Réseaux IP Européens

Network Coordination Centre

RIPE

ncc

# QUARTERLY REPORT

Issue 4
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RARE

The RARE association provides the framework for NCC operations.

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RIPE ncc

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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 March 1993 more than 355,000 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 legal and financial 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 fourth quarterly report produced by the RIPE NCC and marks the completion of one year of operation. A yearly report will be produced, which summarises the activities and achievements of the RIPE NCC's first year of operation.

As always, comments and suggestions are very welcome.

## Note on Statistics

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

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

RIPE NCC operations have been running smoothly during the reporting period. Two joint projects supported by the NCC have been started.

## Delegated Registry

European Internet Registry operations are continuing successfully. To date more than 10,000 IP network numbers have been assigned, about 500 of which are being routed on the Internet at present. DNS reverse mapping (in-addr.arpa) has been decentralised for the European block of class C networks. Coordination issues with the Global Internet Registry mentioned in the last report have all been followed up and most of them have been solved.

## Joint Projects

Two joint RARE Technical Committee and RIPE projects have started at the NCC with RARE funding: Generic Internet Service Specification (GISS) and European Route Server. Both projects have already produced tangible results. The Route Server project has resulted in particularly good progress being made with the Routing Registry.

## RIPE Database

The RIPE database has been enhanced to store the necessary objects to support the Routing Registry. Database update procedures have been enhanced. A guarded update procedure for routing policy related data has been implemented and is due to be operational in May. The number of database updates processed at the NCC has more than doubled from last quarter and now stands at 465 per working day.

## Funding

The first year of RIPE NCC operations has been successful. At this point continued funding of NCC activities in 1994 and beyond needs to be secured. The NCC has assisted the RIPE chair in document outlining a funding model. The European Internet operators cooperating in RIPE need to establish consensus over the model and commit to funding if NCC activities are to continue.

# Funding Paper Published

The RARE association provides the legal and financial framework for the NCC. Funding for the first year of operation of the NCC has been provided by EARN, the full national members of RARE, Israel and EUnet. These organisations have agreed to guarantee funding of NCC operation during the remaining three quarters of 1993. At the same time they have expressed that -while they guarantee continued funding - it is imperative that the remaining European Internet service providers start contributing to NCC funding as soon as possible. As all European Internet service providers benefit from NCC services, the costs should be shared appropriately.

Because of this RIPE seeks to establish agreement about a funding model among European Internet service providers and other organisations interested in contributing. To this end a RIPE paper was written by Rob Blokzijl and Daniel Karrenberg (Doc ID:ripe-84) in which an approach to analysing the problem of funding was made by categorising the services and user communities of the NCC and a funding model is proposed. It is very important that RIPE agrees on a funding model soon. The topic will therefore be an item on the agenda for discussion at the forthcoming15th RIPE meeting in Amsterdam.

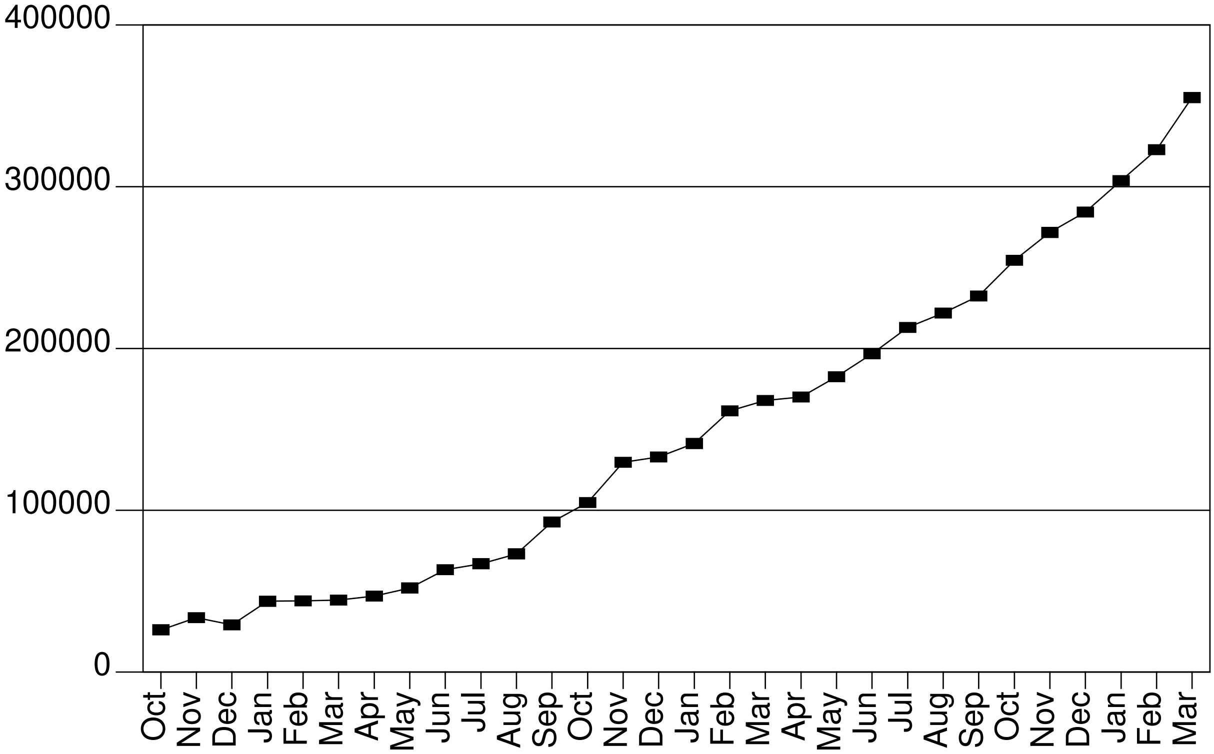
# Activities

## DNS Coordination

### DNS Hostcount

Nothing has changed to the hostcount procedure. The collection of the data is done centrally from the RIPE NCC, except for the data for the UK and Germany. In these countries the data is collected locally, and then transported to the RIPE NCC for incorporation in the statistics. The March 1993 hostcount shows a total of over 355,000 hosts in Europe, where Cyprus (CY) is the only country added to the hostcount.

RIPE DNS Hostcount History 1990-1993




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

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

| | | |
|---|---|---|
| 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 |

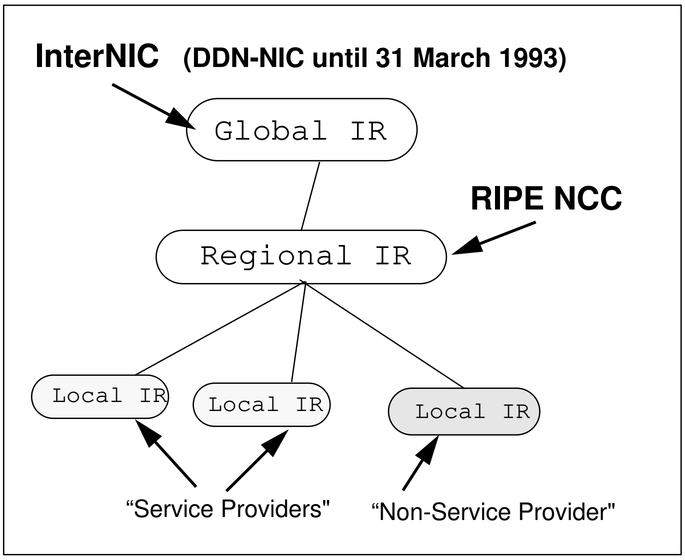
## Internet Registry

### Delegated Internet Registry (IR)

The RIPE NCC has now been acting as a delegated regional IR for a period of eight months (the transition from the previously centralised procedures is described in RIPE document ripe-79) handling both e-mail, fax and letter applications and telephone enquiries. As reported in the last quarterly report, this means that Europe has already been operating for some months, ahead of schedule at stage 3 of the 'Schedule for IP Address Space Guidelines' (RFC1367).

### Terminology

To stem possible confusion regarding the entities that are involved in managing the European address space, the RIPE NCC has endeavoured to be consistent over the last quarter with reference to the terminology used to describe the organisations involved. The diagram below illustrates the relationships and terminology used.




The most important thing to stress in this diagram is that the Local IR's comprise two types: local IR's which are service providers and allocate network numbers to their customers. There are also local IR's which allocate to organisations without service providers or without any intention to connect to the Internet.

## InterNIC

The global Internet Registry moved to a new organisation called the InterNIC funded by the US National Science Foundation. InterNIC services are actually provided by three different organisations. The registry service is provided by Network Solutions Inc.,who in the past provided the DDN NIC services. InterNIC starts operation on April 1st 1993. Changes in registration procedures outside Europe have been published as RFC1400. Unfortunately this RFC has been published without consulting the RIPE NCC and does not mention that different procedures apply to European registrations. Work is in progress on a revised version which clarifies these points.

The RIPE NCC has established contacts to Network Solutions and a number of pending problems mentioned in the last quarterly report (Doc ID: ripe-79) have been resolved during the reporting period even before the InterNIC officially started operation.

## Common Template

At the 14th RIPE meeting in Prague, the basic format of the common template for requesting IP network numbers was agreed. It was reported in the last quarterly report (Doc ID: ripe-79) that a common European IP request form was needed with the objective of standardising procedures for handling IP requests throughout Europe. This was to be realised by improving the quality of technical information supplied and by maintaining the template in English so that it could easily be passed between registries where necessary, with the option to translate the supporting notes into the appropriate local language.

With the operating experience gained from acting as a delegated registry for the past eight months, the RIPE NCC, combined with the input from the local registries, has thus refined both the format and the content of the documents. The new documentation comprises: a “bare bones” template and accompanying supporting notes which describe how to fill in the template. This has now been published as a RIPE document (Doc ID: ripe-83) in both ascii and PostScript.

To complement the documentation, “Helpful Hints” are planned and will be prepared for discussion at the next RIPE meeting in Amsterdam in April.

## Registration Procedures

Once again thanks must be extended to the local registries for their work. The work of the ‘non-provider’ registries is much appreciated, especially since the work they do is performed voluntarily and often time consuming.

The number of local registries, especially the local ‘non-provider’ registries has increased. These are registries to whom the NCC is able to forward all requests from organisations without IP service providers. Also additional IP service providers have made themselves known to the NCC, enabling further delegation of blocks of class C numbers.

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

Applicants who contact the InterNIC for IP network numbers in Europe will be referred to the RIPE NCC. Once again, for this reason we have noticed an increase in both the number of telephone calls enquiring about procedures. Additionally there are more direct requests coming into the NCC, bypassing the global registry. This is due to a copy of the European IP network number request form being placed on the InterNIC server.

Please refer to the last quarterly report (Doc-ID: ripe-79) for a description of the procedures for acquiring a valid IP network number.

## Class B Network Numbers

The RIPE NCC performs all actual class B network number assignments to European Organisations.

The procedure is to briefly evaluate the request, consulting the appropriate local registry if necessary. In more than 90% of the cases evaluated, the request is found unjustified according to the criteria agreed with the global registry and IANA. In these cases the NCC forwards the request to the appropriate local registry for assignment of class C network number(s). If a class B network number is justified, the NCC will allocate out of a small pool it keeps for this purpose and will notify any local registry involved.

For details of class B allocation criteria see the revision of RFC1136 which is due to appear shortly. This revision incorporates a number of comments from RIPE and the RIPE NCC. It will clarify the issues raised in the last report.

Some European organisations still have (sometimes quite large) blocks of class B numbers. RIPE asked the NCC to try to recover as many as possible of such unused class B network numbers for re-assignment to European organisations which do need B numbers. The total extent of this is still unknown as we do not know which European organisations hold such blocks. The global registry have agreed to make their whole database available to the NCC during the next quarter which will enable us to pursue this more vigorously.

During the reporting period DFN have returned 7 class B numbers; 2 numbers were returned by the Prague Institute of Chemical Technology and Schering AG exchanged a B number for a set of C numbers. We thank all these organisations.

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

Due to the fact that the NCC has been delegated all IP address space starting with 193, it became possible to also delegate the complete 193.in-addr.arpa zone to the RIPE NCC. This results in all reverse zone requests for networks inside 193.x.y to be handled directly by the RIPE NCC. The actual delegation of 193.in-addr.arpa was done on March 16th by the InterNIC who maintain the root servers. Because of the address assignment following the CIDR (RFC 1338) model, in which blocks of 256 class C network numbers are delegated to local registries for further assignment, a similar delegation scheme for subdomains in 193.in-addr.arpa could be followed. A document describing the procedures for delegation subdomains in 193.in-addr.arpa was written, and will be a RIPE document shortly. Currently the version number is 1.3, and it can be found in the `ripe-drafts/` directory in the RIPE document store.

At this stage, 11 subdomains in 193.in-addr.arpa have been delegated to local registries who were assigned class C blocks.

## 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. The numbers in brackets relate to the previous quarter.

The total number of applications received over the reporting period quarter was 143 (178). Of these 51 (97) were received from the IR, (6) 5 were received from the local registries and 86 (76) were sent directly to the NCC. Simple referrals to the appropriate local registry without receiving an application are not logged. More requests are being made directly to the NCC instead of going through the global registry.This positive trend continues from the last quarter.

The portion of requests handled vie E-mail has risen slightly during the reporting period. Of all the requests, 82.5% (86%) were answered (not only acknowledged) the day they were received. 97.9% (97%) of all requests were answered within seven calendar days of receipt by the NCC. The average elapsed time of a class C allocation via the NCC is just under five days. Taking into account that class C allocations via the NCC frequently concern large blocks with all the needed technical justification, this is a good average. The average elapsed time of a class B allocation is just under 10 days.

## Address Space Usage

During the reporting period, the NCC assigned a total of 14 class B network numbers, delegated 32 blocks of class C network numbers and reserved have 15 blocks of class C network numbers. The assignment and reservation of class C blocks was done in accordance with the CIDR scheme to allow route aggregation in the future. It should be noted that blocks are reserved based on usage estimates given by the local registries for a period of about 24 months. Should the assignment rate differ from the estimated one, reserved blocks can and will be used for other purposes.

During the reporting period the European registries have assigned a total of 3235 class C networks to bring the total to 10348 network.s. Out of these 10348, 462 actually ended up the routing table of amsterdam-ebs1.ebone.net.

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

# RIPE Network Management Database

## Database Software

The effort for a complete rewrite of the whois server software is still underway. Prototype results look promising.

The current RIPE database software has been adapted to support the autonomous system objects required for implementation of the RIPE routing registry.

52 autonomous system objects have been registered so far. A guarded update procedure for the autonomous system attribute of the network object has been implemented and is planned to be put into operation after the 15th RIPE meeting. The acknowledgement messages generated by the standard update procedure have been enhanced to make better use of the header information contained in update messages received.These acknowledgments now provide information derived from subject line of the update messages received to simplify matching of acknowledgements with updates.

It is also possible to receive positive acknowledgements as each object is updated.

## 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

27938 object updates, an average of 465 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.

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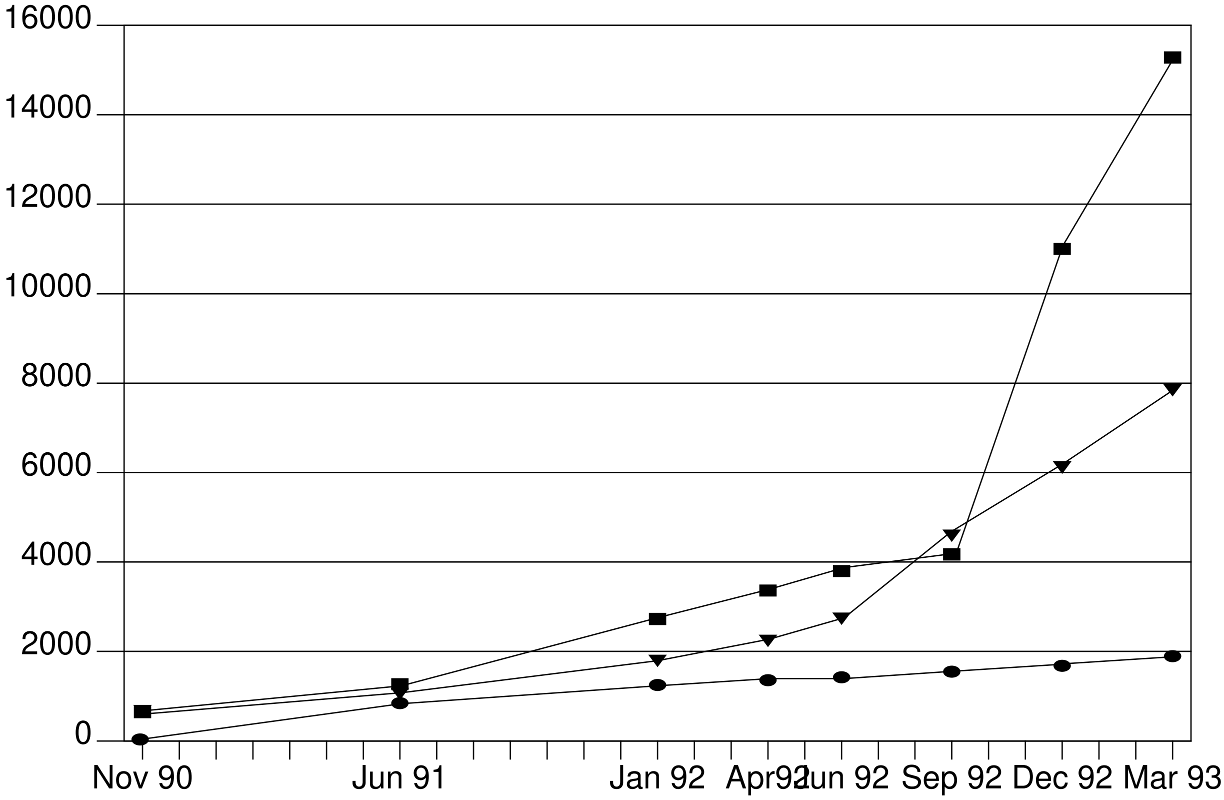
| Database Action | Q3 1992 (number) | Q3 1992 (perc) | Q4 1992 (number) | Q4 1992 (perc) | Q1 1993 (number) | Q1 1993 (perc) |
|---|---|---|---|---|---|---|
| Updated | 1372 | 8% | 9235 | 64% | 18586 | 66% |
| Added | 2505 | 14% | 3632 | 11% | 3885 | 20% |
| NOOP | 13578 | 78% | 1558 | 25% | 5467 | 14% |

## Database Statistics

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

### RIPE Database Objects




| Month | Nets | Persons | Domains |
|---|---|---|---|
| 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 |

The database coverage has increased slightly but is still lower than it should be.

| Country | Nets in DNS Q1 1993 | Nets in DB Q1 1993 | % Q2 1992 | % Q3 1992 | % Q4 1992 | % Q1 1993 |
|---|---|---|---|---|---|---|
| TN | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 |
| RO | 1 | 1 | - | - | - | 100.0 |
| LV | 1 | 1 | - | - | - | 100.0 |
| HU | 16 | 16 | 100.0 | 100.0 | 100.0 | 100.0 |
| CY | 2 | 2 | - | - | - | 100.0 |
| BG | 1 | 1 | - | - | - | 100.0 |
| PL | 27 | 25 | 86.7 | 90.0 | 100.0 | 92.6 |
| FR | 472 | 433 | 94.1 | 95.5 | 94.5 | 91.7 |
| AT | 104 | 93 | 67.2 | 63.8 | 82.9 | 89.4 |
| DE | 453 | 397 | 82.5 | 80.5 | 83.0 | 87.6 |
| CH | 121 | 106 | 87.6 | 93.1 | 85.4 | 87.6 |
| ES | 32 | 28 | 91.7 | 88.9 | 95.8 | 87.5 |
| NL | 135 | 117 | 82.9 | 80.9 | 86.4 | 86.7 |
| PT | 72 | 62 | 85.0 | 80.0 | 86.3 | 86.1 |
| IS | 13 | 11 | 75.0 | 50.0 | 83.3 | 84.6 |
| HR | 6 | 5 | - | - | - | 83.3 |
| IE | 34 | 28 | 87.5 | 90.9 | 86.4 | 82.4 |
| BE | 17 | 14 | 100.0 | 100.0 | 100.0 | 82.4 |
| IT | 151 | 123 | 84.5 | 82.4 | 81.1 | 81.5 |
| NO | 73 | 56 | 56.9 | 58.5 | 70.4 | 76.7 |
| IL | 29 | 22 | 73.9 | 71.4 | 76.0 | 75.9 |
| SI | 12 | 9 | - | - | 100.0 | 75.0 |
| GR | 15 | 11 | 78.6 | 66.7 | 75.0 | 73.3 |
| UK | 324 | 252 | 67.3 | 67.8 | 70.7 | 70.9 |
| SE | 206 | 146 | 57.8 | 49.3 | 59.8 | 70.9 |
| YU | 2 | 1 | 100.0 | 100.0 | 50.0 | 50.0 |
| LU | 8 | 4 | 33.3 | 50.0 | 60.0 | 50.0 |
| FI | 225 | 101 | 8.8 | 6.9 | 39.3 | 44.9 |
| DK | 34 | 12 | 45.0 | 40.0 | 39.3 | 35.3 |
| CS | 54 | 15 | 100.0 | 100.0 | 100.0 | 27.8 |
| SU | 6 | 1 | - | - | - | 16.7 |

## Worldwide Database Coordination

The synchronization of the databases between the RIPE NCC, InterNIC and MERIT is progressing. InterNIC has started first tests with the automatic inclusion of network and contact person information received from the RIPE NCC into their global network database. The NCC has provided the InterNIC with all the 193.x.y networks and contact persons in exchange syntax for this purpose. The first trials seem promising, the success rate of inclusion of objects is now approaching 80%. The NCC has asked the InterNIC for the global database in in exchange syntax in order to start some consistency checking. The InterNIC and the NCC are jointly designing a database model where each object will have a primary maintainer who will be responsible for updates to that object. A registry which is not the primary maintainer will forward all update requests to the primary maintainer. This model will also be useful in cases where European local registries maintain part of the database themselves like INRIA does for France and the GARR NIS does for Italy.

MERIT has taken the complete database from the NCC in exchange syntax without contact information. They will start some basic consistency checks on the RIPE, InterNIC and MERIT databases, using X.500. Initially only network number, network name and country code will be checked for consistency.

MERIT no longer keeps contact person in information in their NSFnet routing policy database. You will find that the relevant files in the RIPE document store have been left empty. This is intentional. This also means that the contact information with source “MERIT” has disappeared from the whois server. The NCC will start using the network information MERIT provides in exchange syntax shortly now. This will mean that the MERIT data in the whois server will be updated once per day. We hope to come to a similar arrangement with the InterNIC.

The complete synchronization of all databases is a long process, but we find that there is certainly progress.

## Joint Projects

A new activity at the NCC are two development projects. These projects are joint projects between RIPE and the RARE technical program funded by SURFnet through RARE.

RARE has employed Mr. Tony Bates to work at the NCC executing these projects. Both projects depend on the expertise present at the NCC for their success. The Route Server Project in particular is very closely linked with the RIPE database and the RIPE routing registry. Thus the development of the route server and the routing registry are tackled as a single problem by regular NCC staff and Mr. Bates.

### Router Server

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

This project requires close coordination with the RIPE NCC for the database related aspects and with the operators of transatlantic links, especially EBONE.

The project is progressing extremely well. The project essentially falls into two key aspects as outlined in the above document which was recently published as RIPE document, (Doc ID: ripe-82) - creation of a European Routing Registry and proto-typing a Route server on the proto-GIX. In terms of the Routing Registry part of the project, the initial thrust of has been to define a new mechanism for registering routing policy information within the RIPE database. The outcome of this was a draft document presented at the Prague RIPE meeting in January, "Representation of IP Routing Policies in the RIPE database" by Bates, Jouanigot, Karrenberg, Lothberg and Terpstra" (Doc ID: ripe-81) which received a good reception from the RIPE community. The registration process is needed to make sure the European Route Server has a full and consistent database of the desired routing policy of any given network within Europe. Following this specification a large amount of effort has been put into the collection of the routing policy information itself. So far, we have received approximately 30% of the possible routing policies within the European Internet. To aid in this collection effort some automated scripts have been produced to show to network providers what the perceived (i.e. as seen from Internet routing tables) routing policy is as opposed to what is currently in the database. It is recommended that all service providers look at this data which can be found on the ripe document store, `ftp.ripe.net` in the directory `ripe/as`. Any questions regarding this data should be directed to `ncc@ripe.net.` Several tools are in test "in-house", to make it easier to make use of the routing policy information including a router access list generator for both cisco and gated software, a basic configurator and a prototype "policy traceroute" tool. It is hoped to have an alpha release available for selected organisations within the next month. A revised update procedure is under development and should be in use very shortly. The routing policy document has been published as a RIPE document and presented at the 26th IETF in Columbus at both the BGP Deployment and IEPG meetings. Again, the presentations were well received. It was announced at the IEPG that the CIX association would use the “ripe-81” format, software and tools as part of a Route Server they plan to install on the proto-GIX.

In terms of the Route Server itself progress has also been extremely good. In early March, the physical route server was installed on the proto-GIX in Washington D.C. Thanks are extended to Sprint, AlterNET and SUnet for making this possible. A deployment plan has been produced and presented at the IEPG meeting which is going very much according to schedule. Currently the Route Server software has been verified by peering with NSFnet backbone router and the Sprint ICM router and making use of some test networks sent from Stockholm and Amsterdam. The Route Server hardware itself is a SUN IPC running an alpha release of gated: A “test” route server has been purchased as part of the project and is also up and running in Amsterdam. All development and testing is done on the test machine in Amsterdam and then transferred to the machine in Washington. A loan cisco IGS router has also been arranged courtesy of SURFnet to aid in the development and simulation of the Route Server work.

We still need more routing policy information in the RIPE database and an impact document is needed for the network providers to understand the full implications of the Route Server. However, thanks are extended to all those who have registered their policies. Please do not hesitate to contact the RIPE NCC if you would like assistance in this respect.

## Generic Internet Service Specification (GISS)

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

Within the first half of the project much of the time has been spent working on a definition of the scope of the Internet Service. This has been done by holding two “birds of a feather” sessions. The first at the 14th RIPE meeting in Prague. This meeting was extremely useful and it was decided that a working group should be set up chaired by Tony Bates. A mailing list `giss-wg@ripe.net` has been set up for discussion of GISS related topics. To join this list send an e-mail to `giss-wg-request@ripe.net`. A first draft “strawman” proposal was then produced and circulated to both the working group list and the IETF list. This was done to essentially to provoke discussion for the second “birds of a feather” meeting at the 26th IETF meeting in Columbus, US.

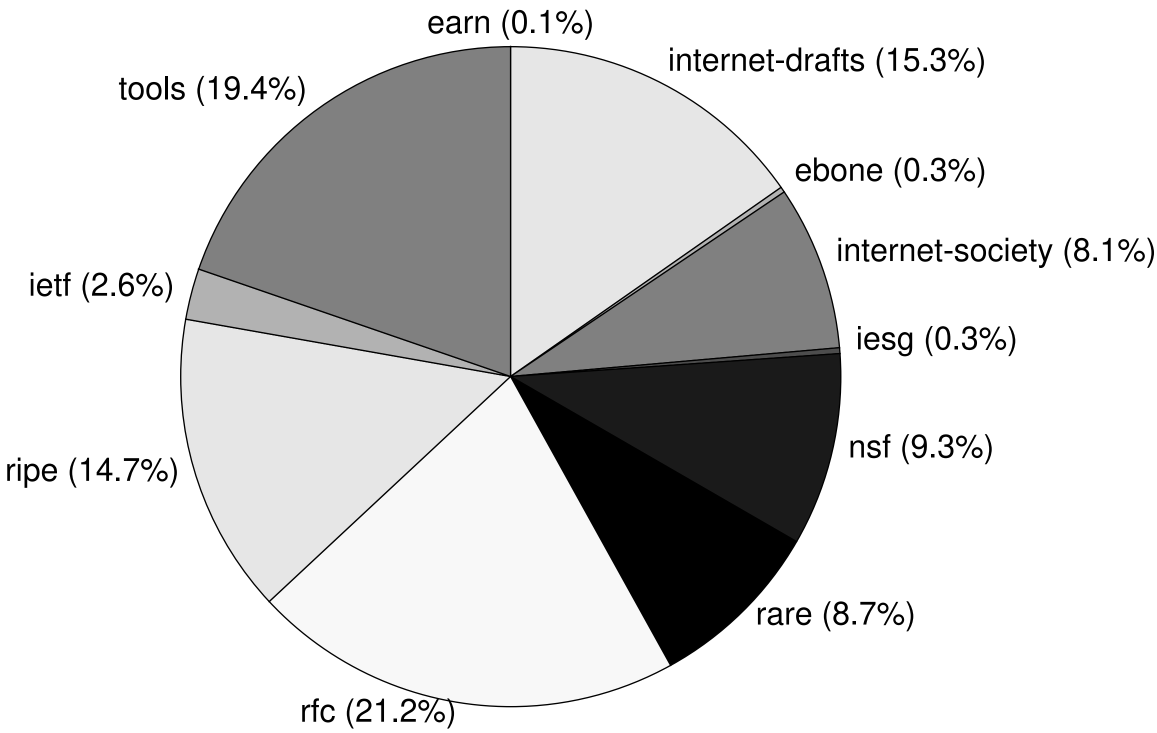
At this meeting is was clear that there needed to be some change in scope to be more directed towards service providers rather than to users as existing documents already covered much of detail needed from a users perspective. The outcome of this is a clear definition of the structure and aspects that should make up the GISS proposal. This will be presented at the 15th RIPE meeting in Amsterdam for review and comment by the working group.

## Document Store

The document store is maintained as a reference point for information that will be useful to network service providers, NICs and 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 store contains approximately 4460 documents. By volume, it accounts for over 190 Mbytes. A breakdown of the composition of the document store is shown below.

Documents in Archive (190 Mbytes)



| Area | Files | KBytes |
|---|---|---|
| rfc | 649 | 39988 |
| tools | 278 | 36667 |
| internet-drafts | 492 | 28805 |
| ripe | 532 | 27923 |
| nsf | 147 | 17632 |
| rare | 558 | 16440 |
| internet-society | 990 | 15273 |
| ietf | 722 | 4913 |
| iesg | 51 | 502 |
| ebone | 35 | 500 |
| earn | 6 | 213 |

## Additions to the RIPE archives

Two new directories have been added to the document store:

There is now a `/ripe/Next-Meeting/` directory which will always contain information relating to the forthcoming RIPE meeting. All documents will have previously been announced to the RIPE list but if you have missed any of the announcements you will be able to read them here.

Additionally the directory `ripe/as/` has been added to the document store. It has the following subdirectories:

`/ripe/as/router` - this directory contains information regarding Autonomous System information derived from a European routers BGP table

`/ripe/as/db` - this directory contains information regarding Autonomous System information derived from the RIPE database.

`/ripe/as/conflicts` - this directory contains some analysis of the RIPE and Router derived AS information.

Additionally there has been a revision of the maps directory as agreed by the mapping working group at the 14th RIPE meeting. The new chairman of the mapping-wg is Daniele Bovio. In addition to the current maps, the old maps will be archived in an `/old` subdirectory.

The `/presentations` directory has been expanded with the recent addition of a number of presentations. These date mostly from the 14th RIPE meeting. Anyone interested in making their presentations publicly available are welcome to do so and are invited to contact the NCC.

Documents published since the last quarter in the /ripe-docs directory comprise the following:

- ripe-80 Hotel List - Amsterdam, February 1993
- ripe-81 Representation of IP Routing Policies in the RIPE Database
- ripe-82 Internet Routing in a Multi Provider, Multi Path Open Environment
- ripe-83 European Internet Network Number Application Form
- ripe-84 RIPE NCC Funding

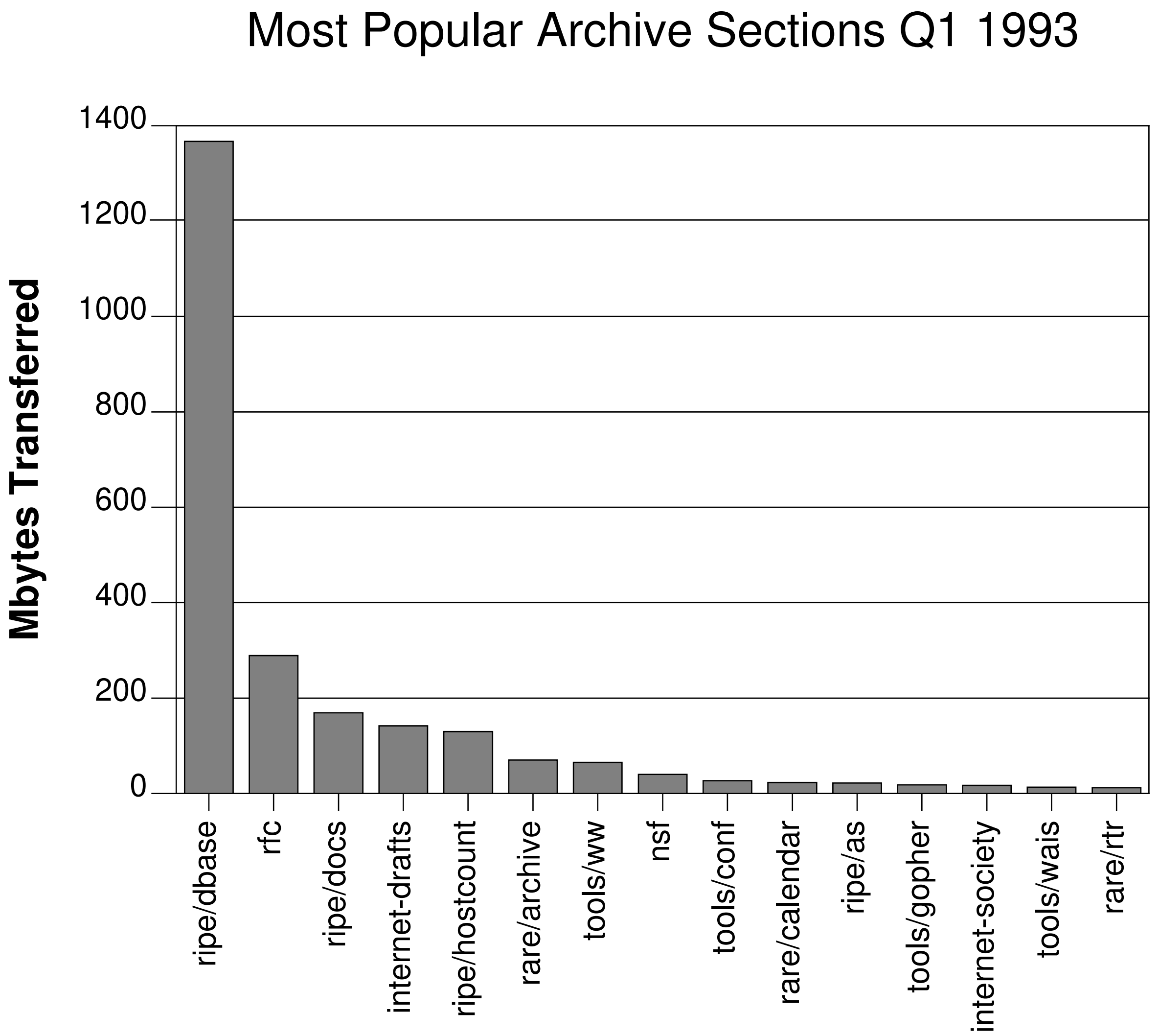
## Accessing the Document Store

The NCC document store can be accessed through a variety of methods. Besides methods of access as previously reported, (via anonymous ftp to ftp.ripe.net and by using GOPHER and WAIS clients to gopher.ripe.net or wais.ripe.net respectively and through the NCC Interactive Information Server) the document store can now be accessed via pilot World Wide Web (WWW).

## 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 1279 Mbytes transferred.

:




| Archive Section | Files Sent | Bytes Sent | Files Sent % | Bytes Sent % |
|---|---|---|---|---|
| ripe/dbase | 1279 | 1367489435 | 4.98 | 53.92 |
| rfc | 4412 | 289158682 | 17.18 | 11.40 |
| ripe/docs | 2993 | 169790736 | 11.65 | 6.69 |
| internet-drafts | 2531 | 142356126 | 9.86 | 5.61 |
| ripe/hostcount | 1059 | 130257015 | 4.12 | 5.14 |
| rare/archive | 2829 | 70109410 | 11.02 | 2.76 |
| tools/www | 417 | 65357512 | 1.62 | 2.58 |
| nsf | 389 | 40223640 | 1.51 | 1.59 |
| tools/conf | 80 | 27256115 | 0.31 | 1.07 |
| rare/calendar | 144 | 23178054 | 0.56 | 0.91 |

| Archive Section | Files Sent | Bytes Sent | Files Sent % | Bytes Sent % |
|---|---|---|---|---|
| ripe/as | 4820 | 22189896 | 18.77 | 0.87 |
| tools/gopher | 211 | 17577634 | 0.82 | 0.69 |
| internet-society | 218 | 16868678 | 0.85 | 0.67 |
| tools/wais | 115 | 13084219 | 0.45 | 0.52 |
| rare/rtr | 41 | 12209232 | 0.16 | 0.48 |

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 |
| PSPDN | 0 | 0 | 0 | 0 |
| UNKNOWN | 3229 | 348446230 | 12.57 | 13.74 |
| at | 230 | 30137265 | 0.90 | 1.19 |
| au | 9 | 507713 | 0.04 | 0.02 |
| be | 105 | 10781804 | 0.41 | 0.43 |
| br | 3 | 14616 | 0.01 | 0.00 |
| ca | 86 | 9198212 | 0.33 | 0.36 |
| ch | 452 | 158194576 | 1.76 | 6.24 |
| cl | 0 | 0 | 0 | 0 |
| com | 329 | 27370731 | 1.28 | 1.08 |
| cs | 4492 | 284651329 | 17.49 | 11.22 |
| de | 1260 | 139472448 | 4.91 | 5.50 |
| dk | 59 | 10790694 | 0.23 | 0.43 |
| edu | 553 | 163436774 | 2.15 | 6.44 |
| ee | 8 | 231846 | 0.03 | 0.01 |
| es | 235 | 15209058 | 0.92 | 0.60 |
| fi | 1382 | 204319746 | 5.38 | 8.06 |
| fr | 244 | 29369721 | 0.95 | 1.16 |
| gov | 68 | 2395682 | 0.26 | 0.09 |
| gr | 489 | 34524400 | 1.90 | 1.36 |
| hk | 0 | 0 | 0 | 0 |

| Domain Name | Number of Files Sent | Number of Bytes Sent | % of Files Sent | % of Bytes Sent |
|---|---|---|---|---|
| hr | 253 | 15084627 | 0.99 | 0.59 |
| hu | 59 | 8825960 | 0.23 | 0.35 |
| ie | 158 | 11233466 | 0.62 | 0.44 |
| il | 50 | 1940182 | 0.19 | 0.08 |
| in | 142 | 6482522 | 0.55 | 0.26 |
| int | 0 | 0 | 0 | 0 |
| is | 2 | 359180 | 0.01 | 0.01 |
| it | 2510 | 202382792 | 9.77 | 7.98 |
| jp | 2423 | 96367200 | 9.43 | 3.80 |
| kr | 232 | 15991824 | 0.90 | 0.63 |
| lu | 1 | 66694 | 0.00 | 0.00 |
| lv | 0 | 0 | 0 | 0 |
| mil | 22 | 1790553 | 0.09 | 0.07 |
| mx | 6 | 158108 | 0.02 | 0.01 |
| net | 4635 | 497749940 | 18.05 | 19.62 |
| nl | 664 | 100190064 | 2.59 | 3.95 |
| no | 90 | 14514528 | 0.35 | 0.57 |
| nz | 0 | 0 | 0 | 0 |
| org | 48 | 6869339 | 0.19 | 0.27 |
| pl | 219 | 15766743 | 0.85 | 0.62 |
| pt | 528 | 33381359 | 2.06 | 1.32 |
| se | 89 | 13512004 | 0.35 | 0.53 |
| sg | 11 | 1572967 | 0.04 | 0.06 |
| si | 0 | 0 | 0 | 0 |
| su | 4 | 158649 | 0.02 | 0.01 |
| tn | 0 | 0 | 0 | 0 |
| tw | 8 | 111209 | 0.03 | 0.00 |
| uk | 293 | 22569603 | 1.14 | 0.89 |
| us | 2 | 227749 | 0.01 | 0.01 |
| yu | 0 | 0 | 0 | 0 |
| za | 0 | 0 | 0 | 0 |

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

## Interactive Information Server

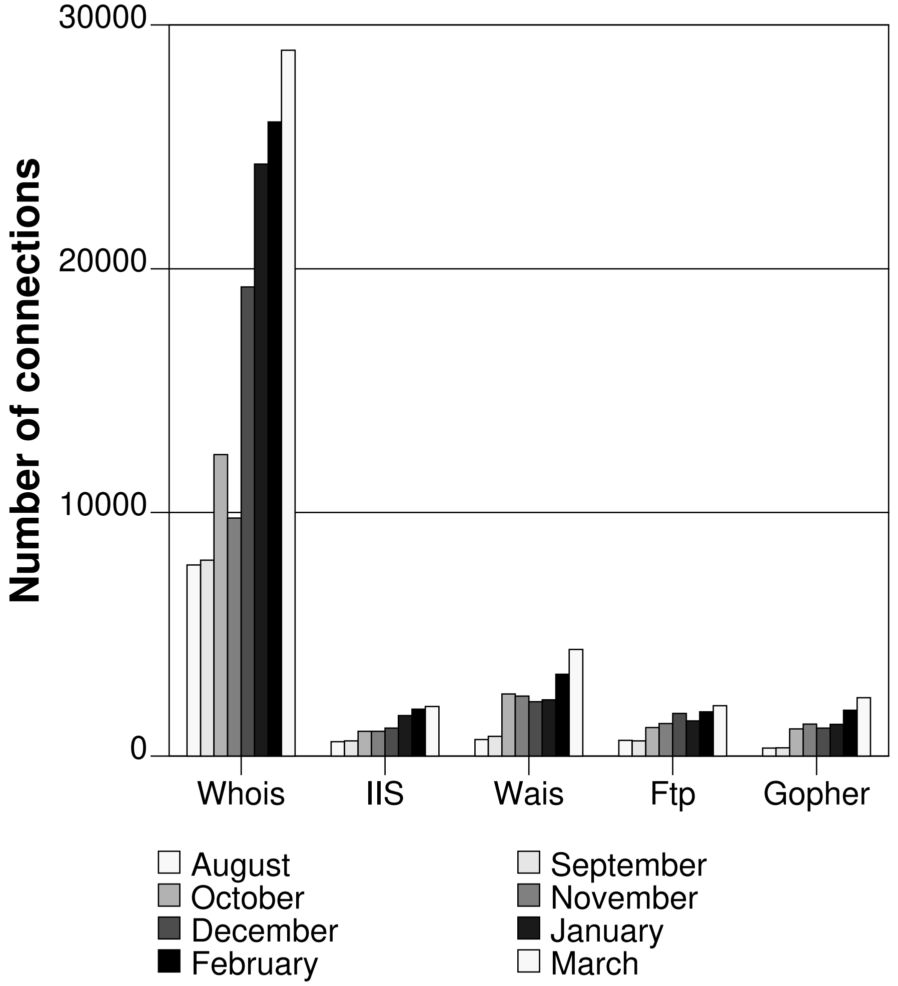
The NCC Interactive Information Server is a popular method of access to the RIPE document store catering for users with minimal hardware and/or software support to access information stored by the NCC. Full details on access methods are given in the RIPE NCC information leaflet "Interactive Information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

## General Service Usage Statistics

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

| Service | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|
| Whois | 7909 | 7845 | 8044 | 12373 | 9769 | 19255 | 24299 | 26027 | 28961 |
| IIS | 669 | 591 | 628 | 1027 | 1018 | 1148 | 1662 | 1924 | 2040 |
| Wais | 1040 | 682 | 816 | 2552 | 2460 | 2240 | 2316 | 3359 | 4375 |
| FTP | 849 | 645 | 625 | 1173 | 1344 | 1757 | 1443 | 1816 | 2067 |
| Gopher | 371 | 337 | 340 | 1115 | 1318 | 1156 | 1310 | 1882 | 2394 |

## NCC Services Usage August 1992 - March 1993




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 | 8300 | 0 | 6601 | 0 | 14901 |
| IXI | 0 | 2714 | 0 | 0 | 2714 |
| LOCAL | 1874 | 48 | 72 | 329 | 2323 |
| NCC-X25 | 0 | 2 | 0 | 0 | 2 |
| PSPDN | 0 | 7 | 0 | 0 | 7 |
| UNKNOWN | 7663 | 445 | 138 | 532 | 8778 |
| at | 789 | 74 | 61 | 118 | 1042 |

| Source | Whois | IIS | Wais | Ftp | Total |
|---|---|---|---|---|---|
| au | 22 | 9 | 23 | 10 | 64 |
| be | 464 | 45 | 0 | 82 | 591 |
| br | 3 | 5 | 0 | 3 | 11 |
| ca | 110 | 34 | 15 | 84 | 243 |
| ch | 897 | 45 | 52 | 260 | 1254 |
| cl | 1 | 5 | 0 | 1 | 7 |
| com | 71 | 54 | 518 | 167 | 810 |
| cs | 258 | 153 | 2 | 114 | 527 |
| de | 1538 | 249 | 11 | 512 | 2310 |
| dk | 287 | 8 | 4 | 54 | 353 |
| edu | 4562 | 318 | 1137 | 676 | 6693 |
| ee | 16 | 39 | 0 | 2 | 57 |
| es | 119 | 22 | 1 | 66 | 208 |
| fi | 195 | 29 | 98 | 114 | 436 |
| fr | 2738 | 125 | 17 | 200 | 3080 |
| gov | 49 | 29 | 16 | 34 | 128 |
| gr | 189 | 17 | 0 | 128 | 334 |
| hk | 0 | 1 | 0 | 1 | 2 |
| hr | 9 | 13 | 0 | 4 | 26 |
| hu | 326 | 89 | 1 | 37 | 453 |
| ie | 566 | 54 | 0 | 112 | 732 |
| il | 14 | 13 | 1 | 52 | 80 |
| in | 0 | 3 | 0 | 10 | 13 |
| int | 16 | 2 | 0 | 0 | 18 |
| is | 195 | 0 | 0 | 2 | 197 |
| it | 755 | 83 | 5 | 306 | 1149 |
| jp | 19 | 6 | 11 | 30 | 66 |
| kr | 0 | 3 | 1 | 38 | 42 |
| lu | 52 | 19 | 0 | 3 | 74 |
| lv | 0 | 9 | 0 | 0 | 9 |
| mil | 17 | 85 | 4 | 13 | 119 |
| mx | 8 | 0 | 2 | 2 | 12 |
| net | 3968 | 71 | 981 | 374 | 5394 |
| nl | 3625 | 299 | 62 | 425 | 4411 |
| no | 535 | 32 | 7 | 50 | 624 |
| nz | 0 | 1 | 0 | 0 | 1 |
| org | 3870 | 27 | 17 | 25 | 3939 |

| Source | Whois | IIS | Wais | Ftp | Total |
|---|---|---|---|---|---|
| pl | 170 | 30 | 0 | 89 | 289 |
| pt | 473 | 17 | 2 | 47 | 539 |
| se | 3475 | 87 | 5 | 62 | 3629 |
| sg | 2 | 2 | 0 | 4 | 8 |
| si | 26 | 5 | 0 | 0 | 31 |
| su | 2 | 1 | 0 | 4 | 7 |
| tn | 1 | 0 | 0 | 0 | 1 |
| tw | 0 | 2 | 0 | 5 | 7 |
| uk | 1482 | 177 | 184 | 142 | 1985 |
| us | 29532 | 0 | 1 | 1 | 29534 |
| yu | 0 | 7 | 0 | 0 | 7 |
| za | 4 | 12 | 0 | 2 | 18 |
| Total | 79287 | 5626 | 10050 | 5326 | 100289 |

In total there were 5626 connections to the Interactive Information Server, which is queried, on average, 93 times per working day.

The provisional access from the EuropaNet (formerly IXI) network has been used 2714 times during the reporting period, which is approximately 45 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.

## RIPE NCC Information Leaflets

During the last reporting period, a new leaflet “Delegated IP Registry” has been prepared by the RIPE NCC. The aim of the leaflet is to publicise the procedures on how and where to obtain valid IP network numbers. The leaflet will be distributed in May after review at the forthcoming RIPE meeting.

## Presentations

More presentations have been given this quarter than previously. Organisations wishing to convey the work of the RIPE NCC to others are invited to contact the NCC.

Tony Bates gave a presentation on “Global Internet Connectivity” at NetWorkshop 21 on 23rd - 24th March in Birmingham, UK.

Marten Terpstra gave a presentation about RIPE NCC activities and a tutorial on Network Discovery Tools at “The 4th Network Seminar and Intensive Course for Scientists and Network Managers from Central Europe” on February 22nd-23rd, 1993.

At the 26th IETF in Columbus during the week of March 29th -2nd April, 1993 Daniel Karrenberg and Tony Bates each gave presentations on topics relating to the Special Projects currently underway at the RIPE NCC. Daniel Karrenberg spoke with reference to the recently published ripe-81 “Representation of IP Routing Policies in the RIPE Database” and Tony Bates spoke about the Generic Internet Service Specification (GISS) at a BOF and reported the progress of the Route Server project to an informal IEPG meeting.

## ECHO Gateway

During the previous quarter the RIPE NCC had been approached by ECHO (the European Commission Host Organisation) about the feasibility of Internet access to ECHO. ECHO is a non-commercial experimental host in Luxembourg which provides free access to Community based information.

The host is connected to EuropaNet (formerly IXI). After discussion with the RIPE chair, the NCC offered to set up a demonstration gateway service between the Internet and ECHO. The motivation for this was twofold: to provide Internet access to a useful service and to show to ECHO and the Commission’s DGXIII that the Internet is useful and there is minimal effort needed to effect a connection. The demonstration gateway was agreed to be temporary for three months on a best-effort basis. It has taken about 2 hours to set up this gateway including the necessary DNS registrations and since December 1993 delineating to:

```
echo.lu
```

will connect directly to the ECHO host. During the reporting period a total of 2934 connections have been made via the gateway from 703 different hosts in the Internet.

On average this is just under 50 connections each working day. For more information contact

```
echo.mail@eurokom.ie
```

EHCO are planning to start providing the gateway service themselves in the next quarter.

## 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 9 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.

### 14th RIPE meeting - Prague

In the last quarterly report (Doc ID: ripe-79) it was reported that site visits had been initiated for all RIPE meetings scheduled to take place outside Amsterdam. Following the site visit in December to meet the organisers of the 14th RIPE meeting, it can be reported that the meeting was extremely successful. Contributing significantly towards this was the excellent support of the local organisers Prof. Jan Guntograd and his colleagues. The NCC wishes to extend thanks on behalf of RIPE to Jan and his colleagues for their hard work.

### RIPE meetings - support

As reported in the previous quarterly report (Doc ID: ripe-79), a detailed checklist describing the preparation necessary to host a RIPE meeting has been drawn up. The document was felt necessary because RIPE meetings are growing very quickly in their size and importance - the number of people attending at the meetings rises by approximately 20 at each meeting, thereby placing higher demands on hosts to be able to meet the associated costs, the preparations necessary, the level of support and facilities. The checklist and accompanying text is currently being modified and will be placed in the RIPE document store in the near future. All organisations considering volunteering as a host for a future RIPE meeting are urged to read the document.

## Referrals and End-User Enquiries

Again 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 the mailing list for IP Providers. See the previous quarterly report for details of this list.

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## General Set Up

### Fax Machine

A new fax machine has been installed which has improved the reliability of transmitting faxes and can automatically feed up to 10 sheets of paper while you watch and have a cup of coffee* This has further helped speed up the processing of paper IP requests.

### Portables

In March the NCC has purchased two portable computers for use in meetings and while working at home.They are 386-type PCs with 6MB of memory and 120MB of disk storage. They run both MSDOS and a publicly available version of Unix called Linux.

The computers have been used to take working group minutes and notes for trip reports during IETF and to write documents at home, away from the NCC office. Both applications have been very successful. One of the machines has been purchased for the GISS and RS projects, the other for general NCC activities.

Two more SUN ELC workstations have been acquired for the joint projects. One of them is being used as a personal workstation and the other as a mirror-image test machine for the route server located on the GIX.

# 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.

*Of course with the NCC as busy as it is, this is rarely done. Parallel processing of other work is the usual scenario!

# Appendix A

## Meetings Attended

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

| Date | Name & Location | Attendee |
|---|---|---|
| Jan 25-27 | 14th RIPE meeting<br>Prague, CZ | Marten Terpstra<br>Anne Lord<br>Tony Bates<br>Daniel Karrenberg |
| Mar 21 | NetWorkshop 21,<br>Birmingham, UK | Tony Bates |
| Mar 26-30 | IETF<br>Columbus, USA | Marten Terpstra<br>Tony Bates<br>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 |
|---|---|
| 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 |

| Network Number | Via |
|---|---|
| 164.11 | JANET |
| 164.12 | RIPE NCC |
| 164.13 | Telecom Finland |
| 164.14 | RIPE NCC |
| 164.15 | RIPE NCC |
| 164.16-164.34 | DE-NIC |
| 164.35 | RIPE NCC |
| 164.36 | RIPE NCC |
| 164.37 | SE-NIC |
| 164.38 | PIPEX |
| 164.39 | HP |
| 164.40 | NCC |
| 164.61 | free |
| | |
| 164.128 | RIPE NCC |
| 164.129 | RIPE NCC |
| 164.130 | RIPE NCC |
| 164.131 | RIPE NCC |
| 164.132-143 | free |

# Appendix C

## Class C Block Allocations to Date

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

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

| Block | p/n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 192.162 | ? | 26 | NCC | Miscellaneous TN,RO,PT |
| 192.164 | p | 238 | AT | EUnet/AT |
| 192.165 | ? | 192 | SE | NORDUnet |
| 192.166 | ? | 176 | DE | DE-NIC |
| 192.167 | ? | 154 | IT | GARR |
| 192.168 | p | 0 | EU | EUnet/NOC |
| | | | | |
| 193.0 | ? | free | none | NCC |
| 193.1 | p | 11 | IE | HEANET |
| 193.2 | p | 15 | YU | ARNES |
| 193.3 | ? | 105 | DK | EUnet/DK |
| 193.4 | ? | 35 | IS | Iceland everything |
| 193.5 | p | 82 | CH | SWITCH |
| 193.6 | p | 174 | HU | Sztaki |
| 193.7 | p | 0 | DE | chambers of commerce DE-NIC |
| 193.8 | n | 50 | CH | non-provider CH-NIC |
| 193.9 | n | 179 | EU | NCC non-provider European |
| 193.10 | p | 18 | SE | SUNET |
| 193.11 | p | resvd | SE | SUNET |
| 193.12 | p | 101 | SE | SWIPNET |
| 193.13-15 | p | resvd | SE | SWIPNET |
| 193.16 | n | 151 | DE | non-provider DE-NIC |
| 193.17 | n | 90 | DE | non-provider DE-NIC |

| Block | p/n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 193.18 | n | 254 | DE | non-provider DE-NIC |
| 193.19 | n | 0 | DE | non-provider DE-NIC |
| 193.20 | n | 256 | DE | non-provider DE-NIC |
| 193.21 | n | 256 | DE | non-provider DE-NIC |
| 193.22 | n | 177 | DE | non-provider DE-NIC |
| 193.23 | n | 184 | DE | non-provider DE-NIC |
| 193.24 | n | 132 | DE | non-provider DE-NIC |
| 193.25 | n | 140 | DE | non-provider DE-NIC |
| 193.26 | n | 60 | DE | non-provider DE-NIC |
| 193.27 | n | 0 | DE | non-provider DE-NIC |
| 193.28-31 | n | resvd | DE | non-provider DE-NIC |
| 193.32 | p | 220 | UK | non-provider UK-NIC |
| 193.33-34 | n | resvd | UK | Sainsbury's (multiple B request) |
| 193.35 | n | 254 | UK | non-provider UK NIC |
| 193.36 | n | 241 | UK | non-provider UK NIC |
| 193.37-39 | n | 0 | UK | non-provider UK NIC |
| 193.40 | n | 56 | EE | NCC non-provider EE |
| 193.41 | n | resvd | EE | non provider EE |
| 193.42 | n | 91 | IT | non provider IT NIC |
| 193.43 | n | resvd | IT | non provider IT NIC |
| 193.44 | p | 35 | SE | TIPNET |
| 193.45-47 | p | resvd | SE | TIPNET |
| 193.48 | p | 154 | FR | RENATER |
| 193.49 | p | 99 | FR | RENATER |
| 193.50 | p | 167 | FR | RENATER |
| 193.51 | p | 57 | FR | RENATER |
| 193.52 | p | 99 | FR | RENATER |
| 193.53 | n | 63 | BE | NCC non-provider (dup) |
| 193.54 | p | 32 | FR | RENATER |
| 193.55 | p | resvd | FR | RENATER |
| 193.56 | n | 31 | FR | non-provider FR NIC |
| 193.57 | n | 5 | FR | non-provider FR NIC |
| 193.58 | n | 33 | BE | NCC non-provider |
| 193.59 | p | 27 | PL | academic |
| 193.60 | p | 178 | UK | JANET |

| Block | p / n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 193.61 | p | 163 | UK | JANET |
| 193.62 | p | 0 | UK | JANET |
| 193.63 | p | 48 | UK | JANET |
| 193.64 | p | 36 | FI | EUnet/FI |
| 193.65-67 | p | resvd | FI | EUnet/FI |
| 193.68 | p | 4 | BG | EUnet/BG |
| 193.69 | p | resvd | IS | EUnet/IS |
| 193.70 | p | resvd | IT | EUnet/IT |
| 193.71 | p | 4 | NO | EUnet/NO |
| 193.72 | p | 32 | CH | EUnet/CH |
| 193.73 | p | resvd | CH | EUnet/CH |
| 193.74 | p | 24 | BE | EUnet/BE |
| 193.75 | p | resvd | BE | EUnet/BE |
| 193.76 | p | 0 | HR | EUnet/HR |
| 193.77 | p | 5 | HR | EUnet/HR |
| 193.78 | p | 50 | NL | EUnet/NL |
| 193.79 | p | 0 | NL | EUnet/NL |
| 193.80 | p | 26 | AT | EUnet/AT |
| 193.81-83 | p | resvd | AT | EUnet/AT |
| 193.84 | p | 165 | CS | EUnet/CS |
| 193.85 | p | 32 | CZ | EUnet/CZ |
| 193.86 | p | resvd | SK/CZ | EUnet/SK/CZ |
| 193.87 | p | 26 | SK | EUnet/SK for SANET |
| 193.88 | p | 66 | DK | EUnet/DK |
| 193.89-91 | p | resvd | DK | EUnet/DK |
| 193.92 | p | 11 | GR | EUnet/GR |
| 193.93 | p | 4 | GR | EUnet/GR |
| 193.94 | p | 5 | TN | NCC EUnet/TN |
| 193.95 | p | resvd | TN | EUnet/TN |
| 193.96 | p | 140 | DE | EUnet/DE |
| 193.97 | p | 127 | DE | EUnet/DE |
| 193.98 | p | 44 | DE | EUnet/DE |
| 193.99-103 | p | resvd | DE | EUnet/DE |
| 193.104 | p | 59 | FR | EUnet/FR |
| 193.105 | p | 11 | FR | EUnet/FR |

| Block | p/n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 193.106-111 | p | resvd | FR | EUnet/FR |
| 193.112 | p | 141 | UK | EUnet/UK |
| 193.113 | p | 67 | UK | EUnet/UK (special) |
| 193.114 | p | 28 | UK | EUnet/UK |
| 193.115-119 | p | resvd | UK | EUnet/UK |
| 193.120 | p | 18 | IE | EUnet/IE |
| 193.121-123 | p | resvd | IE | EUnet/IE |
| 193.124 | p | 93 | RU | EUnet/RU + xSU |
| 193.125 | p | resvd | RU | EUnet/RU + xSU |
| 193.126 | p | 32 | PT | EUnet/PT |
| 193.127 | p | 4 | ES | EUnet/ES |
| 193.128 | p | 130 | UK | PIPEX |
| 193.129-135 | p | resvd | UK | PIPEX |
| 193.136 | p | 52 | PT | RCCN |
| 193.137 | p | resvd | PT | RCCN |
| 193.138 | ? | 5 | SI | NCC general |
| 193.139 | p | 254 | FR | Individual Block allocation |
| 193.140 | ? | 78 | TR | NCC general |
| 193.141 | p | 12 | DE | XLINK + reserved |
| 193.142 | n | 70 | FI | NCC non-provider |
| 193.143 | n | 5 | FI | NCC non-provider |
| 193.144 | p | 84 | ES | RedIRIS |
| 193.145-147 | p | resvd | ES | RedIRIS |
| 193.148 | n | 80 | ES | non-provider ES NIC |
| 193.149-155 | n | resvd | ES | non-provider ES NIC |
| 193.156 | p | 81 | NO | UNINETT |
| 193.157 | p | 16 | NO | UNINETT |
| 193.158-159 | p | resvd | NO | UNINETT |
| 193.160 | n | 87 | NO | non-provider NO NIC |
| 193.161 | n | resvd | NO | non-provider NO NIC |
| 193.162 | n | 21 | DK | non-provider DK NIC |
| 193.163 | n | resvd | DK | non-provider DK NIC |
| 193.164 | n | 3 | PL | NCC non-provider |
| 193.165 | n | resvd | PL | non-provider |
| 193.166 | p | 27 | FI | FUNET |

| Block | p / n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 193.167 | p | resvd | FI | FUNET |
| 193.168 | n | 41 | LU | NCC non provider |
| 193.169 | p | 0 | UK | AT&T Istel |
| 193.170 | p | 29 | AT | NCC ACONET |
| 193.171 | p | resvd | AT | ACONET |
| 193.172 | p | 3 | EU | NCC EMPB |
| 193.173 | p | resvd | EU | EMPB |
| 193.174 | p | 53 | DE | DFN |
| 193.175 | p | resvd | DE | DFN |
| 193.176 | n | 133 | NL | non provider NL NIC |
| 193.177 | n | resvd | NL | non provider NL NIC |
| 193.178 | n | 31 | IE | NCC non provider IE |
| 193.179 | n | resvd | IE | non provider IE |
| 193.180 | n | 236 | SE | non provider SE NIC |
| 193.181 | n | 180 | SE | non provider SE NIC |
| 193.182 | n | 63 | SE | non-provider SE NIC |
| 193.183 | n | resvd | SE | non-provider SE NIC |
| 193.184 | p | 0 | FI | Helsinki Telephone Company |
| 193.185 | p | resvd | FI | Helsinki Telephone Company |
| 193.186 | n | 205 | AT | non provider AT NIC |
| 193.187 | n | resvd | AT | non provider AT NIC |
| 193.188 | n | 23 | several | NCC Middle East |
| 193.189 | n | 64 | NG | NCC Nigeria |
| 193.190 | p | 62 | BE | Belgian National Research Net |
| 193.191 | p | resvd | BE | Belgian National Research Net |
| 193.192 | n | 3 | PT | NCC non provider |
| 193.193 | n | resvd | PT | NCC non provider reserved |
| 193.194 | ? | 3 | MA | MA general NCC managed |
| 193.195 | p | 9 | UK | UK DEMON |
| 193.196 | p | 130 | DE | DE BelWue |
| 193.197 | p | resvd | DE | DE BelWue reserved |
| 193.198 | n | 4 | HR | NCC non provider |
| 193.199 | n | 64 | FI | National Board of Education |
| 193.200 | n | 0 | BG | BG Non provider |
| 193.201 | n | resvd | BG | BG Non provider reserved |

| Block | p / n | nets assigned | Country | Registry |
|---|---|---|---|---|
| 193.202 | n | 107 | Pan Eur | NCC |
| 193.203 | n | 1 | YU-SPL | NCC |
| 193.204 | n | 17 | IT | GARR NIS |
| 193.205-207 | n | resvd | IT | GARR NIS reserved |
| 193.208 | p | 58 | FI | DATANET |
| 193.209-211 | p | resvd | FI | DATANET reserved |
| 193.212 | p | 0 | NO | Telepost Communication AS |
| 192.213-215 | p | resvd | NO | Telepost Communication AS |
| 193.216 | p | 1 | NO | DAXnet |
| 193.217 | p | resvd | NO | DAXnet reserved |
| 193.218 | n | 4 | GR | NCC non-provider |
| 193.219 | n | o | LT | NCC non-provider |
| 193.220 | n | resvd | LT | NCC non-provider reserved |
| 193.221-243 | ? | free | none | NCC |
| 193.244 | p | 255 | BE | Kredietbank |
| 193.245 | p | 255 | BE | Kredietbank |
| 193.246-247 | p | resvd | BE | Kredietbank |
| 193.248-253 | p | 1530 | FR | France Telecom Internal Network |
| 193.254-255 | ? | free | none | NCC |

# Appendix D

## Domain Table

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

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

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

# Appendix E

## 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.

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: Daniele Bovio. E-mail: `hi@frors12.bitnet`
Working Group E-mail: `maps-wg@ripe.net`

European Connectivity
Chair: Milan Sterba. E-mail: `milan.sterba@vse.cz`

RIPE Database
Chair: Wilfried Woeber.
E-mail:`wilfried.woeber@cc.univie.ac.at`
Working Group E-mail: `db-wg@ripe.net`

Local Internet Registries
Chair: Daniel Karrenberg. E-mail: `dfk@ripe.net`
Working Group E-mail: `local-ir@ripe.net`

Generic Internet Service Specification
Chair: Tony Bates. E-mail: `tony@ripe.net`

working Group E-mail: `giss-wg@ripe.net`

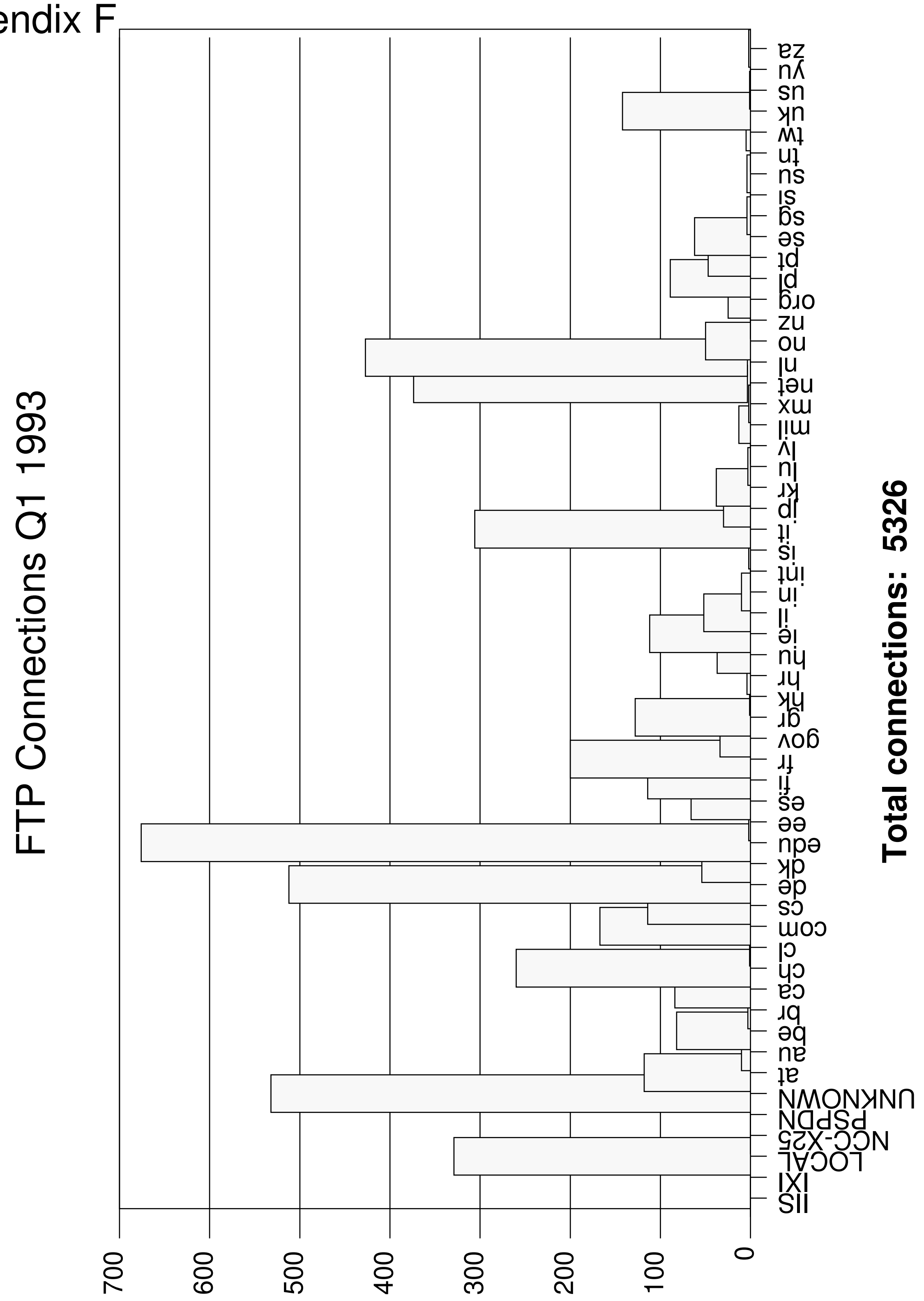
To subscribe to any working group send a message to:

`[listname]-request@ripe.net`

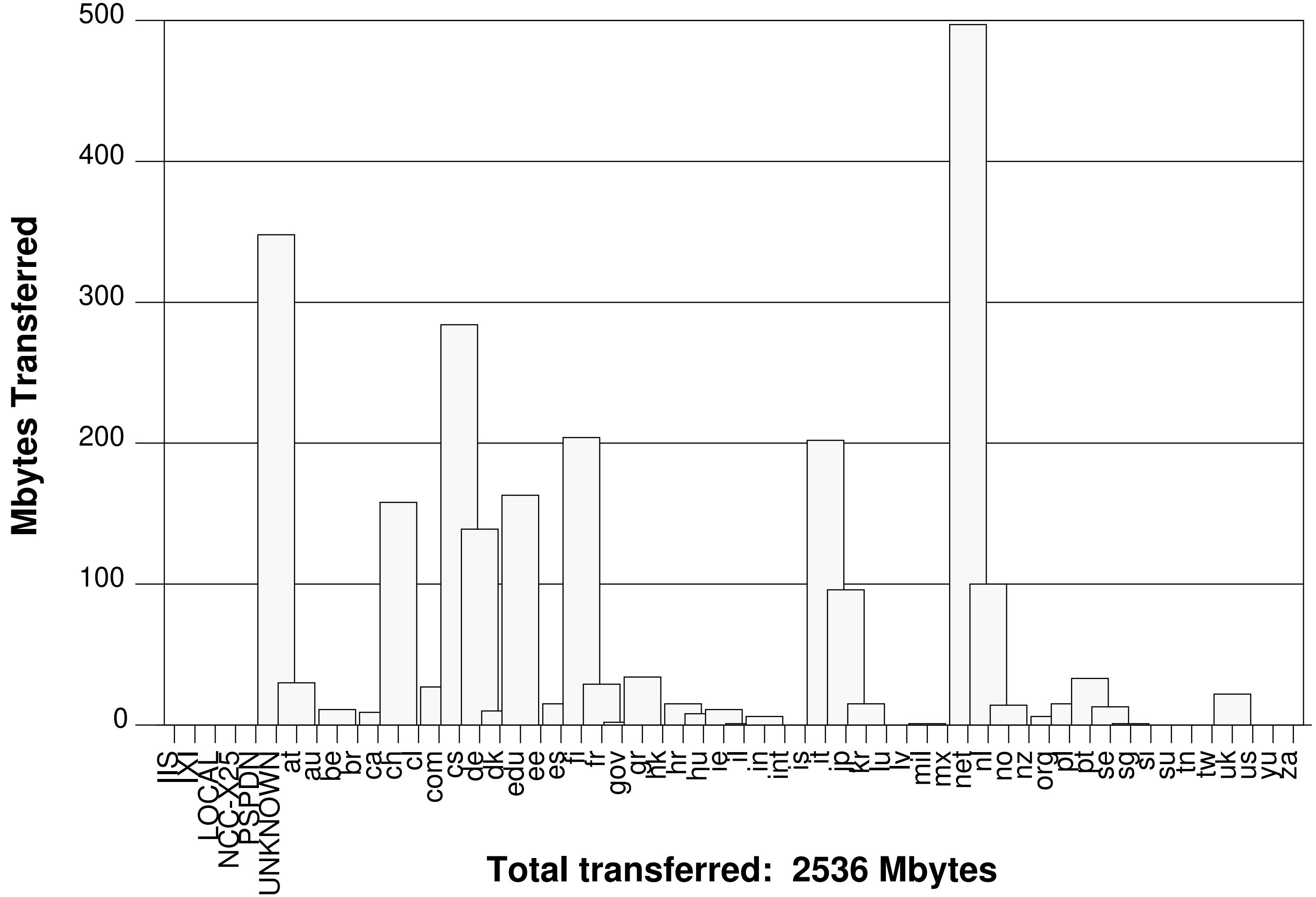
where [listname] is replaced by the name of one of the working groups specified above.

At the 14th RIPE meeting it was agreed to dissolve the Relationship between Academic and Commercial Networks working group.

# Appendix F

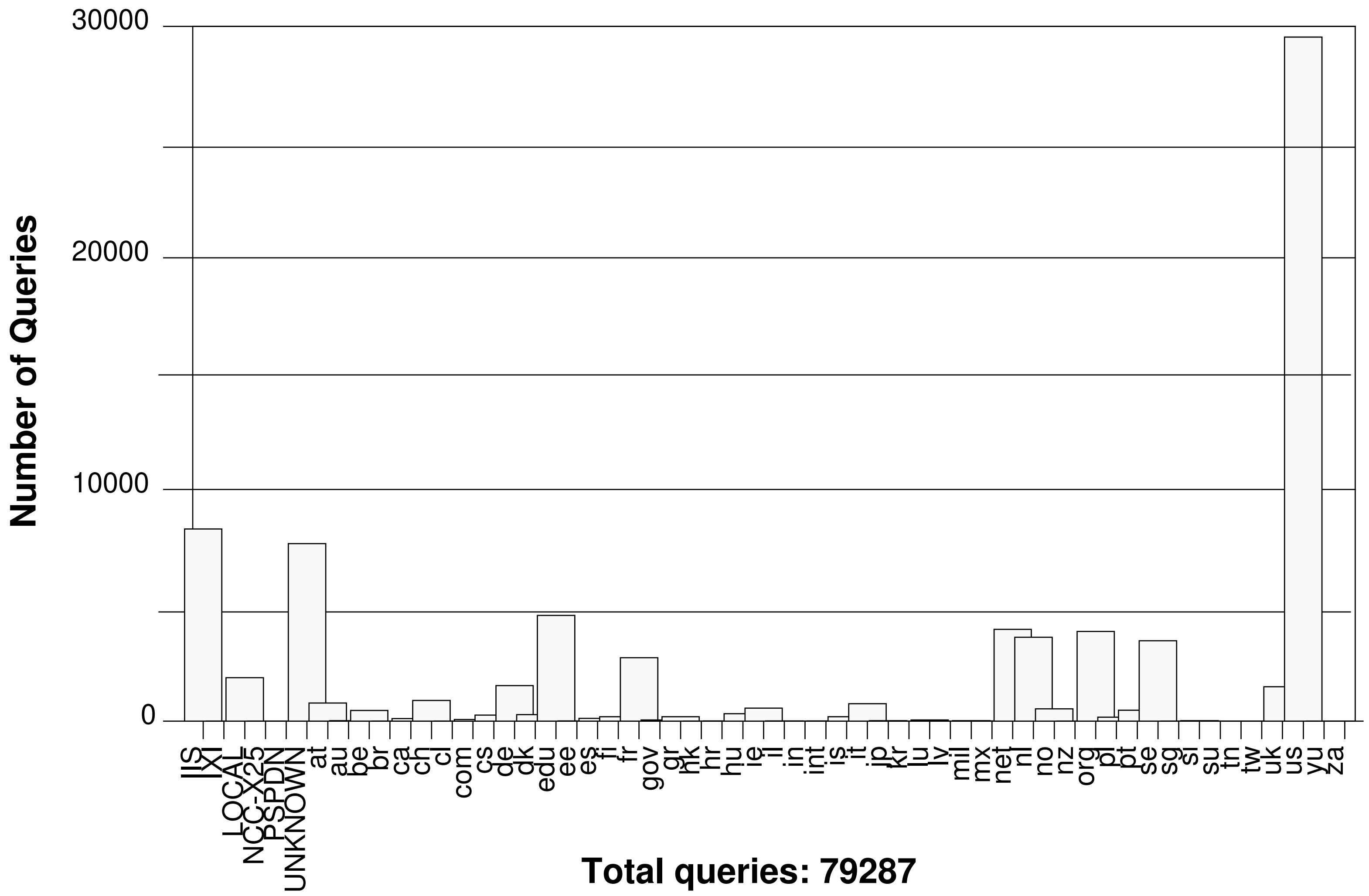

FTP Connections Q1 1993
Total connections: 5326
0
100
200
300
400
500
600
700
IIS
IXI
LOCAL
NCC-X25
PSPDN
UNKNOWN
at
au
be
br
ca
ch
cl
com
cs
de
dk
edu
ee
es
fi
fr
gov
gr
hk
hr
hu
ie
il
in
int
is
it
jp
kr
lu
lv
mil
mx
net
nl
no
nz
org
pl
pt
se
sg
si
su
tn
tw
uk
us
yu
za

# FTP Transfers Q1 1993



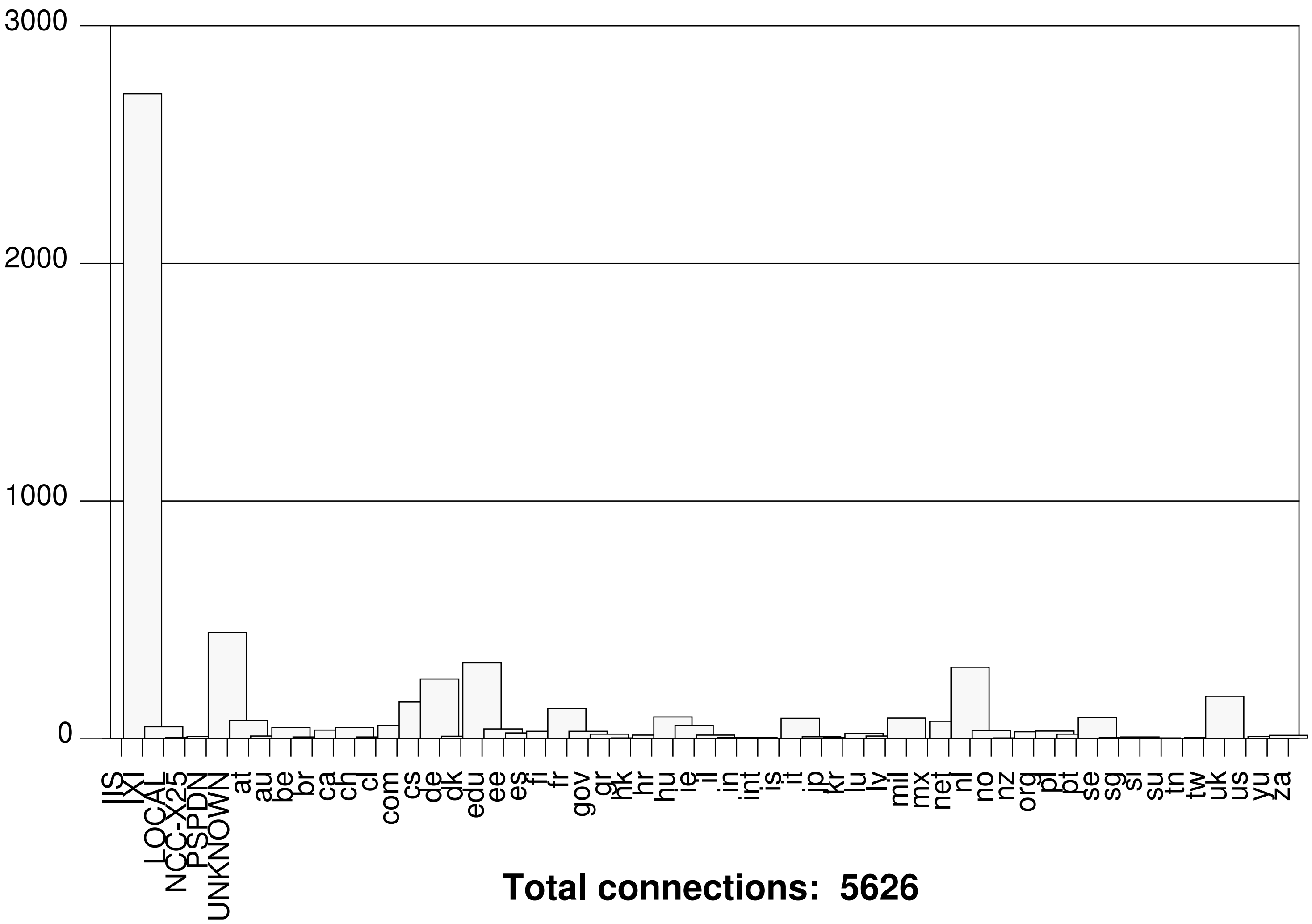

**Total transferred: 2536 Mbytes**

## RIPE Database Queries Q1 1993



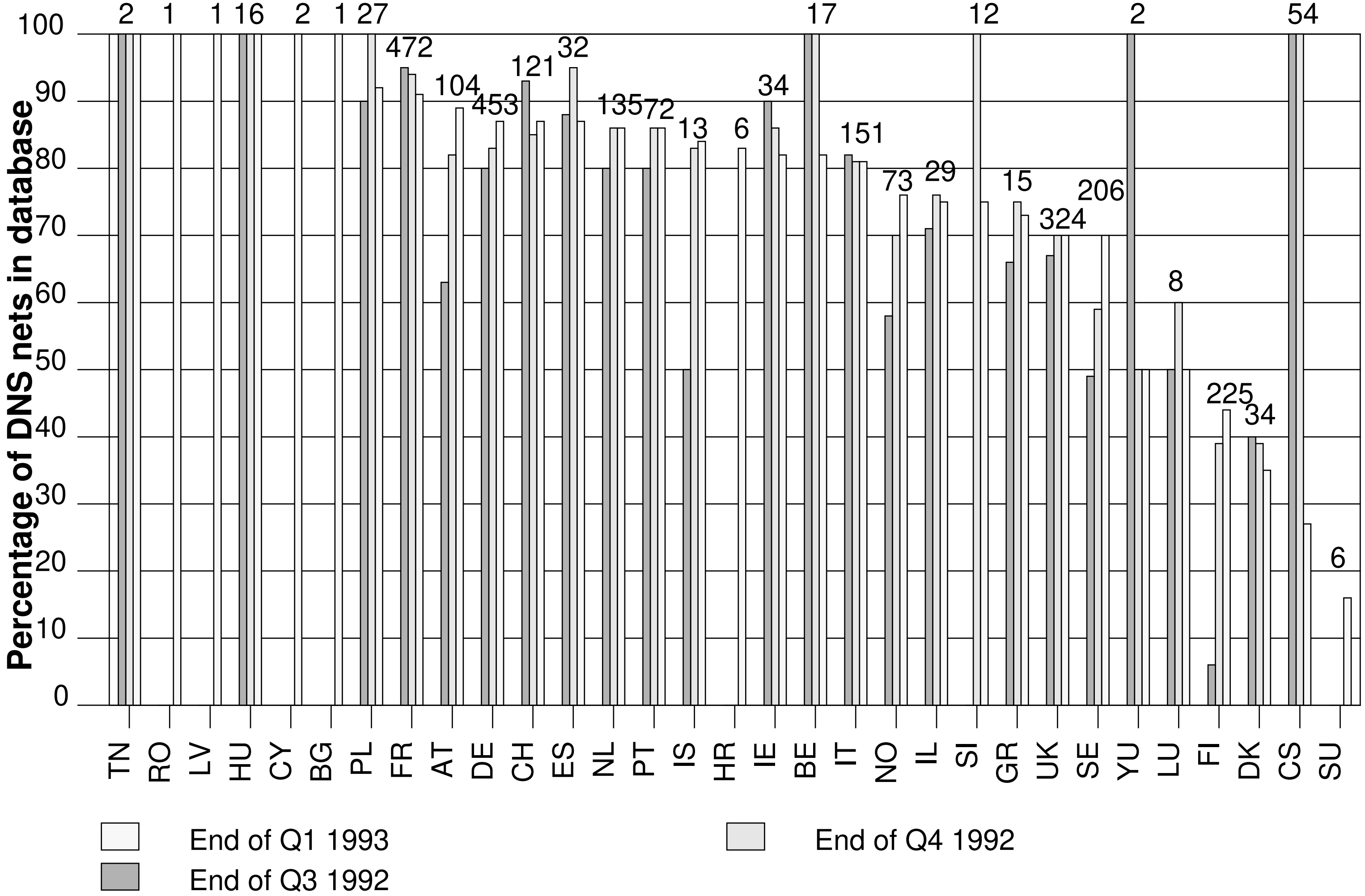

**Total queries: 79287**

# Interactive Information Server Usage Q1 1993



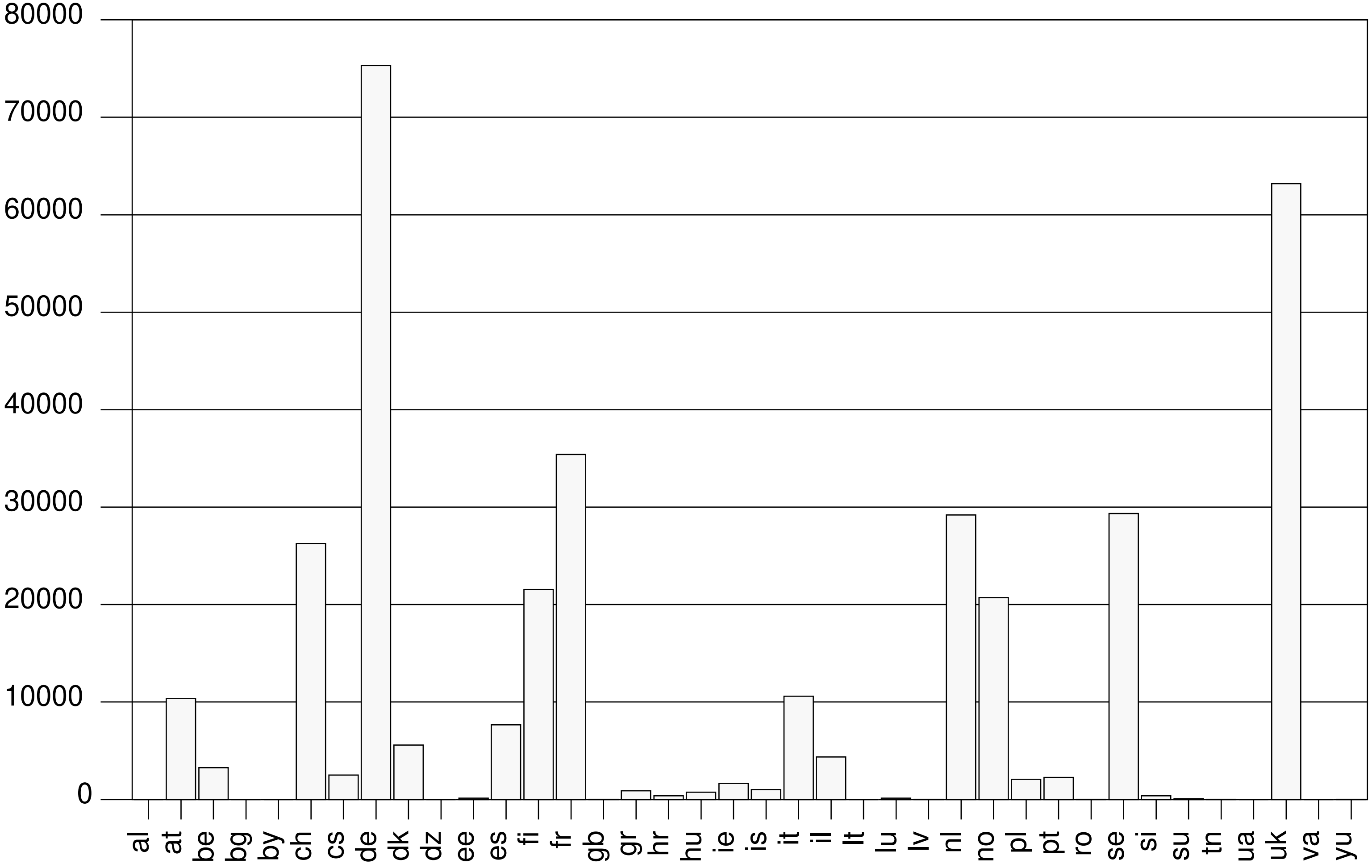

**Total connections: 5626**

# Networks in DNS Registered in RIPE Database 1992-1993




(Numbers in graph are the absolute number of networks found in the DNS)

RIPE DNS Hostcount per Country, March 1993




**Total machines in DNS in Europe: 355,140**