

TERENA COMPENDIUM OF EUROPEAN NRENs

2009 QUESTIONNAIRE

INTRODUCTION

The 2009 TERENA Compendium questionnaire has been somewhat simplified over that of previous years. In many cases ticks in boxes are requested rather than absolute numbers or percentages. In order to retain the ability to make some important trend analysis some numbers are still required. Whilst we recognise some of these numbers (eg: number of connected institutions by category) may be difficult to obtain for some NRENs, even an estimate of the approximate number provides us with useful data.

Section A: USERS / CLIENTS

A.1 Please give an *estimate* of the proportion of the institutions in each category that are served by the NREN.

Type of institution	Are you allowed to serve this category of institution?		Place a tick in the column that most closely represents the proportion of each category of institution actually connected by the NREN					Comments if any
	YES	NO	None or very few	less than half	about half	more than half	All or nearly all	
Universities & Other <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>								
Libraries, Museums, Archives, Cultural institutions								
Hospitals (other than University hospitals)								
Government departments (national, regional, local)								

A.2 Level of Connectivity by Institution type:

This table explores the level of connectivity for each type of institution. Please enter a tick or cross to indicate:

- i) The lowest speed at which an institution in this category is connected
- ii) The highest speed at which an institution of this category is connected.
- iii) The typical speed of connection for the majority of institutions in this category of institution.

EXAMPLE:

	Approx Number of connected institutions In each category	Link Access speeds	less than 10 Mb/s	10 Mb/s or more but less than 100 Mb/s	100 Mb/s or more but less than 1 Gb/s	1 Gb/s or more but less than 10 Gb/s	10 Gb/s or more but less than 40 Gb/s	40 Gb/s or above
Universities & Other ISCED 5+6	207	LOWER			✗			
		UPPER						✗
		TYPICAL					✗	

For an explanation of number of institutions please see attached notes	Approx Number of connected institutions In each category	Link Access speeds	less than 10 Mb/s	10 Mb/s or more but less than 100 Mb/s	100 Mb/s or more but less than 1 Gb/s	1 Gb/s or more but less than 10 Gb/s	10 Gb/s or more but less than 40 Gb/s	40 Gb/s or above
Universities & Other ISCED 5+6		LOWER						
		UPPER						
		TYPICAL						
Further education (ISCED 4)		LOWER						
		UPPER						
		TYPICAL						
Research institutes		LOWER						
		UPPER						
		TYPICAL						
Secondary schools (ISCED 2+3)		LOWER						
		UPPER						
		TYPICAL						
Primary schools (ISCED 1)		LOWER						
		UPPER						
		TYPICAL						
Libraries, Museums, Cultural inst.		LOWER						
		UPPER						
		TYPICAL						
Non-university Hospitals		LOWER						
		UPPER						
		TYPICAL						
Government departments		LOWER						
		UPPER						
		TYPICAL						

A.3 How are the sites connected to the network?

Please enter a tick or cross to indicate the ways in which institutions are connected to your network.

	Proportion of sites connected through this route	Via a POP on the NREN backbone	Via a MAN or RAN managed by the NREN	Via a MAN or RAN NOT managed by the NREN	Served via or behind another connected site	Some other way
Universities & Other ISCED 5+6	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Further education (ISCED 4)	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Research institutes	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Secondary schools (ISCED 2+3)	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Primary schools (ISCED 1)	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Libraries, Museums, Cultural inst.	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Non-university Hospitals	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					
Government departments	none or few					
	less than half					
	about half					
	more than half					
	all or nearly all					

Section B: SERVICES

Network & connectivity services

In this section, please provide information about the entire network that is **managed** by your organisation, excluding links outside your national territory.

- B.1** What is the number of PoPs on your network? (A PoP is defined here as a point on the NREN backbone which can connect client networks or aggregations of client networks such as MANs, or external networks.)
- B.2** What is the number of places where you undertake core networking routing?
- B.3** What is the number of managed sites on your network? (i.e. the number of sites where you manage routing or switching equipment)
- B.4** At how many places do you offer optical PoPs?
- B.5** How many of these optical POPs also provide L3 routing?
- B.6** How many circuits (that carry production traffic) do you manage?
- B.7** What is the total kilometric length of dark fibre installed on your network?

(This question replaces the previous question asking for an estimate of bandwidth*distance which NRENs have found increasingly difficult to answer.)
- B.8** What is the current typical core usable backbone capacity on your network?
- B.9** Please provide a list of the operational external IP connections you had at the end of January 2009 (usable links excluding backup links):

External Network IP Connections	Usable capacity (Mbit/s)
Direct to GÉANT	
Indirectly to GÉANT via the SEEREN or EUMEDCONNECT project or another NREN <i>(please specify each connection - adding as many lines as needed)</i>	
Direct to NORDUnet	
Direct to other research locations (e.g. other NRENs, CERN, Starlight, Abilene) <i>(please specify each connection - adding as many lines as needed)</i>	
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>	
Other – Please specify type	
Total:	

B.10 Future Developments and Trends

Please give a descriptive outline of the major initiatives that relate to the development of the underlying network that you might expect to see on your network over the next 2-5 years. It would be helpful if you could associate an approximate level of confidence to each of these predictions: **QUITE CERTAIN, LIKELY, UNCERTAIN.**

Initiative / Development	Expected timeframe	confidence

Questions relating to the introduction and uptake of IPv6

- B.11** approximately how many requests for IPv4 address space did you receive in the last year?
- B.12** Does your network currently support production native IPv6 services?
- B.13** If you **CURRENTLY** provide native IPv6 when was the service introduced?
- B.14** If you are **PLANNING** to provide native IPv6 in future what is the planned introduction date?
- B.15** How many IPv6 prefixes have you allocated?
- B.16** Does your NREN make the support of IPv6 a mandatory requirement in the procurement of networking equipment
- B.17** Do you **CURRENTLY** have any compelling reasons or drivers to migrate any parts of your network to IPv6 and if so, what are they?
- B.18** What are the major inhibitors for your NREN to migrate to IPv6?

Point-to-Point Circuits

B.19 Please list point-to-point circuits, other than IP circuits already covered, within your network, or starting in your network and ending elsewhere, such as p2p circuits across GÉANT.

Please don't report Cross-Border Dark Fibres in this question, include these in the answers to questions on CBF below.

a) National point-to-point IP links in use as at January 2009

End points (cities)	USAGE Testing, Production, Project, Backup .	Total Capacity (Mb/s)	Date entered service

(please add one line for each point-to-point link)

b) International NREN to European destination point-to-point IP links

End points	USAGE Testing, Production, Project, Backup .	Total Capacity (Mb/s)	Date entered service

(please add one line for each point-to-point link)

c) International NREN to non-European destination point-to-point IP links

End points	USAGE Testing, Production, Project, Backup .	Total Capacity (Mb/s)	Date entered service

(please add one line for each point-to-point link)

B.20 Cross-Border Dark Fibre (CBF)

a) CBF links in use as at January 2008

End points	USAGE Testing, Production, Project, Backup .	Number of lambdas (λ)	Capacity of each λ (Gb/s)	Date entered service

(please add one line for each CBF)

b) Planned CBF links

End points	USAGE Testing, Production, Project, Backup .	Number of lambdas (λ)	Capacity of each λ (Gb/s)	Planned date

(please add one line for each CBF)

B.21 Please indicate in the table below what percentage of your network is dark fibre.

Percentages should be of distance installed and used dark fibre	% of the NREN backbone that is dark fibre	% of this fibre that is on long term lease/IRU	% of this dark fibre that is owned by NREN
Present situation			
Expected situation, early 2011			

B.22 Wireless Services

Which of the following wireless services do you currently run or plan to run part of your service offering to institutions or users

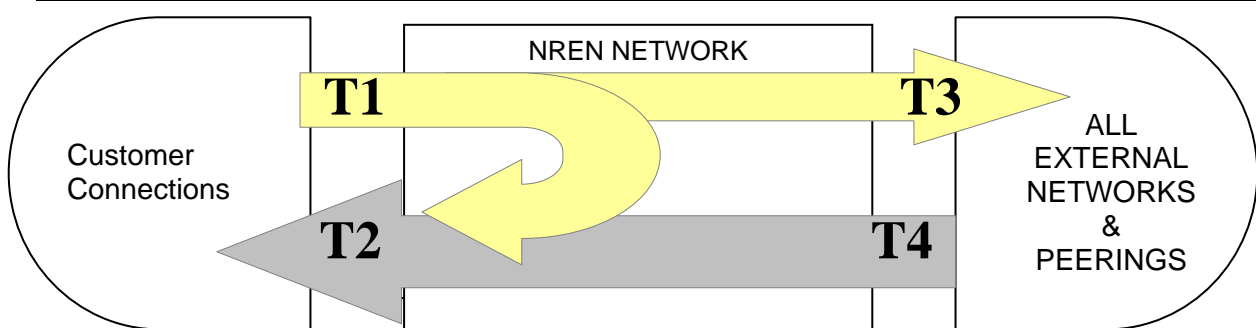
Wireless Services	In use now	Under trial	Planned	Not planned
WLAN				
Fixed Wireless Access				
3G/use of mobile operators				
Wimax				
Satellite				
Other				

eduroam

To ascertain level of eduroam deployment, we will use official eduroam database as a source of information. In order that the compendium reflects an accurate picture of the deployment in your country, please ensure that the entries from your NREN in the database are up-to-date.

Section C: TRAFFIC

In the following questions, we propose a distinction between different types of traffic by source or destination. Please take a look at the figure below, which attempts to illustrate the distinctions 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 GÉANT, the Commercial Internet, Internet exchanges, etc. (made up of T3 and T4 above)

C.1 Please supply an estimate of the total amount of external traffic in Terabytes in 2008 as defined in the picture above:

flow	TOTAL IP Traffic during 2008 (Terabytes)	Volume of IPv6 Traffic if known during 2008 (Terabytes)	percentage of total IP traffic to / from commercial internet (%)	Percentage of your commercial internet traffic that is exchanged freely through peering agreements
T1				
T2				
T3				
T4				

C.2 What was the volume of traffic to/from your network in January 2009 in Terabytes?

flow	TOTAL IP Traffic during JANUARY 2009 (Terabytes)	Volume of IPv6 Traffic if known During JANUARY 2009 (Terabytes)	percentage of TOTAL IP traffic to / from commercial internet (%)	Percentage of your commercial internet traffic that is exchanged freely through peering agreements
T1				
T2				
T3				
T4				

NETWORK CONGESTION

C.3 Perceived congestion (if any) on your IP network. You are not expected to give precise numbers.

Please give a rough indication of the percentage of institutions that experience congestion because of bottlenecks at the different levels (ie Campus, Metro/Regional Network, Access, Backbone or on external links

		Campus LAN	Metro / Regional Networks	Access network	NREN backbone	External links
% of institutions experiencing no or very little congestion	☺					
% of institutions experiencing some or moderate congestion	☹					
% of institutions experiencing serious congestion	☹					
<i>each column should total 100%</i>						

Performance Monitoring and Management

C.4 Do you have a Performance Enhancement & Response Team (PERT)?
 YES NO

C.5 If NO do you plan to deploy such a team:

- within 1 year
- within 3 years
- never

C.6 Do you have traffic statistics on your website? YES NO

C.7 If yes, please provide the URL:

C.8 Do you have a looking glass on your website? YES NO

C.9 If yes, please provide the URL:

C.10 Do you other tools for monitoring or troubleshooting the network?

Optical Traffic

C.11 What types of traffic is carried on your optical network:

Traffic Type	Y	N	Do you measure the level of utilization, if so how?
IP Traffic			
SDH			
VLAN			
Ethernet			
Others (known)			
Unknown			

Section D: TECHNICAL SERVICES

Quality of Service

D.1 – D.5 Please mark with a cross or tick the answers that most closely reflect the situation at your NREN:

Do you offer the same levels of QoS on your network, as are offered by GÉANT?	YES	Currently NO	NO, but plan to provide in the future
Our NREN offers GEANT QoS			
• IP Best Efforts			
• Premium			
• Less than best efforts			

For reference, the proposed levels of Quality of service on GÉANT can be found at:
<http://www.geant2.net/server/show/conWebDoc.1582>

D.6

If your NREN does not provide these Quality of Service levels, please tick the ONE MAJOR overriding factor why you do not provide them:	X
Our NREN hardware is not currently capable of supporting these classes	
Our NREN sees no user demand for these services	
Not physically possible unless all domains in path participate	
Not economically viable	
Prefer to over-provision the network	
Other reason – please state	

Computer Security Incident Response (CSIRT)

D.7a

	YES	NO	PLANNED
Does your NREN offer security incident response to its user community:			
If YES, is provided by the NREN			
It is provided by another NREN			
It has been outsourced to another organisation			

D.7b

Please tick the following that apply to your NREN's CSIRT:	X
The CSIRT is accredited member of the TERENA Trusted Introducer (TI) scheme	
The CSIRT is currently an accreditation candidate with TI	
The CSIRT is a member of FIRST	

- D.27 Do you intend to issue user certificates in the future [] YES [] NO
- D.28 If YES when do you expect to start issuing the user certificates?
- D.29 How many user certificates would you expect to issue during 2009?
- D.30 How many user certificates would you expect to issue in future years?
- D.31 If NO – which other institutions/bodies will issue user certificates for users of NREN services?

Housing, Storage, Hosting and Content Delivery Services

This table explores the level of deployment for each type of service. Please enter a tick or cross to indicate if services are currently deployed, planned or of no interest to your NREN.

		Currently deployed	Planned	Not planned
D.32	Distributed Storage for GRID users			
D.33	Distributed Storage for any NREN users			
D.34	Dedicated/special connectivity to provide high levels of connectivity to commercial content servers or commercial content			
D.35	Hosting of commercial content servers or commercial content on the NREN network			
D.36	Video servers for use by NREN sites			
D.37	Mirroring of content from outside the NREN network			

Voice Services over IP (VOIP)

		Currently	Planned	Not planned
D.38	Does your NREN run VOIP as a service to its users			
If you are currently running a VOIP service:				
D.39	Do you provide central administration of the service			
D.40	Do you provide VOIP to PSTN services for your users			
D.41	Do you provide inter-institutional VOIP services for institutions on your network			

Video Streaming and Video Conferencing

		Currently	Planned	Not planned
D.42	Do you provide a centrally managed video conferencing service?			
	If you are currently running such a service:			
D.43	Do you provide Standard Definition (SD) Services MCU channels?			
D.44	Do you provide High Definition (HD) Services MCU channels?			
D.45	Are members of other communities outside your NREN able to book channels on your MCUs?			
D.46	Do you offer centrally provided archiving of conference/streaming?			
D.47	Do you have an online booking system?			
D.48	Is there centrally provided support for users?			
D.49	Is GDS supported?			

Networked Computing Resources (Grids)

		Currently running	Planned	Not planned
D.50	Is your NREN offering GRID services to the community you serve			
	If currently running which of the following do you provide for your national GRID community			
D.51	Dedicated optical paths for GRID users			
D.52	Dedicated point-to-point IP circuits			
D.53	Storage facilities run by the NREN			
D.54	Compute cpus provided by the NREN			
D.55	Other – please state			

D.56 - Which Disciplines make use of GRIDs in your country

	Currently running	Planned	No / Don't know
High Energy Physics			
Other Physics			
Computational Chemistry			
Other Chemistry			
Biomedical			
Astroscience			
Earth Science			
Climatology			
Arts and Humanities			
Other – please state:			

User interaction

		YES	NO
D.57	Does your NREN provide support for the work of specific groups of users?		
D.58	Do you organise national user conferences?		
D.59	Do you organise training courses?		

Section E: FUNDING AND STAFFING

E.1 Is your budget year equal to the calendar year? YES NO

E.2 If NO, please dates between which the budget runs:

E.3 What was your organization's total budget for 2008 (or 2008/2009)?
(please use millions of euro at the current exchange rate)

E.4 How much of the 2008 budget was dedicated directly to NREN
activities?

(please use millions of euro at the current exchange rate)

*Note NREN Activities: Some NRENs provide services **only** to the Research or Education communities in their country. Others provide services to other sectors as well, for example because they administer the country-code tld.*

In order to permit like-for-like comparisons in this section, please regard 'NREN-Activities' as those activities For the sake of comparability, we would like to ask you to provide information only about the activities for the Research or Education communities in your country in this section.

E.5 What is your organization's total budget for 2009 (or 2009/2010)?
(please use millions of euro at the current exchange rate)

E.6 How much of the 2009 budget is dedicated directly to NREN
activities?

(please use millions of euro at the current exchange rate)

E.7 Is your organization able to develop multi-annual budgets
or multi-annual plans? YES NO

E.8 If YES, please briefly describe how this operates

E.9 Please give an estimate of the sources of your NREN-related income (for 2008 or 2008/2009)

Source	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%	

E.10 Does this budget include the amount of the EU subsidy for GN2 that your NREN receives? YES NO

E.11 How do you charge your clients?
 We do not charge them directly
 We charge a flat fee, based on bandwidth
 We charge a traffic-based fee
 We use a combination of flat fee and usage-based fee
 Other (eg. some, but not all, please explain):

E.12 What is the total number of paid staff directly employed by your organisation (not outsourced)?

E.13 What is the number of staff engaged in NREN activities (see explanation above)?

E.14 Some of the staff could be working part-time. We would like to know the number of staff as given above, but in full-time equivalents (FTEs):

E.15 On average, how many people (in FTE) are working for the organisation as subcontractors or on outsourced basis (for NREN activities)?

E.16 Please provide a breakdown of the staff engaged in NREN activities (in FTEs):

	Breakdown of staff working on NREN activities directly employed by your organisation:	Breakdown of personnel working on NREN activities but employed by others (outsourced):
NOC		
Other Technical staff		
Administrative and financial staff		
User support and training staff		
Others not included elsewhere		
Total (should be the same as above)		

E.17 Please give us an indication of the main expenditure categories in your budget (for 2008 or 2008/2009).

Expenditure category	Percentage
Salaries and general office costs	
Equipment (switches, routers etc.)	
Transmission capacity (IRUs, leased lines, optical equipment etc.)	
Other	

E.18 Please indicate how much of the following network levels (equipment + transmission capacity + manpower) are paid for through the NREN budget (and not by some other body):
(please mark n/a if this level does not exist in your network)

Level	Percent of your budget that is spent on this	Estimated percentage of the total cost of this that is paid through the NREN budget
External connections		
NREN backbone		
Access network		
Metropolitan or regional networks		
Campus LAN		

Remarks or further information regarding section E.

Section F: BASIC INFORMATION

- F.1 Full name of the organisation (in English):
- F.2 Full name of the organisation in the national language(s) (*please use the Latin alphabet*):
- F.3 Abbreviation in English (if applicable):
- F.4 Abbreviation in the national language(s):
- F.5 Visiting address:
- F.6 Postal address (if different from above)
- F.7 Country:
- F.8 Fax:
- F.9 Phone:
- F.10 General e-mail address:
- F.11 Website:
- F.12 Convention used for individual e-mail addresses:
(please specify/explain, eg. [firstname].[lastname]@[NRENname].[ccTLD] ...)
- F.13 Year the first research network operations started:
- F.14 Year in which research networking was started as a dedicated organisational unit:
- F.15 Year in which the NREN was founded in its current form:
- F.16 If you have a short description of the history of your organisation on your website, please provide a URL to it:
- F.17 Form of organisation:
 Separate legal entity in its own right
 Not a legal entity of its own, but part of a larger organisation.
If so, please give the name of the parent organisation (in English):

 Not a separate legal entity and also not part of a larger organisation
- F.18 What is the formal relationship between your organisation and your government?
 We are a government agency or part of a ministry
 The Government appoints at least half of the members of our Governing body
 There is an indirect relationship (*for example if at least half the members of your Governing body are appointed by research and education institutions that in itself are (largely) government-funded*)
 No formal relationship Other. If so, please explain:
- F.19 Please briefly describe the governing structure of your NREN (in terms of members, governing body, decision making process, etc.):
- F.20 If you have a description of your governing structure on your website, please give the URL:

F.21 Do you have a Connection Policy YES NO

F.22 If YES – Please give the URL for the Connection Policy:

F.23 Do you have an Acceptable Use Policy? YES NO

F.24 If YES please provide the URL for the AUP:

F.25 Has your AUP been changed in the last year? YES NO

F.26 If YES, please summarize briefly how it has changed

F.27 Do you have a Security Policy? YES NO

F.28 If YES – Please give the URL:

F.29 Do you request your connected sites to sign Terms and Conditions in addition to the CP and AUP YES NO

F.30 Does your NREN have an environmental policy for efficient use of power, recycling etc.? YES NO

F.31 If available online please give the URL:

F.32 Do you have an online topology map of your network? YES NO

F.33 If available online please give the URL:

F.34 Do you have an online weather map of your network? YES NO

F.35 If available online please give the URL:

F.36 We would appreciate it if you would be able to give us a short description of major changes that occurred in your network during the past year or that you foresee for the coming year (structural changes, changes in your mandate or remit, major technology upgrades, changes in the user base, etc.)

F.37 We would be interested in receiving your feedback, both regarding the Compendium 2008 and this questionnaire. Both general comments and specific comments (e.g. about questions that you found difficult to understand or to answer or of limited value) would be appreciated.

Form completed by:

Email Address

Date of completion: