	88	83	84	86
IT	236	205	87	80	83	81
NL	186	161	87	87	88	86
IS	36	31	86	81	75	84
UA	16	13	86	80	71	0
UK	596	514	86	84	84	70
TR	14	12	86	80	71	0
NO	146	124	85	78	76	76
IE	56	46	82	80	81	82
GR	30	24	80	80	80	73
RO	9	7	78	100	100	100
SU	82	64	78	2	3	16
HR	4	3	75	80	80	83
LU	11	8	73	80	70	50
SE	285	204	72	74	74	70
SI	23	15	65	67	63	75
FI	435	265	61	47	45	44
DK	53	25	47	35	33	35
CS	43	0	0	0	0	27

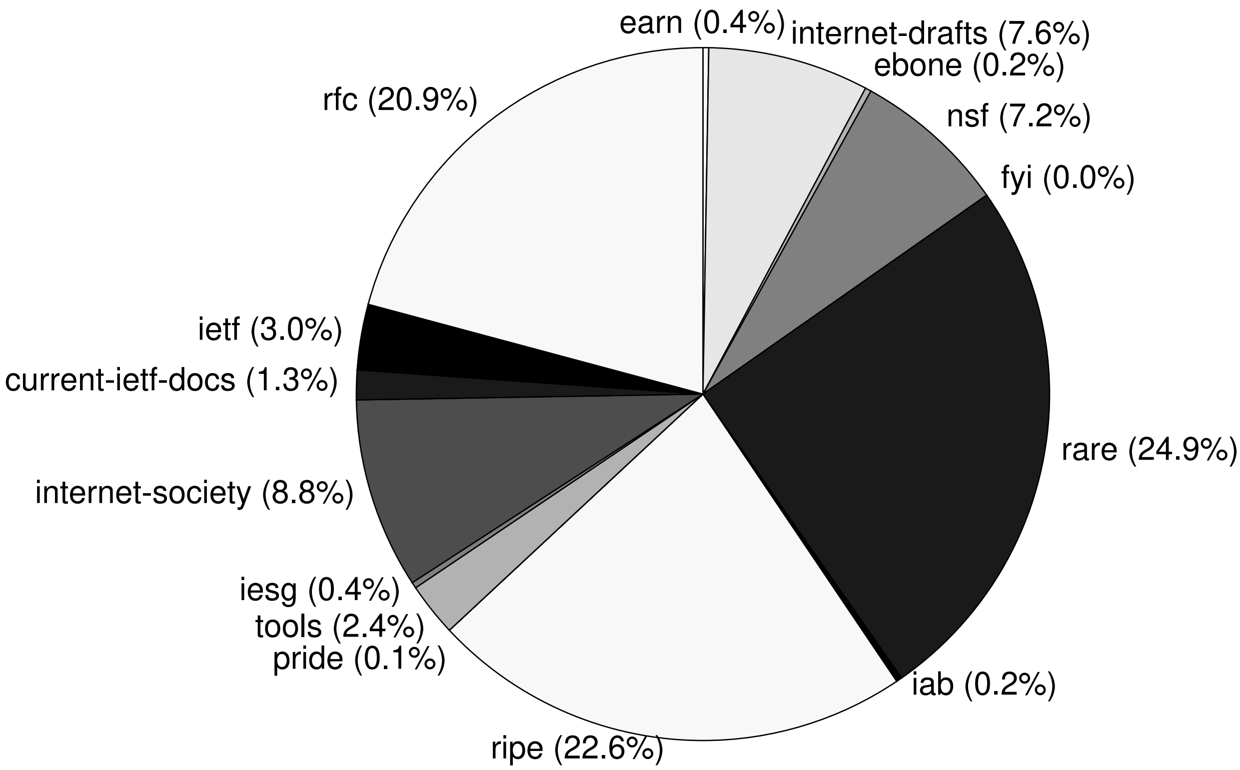
Due to time and staffing constraints the full release of the new database software has not been completed yet. A beta test version is available to interested parties. Similarly various enhancements including the new (ripe-081) guarded attributes and notifications as per ripe-096 could not be completed. Most of this is expected to be completed in the next quarter.

Document Store

Document Store Statistics

In total the document store contains approximately 6300 documents. By volume, it accounts for over 256 Megabytes.

Documents in Archive (256 Mbytes)



Some new sections have appeared in the RIPE document store, and some have been removed. New are the IAB, PRIDE and current-ietf-docs sections. From the tools section, the sections with the Internet Resource Recovery Tools WWW, Wais and Gopher have been removed. It seemed that the software we had available was out of date, and that there are better places specialized in archiving and mirroring for obtaining these tools. Also, the remote conferencing section in the tools section has been removed because it was outdated. Below is a table overview of the RIPE Document Store.

Area	Files	Kbytes
earn	15	1012
ebone	43	546
iesg	78	1041
ietf	1000	7776
internet-drafts	513	19494
internet-society	1019	22590
nsf	157	18321
rare	1170	63587
rfc	945	53346
ripe	1037	57765
tools	38	6057
current-ietf-docs	192	3365
fyi	26	72
iab	14	406
pride	15	287
Total	6276	256565

RIPE documents

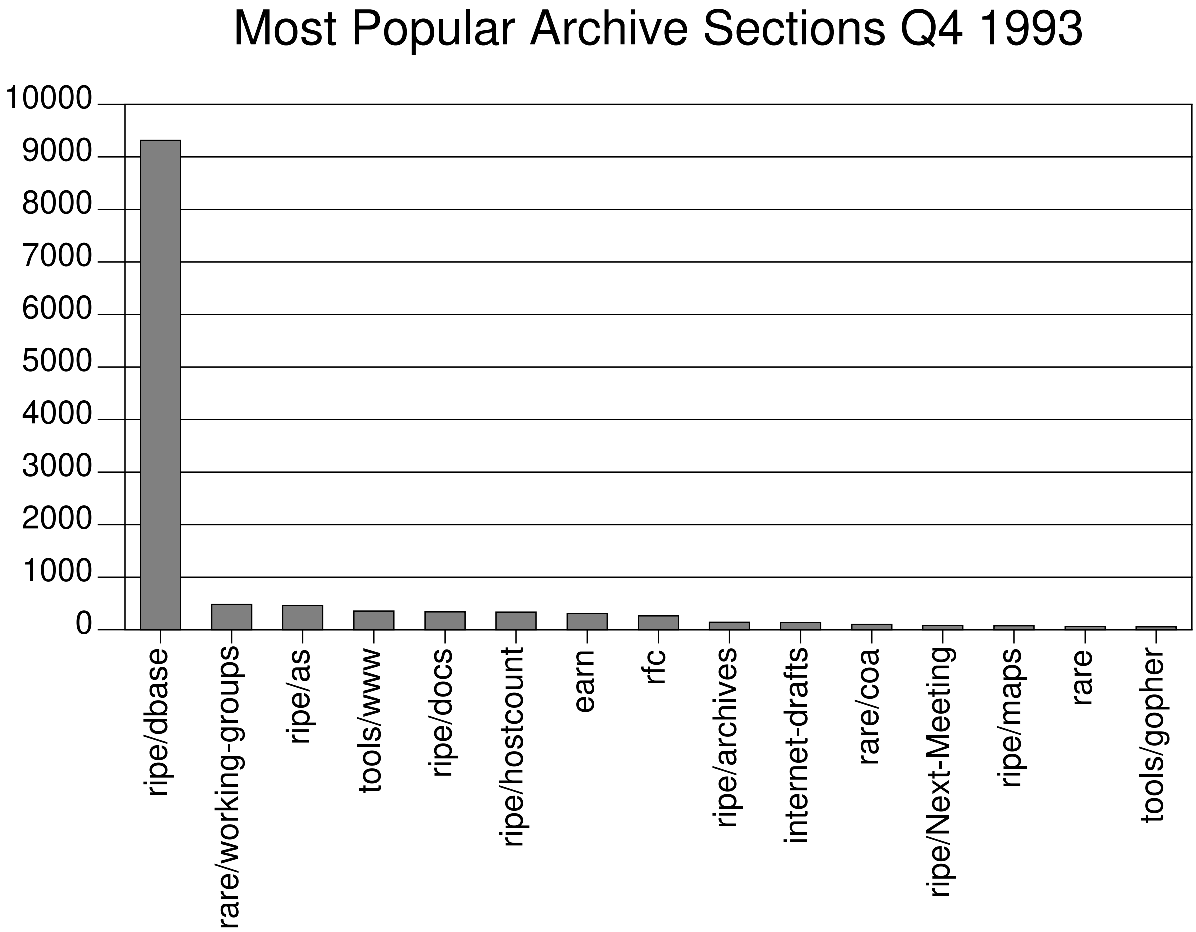
The following new documents, or updates to older documents were added to the document store during the reporting period:

- ripe-095
  European Internet Network Number Application Form & Supporting Notes
- ripe-096
  Authorisation and Notification of Changes in the RIPE Database
- ripe-097
  European Autonomous System Number Application Form & Supporting Notes
- ripe-098
  European Internet Network Number Application Form & Supporting Notes
- ripe-099
  RIPE NCC Review - Final Report
- ripe-100
  RIPE NCC Quarterly report Issue 6
- ripe-101
  List of Internet Registries in Europe
- ripe-102
  General information About RIPE and The RIPE NCC

- ripe-103
  Description of Inter-AS Networks in the RIPE Routing Registry
- ripe-104
  European Internet Registry: IP Address Space Assignment Procedures
- ripe-105
  European Internet Registry: Procedures for DNS Delegation in the IN-ADDR.ARPA Domain

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 9300 Megabytes transferred.



The total of 9.3 Gbytes of transferred data from the RIPE Database section of the document store actually represents an average of 10 Kbits/sec continuous traffic, 24 hours a day, 7 days a week over this last quarter. Below is the table overview of the 15 most popular archive sections.

Much of this traffic can be explained by mirror sites, who copy this part of the archive daily, and the RIPE database section changes every day.

Archive Section	Files Sent	Kbytes Sent	% of Files Sent	% of Bytes Sent
ripe/dbase	9017	9315337	5.97	72.19
rare/working-groups	2803	462782	1.86	3.59
ripe/as	100409	460554	66.47	3.57
tools/www	1473	354709	0.98	2.75
ripe/docs	7724	338018	5.11	2.62
ripe/hostcount	2516	337097	1.67	2.61
earn	972	310059	0.64	2.40
rfc	3786	262510	2.51	2.03
ripe/archives	4181	141811	2.77	1.10
internet-drafts	2905	139027	1.92	1.08
rare/coa	1005	99161	0.67	0.77
ripe/Next-Meeting	494	79119	0.33	0.61
ripe/maps	1236	77972	0.82	0.60
rare	281	58161	0.19	0.45
tools/gopher	2896	57031	1.92	0.44

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

Domain Name	Files Sent	Bytes Sent	% of Files Sent	% of Bytes Sent
at	1042	596175298	0.69	4.62
au	50	10776383	0.03	0.08
be	185	18214949	0.12	0.14
bg	1	1403	0.00	0.00
br	9	745991	0.01	0.01
ca	150	28981293	0.10	0.22
ch	2001	677726525	1.32	5.25
com	729	79405921	0.48	0.62
cs	2	169465	0.00	0.00
cz	1036	52431056	0.69	0.41
de	5425	523409812	3.59	4.06
dk	98	20400167	0.06	0.16
edu	1501	291039987	0.99	2.26
ee	2	246226	0.00	0.00
es	592	162729729	0.39	1.26
fi	7936	397830442	5.25	3.08
fr	935	93974220	0.62	0.73
gov	117	30602379	0.08	0.24
gr	2076	78059366	1.37	0.60

Domain Name	Files Sent	Bytes Sent	% of Files Sent	% of Bytes Sent
hk	1	241184	0.00	0.00
hr	7	30941	0.00	0.00
hu	435	57325309	0.29	0.44
ie	969	202137918	0.64	1.57
il	1139	830660643	0.75	6.44
in	1	927	0.00	0.00
int	1	235942	0.00	0.00
is	8	845235	0.01	0.01
it	2154	1025872399	1.43	7.95
jp	22588	1396096906	14.95	10.82
kr	1655	100358534	1.10	0.78
lu	10	3573190	0.01	0.03
lv	1	19152	0.00	0.00
mil	66	13677455	0.04	0.11
mx	20	2894243	0.01	0.02
my	32	1420614	0.02	0.01
net	62676	4125009786	41.49	31.97
nl	1087	115618307	0.72	0.90
no	956	59571809	0.63	0.46
nz	1	241184	0.00	0.00
org	75	15891510	0.05	0.12
pl	695	39095032	0.46	0.30
pt	4373	238764631	2.89	1.85
ro	1	7761	0.00	0.00
se	24855	1280339677	16.45	9.92
sg	10	2329137	0.01	0.02
si	379	19623984	0.25	0.15
sk	40	2134658	0.03	0.02
su	375	25803054	0.25	0.20
tr	25	1778614	0.02	0.01
tw	442	25874975	0.29	0.20
ua	61	2351844	0.04	0.02
uk	1102	101331308	0.73	0.79
us	17	2472340	0.01	0.02
za	28	6189179	0.02	0.05

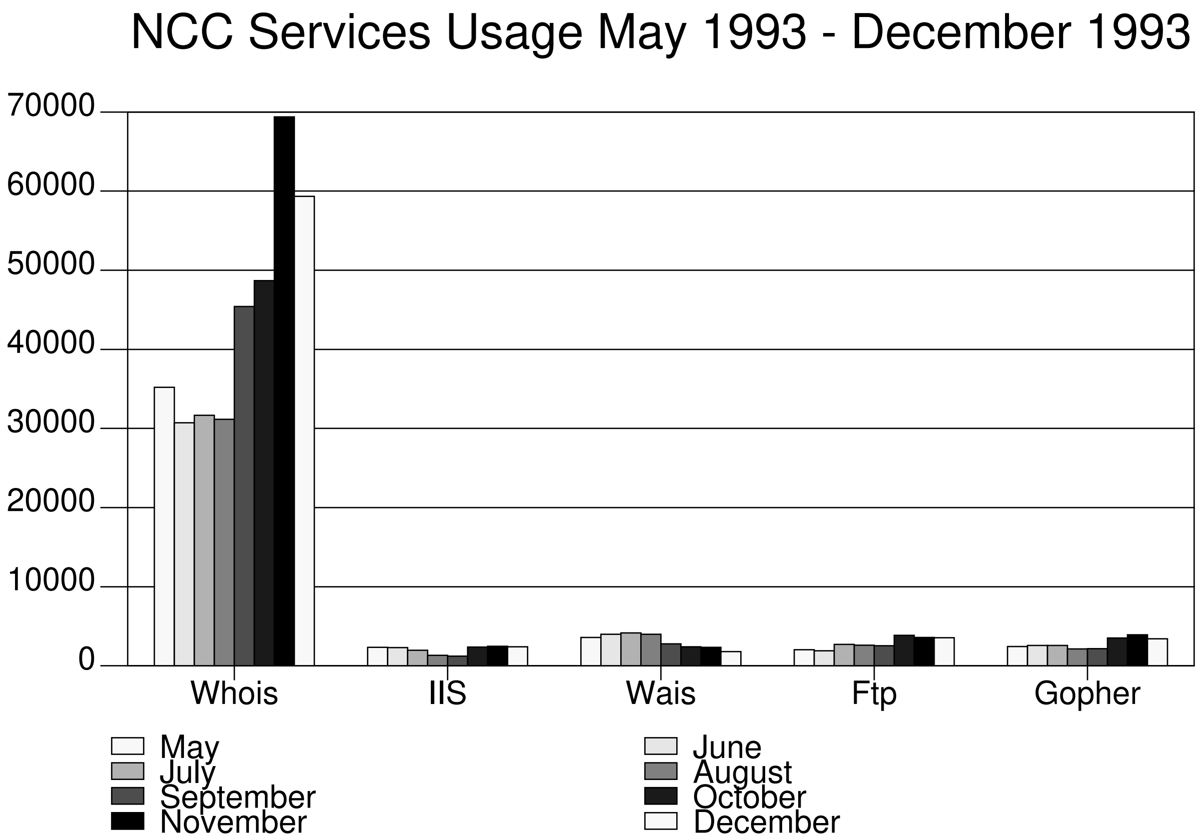
Again these statistics are confirmation that the RIPE document store is a very focused resource being used by the right community.

Interactive Information Server

The NCC Interactive Information Server is still 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. IXI/Europanet X.29 access provided through NIKHEF has, as announced, been removed in this quarter. A graph showing the TOP 25 accesses can be found in Appendix G.

General Service Usage Statistics

Statistics for the use of the various NCC information services were collected for the last 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:



As expected, due to the holiday season, the statistics for December show a lower number of connections than previous months. In November, the number of whois queries has reached a maximum of almost 70,000 queries, an average of 3500 queries per working day, or one query every 25 seconds. Counting weekends as well, this amounts to 2333 queries a day, or one query every 38 seconds.

A breakdown per service since the start of these services in July 1992 is shown below in two tables:

Service	1992 Jul	Aug	Sep	Oct	Nov	Dec	1993 Jan	Feb
Whois	7909	7845	8044	12373	9769	19255	24299	26027
IIS	669	591	628	1027	1018	1148	1662	1924
Wais	1040	682	816	2552	2460	2240	2316	3359
FTP	849	645	625	1173	1344	1757	1443	1816
Gopher	371	337	340	1115	1318	1156	1310	1882

Service	1993 Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Whois	28961	32660	35215	30721	31655	31150	45410	48687	69383	59353
IIS	2040	1785	2326	2313	1978	1311	1236	2370	2475	2412
Wais	4375	3764	3564	3994	4162	3996	2776	2402	2351	1788
FTP	2067	1735	2038	1891	2693	2610	2521	3845	3578	3562
Gopher	2394	2345	2439	2559	2563	2120	2178	3522	3911	3397

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.

Domain	Whois	IIS	Wais	FTP	Total	Domain
IIS	0	0	3296	0	7005	IIS
IXI	0	569	0	0	578	IXI
LOCAL	31532	78	53	177	1035	LOCAL
NCC-X25	0	41	0	0	52	NCC-X25
PSPDN	0	1	0	0	2	PSPDN
UNKNOWN	2070	337	94	228	1180	UNKNOWN
at	1715	65	62	38	428	at
au	18	6	24	6	51	au
be	879	18	0	43	268	be
br	2	2	0	7	10	br
bg	30	0	0	0	0	bg
ca	424	36	9	45	140	ca
ch	6382	45	15	216	950	ch
cl	2	0	1	0	7	cl
com	519	32	444	380	912	com
cs	9	54	0	20	155	cs
cz	1133	0	0	0	0	cz
de	12523	65	7	257	1090	de
dk	645	4	10	21	124	dk
edu	10975	162	501	432	6624	edu
ee	84	3	0	0	3	ee
eg	17	0	0	0	0	eg
es	413	4	1	12	49	es
fi	4971	11	14	111	278	fi
fr	13723	104	15	86	1058	fr
gov	326	6	16	14	67	gov
gr	382	3	0	55	124	gr
hk	15	0	0	1	1	hk
hr	2	0	0	0	0	hr
hu	235	33	0	13	173	hu

Domain	Whois	IIS	Wais	FTP	Total	Domain
ie	981	33	0	26	252	ie
il	11	13	0	10	31	il
in	0	2	0	1	3	in
int	2	0	0	0	0	int
is	154	0	6	3	49	is
it	20470	38	1	107	493	it
jp	75	1	10	1	20	jp
kr	4	4	0	0	5	kr
lu	264	27	0	5	46	lu
mil	30	41	6	23	90	mil
mx	7	0	0	1	1	mx
my	1	0	0	0	0	my
net	8466	25	32	172	1528	net
nl	9264	138	28	254	1883	nl
no	5476	4	0	8	1955	no
nz	9	0	0	0	1	nz
org	1829	8	5	16	2211	org
pl	188	17	0	36	108	pl
pt	399	10	11	25	253	pt
se	718	29	3	22	814	se
sg	2	0	2	0	11	sg
si	143	0	0	0	0	si
sk	445	0	0	0	0	sk
su	305	3	0	0	3	su
tr	63	0	0	0	0	tr
tw	2	4	0	5	13	tw
ua	34	0	0	0	0	ua
uk	2384	83	124	43	694	uk
us	36540	1	2	1	8663	us
yu	0	15	0	8	33	yu
ve	1	0	0	0	0	ve
za	118	0	0	1	1	za
Total	177423	2175	4792	2930	187320	

Staff

RARE has signed a contract with Geert Jan de Groot who will join the NCC team to work on NCC core activities on January 3rd 1994. Mr. de Groot replaces Marten Terpstra who will join Tony Bates working on the PRIDE project at that time. Although this means no direct increase in NCC core staff the whole team will benefit from the added expertise brought in this way.

The NCC is working to make arrangements to allow 3-6 month stays of people from local registries and the European Internet community in general. The intention is that the people involved work on a well defined project as well as general NCC tasks and get a good idea of what it takes to run a local Internet registry and how the Internet works in general.While aimed at central and eastern European countries in particular it is an opportunity for anyone interested We will usually not be able to provide more than a desk, workstation and a very small expense allowance.

Publications

Journals/Newsletters

Articles about and relating to the RIPE NCC were published in the following:

- UNIXWORLD, vol X, no.12, December 1993
- Internet Society News, vol. 2, no.3, Autumn 1993
- ConneXions, vol.7, no. 11, November 1993

RIPE NCC Information Leaflets

As previously reported, the RIPE NCC has produced a series of information leaflets which comprise the following. These have recently been thoroughly revised and will be available from early February 1994.

- Interactive Information Server
- Network Management Database
- Delegated Internet Registry

You can obtain copies of these leaflets by sending email to `ncc@ripe.net` stating how many copies you would like to receive.

Presentations

Over the reporting period the following external presentations were delivered by the RIPE NCC:

- Third Latin-American and Caribbean Networking Conference - “Organizational Overview of European Networking and the RIPE NCC” - Marten Terpstra
- Third Latin-American and Caribbean Networking Conference - “Internet Routing Protocols” - Tony Bates
- ACOnet Eastern and Central European Network Seminar - “RIPE NCC” and “Resource Discovery Tools at the RIPE NCC” - Daniel Karrenberg
- INTEROP Europe October 1993 - “RIPE NCC and the European Routing Registry” - Daniel Karrenberg and Tony Bates (session chair)
- IETF Houston - Various small presentations - Tony Bates and Marten Terpstra

Again the RIPE NCC encourages organisations who feel they would benefit from a presentation by the RIPE NCC to contact them.

Joint Projects

PRIDE

The PRIDE project was presented at the September RIPE meeting. For the first three months only one of the two engineer positions has been filled. However, the second engineer is expected to join the project in January 1994. We expect to finish the project within 12 months as planned by assigning additional resources to it later on.

The first deliverable of the PRIDE project, a release of the first two PRIDE tools, was released in week 50 following a beta pre-release. This consists of the following routing registry (RR) tools.

“prtraceroute”

A version of the existing traceroute tool which will be able to display whether a route in use is allowed by policy and where deviations from policy occur.

“prcheck”

A tool to check the syntax of AS objects and the consistency of routing policies stored in the routing registry. This tool will flag if two neighbouring network operators specify conflicting or inconsistent routing information exchanges with each other and also detect global inconsistencies where possible. This way operators can check their AS objects before actually registering them in the RR.

The feedback and use of the tools has been extremely good from the RIPE community and a discussion list “pride-list@ripe.net” has been set up to discuss PRIDE related issues.

For the coming quarter you can expect to see additional enhancements and support to the PRIDE tools release. The next major milestone from the PRIDE project will be the first PRIDE Guide and PRIDE Course. In conjunction with this there will be a revision of the current routing policy representation document, ripe-081.

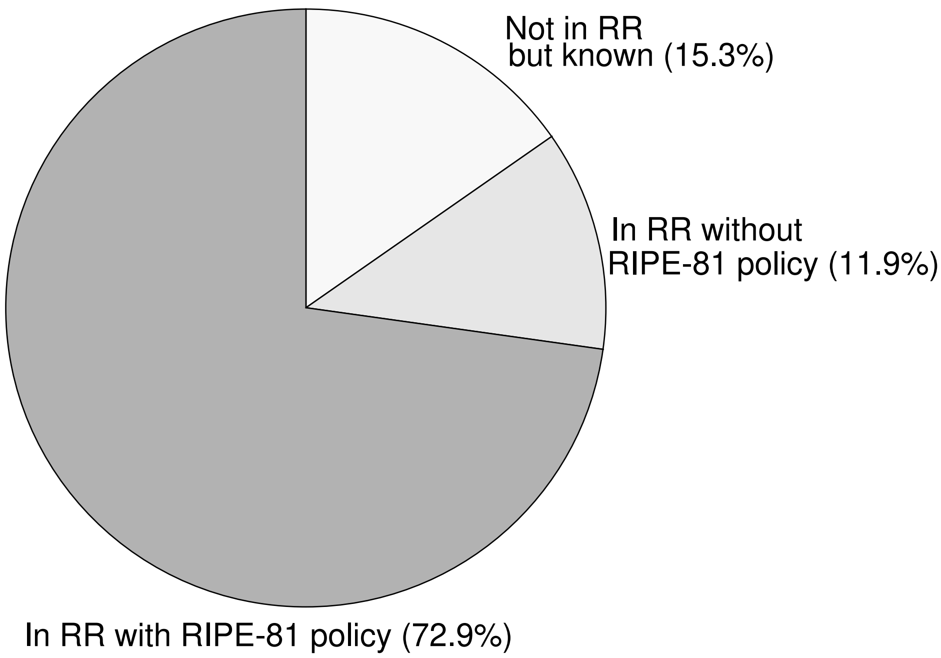
The PRIDE team continues to work closely with the RIPE NCC team.

Routing Registry

By examining routing tables within Europe we observe some 121 European AS'es in use. The breakdown of their registration status in the RIPE Database (the current Routing Registry) is shown below

:

Breakdown of known routed European AS (Total: 121)



We have seen a good increase (up 18%) in the amount of routing policy information registered in this quarter. However, it is vital that all European routing policies are documented in the routing registry and kept up to date.

A "pilot" is also in progress to register non-european routing policy information in the routing registry. This can be seen by using the "-a" flag with the RIPE whois server. The RIPE NCC and the PRIDE project wishes to thank ALTERnet for its collaboration in this pilot to date. Other non-european service providers are also encouraged to register their routing policy information.

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 NCC staff during this quarter.

Date	Name & Location	Attendee(s)
18-21 Oct	3rd Latin-American and Caribbean Networking Conference Caracas, Venezuela	Marten Terpstra Tony Bates
25-29 Oct	INTEROP, Paris France	Marten Terpstra Tony Bates Daniel Karrenberg
1 -5 Nov	IETF, Houston Texas, US	Marten Terpstra Tony Bates
23 Nov	ACOnet seminar, Vienna, Austria	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
129.178	free
130.193	free
138.117	free
155.73	free
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	CH-NIC
145.235	SE-NIC
145.236	HU-NIC
145.237	PL-NIC
145.238	InterNIC
145.239	PIPEX
145.240	ICNET
145.241	EUnet-AT
145.242	RIPE NCC
145.243	DE-NIC
145.244	RIPE NCC
145.245	EUnet-CH
145.246	RIPE NCC
145.247	DATANET
145.248	RIPE NCC
145.249	RU-NIC

Network Number	Via
145.250	SWITCH
145.251	SE-NIC
145.252	CH-NIC
145.253-145.254	DE-NIC
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
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

Network Number	Via
164.39	HP
164.40	RIPE NCC
164.61	free
164.128	DATRAC
164.129	RIPE NCC
164.130	RIPE NCC
164.131	RIPE NCC
164.132	GARR
164.133	DE-NIC
164.134	UK-NIC
164.135	SE-NIC
164.136	PIPEX
164.137	PIPEX
164.138	RIPE NCC
164.139	RIPE NCC
164.140	Unisource
164.141	Telecom Finland
164.142-164.143	free
171.16-171.31	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. In cases where it appears that a block has been assigned to a registry and the registry does not know, please contact the NCC before allocating from these blocks. Also in other cases of confusion, please contact the RIPE NCC.

Block	P/N	Assigned	Country	Registry
192.162	N	26	EU	Various assignments
192.164	P	238	AT	EUnet/AT
192.165	P	208	EU	NORDUnet
192.166	N	211	DE	DE-NIC
192.167	P	235	IT	GARR NIS
192.168	?	resvd	EU	RIPE NCC
193.0	N	151	EU	Various purposes
193.1	P	26	IE	HEAnet
193.2	P	43	SI	ARNES
193.3	N	164	DK	DK non-provider
193.4	N	104	IS	Iceland
193.5	P	211	CH	SWITCH
193.6	N	168	HU	Hungary general
193.7	N	63	DE	German Chambers of Commerce
193.8	N	149	CH	CH non-provider
193.9	N	216	EU	Pan European Organisations
193.10	P	33	SE	SUNET
193.11	P	resvd	SE	SUNET
193.12	P	155	SE	SWIPNET
193.13-15	P	resvd	SE	SWIPNET
193.16	N	181	DE	DE non-provider
193.17	N	95	DE	DE non-provider
193.18	N	254	DE	DE non-provider
193.19	N	31	DE	DE non-provider
193.20	N	256	DE	DE non-provider

Block	P/N	Assigned	Country	Registry
193.21	N	256	DE	DE non-provider
193.22	N	186	DE	DE non-provider
193.23	N	198	DE	DE non-provider
193.24	N	164	DE	DE non-provider
193.25	N	164	DE	DE non-provider
193.26	N	200	DE	DE non-provider
193.27	N	136	DE	DE non-provider
193.28	N	159	DE	DE non-provider
193.29	N	219	DE	DE non-provider
193.30	N	194	DE	DE non-provider
193.31	N	252	DE	DE non-provider
193.32	N	252	UK	UK non-provider
193.33	N	0	UK	UK
193.34	N	0	UK	UK
193.35	N	254	UK	UK non-provider
193.36	N	252	UK	UK non-provider
193.37	N	256	UK	UK non-provider
193.38	N	256	UK	UK non-provider
193.39	N	238	UK	UK non-provider
193.40	N	56	EE	Estonia general
193.41	N	resvd	EE	Estonia general
193.42	N	129	IT	IT non-provider
193.43	N	resvd	IT	IT non-provider
193.44	P	50	SE	TIPnet
193.45	P	resvd	SE	TIPnet
193.46	N	187	AT	AT non-provider
193.47	N	143	CH	CH non-provider
193.48	P	197	FR	RENATER
193.49	P	124	FR	RENATER
193.50	P	179	FR	RENATER
193.51	P	116	FR	RENATER
193.52	P	183	FR	RENATER
193.53	N	151	BE	BE non-provider
193.54	P	130	FR	RENATER
193.55	P	154	FR	RENATER
193.56	N	170	FR	FR non-provider
193.57	N	147	FR	FR non-provider
193.58	N	94	BE	BE non-provider
193.59	N	97	PL	PL general
193.60	P	210	UK	JANET
193.61	P	240	UK	JANET
193.62	P	116	UK	JANET
193.63	P	219	UK	JANET
193.64	P	112	FI	EUnet/FI
193.65	P	63	FI	EUnet/FI
193.66-67	P	resvd	FI	EUnet/FI

Block	P/N	Assigned	Country	Registry
193.68	P	20	BG	EUnet/BG
193.69	P	resvd	IS	EUnet/IS
193.70	P	resvd	IT	EUnet/IT
193.71	P	111	NO	EUnet/IT
193.72	P	124	CH	EUnet/CH
193.73	P	5	CH	EUnet/CH
193.74	P	68	BE	EUnet/BE
193.75	P	resvd	BE	EUnet/BE
193.76	P	0	HR	EUnet/HR
193.77	P	27	SI	EUnet/SI
193.78	P	107	NL	EUnet/NL
193.79	P	106	NL	EUnet/NL
193.80	P	171	AT	EUnet/AT
193.81-83	P	resvd	AT	EUnet/AT
193.84	P	216	CS	EUnet/CS
193.85	P	179	CZ	EUnet/CZ
193.86	P	resvd	??	EUnet/CZ or EUnet/SK
193.87	P	62	SK	EUnet/SK and SANET
193.88	P	130	DK	EUnet/DK
193.89	P	58	DK	EUnet/DK
193.90	P	resvd	NO	EUnet/NO
193.91	P	1	PL	EUnet/PL
193.92	P	50	GR	EUnet/GR
193.93	P	17	LU	EUnet/LU
193.94	P	7	TN	EUnet/TN
193.95	P	resvd	TN	EUnet/TN
193.96	P	157	DE	EUnet/DE
193.97	P	127	DE	EUnet/DE
193.98	P	170	DE	EUnet/DE
193.99	P	121	DE	EUnet/DE
193.100	P	177	DE	EUnet/DE
193.101-104	P	resvd	DE	EUnet/DE
193.104	P	90	FR	EUnet/FR
193.105	P	108	FR	EUnet/FR
193.106	P	99	FR	EUnet/FR
193.107-111	P	resvd	FR	EUnet/FR
193.112	P	155	GB	EUnet/GB
193.113	P	68	GB	EUnet/GB
193.114	P	206	GB	EUnet/GB
193.115	P	132	GB	EUnet/GB
193.116	P	157	GB	EUnet/GB
193.117	P	71	GB	EUnet/GB
193.118-119	P	resvd	GB	EUnet/GB
193.120	P	52	IE	EUnet/IE
193.121-123	P	resvd	IE	EUnet/IE
193.124	P	231	RU	EUnet/RU+xSU

Block	P/N	Assigned	Country	Registry
193.125	P	67	RU	EUnet/RU+xSU
193.126	P	98	PT	EUnet/PT
193.127	P	15	ES	EUnet/ES
193.128	P	219	GB	PIPEX
193.129	P	238	GB	PIPEX
193.130	P	43	GB	PIPEX
193.131-133	P	resvd	GB	PIPEX
193.134	P	100	CH	SWITCH
193.135	P	resvd	CH	SWITCH
193.136	P	104	PT	RCCN
193.137	P	resvd	PT	RCCN
193.138	N	5	SI	SI general
193.139	P	254	FR	La Francaise des Jeux
193.140	N	123	TR	TR general
193.141	P	119	DE	XLINK
193.142	N	83	FI	FI non-provider
193.143	N	37	FI	FI non-provider
193.144	P	208	ES	RedIRIS
193.145	P	48	ES	RedIRIS
193.146-147	P	resvd	ES	RedIRIS
193.148	N	211	ES	ES non-provider
193.149-153	N	resvd	ES	ES non-provider
193.154	P	0	EU	GEC Marconi Group
193.155	P	resvd	EU	GEC Marconi Group
193.156	P	91	NO	UNINETT
193.157	P	87	NO	UNINETT
193.158-159	P	resvd	NO	UNINETT
193.160	N	152	NO	NO non-provider
193.161	N	80	NO	NO non-provider
193.162	N	66	DK	DK non-provider
193.163	N	resvd	DK	DK non-provider
193.164	N	3	PL	PL non-provider
193.165	N	resvd	PL	PL non-provider
193.166	P	40	FI	FUNET
193.167	P	resvd	FI	FUNET
193.168	N	49	LU	LU non-provider
193.169	P	0	GB	AT&T Istel
193.170	P	109	AT	ACOnet
193.171	P	resvd	AT	ACOnet
193.172	P	52	EU	EMPB/EuropaNET
193.173	P	resvd	EU	EMPB/EuropaNET
193.174	P	227	DE	DFN
193.175	P	0	DE	DFN
193.176	N	252	NL	NL non-provider
193.177	N	155	NL	NL non-provider
193.178	N	75	IE	IE non-provider

Block	P/N	Assigned	Country	Registry
193.179	N	resvd	IE	IE non-provider
193.180	N	237	SE	SE non-provider
193.181	N	244	SE	SE non-provider
193.182	N	239	SE	SE non-provider
193.183	N	255	SE	SE non-provider
193.184	P	207	FI	Helsinki Telephone Company
193.185	P	0	FI	Helsinki Telephone Company
193.186	N	253	AT	AT non-provider
193.187	N	254	AT	AT non-provider
193.188	N	48	??	Middle East
193.189	N	64	NG	Nigeria general
193.190	P	102	BE	BELNET
193.191	P	resvd	BE	BELNET
193.192	N	11	PT	PT non-provider
193.193	N	resvd	PT	PT non-provider
193.194	N	3	MA	MA general
193.195	P	119	GB	DEMON
193.196	P	208	DE	BelWue
193.197	P	4	DE	BelWue
193.198	N	28	HR	HR 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
193.202	N	206	EU	Pan European
193.203	N	1	YU	YU-SPL
193.204	P	126	IT	GARR
193.205-207	P	resvd	IT	GARR
193.208	P	241	FI	DATANET
193.209	P	146	FI	DATANET
193.210	P	0	FI	DATANET
193.211	P	resvd	FI	DATANET
193.212	P	88	NO	TELEPOST
193.213-215	P	resvd	NO	TELEPOST
193.216	P	30	NO	DAXnet
193.217	P	resvd	NO	DAXnet
193.218	N	7	GR	GR non-provider
193.219	N	26	LT	LT non-provider
193.220	N	0	LT	LT non-provider
193.221	N	224	EU	Pan European
193.222	N	172	CH	CH non-provider
193.223	N	186	CH	CH non-provider
193.224	N	38	HU	HU general
193.225	N	resvd	HU	HU general
193.226	N	23	RO	RO general
193.227	N	31	EG	EG general
193.228	P	0	GB	CNS

Block	P/N	Assigned	Country	Registry
193.229-231	P	resvd	GB	CNS
193.232	N	91	RU	RU+xSU non-provider
193.233	N	13	RU	RU+xSU non-provider
193.234	N	253	SE	SE non-provider
193.235	N	221	SE	SE non-provider
193.236	N	39	PT	PT non-provider
193.237-239	N	resvd	PT	PT non-provider
193.240	P	0	GB	RACAL
193.241	N	resvd	SE	SE Defense
193.242	N	191	EU	Pan European
193.243	P	161	GB	ENERGIS
193.244	P	256	EU	Kredietbank
193.245	P	256	EU	Kredietbank
193.246-247	P	resvd	EU	Kredietbank
193.248	P	255	FR	France Telecom Internal
193.249	P	255	FR	France Telecom Internal
193.250	P	255	FR	France Telecom Internal
193.251	P	255	FR	France Telecom Internal
193.252	P	255	FR	France Telecom Internal
193.253	P	255	FR	France Telecom Internal
193.254	N	3	AL	AL general

Block	P/N	Assigned	Country	Registry
194.0	N	resvd	??	NCC Private Use
194.1	N	0	LV	LV General
194.2	P	43	FR	Oleane
194.3	P	resvd	FR	Oleane
194.4	N	54	FR	FR non-provider
194.5	N	resvd	FR	FR non-provider
194.6	P	resvd	UK	Mercury Communications
194.7	P	8	BE	INnet
194.8	N	8	LV	managed by NCC temp
194.9	P	0	UK	Fastnet Communications
194.10	P	0	EU	IBM IP network
194.11	N	36	CH	CH Non-provider block
193.12	N	155	EU	Pan European
193.13	N	0	NL	NL non-provider
193.14	N	0	SE	SE non provider
194.15	N	68	DE	DE non provider
194.16	P	0	EU	UniSource Business Networks
194.17	P	0	EU	UniSource Business Networks
194.18	P	0	EU	UniSource Business Networks
194.19	P	0	EU	UniSource Business Networks
194.20	P	0	EU	UniSource Business Networks
194.21	P	0	EU	UniSource Business Networks

Block	P/N	Assigned	Country	Registry
194.22	P	0	EU	UniSource Business Networks
194.23	P	0	EU	UniSource Business Networks
194.24-31	P	resvd	EU	UniSource Business Networks
194.32	N	188	UK	UK non-provider
194.33	N	110	UK	UK non-provider
194.34	N	0	UK	UK non-provider
194.35	N	0	UK	UK non-provider
194.36	P	7	UK	UK HEP community
194.37	N	0	AT	AT non provider
194.38	N	64	SE	SE non provider

Appendix D

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.

Domain Table

The domain table ususally found in Appendix D has been removed to avoid unneccessary duplication of information. A complete list of the ountry codes can be found in the ISO-3166 list which is available as:

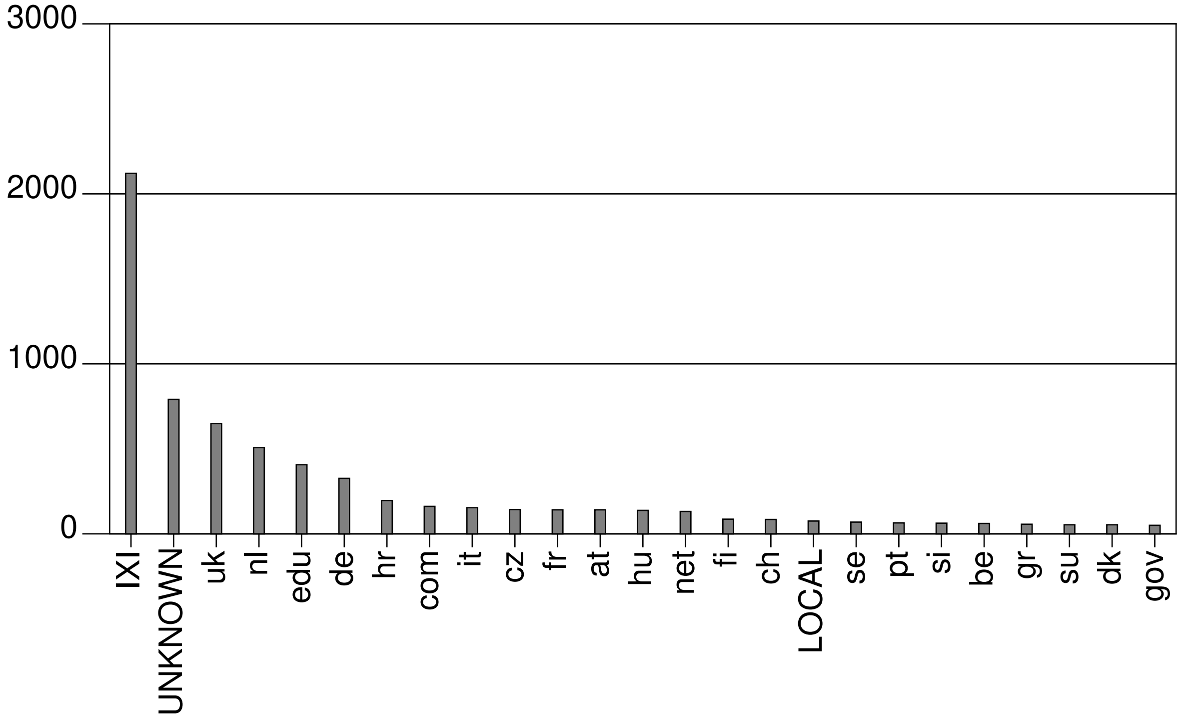
`ftp.ripe.net:ripe/docs/iso3166-codes`

The other domains are explained as shown in the table below

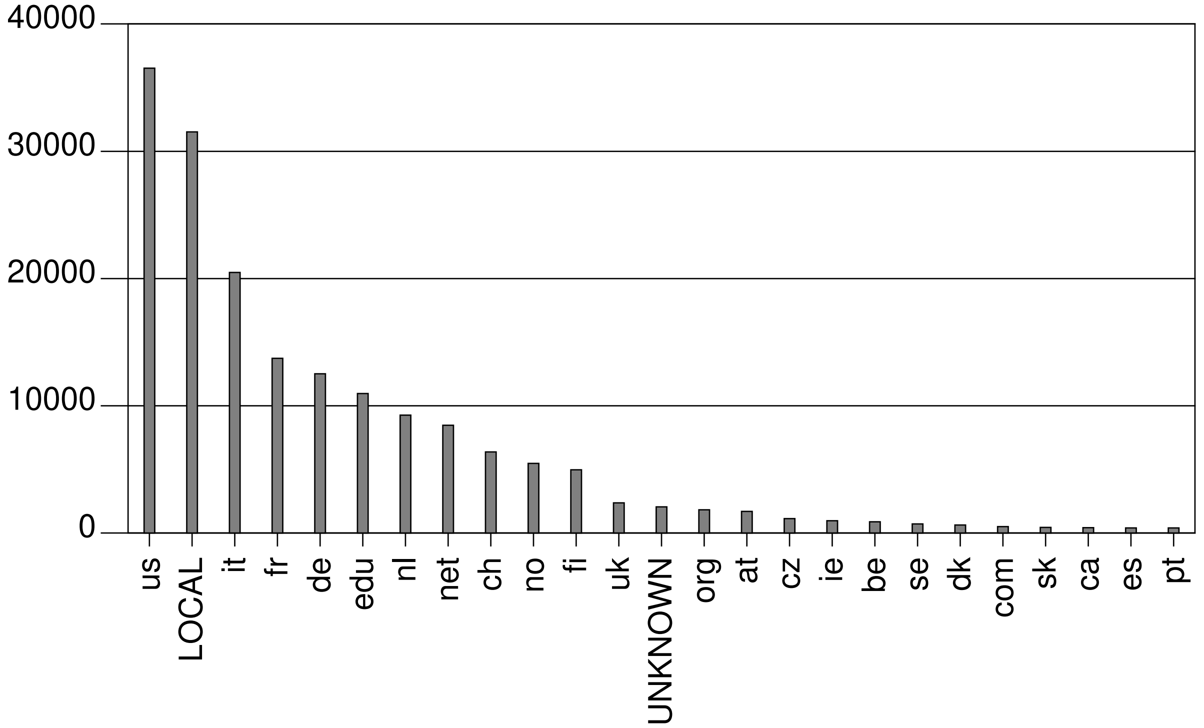
Domain	Specifying
IXI	EuropaNet (formerly IXI)
IIS	the Interactive Information Server
LOCAL	the NCC itself using IP
NCC-X25	the NCC itself using X.25
PSPDN	the Public Data Network
UNKNOWN	no mapping between IP address and domain name could be found
com	commercial organisations (mainly in the US)
edu	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)

Appendix E

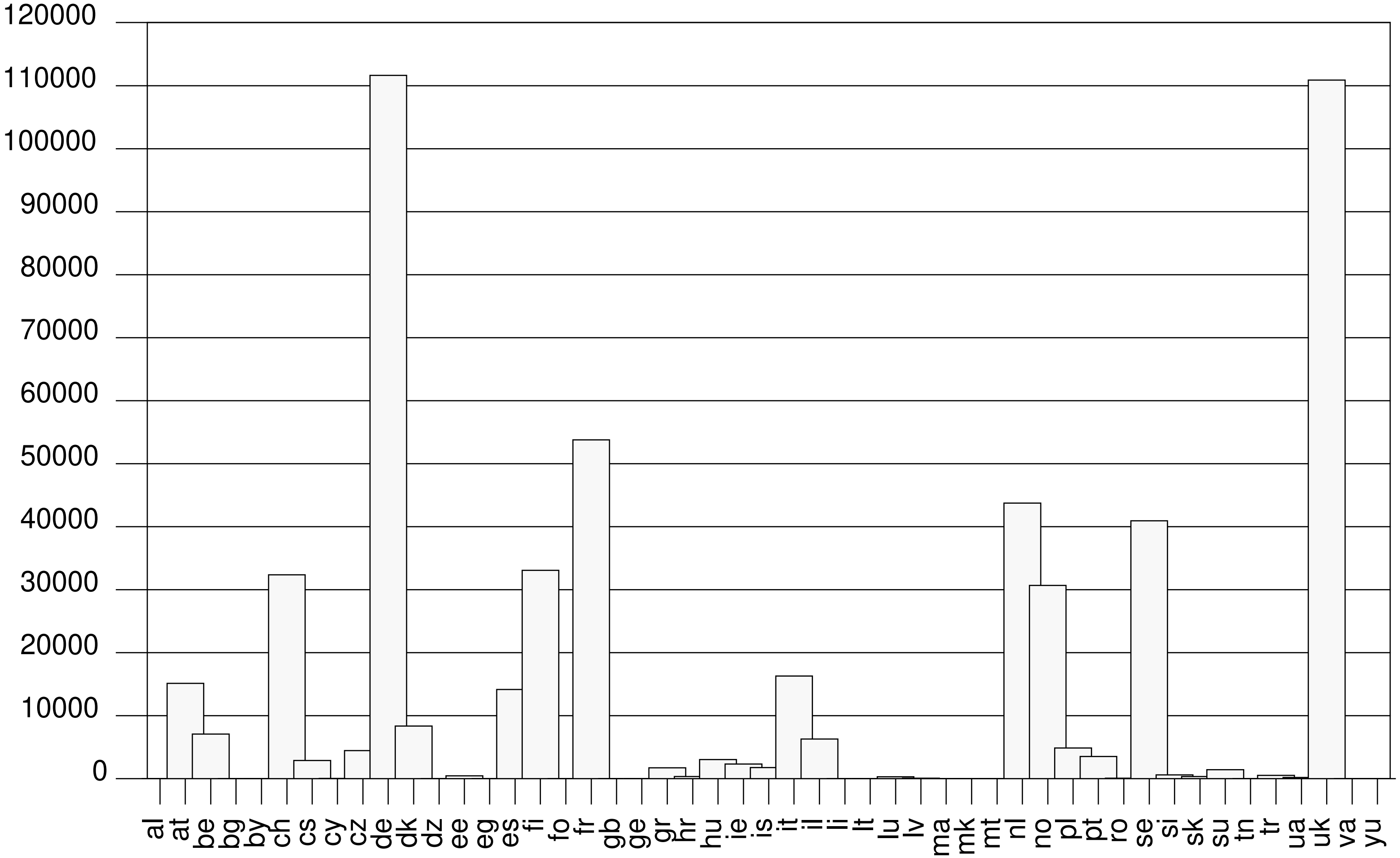
TOP 25 Interactive Information Server Usage Q4 1993



TOP 25 RIPE Database Queries Q4 1993



RIPE DNS Hostcount per Country, December 1993



Total Machines in DNS in Europe: 553,357

Networks in DNS Registered in RIPE Database 1993