# Generic Internet Service Specification (GISS) Project Final Report

*Tony Bates*

RARE
c/o RIPE NCC
Kruislaan 409
1098 SJ Amsterdam
The Netherlands

## 1. Introduction

By way of introduction the original project definition is given:

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. This includes essential secondary aspects such as DNS service, routing protocols, routing policy features. Service providers will be able to use the document to specify the service they intend to offer. Users will be able to use it as a checklist for the services they require. The document will reference existing sources such as the relevant Internet RFCs.

This initial definition was extremely loose and had to be refined as the project evolved.

## 2. Achievements

From the start of the project it was clear that the only way to get the GISS initiative underway was by an effort of consensus building within the TCP/IP community. Although not implicit in the project, there was a need to make sure the project wasn't perceived as initiated for the wrong motives. The project was presented at the 14th RIPE meeting in Prague, January 25th - 27th. The presentation fell into two parts. An overview[1] of the project with the emphasis on "openess" and encouragement of participation from RIPE with particular focus on service providers within Europe. The second part was a Birds of a Feather (BoF)[2] session to get feedback and ideas for a first "strawman" proposal of GISS document. This essentially "kicked-off" the project.

### 2.1. The Prague RIPE BoF

The general outcome of the BoF was encouraging although it was clear that GISS meant different things to the various attendee's and this was something that needed to be resolved as the project progressed. The basic dilemma was the focus of the document or to be more precise the initial target audience of the document. Should it be **user** or **service provider** oriented.

1 These slides can be found on **ftp.ripe.net:ripe/presentations/ripe-m14-tony-GISS.ps.Z**

2 These slides can be found on **ftp.ripe.net:ripe/presentations/ripe-m14-tony-GISS-BoF.ps.Z**

However, in saying this the general feeling was one of interest and whilst several issues still needed to be addressed it was clear RIPE wanted to see a GISS working group formed and this was agreed at the RIPE plenary.

The working group was set up and a mailing list created. The mailing list is known as:

**giss-wg@ripe.net**

**giss-wg-request@ripe.net to subscribe.**

### 2.2. Basic Plan for GISS

A basic plan for GISS was produced.[3] The plan was a simple one to focus stages of GISS around various meetings between the start and finish of the project.

### 2.3. First Draft of GISS

The first draft of GISS, dubbed the "strawman" proposal was made available to the list in early March. The scope of GISS was still unclear and my initial ideas had been to focus on the Internet Service (IS) as something between both the user and the service provider as well as between service providers themselves. In a conceptual sense something that looked liked figure 1.

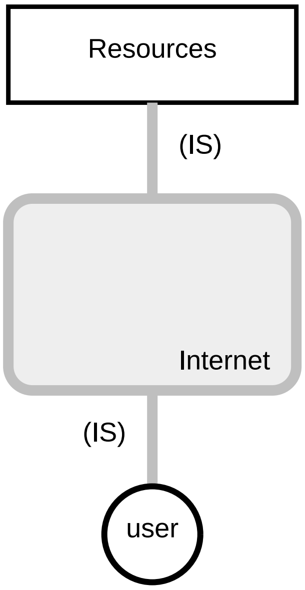


*Figure 1: Original Concept of Internet Service (IS)*

Where a user could be a single user or a service provider (large or small) and the IS is the all encompassing interface between the Internet and resources. This would mean there would need to be a strong emphasis of user based service aspects as well as what the "service providers" were interested in. The general reaction from the comments received was that whilst this was probably what was wanted, this would be too large a task to tackle and the user provider interface was being dealt with by the 'user services' workings groups within IETF and related groups.

3 Appendix A contains the plan as distributed in March, 1993.

Specifically, with the emerging ‘For Your Interest’ (FYI) documents.

### 2.4. GISS BoF at the Columbus IETF

A BoF meeting took place on March 30th in Columbus, Ohio, US. This well attended and again the feeling was that GISS was a useful document but something that was not going to be easy to produce. Issues of "openess" and motive were again raised. However, provided it was clear from the outset that this document was not going to mandate but just give the ‘general’ way things are done it should be possible for service providers to accept and find useful. A list of possible topics were worked through, which would later be reviewed and turned into areas of interest for Internet Service. Of significant note was the commitment to act as reviewers of the final document by Dan Long and John Curran of NEARnet, US and David Conrad of WIDE, Japan[4].

### 2.5. RIPE Meeting, Amsterdam

The first GISS working group met in Amsterdam[5] April. Again it was well attended, with a presentation of my views for the second ‘strawman’ proposal. It was clear that the scope needed to be more limited and from the views of the BoF at Columbus and the working group meeting the scope should be purely at the ‘service provider’ level. Hence, we ended up with the concept of Internet Service (IS) purely at the service provider level as depicted in Figure 2.

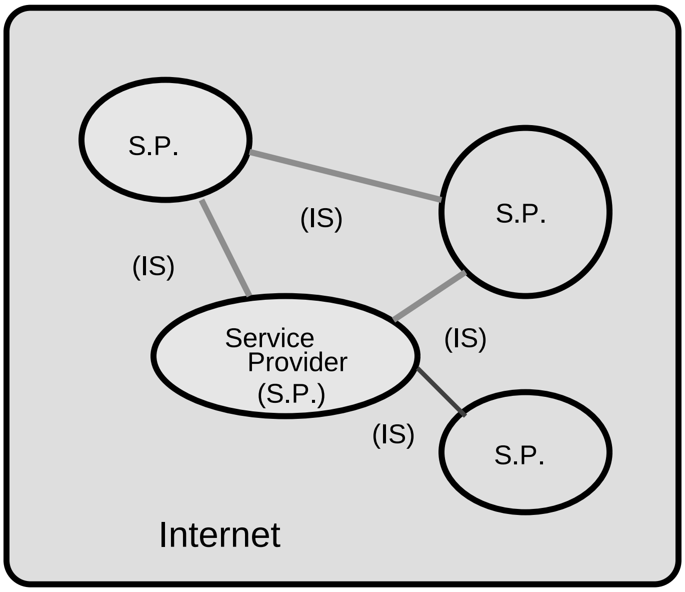


*Figure 2: Revised Concept of Internet Service (IS)*

The idea was to create a type of ‘cook-book’ style document collating short descriptions of Internet service aspects. It would provide a common frame of reference and vocabulary to talk about an Internet service. For each aspect of the Internet service it describes different options for service provision in use in the current Internet. The general format would be one similar to that of of a unix style manual page. Appendix C shows the generalised GISS layout.

---

4 The minutes can be found as **ds.internic.net:ietf/93mar/giss-minutes-93mar.txt**

5 See **ftp.ripe.net:ripe/docs/ripe-minutes/ripe-m-15.txt**

A secondary issue from the RIPE meeting was the clear overlap of the GISS work with that of other working groups within RIPE. Most specifically the Connectivity working group and a proposal to use the GISS aspects as a starting point for future connectivity reports would be pursued at the next RIPE meeting. In the future it is hoped that their could be more integration between the GISS work and other working groups in the form of contributed GISS aspects.

### 2.6. JENC

The GISS work was presented by Daniel Karrenberg at the JENC meeting in Trondheim in May. Whilst their was a great deal of interest their were no additional comments worthy of note from the JENC meeting.

### 2.7. Second Draft of GISS released

The second draft of GISS[6] was circulated to the working group at the beginning of June. This was the culmination of the thoughts and ideas of everyone who had participated on the working group list and at the various meeting. GISS now had a decided scope, focus and list of six initial areas to list service aspects for.

The six areas are as follows:-

1) **Access.**

Access to the Internet can be achieved in various different ways and these will be examined. Access can take different forms; the two primary methods of access are categorised within the specification as either "application gateway" access or "IP-layer" access. We will examine various techniques for encapsulation to achieve the desired "IP-layer" access coupled with possible technology media that can be used to transport IP datagrams.

Infrastructure aspects are crucial to the way Internet access is achieved. For example, an increasingly common way to interconnect between service providers is to make use of a "neutral interconnect" or to use the common U.S. acronym *DeMilitarised Zone (DMZ)*. Infrastructure issues are an important aspect to the way in which service providers build and sell there Internet service depends very much on how such interconnect and access points are engineered.

Access touches on various "operational" facets, that need to be considered when deciding on how best to achieve good Internet access . Using the DMZ engineered solution above, their are operational points of demarcation on which service provider should or shouldn't maintain or operate a piece of equipment. Whilst this could be deemed to be purely an operations (see point 3) issue it is noted as an area of access consideration.

2) **Generic Services.**

We use the term *Generic Services* to refer to generic applications that should be provided by all self respecting service providers. With the Internet there are certain value added services

6 Available as **ftp.ripe.net:ripe/docs/ripe-drafts/giss.{txt,ps}**

which many take for granted but new service providers often realise there implicit need after the fact. This area is not meant to be an in-depth look at all Internet applications but at ones directly relevant to smooth running as part of a provided Internet Service.

The generic services are divided into two categories, primary and secondary service aspects. The primary services consist of the Internet application for name to address translation, the **Domain Name System (DNS)**, the time service provided by the **Network Time Protocol (NTP)** and electronic mail as provided by the use of the **Simple Mail Transfer Protocol (SMTP)**. In the case of electronic mail based services this is considered of importance as a vehicle for service providers to communicate with other service providers and customers alike. It is not the intention that electronic mail provision should be provided by default for all customers as part of the Internet Service.

Secondary generic service aspects are applications which fall into the area of optional services that could be provided by the service provider. They also serve to highlight areas where a coordination effort is needed at the very least with these services. The secondary services covered include the Usenet News distribution, Resource Discovery Tools, File archiving and the support of Multicast IP.

3) **Connectivity.**

Connectivity is of course a major area of the Internet Service. Connectivity itself is not as simple as what is the reachability provided by the Internet Service, but connectivity in terms of bandwidth capacity, performance, scope, backup, round trip time and so on. It also impacts on what the connectivity practices/acceptable use policies are, how they restrict connectity and what the published (if any) routing policies of a service provider are. For example, does the provider have backup ability and if so how is this achieved.

Addressing is a major aspect of connectivity. With the advent of Classless Inter-Domain Routing **(CIDR)** in late 1992, it is becoming more and more important that todays service providers are aware of addressing, routing and registry schemes currently in place for the deployment of CIDR supported routing protocols.

Many Service providers have some sort of acceptable use or appropriate use policy **(AUP)** and this needs to be addressed in the context of how this affects connectivity. A secondary issue is how this AUP is or isn't enforced. Similarly, their is a recent trend in connectivity between service providers to make use of agreements know as an *Inter-working agreement*, this aspect will also be addressed.

Routing aspects will also be addressed in terms of the what the ramifications are of route redistribution and route filtering. Some service providers today choose to do packet level based filtering and this aspect is also addressed.

4) **Operations.**

As with any service there is always a need for operational support. This falls into several aspects; specifically, the aspects of operations that are of interest are the ones that enhance and add to the Internet Service. These are broken down into **general operations, engineering** and **maintenance** and **management**.

General operations details operational cover, the use of operational contact information and how this information is disseminated. For example, does a service provider makes use of trouble ticket and problem management procedures ?

Engineering and maintenance covers mean time between failure (MTBF) of the service; how future and capacity planning is approached; what periods (if any) are allocated for installation and maintenance work.

Operations management deals with how monitoring and status of the service is achieved; what statistical information is gathered and how this is used as part of the managed service. Management also covers locale in terms of how the management of individual components of the service is done. For example, some components may be remotely managed (such as router configurations), whereas other components (such as the routers themselves), may be locally managed.

5) **Information Provision and Coordination.**

It is clear that the Internet works very much by a process of coordination between service providers. However, their are several aspects which need to be highlighted in terms of coordination. This will cover such aspects as application based coordination, tunnel coordination, electronic mailing list coordination as well as various registration issues relevant to the six areas of GISS.

Coupled with any form of coordination is the general need to provide a clear and concise method of information provision and dissemination. This area has some overlap with operations but is worthy of note within this area. The specific aspect of importance is operations based information that is of relevance in a more global context. For example, NOC based or statistical information derived from the borders of ones own Internet Service will be of direct use perhaps to other service provider that you interconnect with.

6) **Security.**

Security is always an important aspect and no more so than in such an open environment as the Internet. This will not address the vast topic of security specifically but will act as a pointer to organisational/coordination aspects of security as well as towards documentation where security matters are discussed.

The specific aspect is the emergence of the **Computer Emergency Response Team's (CERT)** around the Internet and the coordination and provision there of.

The Draft contains 38 highlighted aspects within these areas. The intention is to have some of these aspects contributed by members of the community. The reasoning for this is twofold. Firstly, because the aspect will not of high enough quality in some areas due to the authors lack of knowledge and secondly to make sure the document has a sense of open involvement.

### 2.8. Second IETF BoF, Amsterdam, July

With thanks to Scott Brander, the IESG Operations Director, we were granted permission for a second IETF BoF for GISS. The intention was to make sure the GISS work continues and the document comes to fruition. For this, a charter is required which must have approval from the IESG.

A presentation of the second draft was given. There was general confirmation that the list of aspects identified was adequate for the first document. The most notable point raised was that of the original title. As has been said from very early on, GISS would not be a "specification" per se but in fact a description and the charter and name of the work should be be changed to GISD, "Generic Internet Service Description". This was agreed and any future work would be referred to as GISD.

The GISD charter was presented and agreed. Appendix B gives details of the charter to be submitted to the IESG. The intention is to turn the current draft into an FYI RFC.

The IETF itself is perhaps not directly the correct group for the GISD work to continue in. However, currently there exists no other international forum where enough operational and service providers meet. It was agreed as soon as such groups exist the GISD work should take place there although realistically this maybe some time. This is an area that needs to be addressed at various international groups such as the IETF Operational Area Directorate and perhaps the Internet Society[7].

## 3. Conclusion

The most significant achievement of the project is the first widely accepted framework for describing aspects of an Internet service, and the current practise of providing them. It isolates the description of a specific service aspect sufficiently to make it stand on its own and yet be part of a framework. This is what makes it possible for experts on a specific aspect to contribute while asking not too much of their time. It makes it possible for the users of the document to find what they need and to have the information presented in a standard form.

In addition to the framework an initial set of service aspects has been identified and descriptions of a number of these have been completed. While useful in their own right they also serve as examples for future contributors. All these results are contained in the current GISD draft document.

In order to make the GISD document more comprehensive two things are needed: A editorial effort performed by one or more recognised members of the community and voluntary contributions by the relevant experts. An IETF working group for this effort has been proposed and the search for possible editors has begun.

The project has been successful in spawning this potentially very useful activity.

7 The minutes can be found as **ds.internic.net:ietf/93jul/giss-minutes-93jul.txt**

**Appendix A**

**Basic Action Plan for GISS Project**

Tony Bates
RARE
Amsterdam

March, 1993

## 1. Introduction

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. This includes essential secondary aspects such as DNS service, routing protocols, routing policy features. Service providers will be able to use the document to specify the service they intend to offer. Users will be able to use it as a checklist for the services they require. The document will reference existing sources such as the relevant Internet RFCs.

This work is part of the project "Internet Service Specification" which is part of the RARE Technical Program and carried out in cooperation with RIPE at the RIPE NCC. The project is funded by SURFnet through RARE.

## 2. Simple Action Plan

This simple action plan represents the steps to be taken in bringing the Generic Internet Service Specification (GISS) to reality. With this type of specification a large amount of the work involves open discussion with various groups within the Internet Community. Currently, it is unclear exactly what such a specification should consist of and the input of both users and service providers is sought.

**1) RIPE, Prague. Feb, 1993**

— Following the Birds of a Feather (BoF) meeting publish the initial ideas discussed within the BoF.

• IN PROGRESS.

— Establish a RIPE working Group (giss-wg@ripe.net) and continue to enhance the ideas and revise an initial paper on the topic.

• DONE.

**2) IETF, Columbus, March, 1993**

— Present the current paper one to two weeks in advance of Columbus IETF and announce the GISS BoF to the IETF list. Discuss at this BoF what should actually be covered in such a specification from both the users and service providers perspective. Enhance and modify the draft in the light of input from Columbus.

**3) RIPE, Amsterdam, April, 1993**

— Distribute the material so far gathered one to two weeks before RIPE meeting in Amsterdam. Encourage people to attend the first GISS working group. Make a small presentation of various aspects so far discussed within the working group session.

— Discuss the possibility of merging some of the aspect of the RAEC Working group if felt desirable.

**4) JENC-4, Trondheim, May, 1993**

Send to various RARE lists two to three weeks of JENC-4 announcing a GISS discussion session and the current draft of the specification. Continue to revise and fold in comments from the JENC-4 discussion session.

**5) IETF, Amsterdam, July, 1993**

Finalise the paper and send to both RIPE and IETF lists so any formal decision on the status of the document can be taken.

**6) RIPE, Autumn, 1993**

Discuss in the working group the need for possible continuation work and anything else required in this area.

**Appendix B**

**Generic Internet Service Description (gisd)**

**Charter**

**Chair(s):**

Tony Bates <tony@ripe.net>
Daniel Karrenberg <daniel@ripe.net>

**Operational Requirements Area Director(s)**

Scott Bradner <sob@harvard.edu>

**Mailing lists:**

General Discussion:giss-wg@ripe.net
To Subscribe: giss-wg-request@ripe.net
Archive:

**Description of Working Group:**

GISD collects short descriptions of Internet service aspects. Internet service in GISD means the interaction of Internet service providers among themselves and with their users. GISD aims to provide a common frame of reference and vocabulary to talk about an Internet service. For each aspect of the Internet service it describes different options for service provision in use in the current Internet. GISD is merely descriptive and does not proscribe or mandate. GISD is intended to be a living document collecting work of many contributors.

The GISD Working Group will update and revise the GISD document to assist network service providers in a better understanding and description of what Interent Service means.

- Update and revise the GISD document that lists the areas and aspects of interest to TCP/IP network service providers.

- Identify additional GISD areas and aspects appropriate to GISD.

- Identify areas of overlap with other IETF working groups.

- Create a reference document of GISD terms.

- Establish procedures to ensure the ongoing maintenance of the document and identify an organisation willing to do it.

**Goals and Milestones:**

Review current GISD draft and add any additional areas and aspects felt essential.

Draft of GISD will be prepared, draft to be reviewed and modified. Initiate IETF Internet-Draft review process by submission of GISD draft to IESG Secretary.

Follow-up with final amendments to the document and the submission of the document to RFC Editor as an FYI RFC for publication.

**Appendix C**

**GISS Structure**

Each aspect is described independently according to a fixed format: The *what* section describes what the particular aspect being described is. The *why* section describes in which way it is relevant to an Internet Service. Following the *what* and *why* sections is a description of one or more commonly used options to provide this aspect of service. If there are many options they will be categorised as *minimal, common* or *maximal* solutions wherever possible in order to provide some guidance on the relative completeness and service quality of the different options. Wherever the choice of an option may depend on other issues such as geographic location this will be flagged as well. Following the options if their is additional documentation of relevance a *see also* section is provided. An optional *SOAP BOX* section is available for controversial but relevant items to the aspect. The *references* section will provide pointers to relevant documents Finally the *contributors* section will list the contributors to the particular service aspect description.

So the general structure of GISS is:

```
GISS
    Area
        Aspect
            What
            Why
            Options
                (Minimal)
                (Common)
                (Maximal)
                (Regional)
            See Also
            Soap Box
            References
            Contributors
        ...
    ...
```

Anyone within the Internet community is welcome to contribute descriptions of whole new service aspects to GISS. In fact, the GISS structure is designed to make it easy to both create and incorporate new aspect descriptions. The goal is to make it easy for members of the community to contribute their knowledge and experiences while receiving proper credit.

Similarly new (and possibly creative) options to provide a particular service aspect can easily be integrated in this structure. This enables a range of different options to be described and hopefully is a way to preempt any perpetual arguments over the *right* way to provide an aspect of the Internet service.

Editorial control of GISS will remain with the authors advised the RIPE GISS-WG until the first edition is published purely for collation and practicality.