

Feasibility Study for African – European Research and Education Network Interconnection (FEAST Project)

Networking Status Questionnaire

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Introduction

The objective of the FEAST study is to examine the viability of working with African NRENs and other stakeholders to establish a sustainable and expandable regional research network infrastructure in Africa. The project will initially work with the currently most developed NRENs in Southern and Eastern Africa, and provide recommendations to the European Commission on the deployment of such a regional network and its interconnection to GÉANT. The study will survey existing and planned NREN organisations and their capacity to ensure that international bandwidth can be distributed to end users.

In order to establish the current status and scope the requirements the FEAST project will undertake a survey of the user base, installed facilities, networking organisations and projects (or proposed parameters where the NREN is not yet established).

The Questionnaire

The aim of this questionnaire is to help in identifying the major issues, challenges and opportunities for the development of research and education networking in African countries. The questions in this document are based on the work undertaken to compile the TERENA Compendium of European NRENs¹ and in the GN2 project development support activity (NA4)².

Will you please provide as much detail in your answer as possible, if possible attaching documentation that you may have that expand your answers. For example you may have written reports explaining elements of your network or community of users. Please send these documents along with your completed questionnaire or by email.

In some countries the NREN might not yet be created. If there are plans to create an NREN in your country, please provided answers about the proposed organisation.

The questions in the next pages fall into the following major categories.

- 1: NREN Basic Information and Legal Form
- 2: Existing or Proposed Customer Base and "Market Share"
- 3: Network Capacity
- 4: Network Traffic
- 5: Staffing
6. Funding
- 7: Current or Planned, Network Technologies, Services, and Research Interests
- 8: Regulation & Local Telecommunications / Internet Market
- 9: Additional Information

¹ The TERENA Compendium of NRENs for the years 2001 – 2008 can be found at:
<http://www.terena.org/activities/compendium>

² Information regarding the activities of GN2 NA4 activity may be found at:
<http://www.terena.org/activities/development-support/>

Section 1: Basic Information and Legal Form

We are interested in the basic factual information about your NRENs the relationship between your organisation and the government and the legal form of the organisation.

If there are plans to create an NREN in your country, please provided answers about the proposed organisation.

| | |
|--|---------------|
| Has the NREN already been created | [Y] / [N] |
| Date NREN was created or is expected to be created | |
| Name of the organisation which will carry out the NREN function in the national language(s): | |
| Name of the organisation (in English): | |
| Abbreviation of name | |
| Visiting address | |
| Postal address (if different from above): | |
| Country | |
| Fax | |
| General or Central Phone number | |
| Organisations Website URL | |
| Is the NREN (or will the proposed NREN be) a separate legal entity in its own right? | |
| Who owns (or will own) the NREN? Is it a department of government, and institution or other organisation? Please state | |
| Is there (or will there be) a Board, Management Board, Supervisory Board etc. of the NREN that is supervising the manager(s)? | |
| Who are (or will be) the members of the Board? | |
| Who appoints the members of that Board? | |
| How are the users of the network represented? | |
| Who the counterparts of the NREN in the government? (For instance, which ministries/departments are responsible for policies/funding of research and education networking?) | |

Section 2: Existing or Proposed Customer Base and "Market Share"

In the following section we would like to determine information on types of institutions connected by the NREN, the absolute and relative number of connected institutions, Acceptable Use Policy (AUP) and Connection Policies (CP).

In addition, we would like to know, in as much detail as possible, some basic information about universities and other higher-education institutions (name, location, student population) and, for each of these institutions, if they are connected to the NREN or not. Please attach a separate document detailing this additional information if possible.

If the NREN has not yet been created, please answer the questions (if possible) on the proposed community that the new NREN will serve.

| Category of institution | Are you allowed to serve this type of institution? Please tick | | TOTAL NUMBER OF INSTITUTIONS of this category in your country | Number of INSTITUTIONS in this category that are currently CONNECTED to your network | Total Number of Individual SITES currently CONNECTED To your network |
|--|---|----|---|--|--|
| | YES | NO | | | |
| Universities (<i>ISCED 5+6</i>) | | | | | |
| Institutes of further education (<i>ISCED 4</i>) | | | | | |
| Research institutes | | | | | |
| Secondary schools (<i>ISCED 2+3</i>) | | | | | |
| Primary schools (<i>ISCED 1</i>) | | | | | |
| PUBLIC Libraries | | | | | |
| PUBLIC Museums | | | | | |
| PUBLIC Art Galleries | | | | | |
| Other PUBLIC Cultural Institutions or Archives | | | | | |
| Hospitals (other than University hospitals) | | | | | |
| NATIONAL Government Offices | | | | | |
| LOCAL Government Offices | | | | | |
| Commercial Research Sites | | | | | |
| Others Please specify | | | | | |

| | | |
|--|------------------------------|-----------------------------|
| Do you have (or will you have) an Acceptable Use Policy (AUP)? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| If YES please provide the URL for the AUP: | | |
| Do you have (or will you have) a Connection Policy (CP)? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| If YES please provide the URL for the CP: | | |

Section 3: Network

In addition, we would like to know the capacity and the type of connectivity (leased lines, wireless, satellite, optical, etc.) available on the NREN backbone, any Metropolitan Area Networks and the campus networks and the access capacity of the institutions.

Please complete either: **Section 3A** if your country already has an NREN

OR **Section 3B** if the NREN is planned & network connectivity is supplied by a commercial ISP or similar organisation

| | |
|---|--|
| SECTION 3A | |
| In countries where an NREN has already been created, please provide the following information. | |
| Please attach a map that shows the NREN topology with the capacity and technology of the links If this map is available online, please provide the URL: | |
| What is the current typical core usable backbone capacity on your network? (Please don't include any backup links in this figure.) The core capacity is the average bandwidth of the backbone network or links into the central node. Which organisation provides connectivity to the NREN? | |
| What AS number have you been allocated by AfriNIC? | |
| What IP address space have you been allocated by AfriNIC? | |

| |
|--|
| SECTION 3B |
| In countries where an NREN has NOT YET BEEN CREATED and where education and research sites are connected by commercial Internet Service Providers (ISPs), please provide the following information. |
| Please provide details of: <ul style="list-style-type: none">• Sites connected and capacity of connection• Suppliers of Connectivity• If possible, prices paid per annum |

SECTION 3C**Information on the Points of Presence****PHYSICAL LOCATION of NETWORK OPERATIONS**

| | |
|--|--|
| How many points of presence (PoPs) or Internet Exchanges do you currently operate or occupy? | |
|--|--|

| | |
|-----------------------------|--|
| Where are the PoPs located? | |
|-----------------------------|--|

| | |
|---|--|
| What is the average availability / reliability of the main electricity supply | |
|---|--|

%

| | |
|--|--|
| What is the output capacity of the backup generator capacity | |
|--|--|

KWh

| | |
|---|--|
| What is the maximum time, back up maximum backup power can be sustained | |
|---|--|

Hours

| | |
|--|--|
| What is the cooling capacity of the air-conditioning equipment in the equipment room | |
|--|--|

KW

SECURITY

| | |
|---|--|
| What are the physical security arrangements of the PoP? | |
|---|--|

| | |
|--|--|
| Who is permitted physical access to the PoP? | |
|--|--|

| | |
|---|--|
| Are lockage internal cages provided for securing sensitive equipment? | |
|---|--|

EXPANSION Possibilities

| | |
|---|--|
| What are the approximate sizes of the room that houses the PoP? | |
|---|--|

| | |
|---|--|
| What percentage of the room containing the PoP is currently occupied? | |
|---|--|

| | |
|---|--|
| What percentage of the room could you use for expansion of your own services? | |
|---|--|

CO-LOCATION

| | |
|---|--|
| Which local telecommunication infrastructure providers are co-located in the POP building? | |
|---|--|

| | |
|---|--|
| Which local ISPs are co-located in the POP building? | |
|---|--|

| | |
|---|--|
| Which International telecommunication infrastructure providers are co-located in the PoP building? | |
|---|--|

| | |
|---|--|
| Which International ISPs are co-located in the PoP building? | |
|---|--|

STAFFING

| | |
|---|--|
| Hours that onsite management is available at the PoP? | |
|---|--|

| | |
|--|--|
| Hours that onsite operations staff are available at the PoP? | |
|--|--|

| | |
|---|--|
| Hours that remote PoP operations staff are available? | |
|---|--|

SECTION 3D

NETWORKING EQUIPMENT

Please list the major networking equipment that is currently in use:
Please include items such as routers, switches, base stations, etc.

If possible give manufacturer, model and approximate age.

What are the closest and most economic sources of networking equipment for you?

What is the level of price discounting that the supplier will give you as an academic / not-for-profit purchaser of equipment and services?

What manufacturers are equipment is readily available from this supplier
Just include the major companies such as: CISCO, JUNIPER, ALCATEL, CIENA, ADVA, HP, EXTREME, NORTEL, Foundry, Huawei, etc.

Do the suppliers provide you with maintenance and support?

Is the organisation providing the maintenance and support located close to the PoPs?

Is support provided under a contract?

What is the availability (24*7)?

What is the usual response time in hours?

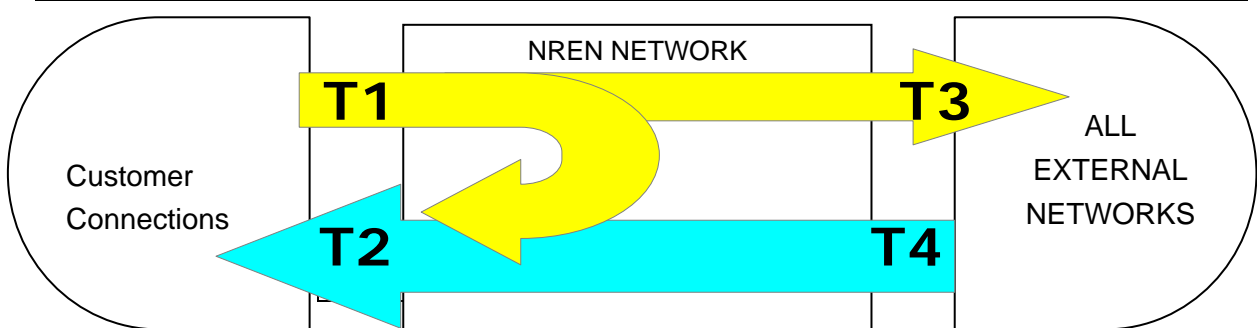
Please provide a list of the operational external IP connections you had at the end of January 2008 (usable links excluding backup links):

| External Network IP Connections | Type of Link Satellite Leased Line Fibre, etc | Usable capacity (Mbit/s) |
|---|--|-----------------------------|
| Direct to other research locations (e.g. other NRENs) Please use one line for each link and provide the names of the end points – add more lines if needed. | | |
| | | |
| | | |
| | | |
| Direct connections to the Commercial Internet excluding Internet Exchanges <i>(please specify each connection - adding as many lines as needed)</i> | | |
| | | |
| | | |
| | | |
| | | |
| Peerings, connections to Internet Exchanges <i>(please specify each peering - adding as many lines as needed)</i> | | |
| | | |
| | | |
| | | |
| | | |
| Others – Please specify type | | |
| | | |
| | | |
| | | |
| | | |

Section 4: Network Traffic (for EXISTING NRENS)

If possible provide us with some indications of the network traffic for the institutions concerned.

In the following questions, we define different types of traffic by source or destination. Please take a look at the figure below, which illustrates the definition in terminology.



T1 – all IP traffic from customer sites

T2 – all IP traffic to customer sites

T3 – all IP traffic to external networks

T4 – all IP traffic to the NREN backbone

External traffic = all traffic to the Commercial Internet, Internet exchanges, etc

4.A An estimate of the total amount of traffic in Gigabytes in 2007 in and out of your connected sites:

T1: Gigabytes

T2: Gigabytes

4.B Please supply an estimate of the total amount of external traffic in Gigabytes in 2007 as defined in the picture above:

T3: Gigabytes

T4: Gigabytes

4.C Approximately what percentage of the T3 and T4 traffic as given above was to/from the Commercial Internet?

T3: %

T4: %

4.D What was the volume of traffic to/from your network in January 2008 in Gigabytes?

T1: Gigabytes
T2: Gigabytes
T3: Gigabytes
T4: Gigabytes

We would like to get information about bottlenecks for the institutions - where they are and why (lack of money or technology, not enough workstations for students, etc.)

Please provide you answer below in text.

Section 5: Staffing

| | |
|---|--|
| Can you please provide an organisational chart of the people working in your organisation (or proposed NREN) showing their functions and/or responsibilities? | |
| Which organisation employs (or will employ) the NREN Staff? | |
| Who appoints (or will appoint) the NREN manager(s)? | |
| How many staff are usually (or will be) working for the NREN (FTE) (FTE) is full time equivalent. If one member of staff works for 10% of his time on the NREN, then his FTE=0.1 Please add all the approximate FTEs of all working on the NREN | |
| How many FTE's are (or will be) directly employed and paid by the NREN? | |
| How many FTE's are employed (or will be) by the NREN, but paid by another organisation? | |
| How many FTE's of effort are provided to run the NREN, but are employed and paid by another organisation? | |
| Staff: what are your needs and future plans, in terms of resources? Is there any specific training needed? | |
| | |

Section 6: NREN Funding or Proposed Funding Model

| NREN BUDGET and EXPENDITURE | |
|--|--|
| <p>What was your organization's Annual total budget for the current budget year? (Please use local currency)</p> <p>If possible also provide the value in euro at the current exchange rate</p> <p>What are the start date and end dates of the budget year?</p> | |
| <p>What do you expect the organisation's budget to be in the NEXT BUDGET YEAR</p> | |
| <p>What are the main expenditure items:</p> <p>Please indicate the approximate percentage spent on each element</p> <p>These elements might include:</p> <ul style="list-style-type: none"> • Staff Costs • Equipment • Leasing /Purchase of national terrestrial connectivity costs • Leasing /Purchase of national VSAT connectivity costs • Leasing/Purchase of International terrestrial connectivity costs • Leasing/Purchase of International VSAT connectivity costs • Licence Costs • Other Costs (please specify) | |

| In the year 2008 what was the source of your funding | Amount in local currency | Percentage of income |
|---|---------------------------------|-----------------------------|
| Users/clients | | |
| Government/public bodies | | |
| The EU (e.g. for Framework Programme projects) | | |
| Other sources | | |
| All of the above should total to 100% | | |

| | |
|---|---------------|
| Does the NREN run the country top level domain for the DNS? | [Y] / [N] |
| If YES Who receives the income from the activity | |
| If known what is the income from this activity (local currency) | |

Section 7: Current or planned, network technologies, services, and research interests

Can you please mention the highest priority network services (maximum four) that you plan to deploy in the coming 12-24 months?

Do you have already the required expertise in house to deploy such services or do you need to specifically recruit/train personnel?

USE OF THE NREN NETWORK

Can you please mention a few important projects/ international collaboration (existing or planned) in any scientific discipline in your country that would benefit from better networking infrastructure and services in your country?

NETWORK DEVELOPEMENT PLANS

Network: are you satisfied with your infrastructure today? What are your plans for the future in terms of technology, capacity, etc.?

APPLICATION PERFORMANCE

What kind of applications today suffer from the current network capacity, topology and International connectivity (if any)?

INTERNATIONAL CONNECTIVITY DEVELOPMENT

International connectivity: what do you expect/need for the future?

Section 8: Regulation and the Local Telecommunications Market

| | |
|--|---------------|
| Does the country have an independent telecommunications regulatory body | [Y] / [N] |
| Will / Do you require a licence to operate as an NREN | [Y] / [N] |
| If YES, What is the type of licence do you require? What is the annual cost of such a licence? What does this licence allow you to do? What is prohibited under the terms of the licence? | |
| Do you currently have such a licence? If NO, By what date do you expect to obtain such a licence? | [Y] / [N] |
| What is the name and address of the national telecommunications regulator | |
| Is the NREN in communication with the telecommunications regulator? | |
| How would you judge the NREN relationship with the regulator: 0=very poor, 1=poor, 2=fair, 3=good, 4=excellent | |
| Is there currently a monopoly or duopoly provider of telecommunications (voice and data) operating in your country? | |
| If so who are the current suppliers of voice and data telecommunications? | |
| Is the local telecommunications market officially liberalised or open to competition? | |
| If the local telecommunications market is NOT currently liberalised, what is the date by which this is expected to happen? | |

| COMMERCIAL INTERNET SERVICE PROVIDERS | |
|--|--|
| Which commercial ISPs (if any) are providing or may provide connectivity to R&E institutions in your country? | |
| Is there any other, non-commercial, organisations providing such services to R&E institutions in your country? | |
| If yes, do you collaborate with them? | |
| If you do collaborate, what is the nature of the collaboration? | |

Section 9: Other information

| INFORMATION SOCIETY | |
|---|--|
| Does your government have an "Information Society" policy (possibly under another name)? | [Y] / [N] |
| If there is an "Information Society" policy what type of institutions connections included: (please answer [Y]/[N] from the following list | |
| <ul style="list-style-type: none"> • Universities • Institutes for Higher Education • Research Institutes • Schools • Libraries • Museums • Other (please state) | [Y] / [N] [Y] / [N] [Y] / [N] [Y] / [N] [Y] / [N] [Y] / [N] |
| Which Ministry or other government entity is responsible for that general Information Society policy? | |

Form Completed by:

Name:

Organisation:

Email address:

Telephone Number:

Date:

PLEASE RETURN COMPLETED SURVEY FORMS and ATTACHMENTS to:

survey-2009@feast-project.org