Réseaux IP Européens

Network Coordination Centre

RIPE ncc

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RARE

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The RARE association provides the framework for RIPE NCC operations

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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. RIPE does *not* operate a network of its own.

RIPE has been functioning since 1989. Currently more than 60 organisations participate in the work. The result of the RIPE coordination effort is that the individual end-user is presented on their desktop with a uniform IP service irrespective of the particular network his or her workstation is attached to. In September 1992 more than 230,000 hosts throughout Europe are reachable via networks coordinated by RIPE. The total number of systems reachable worldwide is estimated at more than one million.

The RIPE Network Coordination Centre (RIPE NCC) is a European organisation chartered to support all those RIPE 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. The charter of the NCC is formally described in the NCC Activity Plan (document ripe-35 in the RIPE document store). The RIPE NCC currently has 3 permanent staff members. The RARE association provides the formal framework for the NCC. Funding for the first year of operation of the NCC is provided by EARN, the national members of RARE, Israel and EUnet.

This is the second quarterly report produced by the RIPE NCC. As before, comments and suggestions are very welcome.

Important Note on Statistics

This report has been finalised one week before the end of the reporting period so it can be presented at the 13th RIPE meeting on September 30th. Please note that the statistics in this report are exclusive of the final week of the reporting period.

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.

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.

Management Summary

Delegated Internet Registry

By far the most important development during the reporting period has been the full scale introduction of the delegated internet registry function of the NCC. From scratch 36 local registries were identified throughout Europe and successfully started operations in the midst of the holiday season. Because of the quick start-up needed not all procedures have been fully optimised yet but nonetheless almost 1000 class C and 50 class B network numbers have been assigned using quickly developed procedures. The typical response times achieved so far are quite encouraging. The procedures will be refined further in cooperation with the local registries during the next quarter. The start-up of this whole activity has taken slightly more NCC resources than anticipated, thus delaying other activities temporarily.

In conjunction with this, the latest Internet draft concerning IP address space management and address assignment procedures should be carefully evaluated by RIPE; and RIPE should provide input to the appropriate Internet bodies on these issues.

RIPE Database

Major revision work on the database software has been carried out, all of which is being used in production as of this writing. Usage of the database has increased considerably. The envisaged thorough consistency checking and measures to increase database coverage in some low coverage regions have not been started yet because of time constraints. This is expected to start during next quarter.

Priorities

Besides the Internet Registry start-up the NCC has concentrated on continuity of the core services during the reporting period. There have not been sufficient resources to start any activities which had not been tackled previously. As this will hopefully change in the next quarter, RIPE should provide the NCC with explicit guidance as to the relative priority of hitherto untackled activities in the activity plan.

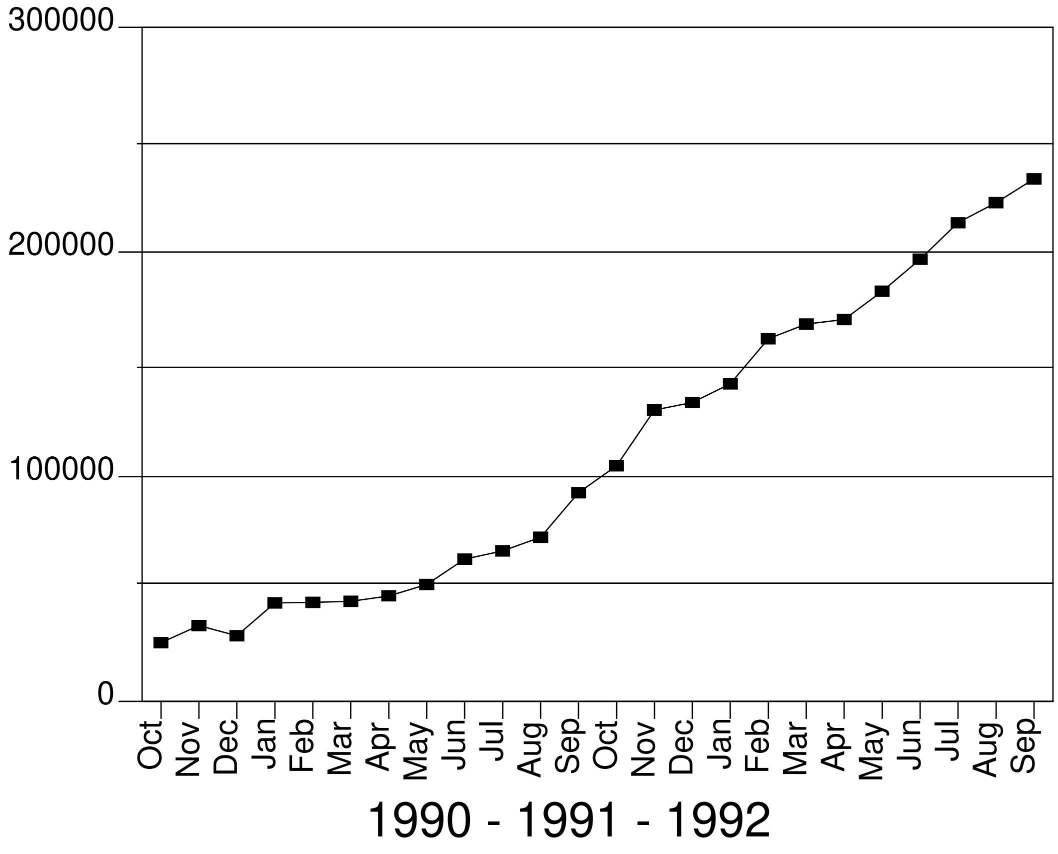
Activities

The NCC aims to provide a service which is both responsive and efficient, whilst providing a known, accessible focus for the gathering and dissemination of information across the European Internet community. To this end, the NCC has in its second quarter of operation, the following activities to report.

DNS Coordination

As reported in the first quarterly report, the NCC is now responsible for the RIPE DNS hostcount. All hosts listed in the RIPE part of the DNS (the Internet Directory) are counted. The hostcount is currently gathered once per month and distributed via the RIPE mailing list.In addition the DNS output which is used to produce the hostcount, is archived in the RIPE document store. Also archived in the document store is the graph below showing the growth of the IP network in Europe, in terms of DNS registered hosts.

RIPE DNS Hostcount History



The following table gives a historical view of the number of hosts counted:

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

Internet Registry

Delegated Registry

The administrative arrangements for the allocation of Internet (IP) numbers has been revised further. At the end of July the Internet Registry (IR, a.k.a hostmaster@nic.ddn.mil) requested that the RIPE NCC handle all IP network number applications from European organisations. We complied with the request even though there had been no time to get all the necessary procedures fully established. The main rationale for this step was to off-load the IR and improve response times for European organisations as early as possible. From August 1st 1992, all requests received by the Internet Registry from European organisations were forwarded to the RIPE NCC. This included both e-mail and letter applications.

Initial Procedure

Initially, in response to each query, the NCC sent a letter to applicants which advised them of all recent changes with regard to Internet number assignments (see “Appendix E” on page 33 for a copy of the letter) Specifically, the letter advised organisations that it is beneficial to them if they obtain their IP numbers from their current or prospective IP service provider. The letter also contains a template to fill in and send back to the NCC in case a service provider has not yet been identified.

In order to make this work the NCC made an effort to locate as many service providers as possible and to delegate blocks of class C network numbers to them for reassignment. At the same time, country NICs were asked to identify themselves as organisations to whom the NCC could further delegate the allocation of class C IP numbers to organisations without an IP service provider. Considering that this happened in the middle of the European holiday season the response was very good both from the providers and from organisations willing to act as country NICs. To date 30 different service provider registries and 6 country NICs for organisations without service provider have been identified and allocated class C network numbers to redistribute.

The allocation of class B networks is done from the NCC. No new class B blocks will be allocated to local registries. Some local registries still have (sometimes quite large) blocks of class B numbers. The total extent of this is presently unknown as we do not know which European organisations hold such blocks.

Current Procedure

Once the country NICs were identified, we changed the procedure slightly by forwarding all requests from that country which did not identify a service provider to the country NIC. While this takes some load off the NCC and provides local language service it turns out not to be without drawbacks: particularly the applicant will be in contact with up to 4 registries in sequence if he first applies to the IR which still happens very frequently and finally gets his number allocated from a service provider: IR -> NCC -> country NIC -> provider. In order to eliminate the first step of this chain the IR has made the NCC template available in their information server and included a pointer to it in the standard Internet number registration template. This measure will need some time to take effect, because many copies of the original template are still in circulation.

Future Procedure

To further simplify this procedure we propose to use a common registration template in Europe. The applicants will then be able to fill in one form accepted by all European registries independently of which registry will ultimately assign network numbers to them. This maximises the chance that the applicants will fill out the right form to start with and simplifies forwarding of requests between registries. We urge RIPE to establish consensus about this as quickly as possible.

NCC Workload and Performance

In order to quantify the workload generated at the NCC and to monitor the service quality, the NCC has kept a log of actions related to the delegated registry function. Since log-keeping did not start right away at the beginning of August, the numbers below are a lower bound for the reporting period. A total of 172 requests were logged; 100 were received from the IR, 59 directly and 13 via local NICs. Generally more than 50% of the requests are received via paper mail and more than 50% of the information sent out by the NCC is via FAX because the applicants are not reachable by e-mail. E-mail accounts for only 25% of incoming and outgoing registry transactions. This generates a lot of clerical overhead as paper has to be filed, generated and posted or faxed. In order to reduce this overhead we are currently evaluating FAX software which enables NCC staff to send and file outgoing FAX messages from within their e-mail environment.

63.4% of all requests were answered (not only acknowledged) on the day they were received, 14% on the next. 89% of all requests were completed within 5 days. It took an average 1.96 days to allocate (a block of) class C networks from the NCC and on average 24 days to allocate a class B network. The latter average is so high because there were a few cases where it took the applicants several weeks to provide the necessary information to evaluate the request. The typical allocation time for a class B network, once the necessary information is complete, is around 2 working days. These allocation response times apply only to allocations made directly by the NCC and not those by local registries.

Address space usage

During the reporting period the NCC assigned 50 class B network numbers, delegated 55 blocks of class C network numbers and reserved 97 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 if necessary.

During the reporting period the European registries have assigned a total of 940 class C networks to bring the total of networks assigned from blocks delegated by the NCC to 1098. About two thirds of the allocations has been made from blocks allocated to registries of service providers.

The detailed status of the address space delegated to the RIPE NCC can be found in “Appendix B” on page 26 and “Appendix C” on page 27 for class B and class C network numbers respectively.

RIPE Network Management Database

Revision of the Database Support Software

A major revision of the database indexing and whois server software has been completed. The software now fully supports the new database objects `routing privilege` and `boundary gateway`. The whois server was extended with additional heuristics to speed up searches and extensive logging features. Also blocks of networks are now fully supported. The indexing software was extended to enhance generality with respect to the NIC and NSFnet databases. We have recently received contributions from the DE-NIC in this area which will be incorporated during the next reporting period. There is also now a very general distribution feature which makes it possible to send out database files to multiple subscribers automatically when they have changed. This enables local registries and future database secondary server sites to have the files sent to them rather than having to poll the NCC server for possible changes.

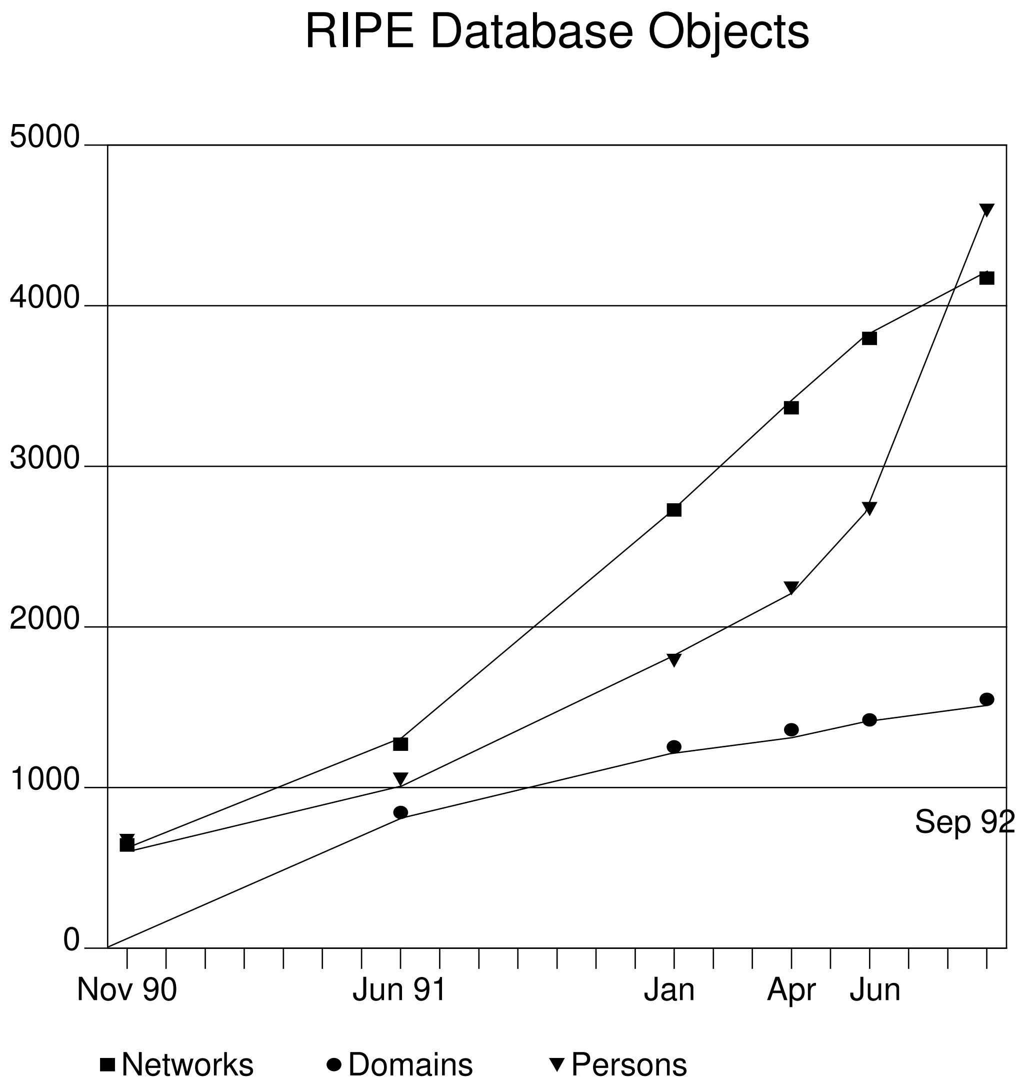
A total revision of the software to support database updates has been completed. This new software is much more easily configurable than the previous ad-hoc version. The extensive configuration file allows for easy addition of new database objects and their attributes. This enables local registries to quickly adapt the software to local database extensions. All error messages and mail messages generated by the consistency checking scripts are now configurable without changing the software itself. This allows for easy modifications to make messages more clear or even to create local language versions if desired. The update function now sends individual acknowledgements messages to each person who sent in an update rather than just one message to everyone. These messages contain all objects which caused error or warning messages.We plan to adapt all parts of the database support software package to use the configuration file at the time they undergo extensive revision. The update software package is currently under beta test at four sites. It is expected to be released in October.

New WHOIS Client Software

A RIPE version of the Unix whois client has been completed and is available from the NCC now (`ftp.ripe.net:tools/ripe-whois.tar.Z`). This client will query the RIPE database by default rather than the US NIC database. Of course the US database can still be selected using the `-h` flag All options provided by the RIPE WHOIS server can be accessed from this client without unnecessary quoting of arguments. The client is also prepared to find a local WHOIS server once secondary servers for the RIPE database have been established.

Database Statistics

The development of the number of database objects since November 1990 is shown in the graph and table below:



This shows that the increase in the number of domain objects is relatively low. The main reason for this is that there is no direct incentive to register in the RIPE database in addition to the DNS. The rationale for the domain object in the RIPE database was that certain information like an organisation's full name and contact person's phone number could not be included in the DNS. Since RFC1183 specifies how to code contact information for domains in the DNS, the RIPE DNS working group should review the usefulness of this object.

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Month	Nets	Persons	Domains
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

We are not able to fully explain the relatively steep increase in the number of persons. Due to improved consistency checking some missing person entries have been added but it is not clear whether this is sufficient explanation.

The increase in the number of networks continues to slow down. This is partly due to the fact that measures to increase coverage of the database have not produced results everywhere yet as can be seen from the comparison with the number of networks seen by the hostcount:

Country	Nets in DNS	Nets in DB	Percentage Q3	Percentage Q2
BE	**8**	**8**	**100.0**	100.0
CS	**11**	**11**	**100.0**	100.0
HU	**4**	**4**	**100.0**	100.0
TN	**1**	**1**	**100.0**	100.0
YU	**3**	**3**	**100.0**	100.0
FR	**337**	**317**	**94.1**	95.5
ES	**24**	**22**	**91.7**	88.9
CH	**97**	**85**	**87.6**	93.1
IE	**16**	**14**	**87.5**	90.9
PL	**15**	**13**	**86.7**	90.0
PT	**40**	**34**	**85.0**	80.0
IT	**84**	**71**	**84.5**	82.4
NL	**105**	**87**	**82.9**	80.9
DE	**342**	**282**	**82.5**	80.5
GR	**14**	**11**	**78.6**	66.7
IS	**4**	**3**	**75.0**	50.0
IL	**23**	**17**	**73.9**	71.4
UK	**208**	**140**	**67.3**	67.8
AT	**58**	**39**	**67.2**	63.8
SE	**166**	**96**	**57.8**	49.3

Country	Nets in DNS	Nets in DB	Percentage Q3	Percentage Q2
NO	**51**	**29**	**56.9**	58.5
DK	**20**	**9**	**45.0**	40.0
LU	**3**	**1**	**33.3**	50.0
FI	**457**	**40**	**8.8**	6.9

A grahical representation of this table can be found “Appendix H”.

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 17455 object updates, an average of 290 per working day. The number of updates received per month varies widely with peaks usually occurring just before RIPE meetings.

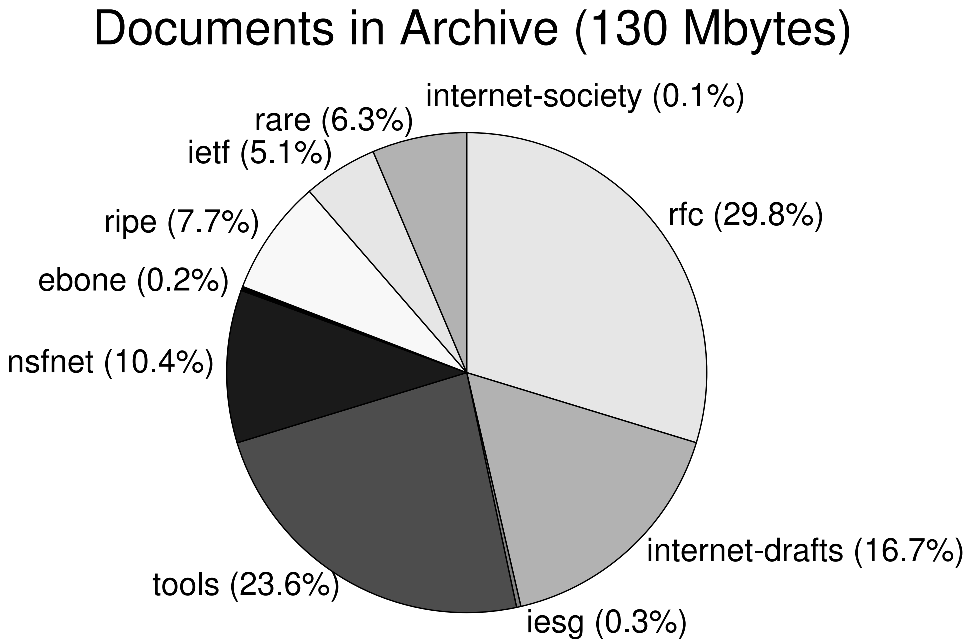
The updates consist of additions and changes as well as so called “NOOPs”. NOOPs are updates received which do not differ from the information already recorded in the database. The NCC accepts such requests because it makes bulk updates from secondary NICs easier: secondary NICs can just send in their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

Database Action	June 1992 (number)	June 1992 (percentage)	Q3 1992 (number)	Q3 1992 (percentage)
Updated	286	16%	1372	8%
Added	483	27%	2505	14%
NOOP	1005	57%	13578	78%

Worldwide Database Coordination

THe Internet Registry (at GSI), the NSFnet NIC (at MERIT) and the RIPE NCC have worked on a database exchange format during the reporting period. Mark Kosters of GSI has developed a formal syntax which is now almost agreed apart from a few cases where not all database schemas can easily support the exchange format. In this context the NCC has proposed some small schema changes to the RIPE database working group. The NCC has also developed alpha level software to convert the RIPE database to the exchange format in order to test the practical feasibility of the format and to spot gaps and problems.

Document Store



The document store is maintained as a reference point for information that will be useful to network service providers, NICs, NOCs alike. The documents stored relate to a wide variety of networking topics. For example, information can be obtained about the activities EBONE, the Internet Engineering Task Force (IETF) and the Internet Engineering Steering Group (IESG), RARE, and not least, documents relating to RIPE itself. In addition the document store contains information relating to Internet drafts and RFC's.In total the document

Area	Files	KBytes
rfc	556	39255
tools	129	31110
internet-drafts	377	21973
nsfnet	109	13683
ripe	210	10118
rare	223	8274
ietf	657	6774
iesg	33	360
ebone	19	278
internet-society	13	86

store contains approximately 2300 documents. By volume, it accounts for over 130 Mbytes. A breakdown of the composition of the document store is shown below

Revision of the RIPE archives

The RIPE archives in the document store have been substantially revised in both structure and format. In revising the document store, the following benefits are perceived:

- easy to follow structure
- unique document identification
- availability of early RIPE documents

All RIPE documents are now located in a `ripe/docs/` directory, which is further divided into the following subdirectories:

```
ripe-agenda/
ripe-current/
ripe-docs/
ripe-drafts/
ripe-minutes/
```

Throughout there is a new numbering scheme. In each subdirectory the numbering schemas are as follows:

In the `ripe-agenda/` subdirectory documents are numbered according to the format `ripe-a-n` where `a` indicates the agenda of the `n`th RIPE meeting. This subdirectory contains the agendas of all the RIPE meetings to date, in both Postscript (`.ps`) and ASCII (`.txt`) formats.

The `ripe-docs/` subdirectory contains RIPE approved documents. The README file gives an indication of the nature of the documents but there is also a complete index in the file `ripe-index.txt` in the same directory. The document numbering scheme format is `ripe-n` where `n` indicates the document number. The `README` file from this directory containing the list of all RIPE documents to date can be found in “Appendix G” on page 37.

The `ripe-drafts/` subdirectory contains documents under discussion and not yet formally approved by RIPE. In the numbering scheme the version number is indicated. The following draft documents are labelled thus `ripe-draft-folder1.v2.ps` and `ripe-draft-position-v2.txt`.

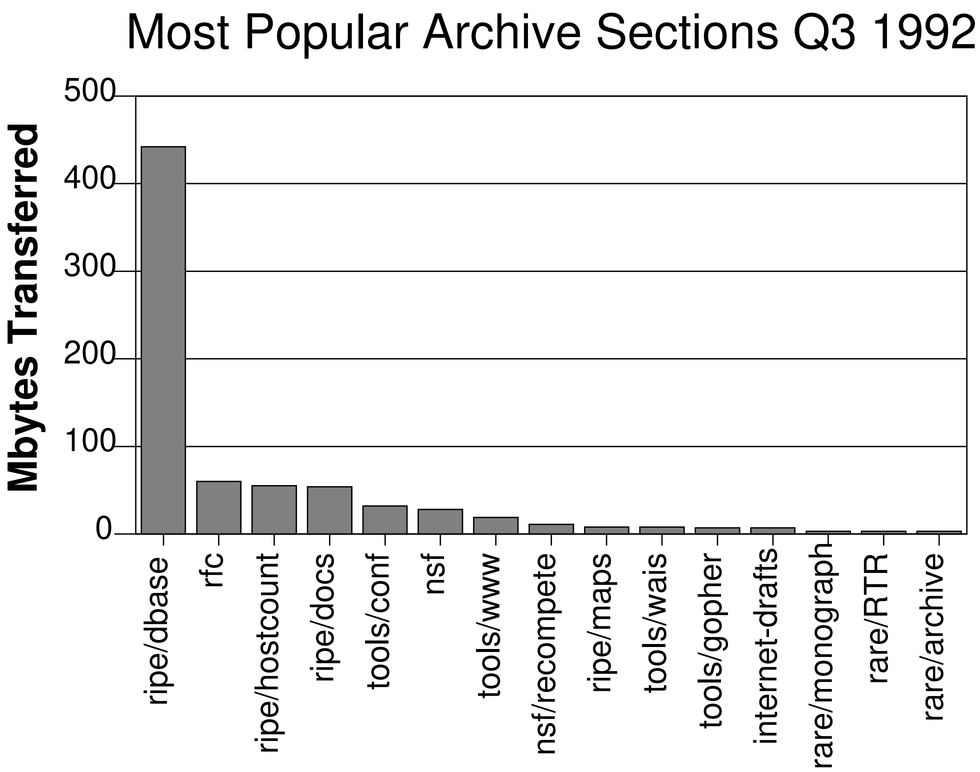
In the `ripe-minutes/` subdirectory the minutes from all the RIPE meetings can be found in both Postscript and ASCII formats. The numbering scheme is in the format `ripe-m-n` where `m` indicates minutes of the `n`th RIPE meeting. A `README` file gives a listing of all the documents with the date of the RIPE meeting and the location.

The `ripe-current/` subdirectory contains the most recent versions of frequently used documents. Documents in this subdirectory can also be found in other areas of the RIPE document store. So this subdirectory is maintained for the users convenience. For example, you can find templates for registering objects in the RIPE database in this subdirectory. You can also find the details of the next RIPE meeting and the latest hostcount statistics.

Accessing the Document Store

The NCC document store can be accessed through a variety of methods. It can be accessed via anonymous ftp to `ftp.ripe.net` and by using GOPHER and WAIS clients to `gopher.ripe.net` or `wais.ripe.net` respectively. Additionally the NCC document store can be accessed through the NCC Interactive Information Server.

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 440 Mbytes transferred:

Archive Section	Files Sent	Bytes Sent	% of files sent	% of bytes sent
ripe/dbase	716	442483156	12.90	57.72
rfc	551	60191792	9.93	7.85
ripe/hostcount	677	55739857	12.20	7.27
ripe/docs	1447	54068799	26.08	7.05
tools/conf	111	32760502	2.00	4.27
nsf	232	28134842	4.18	3.67
tools/www	97	19017057	1.75	2.48
nsf/recompete	67	11203652	1.21	1.46
ripe/maps	180	8378535	3.24	1.09
tools/wais	66	8275052	1.19	1.08
tools/gopher	73	7476512	1.32	0.98
internet-drafts	123	7122860	2.22	0.93
rare/monograph	14	3430267	0.25	0.45
rare/RTR	16	3197348	0.29	0.42
rare/archive	148	3011151	2.67	0.39

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

Domain Name	Number of files sent	Number of 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
UNKNOWN	481	31137253	8.67	4.06
at	102	11305114	1.84	1.47
au	1	18672	0.02	0.00
be	76	8576826	1.37	1.12
ca	15	3172096	0.27	0.41
ch	377	95012970	6.79	12.39
cl	0	0	0	0
com	104	8783639	1.87	1.15

Domain Name	Number of files sent	Number of Bytes sent	% of files sent	% of bytes sent
cs	123	5623920	2.22	0.73
de	279	24371114	5.03	3.18
dk	7	1304257	0.13	0.17
edu	182	30193420	3.28	3.94
es	201	7352212	3.62	0.96
fi	923	177825504	16.63	23.20
fr	149	27713042	2.69	3.62
gov	13	1172986	0.23	0.15
gr	16	3009143	0.29	0.39
hk	1	59437	0.02	0.01
hu	15	3745953	0.27	0.49
ie	69	6143620	1.24	0.80
il	8	461240	0.14	0.06
is	0	0	0	0
it	97	7080885	1.75	0.92
jp	12	896779	0.22	0.12
kr	33	961636	0.59	0.13
lu	0	0	0	0
mil	1	7909	0.02	0.00
mx	2	819399	0.04	0.11
net	1379	219298206	24.85	28.61
nl	560	72367290	10.09	9.44
no	87	3941346	1.57	0.51
org	7	521496	0.13	0.07
pl	37	2380214	0.67	0.31
pt	38	1696189	0.68	0.22
se	35	3940305	0.63	0.51
sg	0	0	0	0
tn	0	0	0	0
tw	0	0	0	0
uk	83	3023006	1.50	0.39
us	0	0	0	0
yu	33	2639771	0.59	0.34
za	3	30670	0.05	0.00

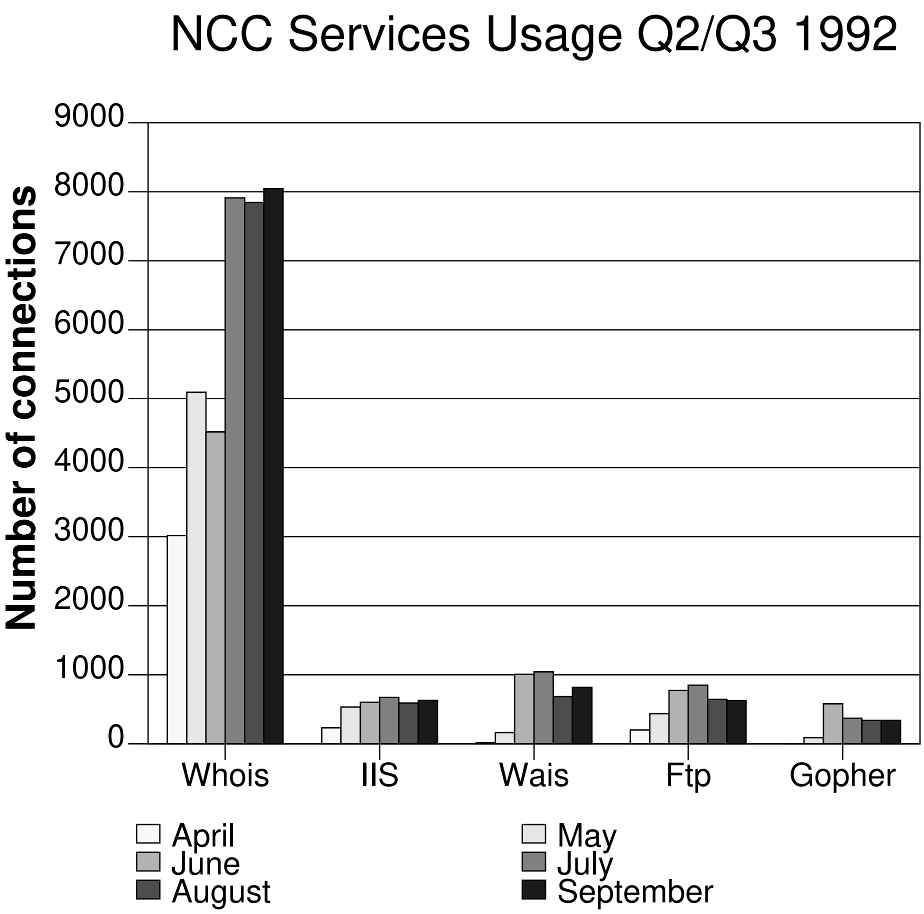
The unresolved category refers to where there is no match found between the IP address and the Domain Name. A grahical representation of this table can be found “Appendix H”.

Interactive Information Server

Once again the NCC would like to stress the idea behind the Interactive Information Server (IIS) and to encourage its usage. Therefore we make no apologies for repeating the information (although abbreviated) in this paragraph.

The goal of the IIS is to enable users with minimal hardware and/or software support to access information stored by the NCC. The IIS is also the most convenient method to access the RIPE document store from networks which are not IP based. At the same time it caters for those occasional users who do not choose to run or learn the local WAIS, GOPHER etc. clients. It is possible to access the information in the document store using both `telnet` and `pad` connections. In addition the server provides an interface to a number of clients enabling a wide range of information to be accessed in a number of different ways. Currently these comprise WAIS, Gopher and WHOIS. For details on how to use the IIS, please refer to our information leaflet “Interactive Information Server” or see the first edition of the NCC Quarterly Reports.

General Service Usage Statistics.



Statistics for the use of the various NCC information services were collected for the third quarter of 1992 The table below shows the total number of connections made for each service (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	Apr	May	Jun	Jul	Aug	Sep
Whois	3014	5093	4520	7909	7845	8044
IIS	230	530	602	669	591	628
Wais	14	159	1005	1040	682	816
FTP	201	436	770	849	645	625
Gopher	0	89	577	371	337	340

Due to technical problems GOPHER logging has commenced in mid May.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.

Source	Whois	IIS	Wais	Ftp	Total
IIS	2606	0	1149	0	3755
IXI	16	217	0	0	233
LOCAL	779	101	74	7	961
NCC-X25	0	23	0	0	23
PSPDN	0	1	0	0	1
UNKNOWN	275	315	49	206	845
at	113	53	9	55	230
au	8	34	27	2	71
be	47	8	3	32	90
ca	6	6	0	14	26
ch	184	81	103	233	601
cl	0	8	0	1	9
com	86	31	751	81	949
cs	118	2	17	34	171
de	4828	76	18	165	5087
dk	100	17	10	17	144
edu	7599	196	293	161	8249
es	109	17	0	28	154
fi	48	10	14	117	189
fr	487	53	21	109	670
gov	19	3	7	9	38
gr	44	11	0	7	62

Source	Whois	IIS	Wais	Ftp	Total
hk	0	0	0	3	3
hu	153	48	10	19	230
ie	230	23	0	55	308
il	52	5	0	12	69
is	29	0	0	5	34
it	208	15	1	46	270
jp	0	6	0	5	11
kr	2	4	1	3	10
lu	0	5	0	0	5
mil	1	34	20	6	61
mx	0	0	0	2	2
net	1890	36	8	187	2121
nl	2105	264	42	365	2776
no	128	16	0	42	186
org	2776	20	4	8	2808
pl	9	22	0	17	48
pt	218	12	0	23	253
se	588	65	6	27	686
sg	0	3	0	0	3
tn	0	3	0	2	5
tw	0	0	0	1	1
uk	259	112	21	54	446
us	0	5	0	0	5
yu	0	2	0	11	13
za	0	3	0	6	9
Total	26120	1966	2658	2177	32921

In total there were 1966 connections to the Interactive Information Server, which is queried, on average, 32 times per working day. A grahical representation of this table can be found “Appendix H”.

The provisional access from the IXI network has been used 233 times during the reporting period, slightly less than 4 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.

Information Leaflets

Revised versions of the RIPE NCC promotional leaflets ‘Network Management Database’ and ‘Interactive Information Service’ respectively, have been drafted. The revised leaflets comprise new information as well as bringing the existing information up to date. Prior to printing the leaflets will be raised for approval at the 13th RIPE meeting. Copies of the draft leaflets (ASCII) were circulated to the RIPE mailing list `<ripe@ripe.net>` with an invitation for comments. Postscript versions of the leaflets (complete with graphics) were also posted in the RIPE document store in the subdirectory:

`ripe/docs/ripe-drafts/`

`ripe-draft-folder2.v2.ps` (database leaflet)
`ripe-draft-folder1.v2.ps` (interactive information services leaflet).

In addition, a new leaflet “Delegated Internet Registry” has been drafted and the content will be discussed at the forthcoming 13th RIPE meeting in Paris.

A further 2,000 of each leaflet will be printed. The Joint Network Team (GB) have ordered 1,000 copies of each of the leaflets. The NCC is happy to supply hard copies of the leaflets to any organisation requesting them.

Presentations

Once again the NCC wishes to stress that it is considered a priority to inform as many users as possible, as clearly as possible, what the role of the NCC is in relation to the multitude of networking organisations. Clearly the larger the audience, the easier this task is. To this end the NCC will give presentations about its activities wherever appropriate and possible. It is stressed that all those organisations wishing to convey the work of the RIPE NCC to others are invited to contact the NCC with a request for a presentation.

SURFnet is the only organisation that has contacted the NCC over the last quarter with a request for a presentation, which is scheduled for 6th October to be given by Daniel Karrenberg.

RIPE Support Activities

RIPE meetings

Currently RIPE meetings take place three times a year. From its initiation on April 1st 1992, the RIPE NCC was chartered to provide support to all RIPE meetings.

The meetings are open to all Internet service providers, and enable both formal and informal information gathering, the exchange of ideas and debate. In addition it is at RIPE meetings where the members of the 8 RIPE working groups can meet face to face to discuss and progress their work.

The NCC welcomes suggestions for support from participants for future RIPE meetings

WG Liaison

Once again it is necessary to highlight the importance to RIPE of the work carried out by the working groups. To this end, continuity of dialogue between the RIPE meetings is vital. In the June Quarterly it was reported that to encourage and promote this, the RIPE NCC staff members had been appointed “liaison officers” to assist the chairpersons of the working groups (see “Appendix F” on page 36for details). The working group chairpersons are encouraged to utilise the services offered by the RIPE NCC. Specifically the NCC can offer assistance with editing and formatting documents, directing enquiries to the relevant working groups and assistance with keeping track of the minuted actions.

The initiative needs more impetus. The RIPE NCC welcomes suggestions on giving support to the working groups.

New Mailing List for IP Providers

From time to time the RIPE NCC receives queries from organisations wishing to obtain information about service providers in a particular area. To retain an impartial role, the NCC has established a new mailing list:

`ip-provs@ripe.net`

All such queries are posted to this list. IP service providers who subscribe to the list will then receive at the same time, requests from potential customers. It is then the responsibility of the individual service providers to contact the potential customers. The list is not intended to be a discussion list in any sense, but a referral list to which the details of queries from potential customers will be posted to those who subscribe to the list, at the same time and without bias from the NCC. If you do not already subscribe to the list, you can do so by sending an email message to:

`ip-provs-request@ripe.net`

Audiocast

The NCC has experimented with the audio transmission tools used to broadcast plenary sessions at IETF meetings. This tool looks promising for operational coordination as well as support of RIPE activities such as working groups. As a large scale trial it is planned to audiocast the plenary sessions of the 13th RIPE meeting. Since these tools are based on IP multicasting, a European Multicast Backbone is needed as part of the worldwide MBONE to replace the current ad hoc structures. To this end a BOF session at the 13th RIPE meeting has been proposed.

Referrals and End-User Enquiries

The number of referral requests and end-user enquiries has not been significant during the reporting period. Most queries have been related to either requests for IP numbers or dealt with by establishing the mailing list for IP Providers. See "New Mailing List for IP Providers" on page 22.

General Set Up

The acquisition of a new fax machine located in the NCC office, has enabled the NCC to improve its response times. Please note our new fax number:

- +31 20 592 5090

The fax has been of benefit to organisations who do not have email connectivity (most frequently this has been in connection with requests for IP network numbers), thus enabling the NCC to respond swiftly to requests. In addition, software that allows sending fax messages directly from the workstation is undergoing testing.

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

Thanks are due to the RIPE chairman for his considerable effort in revising and making complete, the document store.

Appendix A

Meetings Attended

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

Date	Name & Location	Attendee
July 13-17	IETF Boston, USA	Marten Terpstra
August 3-4	EBONE Action Team EBONE Operations Team Stockholm, Sweden	Marten Terpstra
Sept. 30- October 2	13th RIPE meeting Paris, France	Daniel Karrenberg Marten Terpstra Anne Lord

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 received the request and solicited the necessary justification.

Network Number	Via
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
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
164.7-164.15	free
164.16-164.34	DE-NIC
164.35-164.40	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.

The fact that there are multiple non-provider blocks for Belgium and Norway is due to an unfortunate clerical error at the NCC. This situation will be corrected if possible.

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	?	6	NCC	Miscellaneous TN,RO,PT
192.164	p	142	AT	EUnet/AT
192.165	?	155	SE	NORDUnet
192.166	?	174	DE	DE-NIC
192.167	?	2	IT	GARR
192.168	p	0	EU	EUnet/NOC
193.0	?	free	NCC	
193.1	p	6	IE	HEANET
193.2	p	2	YU	ARNES
193.3	?	free	NCC	(was EUnet/DK temporary)
193.4	?	11	IS	Iceland everything
193.5	p	24	CH	SWITCH
193.6	p	22	HU	Sztaki
193.7	p	0	DE	chambers of commerce DE-NIC
193.8	n	2	CH	non-provider CH-NIC
193.9	n	16	EU	non-provider European (managed by NCC)
193.10	p	3	SE	SUNET
193.11	p	resvd	SE	SUNET
193.12	p	12	SE	SWIPNET

Block	p / n	nets assigned	Country	Registry
193.13-15	p	resvd	SE	SWIPNET
193.16	n	127	DE	non-provider DE-NIC
193.17	n	41	DE	non-provider DE-NIC
193.18-31	n	resvd	DE	non-provider DE-NIC
193.32	p	45	UK	non-provider UK-NIC
193.33-34	n	resvd	UK	Sainsbury's (multiple B request)
193.35-39	n	0	UK	non-provider UK NIC
193.40	n	1	NO	non-provider NCC (to be reclaimed)
193.41-43	?	free	NCC	
193.44	p	4	SE	TIPNET
193.45-47	p	resvd	SE	TIPNET
193.48	p	97	FR	RENATER
193.49-51	p	resvd	FR	RENATER
193.52	?	free	NCC	
193.53	n	5	BE	non-provider (managed by NCC) block allocated by clerical error
193.54-55	?	free	NCC	
193.56	n	0	FR	non-provider FR NIC
193.57	n	resvd	FR	non-provider FR NIC
193.58	n	5	BE	non-provider (managed by NCC)
193.59	p	5	PL	academic
193.60	p	36	UK	JANET
193.61	p	10	UK	JANET
193.61	p	0	UK	JANET
193.63	p	1	UK	JANET
193.64	p	13	FI	EUnet/FI
193.65-67	p	resvd	FI	EUnet/FI
193.68	p	0	BG	EUnet/BG
193.69	p	resvd	IS	EUnet/IS
193.70	p	resvd	IT	EUnet/IT
193.70	p	resvd	NO	EUnet/NO
193.72	p	8	CH	EUnet/CH
193.73	p	resvd	CH	EUnet/CH
193.74	p	1	BE	EUnet/BE
193.75	p	resvd	BE	EUnet/BE

Block	p / n	nets assigned	Country	Registry
193.76-77	p	resvd	HR	EUnet/HR
193.78	p	9	NL	EUnet/NL
193.79	p	resvd	NL	EUnet/NL
193.80-83	p	resvd	AT	EUnet/AT
193.84	p	0	CS	EUnet/CS
193.85-87	p	resvd	CS	EUnet/CS
193.88	p	17	DK	EUnet/DK
193.89-91	p	resvd	DK	EUnet/DK
193.92	p	0	GR	EUnet/GR
193.93	p	resvd	GR	EUnet/GR
193.94	p	5	TN	EUnet/TN (managed by NCC)
193.95	p	resvd	TN	EUnet/TN
193.96	p	43	DE	EUnet/DE
193.97	p	0	DE	EUnet/DE
193.98-103	p	resvd	DE	EUnet/DE
193.104	p	0	FR	EUnet/FR
193.105-111	p	resvd	FR	EUnet/FR
193.112	p	0	UK	EUnet/UK
193.113	p	0	UK	EUnet/UK (special)
193.114-119	p	resvd	UK	EUnet/UK
193.120	p	0	IE	EUnet/IE
193.121-123	p	resvd	IE	EUnet/IE
193.124	p	11	RU	EUnet/RU + xSU
193.125	p	resvd	RU	EUnet/RU + xSU
193.126-127	p	resvd	PT	EUnet/PT
193.128	p	16	UK	PIPEX
193.129-135	p	resvd	UK	PIPEX
193.136	p	0	PT	RCCN
193.137	p	resvd	PT	RCCN
193.138	?	3	SI	general (managed by NCC)
193.139	?	free	NCC	
193.140	?	6	TR	general (managed by NCC)
193.141	?	free	NCC	
193.142	n	1	FI	non-provider (managed by NCC)
193.143	n	resvd	FI	non-provider (managed by NCC)

Block	p/n	nets assigned	Country	Registry
193.144	p	0	ES	RedIRIS
193.145-147	p	resvd	ES	RedIRIS
193.148	n	9	ES	non-provider ES NIC
193.149-155	n	resvd	ES	non-provider ES NIC
193.156	p	0	NO	UNINETT
193.157-159	p	0	NO	UNINETT
193.160	n	0	NO	non-provider NO NIC
193.161	n	resvd	NO	non-provider NO NIC
193.162	n	1	DK	non-provider (managed by NCC)
193.163	n	resvd	DK	non-provider (managed by NCC)
193.164	n	1	PL	non-provider (managed by NCC)
193.165	n	resvd	PL	non-provider (managed by NCC)
193.166-255	?	free	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	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
bg	Bulgaria
by	Byelorus
ca	Canada
ch	Switzerland
cl	Chile
cs	Czechoslovakia
de	Germany
dk	Denmark
dz	Algeria
ee	Estonia
es	Spain
fi	Finland
fr	France
gb	Great-Britain
gr	Greece
hk	Hong Kong

Domain	Specifying
hr	Croatia
hu	Hungary
ie	Ireland
is	Iceland
it	Italy
il	Israel
jp	Japan
kr	Korea
lt	Lithuania
lu	Luxembourg
lv	Latvia
nl	The Netherlands
mx	Mexico
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

Standard Information Package for Registry Requests

To whom it may concern,

The RIPE Network Coordination Centre now handles all requests for IP network numbers from European organisations. Our aim is to provide a rapid and efficient service to all European organisations. As this is a recent initiative, procedures for handling network number requests are in the process of being established. Therefore we apologise in advance for any duplication of effort that may be required by you due to new forms and templates. As the European NIC, we require different information to that required by the US and for it to be presented in a format which is both easy for you to complete and for us to process. Before your application can be processed any further, you will need to complete the enclosed templates and return them to the appropriate organisation responsible for issuing IP network numbers. In most cases this will be your IP service provider or the RIPE NCC. Before completion of the template, please be sure to read the following text and examples carefully which will guide you.

A new classless IP addressing scheme called CIDR has recently been adopted to cope with routing table growth and address space exhaustion problems in the Internet. Under this scheme it is beneficial for everyone to get their network numbers allocated via their respective IP service providers. Your IP service provider is the organisation providing external connectivity to your network. If you are planning to connect your network to other networks outside your organisation in the foreseeable future we strongly urge you to get numbers allocated from your current or prospective IP service provider. Alternatively, if this is not likely, then you will be allocated a number from a different part of the address space by the RIPE NCC. Please pay careful attention to this matter.

Class A and B network numbers are a scarce resource and some justification in terms of expected network size and structure will be needed before such a number can be allocated. Class A numbers will only be assigned to networks which technically need more than 65000 hosts to be on one network number. A detailed technical justification is needed, review takes place on a global scale and the allocation process can take several months. Similarly due to class B scarcity, a reasonable number of class C numbers will be assigned over class B. If you can engineer your network to use multiple class C numbers, it is strongly advised. Please note that this is contrary to earlier recommendations where it was recommended to use Bs over multiple Cs due to routing table size constraints. A one page document detailing the information needed by the NCC to evaluate requests for class B numbers is available from the NCC if it is not enclosed with this letter; this document also includes a list of recommended reading about CIDR and address allocation in general.

Appended to this letter is a blank template for IP number registration, which we would be extremely grateful if you complete and return to the appropriate organisation responsible for issuing IP network numbers. In most cases this will be your IP service provider. It may of course also be the RIPE NCC.

If you have any further queries please do not hesitate to contact the NCC. Please note that all queries should, if possible, be made through e-mail and sent to <hostmaster@ripe.net>. If you do not have access to electronic mail, then we prefer to communicate by fax rather than by ordinary mail. You can reach us at:

Kruislaan 409	*Phone: +31 20 592 5065*
NL-1098 SJ Amsterdam	*Telefax: +31 20 592 5090*
The Netherlands	

If we do not hear from you in the near future we will assume that you have contacted your IP service provider.

Yours sincerely,

The RIPE NCC staff

Recommended Reading List for Address Allocation and CIDR

1. rfc 1338.txt - CIDR Addressing Scheme
2. draft-rekhter-ipaddress-guide-02.txt - Global Address Requirement
3. rfc1347.ps (postscript format) - Further Reading
4. rfc1347.txt (ascii format)

The documents you require are all contained within the RIPE document store. Reference 1, 3 and 4 can be found in the rfc/ directory. Reference 2 can be found in the internet-drafts/ directory. The RIPE document store can be accessed in a number of ways:

1. on the Internet type: telnet info.ripe.net
2. using the IXI network type: pad 020430459300031
3. via the Public Data Network type: pad 0204129004331
4. on the Internet via anonymous FTP from host ftp.ripe.net

Additional Hints for Organisations Requesting Class B Network Numbers

Please understand that the criteria for allocating Class B network addresses are extremely strict. This is due to the global scarcity of these network numbers. Out of necessity then, the NCC has to closely examine each and every request we receive for a class B network address. As a result the allocation process will take longer. Organisations can however speed up the process by providing the NCC with as much information as possible on their initial request to enable us to make a decision without having to request more information. Specifically, we require information about the number of hosts in your network at the following points in time:

- now
- one year from now
- two years from now
- any other significant milestone

The number of hosts estimates should be substantiated with other data about the network and/or organisation like number of employees, geographical distribution, type of hosts. The clearer you can document that your estimates are carefully derived, the easier it is for us to justify allocation of a class B address.

Besides a sufficient number of hosts we must determine that your network cannot be engineered using a number of contiguous class C networks. If your network consists of a large number of physical networks with relatively small numbers of hosts on each, you will have to consider subnetting class C networks. A large number of subnetworks alone is not sufficient justification for allocation of a class B network number. We realise that a number of engineering decisions can be based on administrative convenience. Unfortunately the remaining class B address space is too small to take these considerations into account. The clearer your explanation is, as to why your network *cannot* be engineered using a block of class C network numbers, the easier it is for us to justify allocation of a class B network address.

All the above mentioned points apply even more strongly to cases where multiple class B network numbers are requested. Assignments of multiple class B network numbers will only occur when the RIPE NCC is satisfied with a detailed justification in terms of the criteria mentioned.

Finally, please understand that we are not working against you, but with the whole Internet community to achieve a fair distribution of the remaining address space. If you have any questions about the procedure or the information needed, please do not hesitate to contact the RIPE NCC for further guidance.

Appendix F

Working Group Mailing Lists

Coordinating and support for the activities of the Working Groups is a key focus for the RIPE NCC. During the first quarter, the NCC has created mailing lists for those working groups that have requested this facility.

Relationship between Academic & Research Networks & Commercial Networks.
Chair: Glenn Kowack. E-mail: `glenn@eu.net`.
Working Group E-mail: `raec-wg@ripe.net`.

Network Information Discovery and User Support.
Chair: Nandor Horvath. E-mail: `horvath@sztaki.hu`
Working Group E-mail: `nidus-wg@ripe.net`

DNS Issues
Chair: Francis Dupont. E-mail: `francis.dupont@inria.fr`
Working Group E-mail: `dns-wg@ripe.net`

Routing Issues
Chair: Jean-Michel Jouanigot. E-mail: `jimi@dxcoms.cern.ch`
Working Group E-mail: `routing-wg@ripe.net`

Network Monitoring and Statistics Gathering
Chair: Bernhard Stockman. E-mail: `boss@sunet.se`

Network Maps
Chair: N.N. (Hank Nussbacher resigned)

European Connectivity
Chair: Milan Sterba. E-mail: `milan.sterba@inria.fr`

RIPE Database
Chair: Wilfried Woeber. E-mail: `woeber@access.can.ac.at`

To subscribe to any working group send a message to:

`[listname]-request@ripe.net`

where [listname] is replaced by the name of one of the working groups specified above.

Appendix G

README file from RIPE Document Store

Contents:

RIPE documents. The agenda's and minutes of RIPE meetings are kept separately:

```
agenda's:   ripe/ripe-agenda
```

minutes: ripe/ripe-minutes

How to access:

The documents can be retrieved by anonymous ftp from

```
ftp.ripe.net
```

in the directory

```
ripe/ripe-docs
```

Numbering scheme:

A document may be stored in two ways: as plain ASCII text and as PostScript. The two can be distinguished by the file extension: `.txt` and `.ps` respectively. For completeness sake, a reference to the "old" RIPE document classification scheme is given, when available.

Also:

A fully indexed description of all RIPE documents can be found in the file ripe-index.txt in this directory.

Index:

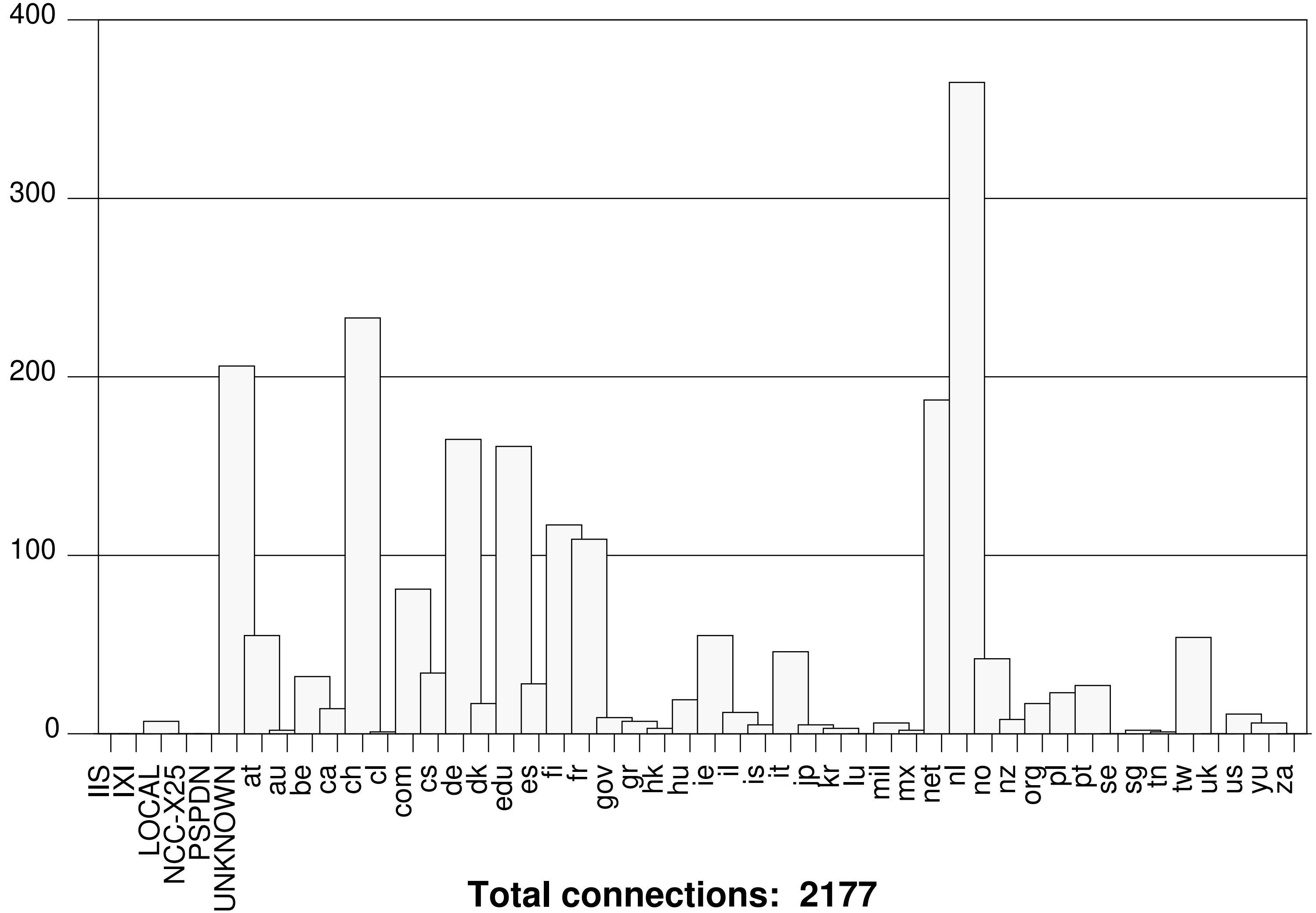
ripe-1 RIPE Terms of Reference
ripe-2 Statement of Cooperation
ripe-3 Letter of Introduction
ripe-4 Task Force Description
ripe-5 European IP connectivity map - by IP number
ripe-6 European IP connectivity map - by domain name
ripe-7 Some practical DNS advice
ripe-8 European IP connectivity map - by IP number
ripe-9 European IP connectivity map - by domain name
ripe-10 Legend to European IP maps
ripe-11 European IP connectivity map - by IP number

ripe-12	European IP connectivity map - by domain name
ripe-13	RIPE Databases
ripe-14	Legend to European IP maps
ripe-15	European IP connectivity map - by IP number, 1 page version
ripe-16	European IP connectivity map - by IP number, 2 page version
ripe-17	European IP connectivity map - by domain name, 1 page version
ripe-18	European IP connectivity map - by domain name, 2 page version
ripe-19	RIPE Network Coordination Centre (RIPE NCC)
ripe-20	RIPE DNS hostcount
ripe-21	RIPE requirements
ripe-22	RIPE DNS hostcount
ripe-23	Legend to European IP maps
ripe-24	European IP connectivity map - by IP number, 1 page version
ripe-25	European IP connectivity map - by IP number, 2 page version
ripe-26	European IP connectivity map - by domain name, 1 page version
ripe-27	European IP connectivity map - by domain name, 2 page version
ripe-28	RIPE DNS hostcount
ripe-29	RIPE DNS hostcount
ripe-30	Legend to European IP maps
ripe-31	European IP connectivity map - by IP number
ripe-32	European IP connectivity map - by domain name
ripe-33	RIPE DNS hostcount
ripe-34	RIPE DNS hostcount
ripe-35	RIPE NCC Activity Plan
ripe-36	RIPE recommendation: IP networking on IXI
ripe-37	RIPE recommendation on IP router management
ripe-38	RIPE DNS hostcount
ripe-39	Procedures to set up the RIPE NCC
ripe-40	RIPE Database status report
ripe-41	RIPE DNS hostcount
ripe-42	RIPE DNS hostcount
ripe-43	RIPE DNS hostcount
ripe-44	RIPE DNS hostcount
ripe-45	Relationship between A & R networks and Commercial networks
ripe-46	RIPE DNS hostcount
ripe-47	RIPE DNS hostcount
ripe-48	RIPE request template for IP numbers
ripe-49	RIPE database template for domains
ripe-50	RIPE Database Template for Networks
ripe-51	RIPE Database Template for Persons
ripe-52	RIPE Database status report
ripe-53	RIPE DNS hostcount
ripe-54	An overview of East and Central European Networking activities
ripe-55	RIPE NCC - Hardware Configuration (slides)

ripe-56	RIPE NCC - Report (slides)
ripe-57	General information about RIPE and the RIPE NCC
ripe-58	RIPE NCC Database leaflet
ripe-59	RIPE NCC Information leaflet
ripe-60	Policy based routing within RIPE
ripe-61	RIPE DNS hostcount
ripe-62	RIPE NCC Quarterly report Issue 1
ripe-63	RIPE recommendation on Operational Contacts
ripe-64	RIPE DNS hostcount
ripe-65	RIPE NCC Internet Numbers registration Procedures
ripe-66	RIPE Task Forces
ripe-67	RIPE DNS hostcount
ripe-68	Central European connectivity map
ripe-69	RIPE DNS hostcount history (slide)
ripe-70	RIPE DNS hostcount
ripe-71	RIPE DNS hostcount

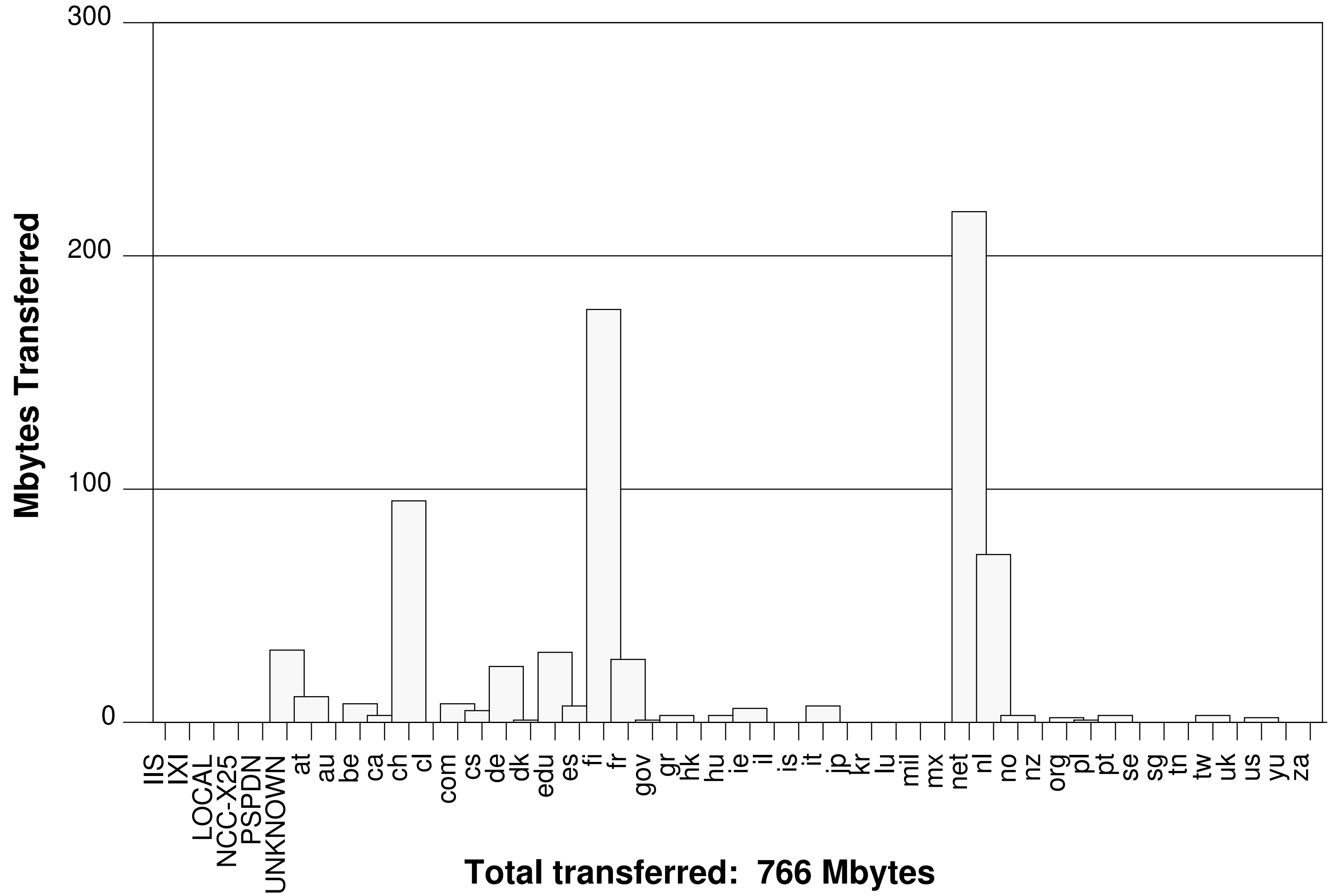
Appendix H

FTP Connections Q3 1992



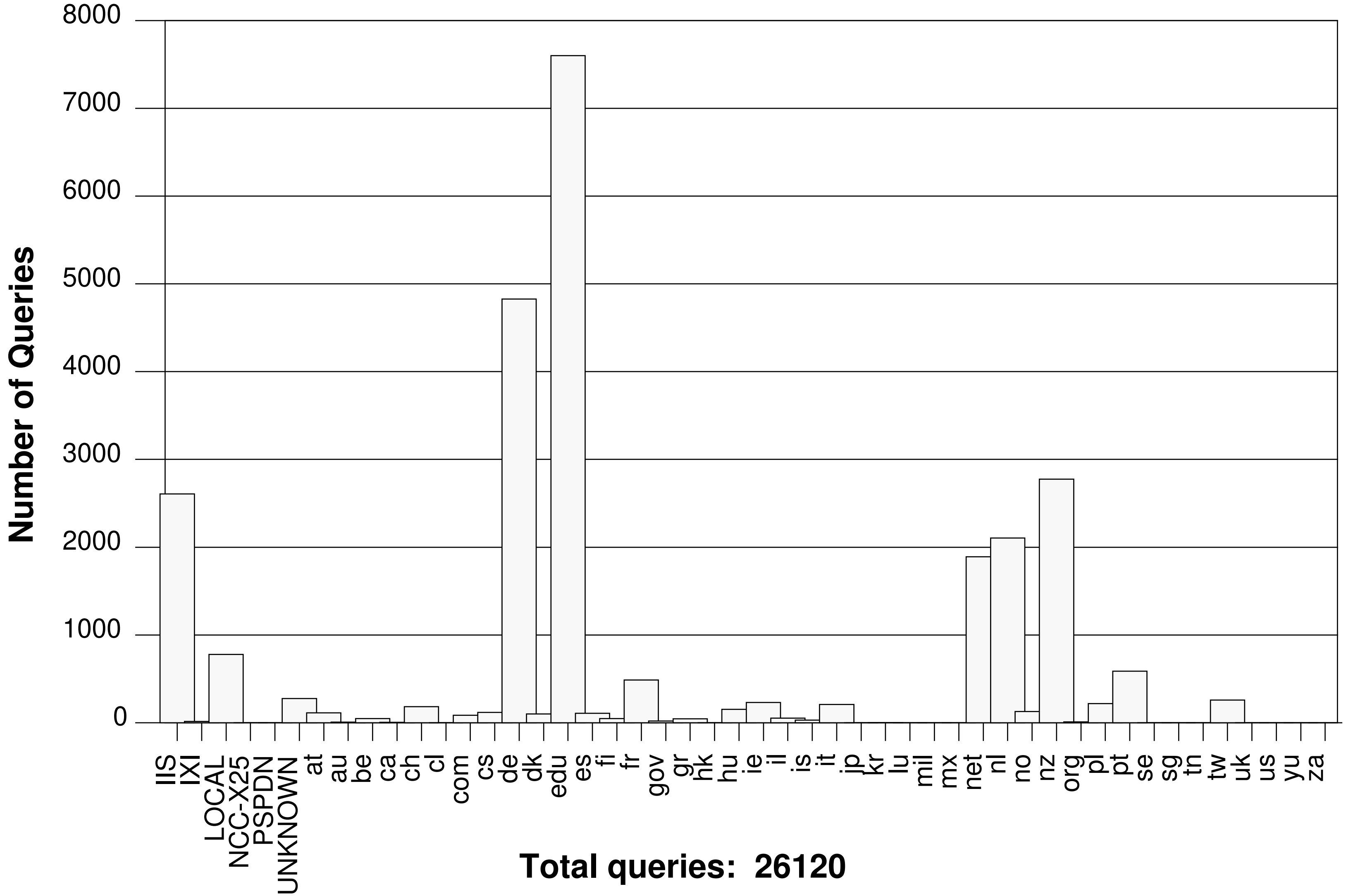
Total connections: 2177

FTP Transfers Q3 1992



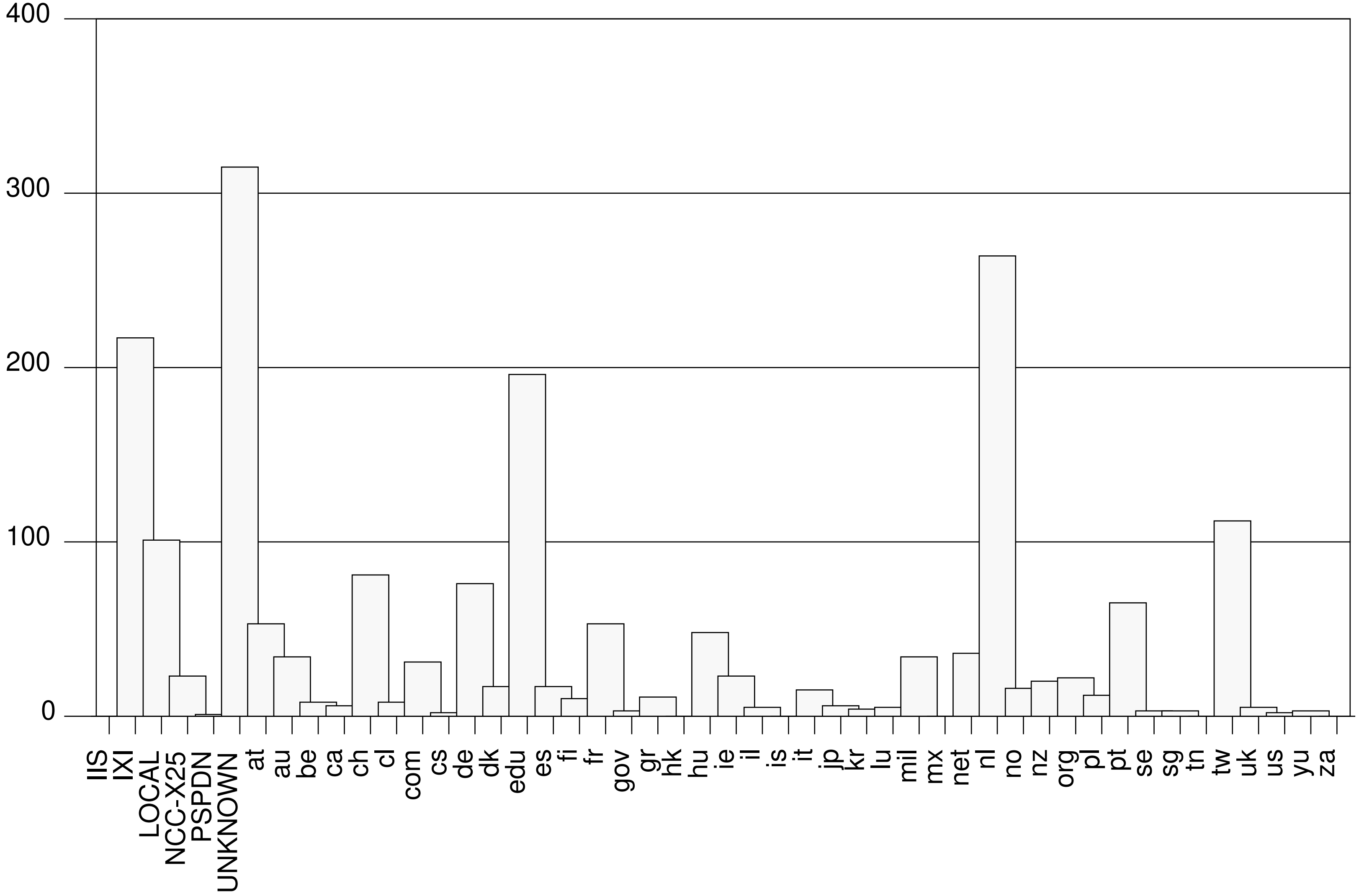
Total transferred: 766 Mbytes

RIPE Database Queries Q3 1992



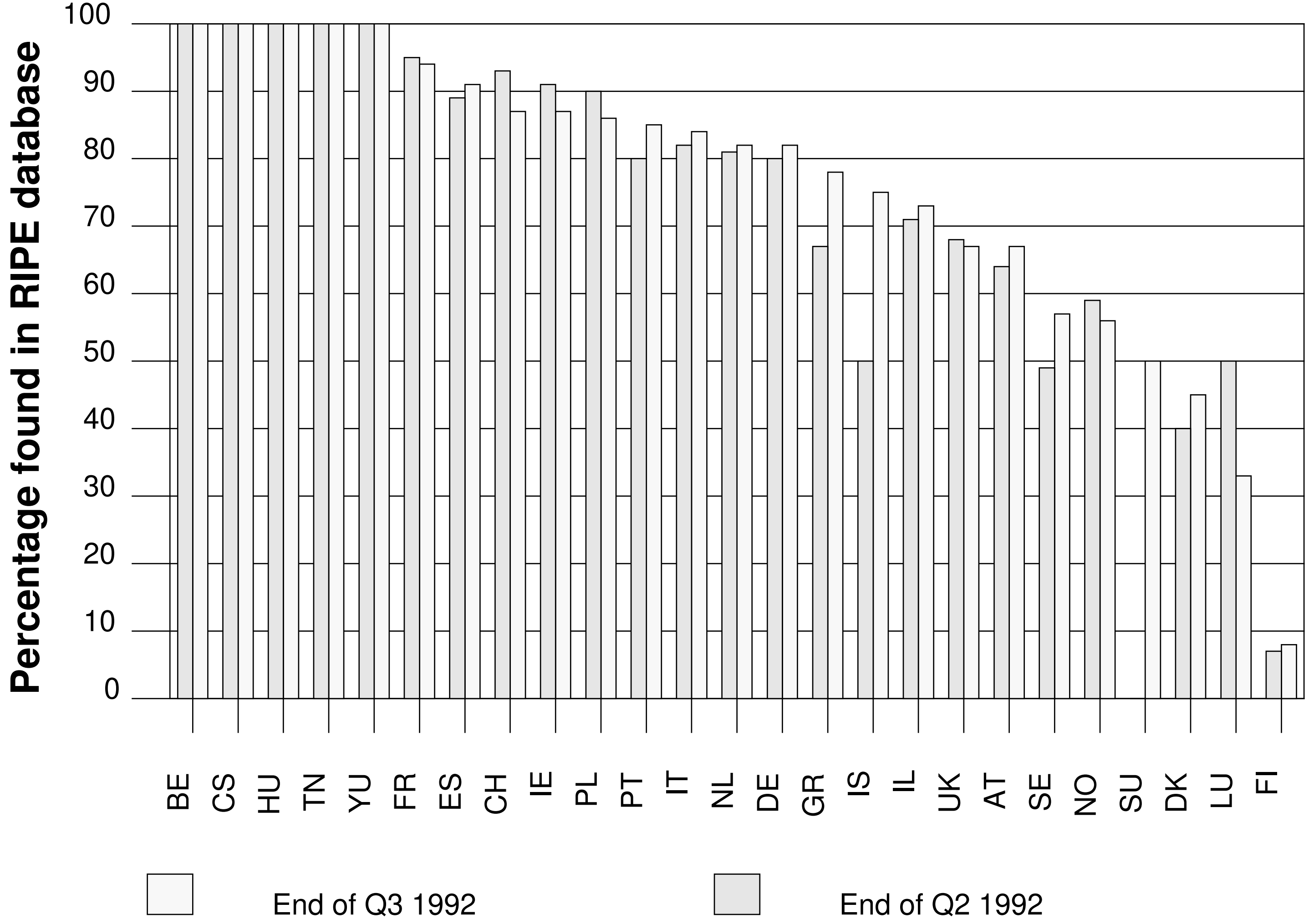
Total queries: 26120

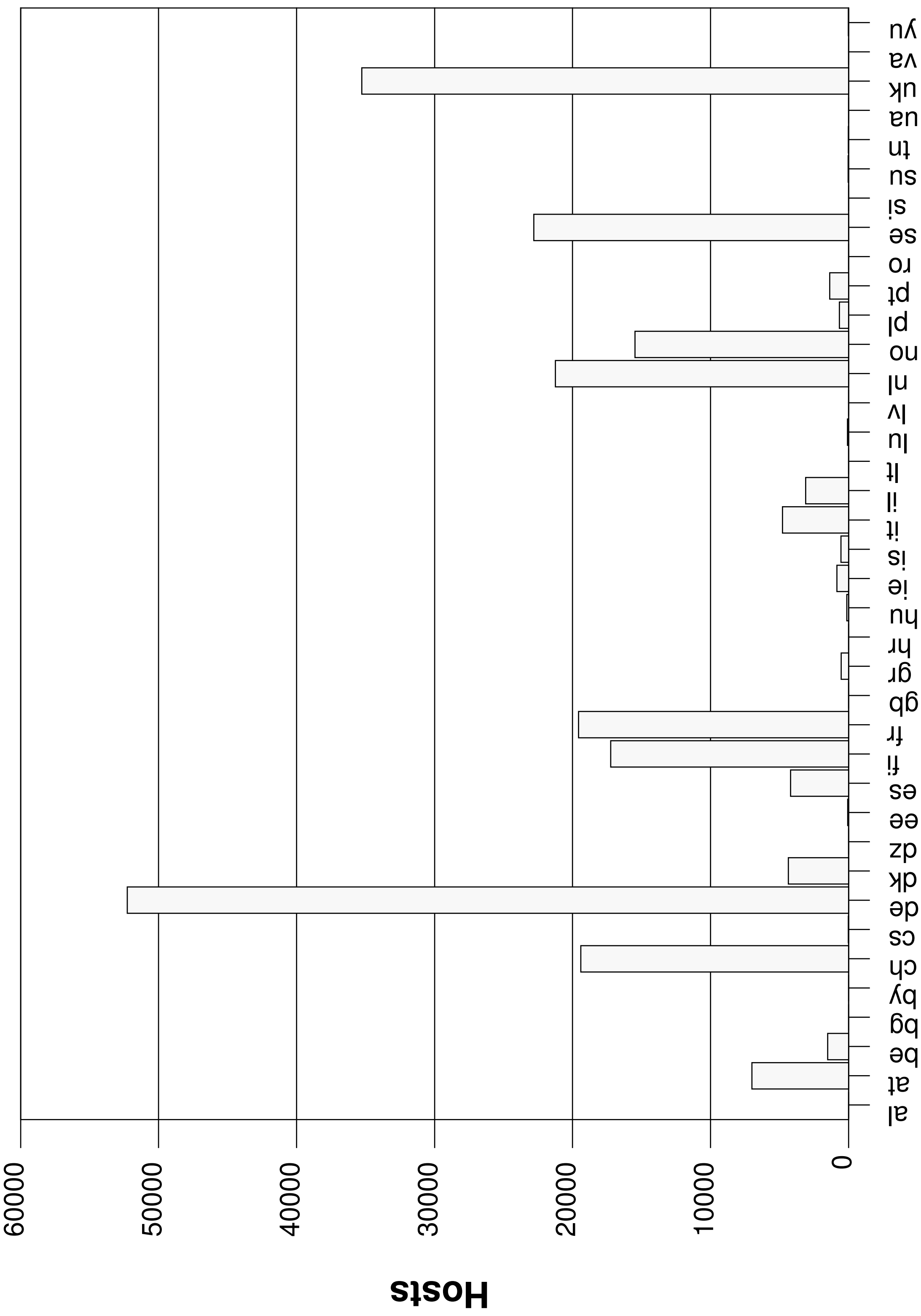
Interactive Information Server Usage Q3 1992



Total connections: 1966

Networks in DNS Registered in RIPE Database





RIPE DNS Hostcount per Country, September 1992