

Memorandum of Understanding

Concerning Levels of Service

between

**The Higher Education Funding Councils for England, Scotland and Wales and
the Department of Education for Northern Ireland**

and

The JNT Association, trading as UKERNA

Version 5.1 – Final Text for 1999/2000

April 1999

1. Purpose

UKERNA will provide a set of computer networking and related services to the UK research and education community. The Higher Education Funding Councils and the Department of Education for Northern Ireland (the Funding Bodies) will be represented by their Joint Information Systems Committee (JISC) and its Advisory Committee on Networking (ACN). The JISC Secretariat acts on a day-to-day basis to interpret the policy established by the JISC. The Higher Education Funding Council for England will make payments, on behalf of all the funding councils, to UKERNA in order to have such services provided. The levels of service provided will be monitored by the Technical Advisory Unit of the Joint Information Systems Committee (TAU).

This Service Level Agreement defines the form of the services to be supplied and the reporting requirements associated with them.

2. Definitions

In the remainder of this Memorandum of Understanding, “Community” refers to members of the UK research and higher education institutions which are eligible to receive UKERNA services under the terms of this Memorandum of Understanding. Those institutions, referred to as “eligible institutions”, are listed in the standing document “Institutions sponsored by the JISC”¹ which is to be kept up to date by the JISC Secretariat.

The JISC Secretariat shall be responsible for notifying UKERNA of revisions of this standing document, and UKERNA shall respond, where necessary, with a change control statement quantifying additional costs or savings and updating the list of institutions which are to receive service under this agreement. These institutions are referred to below as “client institutions”.

3. Services to be provided by UKERNA

The services to be provided by UKERNA under this Service Level Agreement are operational, information, support and security services; subject to the targets set in Annex A, UKERNA will provide;

- a) a set of operational services which allow users at client institutions to communicate with each other and with users at sites outside the Community.
- b) a set of information services and support services which increase the effectiveness of the use of the basic operational services.
- c) a set of security services which provide response to security emergencies and provide information and advice on security matters.

The Funding Bodies require a basic set of services to be provided to all client institutions. The Funding Bodies may also require that charges be applied for all or part of this basic set of services. Other services will be optional; that is to say, they

¹ The current version of this document is displayed on the JISC web site

will be offered by the JISC, but will only be provided when client institutions explicitly request them. Such optional services may be separately chargeable.

The full set of services to be offered or provided by UKERNA under this agreement is listed in Annex A.

4. Service Levels

This document is a single service level agreement, covering a number of service categories, each of which is defined in a separate subclause in Annex A. For each of the service categories specified in Annex A, a parameter or set of parameters which gives a measure of the quality of the service is also specified. The target values (or sets of values) for these parameters represent the Service Level which UKERNA commits to provide.

UKERNA shall not be required to discharge these commitments in the case of any event or series of events beyond its reasonable control, that prevents it from providing the Service Level defined in this service level agreement, provided that UKERNA promptly notifies the JISC Secretariat of:

- a) the estimated extent and duration of its inability to discharge its commitments
- b) the resumption of the provision of the Service Level

If the event or series of events are such as to effect only part of its total commitments, then UKERNA shall continue to discharge those commitments that are not affected.

5. Monitoring the Auditing of Services

The services shall be subject to monitoring and to occasional auditing on the following basis:

- a) One of the purposes for which the JISC has established the TAU is to monitor the service level agreement. The TAU may be assisted, where necessary, by the appointment of independent experts. From time to time they shall carry out a technical audit of one or more of the services defined in Annex A. The purposes of any such audit will be to assess the extent to which UKERNA has met the requirements specified for the Service or Services being audited and to suggest ways in which these services could be improved. Such audits will pay particular attention to the performance of UKERNA with respect to the listed indicators. The audits will also take account of the budget available.
- b) The JISC may also request an audit of the methods and procedures used by UKERNA to measure the values of the service level parameters defined for the services. The purpose of the audit will be to confirm the accuracy of UKERNA's reports. Client institutions may ask the TAU to instigate an investigation in cases where they have *prima facie* evidence that the service levels are not being met. UKERNA shall receive at least 10 working days notice of any such audit.
- c) Technical audits will normally be carried out no more frequently than once per year. The auditors shall have access to all reports described in clause 9 below, and

to any material provided by UKERNA to client institutions as part of UKERNA's service provision. UKERNA will allow the auditors to spend reasonable amounts of time interviewing UKERNA staff. UKERNA will be given the opportunity to make comments to the auditor on a draft of the auditor's report. A copy of the auditor's final report shall be made available to UKERNA within one month of its presentation to the JISC.

- d) The costs to the TAU of employing technical auditors and of expenses directly incurred by them shall be borne by the JISC.

6. Relationships between UKERNA and Client Institutions

All client institutions which receive UKERNA services shall have a formal agreement with UKERNA as a condition of service. Aspects of the agreement which are common to all institutions will be documented by the "Terms and Conditions for the Use of a JANET Connection" issued by UKERNA.

UKERNA shall establish agreements with each site individually, making their acceptance of the terms explicit and covering site-specific details. UKERNA shall keep records, available to the JISC, or the institutions connected, and, for each institution, shall record in them:

- a) the optional services, if any, selected by the client institution;
- b) the financial payments, if any, to be made by the client institution, or by UKERNA;
- c) the contract points within the client institutions for dealing with fault reports and other communications;
- d) the other institutions, if any, supported by the client institution under the licencing procedures, and the responsibilities of the client institution for the services provided to those institutions.

In general, UKERNA will communicate only with the central computing service (or equivalent organisational unit) in any client institution. Although UKERNA will take reasonable steps to deal with enquires and demands from end users, such steps will normally take the form of referring the enquiry or demand to the most appropriate contact point (as defined in c) above) in the end user's or another client institution. Exceptions may, however, cover bookings for conference or meeting attendance and other such activities which, in their nature, involve individual end users.

If an institution does not provide the necessary information and discharge the necessary obligations, UKERNA may be unable to provide the defined level of service. UKERNA will alert the JISC Secretariat to any such failure on the part of an institution, and agree subsequent actions with it. In particular, serious breaches of the JANET Acceptable Use Policy may lead to suspension of service.

7. Submission of a budget and an operational plan

A budget and an operational plan shall be drawn up to define the activities under this SLA to be carried out in any particular year (this planning year starts on 1st April).

The budget shall also include an indicative forward look for a further two years, showing the expected level and content of subsequent budgets. Similarly, the operational plan shall include an outline plan for the second and third years following the year covered in detail. The forward looks in the budget and operational plan may include proposals for new services (see clause 8).

- a) UKERNA shall submit a draft budget and a preliminary operational plan eight months before the end of the previous planning and financial year, using the format in Annex B. Some of these forward planning details may, at this stage, be provisional.
- b) the JISC shall provide UKERNA with feedback on these drafts not less than six months before the end of the previous planning and financial year.
- c) UKERNA shall submit a revised budget and plan, following the direction from the JISC, to the JISC Secretariat five months before the end of the previous year.
- d) Following approval in principle by the JISC, the JISC Secretariat, with assistance from the TAU, shall negotiate the final budget details with UKERNA. This process shall be completed not less than two months before the budget and plan come into effect.

8. Creation of new services

New services will be discussed in outline by the ACN before a detailed plan is drawn up. This allows decisions in principle on the need and importance of new services to be taken before resources are committed.

New services will normally be introduced as part of the budget/forward look process, although, exceptionally, items may be introduced under the change control procedures to exploit unforeseen opportunities or to counter new and urgent needs. More speculative developments for which operational services cannot yet be planned will not normally be introduced in this way; the JISC has other programmes under which to manage such developments.

The definition of a new service involves:

- a) an outline service definition with a preliminary indication of the expected scale and performance of the service; an indication of when definite text for inclusion in this service level agreement can be defined should be given;
- b) a predicted date for availability of the service, and the level of confidence to be attached to this prediction;
- c) a plan for any commissioning and piloting necessary to establish the service;
- d) a business case for the service, a budget for any piloting activity and an indicative budget for the eventual production service, throughout the three year forward look. The initial budget shall indicate estimates of any sub-contracted development costs and the forward look shall include estimated setup costs for the initial deployment of the production service. Savings or efficiency gains arising from the introduction of the service shall be clearly indicated.

9. Reporting

UKERNA shall provide copies suitable for reproduction of the following reports to the Secretary of the JISC and to the TAU at the times and the frequency indicated:

- a) for each of the Services, the agreed information relating to the reporting items listed for that service in Annex A (using the formats defined in the document “Formats for performance reports to the TAU”²); this information shall be delivered according to the following schedules:
- by the sixth working day of the following month, for that reporting information that has been agreed shall be delivered each calendar month
 - by the eighth working day of the subsequent quarter, for that reporting information that has been agreed shall be delivered on a quarterly basis

10. Charging Principles

Other services provided by UKERNA outwith this agreement shall not be subsidized by the funding associated with this agreement. Any UKERNA overhead costs shall be clearly apportioned between JISC supported services and other services offered.

Where a charge is made for service defined within this agreement, UKERNA shall collect the defined charges and report the receipts to the JISC broken down in terms of the services provided.

11. Sub-Contracting

UKERNA remain responsible for ensuring that the services are provided to the client institutions with the agreed levels of quality, even if it were to choose to sub-contract for the provision of some or all of the services covered by this Memorandum of Understanding.

12. Annual Review

The TAU and UKERNA shall review annually the list of services given in Annex A, starting six months before the end of the service year, and submit revisions to the JISC for their approval. The service year for this purpose shall start on the 1st April. At least two months before this anniversary, they shall by mutual agreement specify a revised list of services which UKERNA will offer during the following twelve months and the values of corresponding service level parameters.

Where the annual review makes significant changes to the set of services or to the service levels, a date during the following twelve months on which these changes will come into effect may be specified.

13. Change control

The definition of the services to be provided, and of the schedules, priorities and financial bases for them are normally established during an annual cycle of budget and operational plan approvals. Minor details of these approvals may, through force

² The current version of this document is version 1.0

of circumstance, need to be varied on a shorter timescale. In such cases, the change procedures detailed in Annex E shall apply as needed in the following circumstances:

a) changes to the service level agreement;

Changes to the Service Level Agreement may be proposed by the JISC secretariat, TAU or UKERNA and will be agreed between TAU and UKERNA, then submitted to the JISC Secretariat for approval. The JISC Secretariat will consult the JISC or its advisory committees, as appropriate, to obtain support for more significant changes.

A register of agreed changes will be maintained by the TAU.

Changes agreed during an operational year will be incorporated into the body of the SLA for the subsequent year. If they are not, the agreed changes will be deemed to have lapsed

b) changes to the financial approvals;

The JISC Secretariat shall communicate release of funds to UKERNA on the basis of the agreed budget. UKERNA may submit proposal for changes to the agreed budget to the JISC Secretariat.

c) changes to the planning targets;

UKERNA may propose changes to targets in its operational plan as part of its quarterly reporting against the plan. The JISC Secretariat shall inform UKERNA of agreed changes to the planning target, following any necessary consultation.

Annex A

Operational Production Services Provided by UKERNA

A1 DEFINITIONS

The definitions of terms in this clause apply to the individual service levels defined in the remainder of this annex.

Performance indicators will be calculated monthly or quarterly, depending on the period the individual data items cover, but satisfactory performance will be assessed on the basis of comparison of the service level with a twelve month rolling average of the calculated values.

All reports shall be delivered in machine readable form in a format defined in the document “Format for performance reports to the TAU” which is maintained jointly by UKERNA and the TAU.

A1.1 Maintenance Time

All the continuously available services shall be scheduled to be available 365 days a year and 24 hours a day, apart from planned maintenance times, which shall be published at least two weeks in advance to all client institutions, whether directly connected by UKERNA or via a sub-contractor. As far as possible, maintenance times shall be synchronized and shall fall during the “at risk” period from 07.00-9.00 on Tuesdays. Service availabilities shall be calculated on the basis of scheduled availability (i.e. the time when the service was actually available to users divided by the time when it was scheduled to be available).

A1.2 Staffed Periods

“Staffed Periods” are the periods from 0800-1700 on all weekdays which are not Public or Bank Holidays observed in all the constituent parts of the UK. Thus the following days are not staffed periods:

New Year’s Day	Last Monday in May
Good Friday	Christmas Day
1 st Monday in May	Boxing Day

A1.3 Measurement of Availability

Although availability is defined as a fraction here, monthly reporting shall be made in terms of time lost and number of incidents, from which the availability can be calculated directly.

A1.3.1 Availability of Basic Transmission Service

UKERNA shall record the *accessibility* of each client institution from an appropriate point within the network. In this context, accessibility means that it is possible to successfully transfer data in both directions between the client institution and some other point on JANET. Whilst accessibility is important as it is likely to closely reflect the reliability of the service perceived by end users, it cannot be equated to network *availability* for the purposes of this SLA as it includes factors outside UKERNA's operational control, such as failures at the client institution, or delays in fixing faults due to a lack of staff at a client institution outside staffed hours.

Network availability shall therefore be determined for each client institution by discounting the following from the observed network accessibility:

- a) All periods of inaccessibility that result from the effects of scheduled service maintenance shall be discounted when calculating the network availability.
- b) All periods of inaccessibility that result from events local to the client institution, such as site power failures, shall be discounted when calculating the network availability.

Network availability shall thus be calculated for each client institution each calendar month as:

(scheduled service time – total period of unavailability)/(scheduled service time).

A1.3.2 Availability of Other Services

The measurement of availability of services other than the Basic Transmission Service is more straightforward. Availability of the other services is specified as follows:

- a) A service is *available* if it can be accessed via the network and used correctly by at least one client institution which is not involved in the provision of the service. Thus, if a service is operated by one or more client institutions acting on behalf of UKERNA, it is not available if it can only be accessed from those institutions.
- b) Availability is the time that the service was *available* (as defined in a) above) divided by the time when it was scheduled to be available.
- c) Availability shall be calculated for each service each calendar month.

Note that the availability of many services as perceived by client institutions will be the combination of the availability defined in a) - c) above and the network availability defined in section A1.3.1 above. UKERNA will report these two availabilities separately.

A1.4 Mean Time Between Failures

For certain services, it is useful to define Mean Time Between Failures (MTBF) as one of the Service Level parameters. In such cases, a *failure* is defined as any interruption in the operation of the service which causes a period of unavailability according to the definitions in A1.3.1, A1.3.2 and in the definition of the Service Level parameter itself.

A1.5 Loss of Information

Several services operated by UKERNA accept data submitted by client institutions and then make it available to the same and to other client institutions. UKERNA takes responsibility for the safe keeping of such data once it has been accepted. All procedures by which client institutions submit new data or update previously submitted data shall include a step in which UKERNA acknowledges receipt. UKERNA's responsibility for safe keeping starts when this acknowledgement is issued.

A2 OPERATIONAL SERVICES

A2.1 Basic transmission services

A2.1.1 Basic communication with client institutions

Specification:

Each institution connected by UKERNA shall be entitled to a continuous data communication service, subject to the operational limitations for "at risk" time given in clause A1. The transmission mechanisms to be used will be agreed on a institution-by-institution basis (see A2.1.2 - A2.1.4), but in all cases, the basic requirements for reliability, availability and serviceability of the connection are the same.

Subject to satisfaction of the service levels in this clause and agreement of any transitional arrangements with the TAU, the final decision on the transmission mechanisms used to provide the service offered rests with UKERNA.

UKERNA shall establish and publish permission to connect procedures for the network and any other approval or type approval procedures necessary to safeguard the integrity of the network (see A2.10 and A2.11).

The possible data communication network services provided are:

- IP
- ATM VC/VP (in future)

Performance Indicators and Service Levels:

- a) Network availability (see notes 1,2) for at least:

Availability of 99.6%	to more than 90%	of client institutions
Availability of 99%	to more than 96.5%	of client institutions
Availability of 97%	to more than 98.5%	of client institutions
Availability of 93%	to more than 99.5%	of client institutions
 - b) mean time between failures of the service of at least 1000 hours (notes 2,3) provided to 99% of client institutions (note1).
 - c) end-to-end latency between any pair of client institutions for 128 octet packets, measured as the time of entry on to the first UKERNA access line of the last bit of the packet to the time of exit from the second UKERNA access line of the first bit of the packet, of less than a stated target time, which depends on the transmission technology used (see A2.1.2 - A2.1.4), for 95% of transmissions over any thirty minute period. UKERNA shall not be required to routinely record and report on network latency; where there is prima facie evidence that the latency targets are not being met, UKERNA shall instigate an investigation and report the results in the next monthly report.
 - d) client institutions shall normally expect to be able to transmit and receive traffic (from a number of sources) which, over any thirty minute period, uses at least 40% of the nominal capacity of their access line, once the overheads of the data solely concerned with the transmission technology in use have been discounted
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Reporting:

- The following information shall be reported each calendar month: number and total duration of incidents when the client institution was not accessible;
- number and total duration of incidents of network unavailability for the client institution;
- total traffic to and from the client institution on their nominated JANET access line (note 4);
- explanatory notes on the causes of any failure to provide at least 90% availability to a client institution during the calendar month.
- Results of any investigations instigated into possible failure to meet the services levels for network latency.

Note 1: Averaging over those client institutions supported by the JISC, each given equal weighting.

Note 2: UKERNA may opt to have a number of successive failures considered as a single failure for the complete period, so long as the same aggression is applied to both availability and mean time between failure.

Note 3: Although referred to as a mean time between failures, this measure is manipulated for the purposes of aggregation and averaging as a failure rate, in incidents per hour. Thus the target rate is less than 0.001 incidents per hour, calculated each month by dividing the number of failures in the best 99% of institutions by the number of institutions and the number of hours in the month.

Note 4: JISC will, in general, only support access to one of an institution's sites, and an appropriate site must be agreed with the institution by UKERNA.

A2.1.2 Basic transmission service - X.25 (1984)

Section deleted - service terminated.

A2.1.3 Basic transmission service - the IP Service**Specification:**

UKERNA shall offer a basic transmission service with an IP interface. This service shall be provided at a range of access speeds, and the service levels are defined in terms of an access class in the following clause. The service may be provided over a physical circuit, over the BT SMDS service, direct to a backbone edge node, via a MAN, or otherwise.

Performance Indicators and Service Levels:

The service levels given in A2.1.1 apply. However,

- a) A client institution shall be considered to be inaccessible if six successive transmission attempts, each separated from its predecessor by at least 10 seconds, all fail.
- b) the target for maximum end-to-end latency depends on the access class, as follows:

64kbps, 2Mbps	end-to-end latency 250msec
8Mbps	end-to-end latency 40msec
4mbps, 10Mbps service class of SMDS	end-to-end latency 30msec
access direct to a backbone edge node	end-to-end latency 30msec

access via a MAN

end-to-end latency 50msec

In each case, the quoted latency shall be interpreted as in clause A2.1.1. Where latency is being measured between two institutions which have different access classes, the slowest of the two access classes shall be used when determining the service target.

Reporting:

No additional requirements.

A2.1.4 Basic transmission service - ATM VC/VP Service

Specification:

This clause is provided as a placeholder for future ATM services with call based resource allocation able to support production quality multimedia applications and other services for which resource allocation is required.

Performance Indicators and Service Levels:

No service levels yet defined (to be defined when the service is announced).

Reporting:

No reporting requirements yet defined (to be defined when the service is announced).

A2.2 External Network Access Provision and Transmission

Specification:

UKERNA shall identify other network services of particular significance to the Community (Peer Networks) and shall attempt to negotiate cost effective and resilient arrangements for access to these services with the countries or groups concerned. Such agreements shall be established to support both the Community's requirements for international communication, and the Community's requirements for communication with significant non-academic groupings within the UK. Such external network services shall interwork with those offered nationally by UKERNA. UKERNA shall use its best endeavours to negotiate Service Level Agreements with the organizations with which it shares responsibility for establishing routes from the Community. UKERNA shall not use JISC funds to subsidize the groups with which such agreements are concluded

Reporting:

UKERNA shall provide monthly reporting on the following items:

- list of service providers involved in external network access provision, including number and speed of all links;
- number and total duration of incidents when each link was unavailable;
- total levels of traffic on each link in each direction;

A2.2.1 Access within Europe

Specification:

UKERNA shall provide cost effective access to higher education and research networks and services in the European Union, via Dante or otherwise

Performance Indicators and Service Levels:

- a) if a Service Level Agreement has been established with another service provider, UKERNA shall conform to the terms of the Agreement.
- b) until such a service level can be established, UKERNA shall use its best endeavours to ensure that the availability of each route shall be the same for the equivalent academic community basic transmission service; the levels defined in A2.1 apply to those aspects of the service under UKERNA's control
- c) UKERNA shall manage links to other service providers so that the access capacity of the link is made available to the JANET community as a whole, without additional bottlenecks within UKERNA's area of responsibility

Reporting:

Monthly reports as per A2.2. Copies of new or significantly modified Service Level Agreements with other service providers shall be provided to the JISC Secretariat and the TAU.

UKERNA shall make available (via the Web) detailed daily and monthly reports on the distribution of traffic by JANET client institution and by application type.

Details of the total level and distribution of traffic, for each of the service providers with which access agreements have been established. Subject to operational feasibility, UKERNA shall provide detailed daily reports on the level and distribution of traffic in the form given in "Format for performance reports to the TAU"

A2.2.2 Access to the North American Internet

Specification:

UKERNA shall provide cost effective access to the North American Internet and to other parts of the Internet not covered elsewhere in this Service Level Agreement

Performance Indicators and Service Levels:

- a) if a Service Level Agreement has been established with another service provider, UKERNA shall conform to the terms of the Agreement.
- b) until such a service level can be established, UKERNA shall use its best endeavours to ensure that the availability of each route shall be the same as for the equivalent academic community basic transmission service; the levels defined in A2.1 apply to those aspects of the service under UKERNA's control
- c) UKERNA shall manage links to other service providers so that the access capacity of the link is made available to the JANET community as a whole, without additional bottlenecks within UKERNA's area of responsibility

Reporting:

Monthly reports as defined in A2.2. Copies of new or significantly modified Service Level Agreements with other service providers shall be provided to the JISC Secretariat and the TAU.

UKERNA shall make available (via the Web) detailed daily and monthly reports on the distribution of traffic by JANET client institution and by application type.

Details of the total level and distribution of traffic, for each of the service providers with which access agreements have been established. Subject to operational feasibility, UKERNA shall provide detailed daily reports on the level and distribution of traffic in the form given in "Format for performance reports to the TAU"

A2.2.3 Access to public X.25 services

Section deleted - service terminated - but see A2.6.6.

A2.2.4 Access to the London Internet Exchange (LINX)

Specification:

UKERNA shall provide cost effective access to the London Internet Exchange (LINX). UKERNA shall establish and maintain peering agreements with other appropriate subscribers to the LINX.

Performance Indicators and Service Levels:

- a) UKERNA shall use its best endeavours to ensure that the availability of each route shall be the same as for the equivalent academic community basic transmission service; the levels defined in A2.1 apply to those aspects of the service under UKERNA's control
- b) UKERNA shall manage links to other service providers so that the access capacity of the link is made available to the JANET community as a whole, without additional bottlenecks within UKERNA's area of responsibility.

Reporting:

Monthly reports as defined in A2.2 (for the purposes of A2.2, the LINX shall count as a single provider).

UKERNA shall make available (via the Web) detailed daily and monthly reports on the distribution of traffic by JANET client institution and by application type., and also by service provider and application type.

Details of the total level and distribution of traffic, for each of the service providers with which access agreements have been established. Subject to operational feasibility, UKERNA shall provide detailed daily reports on the level and distribution of traffic in the form given in "Format for performance reports to the TAU"

A2.2.5 Access to the Chinese Education and Research Network

Specification:

UKERNA shall provide interworking at the IP level between JANET and CERNET, the Chinese Education and Research Network. This interworking shall be effected by

a link provided by CERNET and delivered to a JANET Point of Presence in London nominated by UKERNA. The interworking shall be provided to all users of JANET and no transit for users of CERNET shall be provided across JANET to other networks, except to those registered as appearing in the JANET Autonomous System.

Performance Indicators and Service Levels:

- a) UKERNA shall use its reasonable endeavours to ensure that the availability of access to CERNET shall be the same as that of the equivalent academic community basic transmission service; the levels defined in A2.1 shall apply to those aspects of the service under UKERNA's control.

Reporting:

No additional reporting requirements beyond those defined in A2.2

A2.3 IP Multicast

A2.3.1 IP Multicast

Specification:

UKERNA shall provide an IP multicast distribution facility based on the MBONE design. This service shall allow client institutions to receive and locally redistribute selected IP multicasts, based on a communication overlay to a distribution server operated by UKERNA, or by enhanced router technology, or otherwise.

The service shall allow client institutions to act as sources of information by initiating multicast distribution groups.

This service is an optional, uncharged service.

Performance Indicators and Service Levels:

- a) the availability of the channel from the nearest distribution point to a client institution shall be at least 97%; availability will only be assessed for those client institutions which have themselves committed to the operation of local IP multicast as a service;
- b) UKERNA shall respond to requests for the IP multicast service within 10 working days of receipt of requests;
- c) UKERNA shall implement approved requests for the IP multicast service within 4 weeks of the receipt of the approved request.

Reporting:

UKERNA shall report the following information each calendar month:

- Number of client institutions registered
- Total multicast traffic to and from each client institution

In addition, for those client institutions that have committed themselves to the operation of a local multicast service, UKERNA shall report the number of failures and total failed minutes each calendar month.

A2.4 Fault Reporting

A2.4.1 Fault Reporting

Specification:

UKERNA shall provide a means by which client institutions may report faults on any of UKERNA's Operational Services. UKERNA shall publish procedures for fault reporting and shall organize a sufficient set of mechanisms for call out in response to faults and for escalation in response to continuing problems. These procedures shall take account of the need for users of the network to be kept aware of progress and status during periods of disruption.

Where service is provided via a sub-contractor, UKERNA shall make arrangements for fault reporting and provision of progress and status information, via the sub-contractor, or otherwise.

Wherever possible, UKERNA shall use the measurements it makes of the accessibility of each client institution to initiate fault recovery action proactively, without waiting for fault reports to be made.

Where an obligation is placed on UKERNA to contract the client institution within a given period, this obligation is dependant upon the ability of the client institution to receive such reports. If delivery is not possible because the institution is not staffed at the time, the report shall be made within one hour of the institution's next staffed period. If there is no response from the client institution to a call made during a staffed period, UKERNA shall notify the client institution of the apparent inaccessibility by FAX.

UKERNA shall attempt to inform the appropriate representative of the client institution by telephone within one hour of finding that the client institution is apparently inaccessible. Network access from the client institution shall be declared "unavailable" only when the client institution has confirmed that its own equipment appears to be functioning correctly.

UKERNA shall keep a record of all communications with client institutions concerning fault reports and return to service indications.

Performance Indicators and Service Levels:

- a) client institutions shall be able to report faults at any time. (Use by UKERNA of a telephone answering machine is acceptable as long as the other service levels b) to d) below continue to be met.)
- b) UKERNA shall respond to any fault report with an initial prognosis
 - (i) within one hour in the case of faults reported during, and at least one hour before the end of, a staffed period; and
 - (ii) otherwise, within one hour of the start of the next such period.
- c) a return to service indication will be given to the original reporter of any fault within one hour of repair.

- d) fault status information shall be made available on a network information system and shall be updated within thirty minutes of the start of each staffed period, and subsequently at least every four hours during each such period.

Reporting:

For fault reports referring to the basic transmission (as defined in A2.1 – A2.3), UKERNA shall report the following information on a monthly basis: number of fault reports; achieved response time for the reports; description of any exceptional events; breakdown by type of fault reported, into:

- (i) JANET Access - access line fault reports;
- (ii) external Access - access to hosts and service beyond JANET;
- (iii) JANET service - problem with JANET service use/access.

A2.5 Naming and Addressing

A2.5.1 Naming domain administration

Specification:

UKERNA shall provide co-ordination and administration for the naming domain “ac.uk”. Within this domain, name allocations shall be made in the DNS.

Performance Indicators and Service Levels:

- a) Name registration request forms for new client institutions shall be either agreed or rejected within two weeks.

Reporting:

On a quarterly basis, UKERNA shall provide a list of registration requests, showing the date on which the request was received, the date on which the request was decided, and whether the request was accepted or rejected.

A2.5.2 Domain Name Service

Specification:

UKERNA shall provide a name service for the DNS domain “ac.uk” (the target domain), including the operation of the primary name server. UKERNA shall also carry out such management activities as are necessary to support the Community within this domain, including the provision of a secondary nameserver function, and to coordinate the service with appropriate international bodies.

Performance Indicators and Service Levels:

- a) availability of the primary name server for the target domain of 99.5%; availability of service from an available officially supported name server of 99.95%.
- b) a response within 5 working days to a request for delegation in the target domain from a client institution connecting to JANET.

Reporting:

On a quarterly basis, UKERNA shall report the actual values of the performance indicators for the service level (a) above.

A2.5.3 The Name Registration Service

Section deleted - service terminated.

A2.6 Supporting Infrastructure Services**A2.6.1 X.500 Directory Service****Specification:**

UKERNA shall operate one or more X.500 Directory Service Agents holding data for institutions in the part of the organizational subtree of the Directory Information Tree at and below the entry "countryname GB". UKERNA shall enable the client institutions to register entries in that part of the DIT and to connect to the DIT subtrees representing those institutions, and shall coordinate the efforts of those client institutions which are engaged in the service.

UKERNA shall negotiate bilateral arrangements with other network providers to give access to as large a body of appropriate and useful directory information as possible, subject to the maintenance of the accuracy and timeliness of the information. The information on services and individuals outside the Community shall be made available via the X.500 directory service.

Performance Indicators and Service Levels:

- a) Availability of the directory data within the subtree specified above of 98%,
- b) mean time between failure of 800 hours,
- c) the DSA or DSAs specified above shall respond within 2 sec to 95% of those read queries which can be satisfied from data held by those DSAs.
- d) receipt of new data received from client institutions shall be acknowledged (or the client institution shall be informed that the data is rejected) within two working days,
- e) there shall be no unrecoverable loss of acknowledged directory data.

Reporting:

The values of the performance indicators levels achieved for the service levels a) and b) above; the number of organisations represented by the specified data; changes to the list of other organisations with which agreements for the exchange of directory information exist.

A2.6.2 NTP Time Service**Specification:**

UKERNA shall operate a time reference on behalf of the institutions supported by the JISC, in accordance to RFC 1305. This service is intended for use by institutions in constructing their own distributed time services, not for access by end users.

Performance Indicators and Service Levels:

- a) Availability of each time reference of 98%,
- b) mean time between failure of 800 hours.

Reporting:

On a quarterly basis, UKERNA shall provide a report on the total number of client institutions using the time service, and details of any exceptional events that have disrupted this service, including their duration.

A2.6.3 Co-ordination of message handling services**Specification:**

UKERNA shall provide assistance, advice and guidance to the managers of MHS services (note 5) at individual client institutions, with the aim of obtaining a consistent, well managed service from the operators for those services.

UKERNA shall coordinate the collection, dissemination and consistency of routing information in order to facilitate a consistent service. It shall negotiate appropriate interconnection agreements with external service managers in order to maximize the available MHS connectivity for the institutions supported by the JISC.

UKERNA shall investigate and resolve interworking problems where these cannot be resolved by individual service operators.

Note 5: Messaging services are those supported by protocols approved from time to time in statements of JISC policy (currently SMTP, X.400(84), X400(88)).

Reporting:

On a quarterly basis, UKERNA shall provide: a list of incidents and corrective action taken, including the date of each incident. Incidents shall be classified into:

- i) provision of information,
- ii) matters relating to bad practice or breach of the JANET AUP.
- iii) investigation and correction, if necessary, of operational faults.

A2.6.4 File Transfer Conversion Services

Section deleted - service terminated

A2.6.5 Message Handling Conversion Services**Specification:**

UKERNA shall provide relay and conversion services for message handling protocols in order to meet identified demand for conversion from users at the JISC - supported institutions, both between institutions and to give access to a wider community.

UKERNA shall establish procedures which enable it to confirm, on request from a client institution, the onward transmission of a message.

Relays or converters are required to provide a means of access to particular communities as follows:

- i) the community which uses X.400 electronic mail services;

Performance Indicators and Services Levels

For each Conversion Service:

- a) Basic Availability of 98%;
- b) mean time between failure of 800 hours;
- c) the service shall support a target number of transferred items per month, and data bytes per month agreed when the service is first established.
- d) the gateway shall have a capacity to store items received but which cannot be forwarded because of a fault (including congestion) in the destination system. This capacity shall be sufficient to deal with a fault lasting 24 hours on the gateway's most heavily used output channel.
- e) inability of the gateway to forward an item within 24 hours shall be reported to the originator of the item,
- f) fewer than one submitted item in 2000 shall be lost; items which cannot be forwarded shall normally be returned to their originator, but items which have to be discarded because of lack of capacity will not be counted as lost, provided the discard is reported to the originator.
- g) fewer than one submitted item in 2000 shall be duplicated (for example, as a result of recovering from error conditions in the gateway).

Reporting:

On a quarterly basis, UKERNA shall report: the list of conversion services supported, and for each service, the monthly utilisation according to the parameters specified in c) above (for each month in the quarter of the report).

A2.6.6 X.29/Telnet Conversion Services

Specification:

UKERNA shall provide conversion services for terminal access in order to meet identified demand for conversion from users of Telnet at the JISC-supported institutions to X.29 host services on external X.25 networks.

Performance Indicators and Service Levels

For each Conversion Service:

- a) Basic Availability of 98%,
- b) mean time between failure of 800 hours.
- c) the service shall support a target number of simultaneous calls, calls per month, and data bytes per month agreed when the service is first established.

Reporting:

On a quarterly basis, UKERNA shall report: the list of conversion services supported, and for each service, the monthly utilisation, according to the parameters specified in c) above, for each month in the quarter of the report

A2.7 Usenet News distribution

A2.7.1 Usenet News distribution

Specification:

UKERNA shall provide for the import of a resilient news feed into the academic community and the efficient distribution of this feed to any client institution wishing to receive it.

The news distribution tree shall be managed to provide a balance between distribution cost and timeliness of delivery.

Performance Indicators and Service Levels:

- a) the delay between arrival of a news article in the UK and its delivery to a client institution shall, on 90% of occasions, be less than 24 hours.
- b) 99.9% of news articles intended for distribution in the UK shall be delivered to subscribing client institutions.

Reporting:

It is an objective, in future, to report the achieved values of the performances indicators a) and b) above. Monthly volume of data and number of articles delivered to a client institution; monthly volume of news entering and leaving JANET; availability of News Server Machines.

A2.8 Intermittent Connectivity

A2.8.1 Intermittent Connectivity

Specification:

The service provided is the supervision of the approved supplier relationship.

UKERNA shall provide a suitable access link between JANET and the approved supplier (currently UNET).

Performance Indicators and Service Levels:

UKERNA will routinely monitor the usage of the UNET-JANET link, so as to ensure that action is taken to upgrade it if its working capacity is consistently exceeded over time.

UKERNA will hold two meetings per year with the supplier to review their performance and will report to the TAU on the outcome of such meetings.

Reporting:

A half-yearly report of the review meetings with the supplier to include a statement of the number of complaints received by JCS concerning the service.

A2.9 Video Conferencing Services

A2.9.1 Videoconferencing Services

Specification:

UKERNA shall offer a bookable videoconferencing switching service. This service shall be provided at a range of access classes including 128Kb/s and 384Kb/s. Access to the switching service is provided over the multivendor ISDN service.

UKERNA shall offer a bookable videoconferencing service to those institutions connected to one of the four Scottish MANs - FaTMAN, AbMAN, ClydeNET and EastTMAN. Access to the service is via an ATM connection to one of these MANs.

UKERNA shall maintain a connection and acceptable use policy for this service; to be maintained in consultation with SHEFC and its advisors.

UKERNA shall provide a common videoconferencing booking system for both services.

Performance Indicators and Service Levels

For both services as defined above are:

- a) Availability of the Multipoint Control Units (MCUs) 98%
- b) Availability of the booking system 99%
- c) for requests made before noon on a working day, a booking shall be made before the end of the staffed period on that day.
- d) for requests made after noon on a working day, a booking shall be made before noon on the next working day.

Reporting:

The actual values of the performance indicators a) and b) above; a summary of the total number of video conferences, by number of participants, in the reporting period.

A2.9.2 Video Conferencing Advisory Services**Specification:**

UKERNA shall provide assistance, advice and guidance to the managers of videoconferencing services at individual client institutions, with the aim of obtaining a consistent, well managed service from the operators of those services.

The focus of the Advisory Services will be a Helpdesk. The Helpdesk shall desk with enquires made by telephone, fax, post, electronic mail of videoconference.

Performance Indicators and Service Levels:

- a) the Helpdesk shall be staffed throughout the staffed periods defined in A1.2, except that it will not be available:
 - before 0900;
 - on Easter Bank Holiday Monday;
 - on August Bank Holiday.
- b) an initial response to any enquiry made by telephone or fax shall be given within four hours, except in the case of enquiries received during the last four hours of the period specified in (a) above or outside any such period. In these cases, the initial response shall be given within two hours of the start of the next such period. An initial response to any enquiry made by post or electronic mail shall be transmitted via the same medium within one working day or four hours respectively of receipt of the enquiry.
- c) Client institutions shall be able to lodge telephone enquiries at all times when the Helpdesk is not staffed.
- d) The Advisory Service will maintain a WWW server which will contain information on videoconferencing.

Reporting:

On a quarterly basis, UKERNA shall report:

- Number of enquiries received during the reporting period.
- Average, minimum and maximum time for initial response to and final resolution of queries, including number of queries outstanding >1 week, > 1 month, > 2 months.
- The number of accesses made to the Advisory Service WWW service in total during the reporting period.

A2.10 Administrative Services

A2.10.1 Connection Administration

Specification:

UKERNA shall administer procedures for approval and commissioning of connections, allowing new client institutions to join the JANET network.

Performance Indicators and Service Levels:

- a) New client institutions shall be given an indication of service date within one month of permission to connect being agreed.
- b) New client institutions shall receive service within three months of the signature of an agreement with UKERNA unless start of service is prevented by reasons beyond UKERNA's control.

Reporting:

UKERNA shall provide the following information each quarter, for each request received: date of request; date for initial response; date for final response.

A2.10.2 Peer Networking Agreement Administration

Specification:

UKERNA shall administer the set of peer networking agreements made as a result of the JISC's peer networking policy.

Performance Indicators and Service Levels:

- a) any additional information required to process a peer networking request shall be notified to the requester within two weeks of receipt of the request;
- b) once all necessary information has been assembled, peer networking requests shall be either accepted or rejected within four weeks.

Reporting:

The list of service providers with which peer networking agreements have been established or declined, with for each the date at which this decision was made. Each service provider shall be flagged in the list as either having been accepted for peering by virtue of its membership of the LINX, or due to some other consideration. Where a peering has been accepted via LINX membership, there shall be no defined date for review of the peering agreement. Otherwise, a brief description of the objectives of the service provider, the reason for peering and the date the agreement is to be reviewed shall be included in the list.

A2.10.3 Licence Administration

Specification:

UKERNA shall administer the sponsored and proxy licensing scheme defined by the JISC as part of its connection policy.

Performance Indicators and Service Levels:

- a) any additional information required to process a licence request shall be notified to the requester within two weeks of receipt of the request;
- b) once all necessary information has been assembled, licence requests shall be either accepted or rejected within four weeks.

Reporting:

Number and class of licences issued or denied; actual value of performance indicators a) and b).

A2.10.4 Invoicing for Optional Services

Specification:

UKERNA shall generate and issue invoices to client institutions for any individual element of the complete JANET service that is subject to charging policies established by the JISC.

UKERNA shall be responsible for the subsequent collection of payments against these invoices.

The level of charge for any given service element shall be defined by the JISC in consultation with UKERNA. Due consideration shall be given to the need to recover an appropriate amount of revenue in the context of the entire budget for JANET.

Where charges are based upon usage of any particular service element, the measurement of such usage shall be based upon the associated accounting procedures for that service element as defined in this Service Level Agreement.

Performance Indicators and Service Levels:

- a) All invoices for any given service element shall be issued within 10 working days of the due date for billing in the case of usage-related charges, and within one calendar month in other cases.
- b) A documented escalation procedure shall be in place to ensure that the collection of outstanding payments shall be actively progressed and pursued. This escalation procedure shall have as its end point the reporting by UKERNA to the JISC Secretariat of any institution in default of payment, along with a recommended action for endorsement by the Secretariat. The Secretariat shall provide this endorsement, or provide other instructions, within 10 working days of receiving this report.

Reporting:

- a) the number and total values of the invoices issued, by service element and by Funding body;
- b) for each service element in question, the elapsed time by service element from the due date for invoicing to the issuing of the first and last invoices;
- c) the median and 90th percentile of the time from the due date for invoicing to payment, by service element;
- d) the current debtors list, ordered by client institution and analysing the outstanding payments by age and service element, at the end of each reporting period.

A2.10.5 Co-ordination of London MAN

Specification:

UKERNA shall co-ordinate the operation of the London MAN supporting the necessary committee and reporting structures to enable the MAN to be an effective part of the network adhering to the basic transmission services in this SLA.

Performance Indicators and Services Levels:

- a) The London MAN shall be managed in such a way that JANET users receive the service defined in A2.1.1, A2.1.3 and A2.1.4 of this SLA.
- b) Committee meetings of the MAN Management Committee are to be organised regularly to a schedule agreed with the London MAN Steering Group.
- c) Reports and statistics are to be provided to the MAN Management Committee as agreed by the committee in a prompt and accurate fashion.

Reporting:

On a quarterly basis, UKERNA shall report: staff effort expended on coordination, by meeting/activity category

A2.10.6 Accounting for International Traffic

Specification:

UKERNA shall provide a detailed breakdown by client institution of traffic on those external network access links where traffic shall be subject to charging policies established by the JISC.

Currently the breakdown is by client institution, and only applies to the links to the North American Internet.

Traffic shall be classified according to the list of client institutions defined in the standing document "Institutions sponsored by the JISC", with the addition of a list of national services defined by the JISC and other organizations in receipt of primary connections. Traffic to sponsored connections shall be included in with that of the sponsoring institution.

The traffic shall be further split into charging bands according to time of day; the relevant time periods as currently defined by the JISC are an off-peak period from 0100-0600 each day and a peak period at all other times.

This information should be made available to the JANET community as daily and monthly reports on the web.

The list of national services defined by the JISC shall be maintained as a standing document by the JISC Secretariat and made available to UKERNA. Amendments to this list shall be subject to the change control procedures of the Base SLA. The list shall be published on the JISC Web site.

All information relating to daily and monthly usage of bandwidth made available to the JANET community on the Web shall be kept available on the Web server(s) for a minimum of 12 months from the date of its first publication.

Performance Indicators and Service Levels:

- a) the volume of traffic accounted for shall be no less than 95% of the total volume of traffic on the relevant external access link.
- b) the volume of traffic measured that could not be attributed to any client institution shall not exceed 3% of total, unless this can be shown to be the result of a deliberate attempt to abuse the network through the use of untraceable addresses.
- c) the volume of traffic incorrectly attributed to an institution shall not exceed 0.5% of the total traffic recorded for that institution.
- d) reports covering total traffic per day and per month shall be made available on the web, in all cases no later than 5 working days after the end of the day or month covered.
- e) the difference between the time at which a flow of traffic is accounted for the purposes of determining in which charging band it belongs, and the time at which that flow actually crossed the relevant link, shall not exceed 10 minutes.

Reporting:

On a quarterly basis, UKERNA shall report: volume of unattributed traffic; number of reports of misattributed traffic made by client institutions; description of any

exceptional events, including any reductions made to the traffic figures to account for misuse of the network such as described in (b) above.

Note: reports showing the breakdown of international traffic by client institution are already included under A2.2.2 and thus are not included in the reporting requirements here.

A2.10.7 Itemisation Service for International Traffic

Specification:

UKERNA shall offer (at a cost) client institutions detailed itemisation of their traffic on those external network access links which are subject to charging. Itemisation shall be on the basis of a list of IP address ranges supplied by the client institution.

Performance Indicators and Service Levels:

- a) Valid requests for addition to the itemisation service or for changes to existing itemisation categories shall be processed within 10 working days.
- b) The difference between the volume of traffic attributed to an institution for the purposes of billing, and the total volume of traffic measured across all the institution's itemisation categories by the itemisation service shall not exceed 5%.
- c) The volume of traffic itemised into the wrong category shall not exceed 0.5% of the total accounted traffic for each client institution.

Reporting:

On a quarterly basis, UKERNA shall report on: number of sites using the itemisation service; total number of itemisation categories, number of valid requests for changes in the itemisation system; number of valid change requests not processed within 10 working days.

A2.11 Operational Support Services

A2.11.1 Management of Maintenance Activities

Specification:

UKERNA shall operate change control procedures which ensure that client institutions are given advance notice of service changes that affect them and shall also publish warnings of unavoidable losses of service that are planned beforehand. Warnings of changes shall be disseminated by means of electronic mail distribution lists and other appropriate media.

Performance Indicators and Service Levels:

- a) the total maintenance time shall not be more than 0.5% of service time, averaged over the calendar year.

Reporting:

Total number of maintenance periods taken.

It is an objective, in future, to report the total number of maintenance minutes taken which result in loss of service to one or more sites.

A2.11.2 Diagnosis of Service Problems

Specification:

UKERNA shall routinely make such measurements as are necessary to demonstrate that the Service Levels listed in this Annex are being met. UKERNA shall in addition use its best endeavours to support the Technical Advisory Unit, acting on behalf of client institutions, when it chooses to make measurements of overall service levels as perceived by end users. UKERNA shall assist in the investigation of problems when client institutions provide evidence (following the procedures defined in this document) that end-to-end service levels have fallen significantly below those defined and that no fault can be traced in the local networks involved.

UKERNA shall use the information it generates concerning usage and traffic levels to provide client institutions with warnings of potential overload.

The service level parameters used in this annex, including network availability as defined above, are measured within UKERNA's "management domain", i.e. only for the set of equipment for which UKERNA is responsible. It is the responsibility of client institutions to ensure that the service seen by their end-users, which comprises the combined services of the local network, the UKERNA service, and possibly another network which supports a remote host computer, is of suitable overall quality. It can nevertheless happen that problems occur which have a visible effect on the service seen by end-users but which cannot be traced with certainty to any of the separate management domains of the users' client institutions, UKERNA, or the remote client institution. The following procedures will be used to resolve such problems:

- a) Individual client institutions shall, at their own choice and on their own initiative, set up procedures for measuring end-to-end service levels.
- b) Measurement procedures operated by client institutions shall make reasonable use of network capacity and shall not interfere with the ability of UKERNA to meet its service level obligations to other client institutions. Measurements should be made in such a way as to minimize the loading place on the network and avoid inconvenience to other sites or users, and the Janet Operations Desk should be informed of any large or protracted measurement campaign.
- c) If measurements by a client institution show a perceived service level to be significantly and persistently below the corresponding value measured by UKERNA within its own management domain, the client institutions may call on UKERNA for assistance in investigating the discrepancy and UKERNA shall make reasonable efforts to provide such assistance.
- d) Client institutions shall make reasonable efforts to assure themselves that perceived problems are not caused by equipment in their own management domain (or in the management domain of a remote client institution) before calling for assistance from UKERNA.
- e) When the cause of a discrepancy has been identified, UKERNA and the client institution shall determine by mutual agreement whether UKERNA's records of service level achieved need to be corrected and, if so, what the corrections should be.

Performance Indicators and Service Levels:

- a) UKERNA shall respond to any request for assistance with an initial confirmation that the request has been logged:
 - (i) within one hour in the case of faults reported during, and at least one hour before the end of, a staffed period; and
 - (ii) otherwise, within one hour of the start of the next such period.
- b) UKERNA shall respond with a plan for any necessary investigation (or with a final report, in simple cases) within three working days of the request.

Reporting:

UKERNA shall report on a quarterly basis: Total number of requests for assistance; average duration of incidents; length of time to produce a plan for investigation (or the final report, in simple cases).

A3 SUPPORT AND INFORMATION SERVICES

A3.1 Network Information Services

Specification:

UKERNA shall provide a Web-based information system, including a user interface suitable for end users who are inexperienced or who access the service infrequently, and shall maintain documentation and operational information of interest to network users.

Performance Indicators and Service Levels:

- a) Availability of 99.5%
- b) mean time between failure of 1000 hours
- c) the service shall support an access rate of 10,000 queries per day, with a response time of no more than 2 seconds. The response time shall be from the transmission of a request from the user's institution via a basic transmission service operated by UKERNA, to the reception of the first part of the information at that institution.

Reporting:

UKERNA shall provide monthly report of the following:

- Number of breaks
- Total duration of breaks
- Number of distinct files served
- Total number of requests to the server(s)
- Percentage of the accesses to the server(s) which have come from hosts in the ac.uk domain

Annual report on range of articles supported, and the number of accesses made and pages served by institution.

A3.2 JANET Customer Service

Specification:

UKERNA shall operate a Service Desk to act as the primary point of contact for all reports, enquiries and requests for action and information from the user community concerning UKERNA services. The Service Desk shall deal with reports and enquiries made by telephone, fax, post or electronic mail. The Service Desk shall operate procedures to route complex queries to the appropriate service provider for resolution.

Performance Indicators and Service Levels:

- a) The Service Desk shall be staffed for the full duration of the staffed periods (see A1.2).
- b) Client institutions shall be able to lodge telephone enquiries at all times when the Service Desk is not staffed.
- c) An initial response to any enquiry made by telephone or fax shall be given within four hours, except in the case of enquiries received during the last four hours of the period specified in (a) above or outside any such period. In these cases, the initial response shall be given within four hours of the start of the next such

period. An initial response to any enquiry made by post or electronic mail shall be transmitted via the same medium within one working day or four hours respectively of receipt of the enquiry.

- d) An “escalation procedure” shall be in place, and published to the Community, to ensure that unresolved queries are progressively brought to the attention of senior management.
- e) more detailed information on the source, subject and severity of queries shall be available in annual reports or when requested by the TAU.

Reporting:

Number of enquiries by institution, by category type, separately indentifying queries from routine requests (e.g. attendance at conferences etc.); average, minimum and maximum time for initial response to and final resolution of queries by category type; number of queries outstanding > 1 week, >1 month, >2 months; details of invocation of the escalation procedure.

Annual report on the use by institution and the nature of queries submitted.

A3.3 Documentation

Specification:

UKERNA shall provide comprehensive paper and electronic documentation including appropriate Web pages describing use of the Operational Services (Ref. Section A2 of this Annex). This documentation shall be of three types.

- a) technical and operational information which client institutions need to connect and use their equipment to exploit UKERNA services. This documentation shall be designed to be used by staff from client institutions and not directly by end users.
- b) documents, which, where the nature of the subject matter makes it appropriate, shall be designed for, and in a style suitable for, immediate issue to end users.
- c) simplified technical guides for technical authors in institutions.

All documentation should encourage feedback on its own quality and helpfulness.

Performance Indicators and Service Levels:

- a) Technical information needs by a client institution to connect its equipment to a new service to be made available one month before the start of service.
- b) Technical information relating to a major change in an existing service to be made available one month before the change takes effect.
- c) Material intended for issue to end users to be made available to client institutions one month before the start of a new service or a major change in an existing service.

Reporting:

Copies of new and revised documentation as released; targets for the production of new documentation shall be included in the UKERNA operational plan.

Each quarter UKERNA shall provide summary statistics on the production of documentation listing all documents published by document category (manuals, reports, circulars), and indicating the medium of distribution for each document.

An annual report on the user perceived value, usefulness and scope of the documentation, including any feedback from users; an annually revised list of all available documentation indicating for each item, the medium and Operational Service to which it is applicable.

A3.4 Technical Updating for the UKERNA Community

A3.4.1 Workshops and Conferences

Specification:

UKERNA shall provide regular technical and other information to the Community by organising workshops and conferences, as agreed with JISC. UKERNA shall take note of feedback from this activity in identifying requirements for specific technical initiatives. UKERNA shall propose, in its corporate and operating plan, a programme of core/essential workshops and conferences to JISC for approval on an annual basis. In addition, as opportunities are identified, UKERNA may also undertake other programmes of events on the basis of full cost recovery.

Performance Indicators:

The quality of events, together with their attendance figures. Value for money of events.

Reporting:

The following information shall be provided by UKERNA quarterly: list of workshops and conferences, together with the date, the location, the number of attendees and cost of the event per delegate per day (ex VAT).

A3.4.2 Study Groups

Specification:

UKERNA shall interact with the community by organizing Study Groups, as agreed in its operational plan, and shall report to the JISC on the requirements identified.

Reporting:

The following information shall be provided by UKERNA quarterly: lists of study groups, together with the number of attendees.

A3.4.3 Training Courses

Specification:

UKERNA shall provide occasional training courses within its area of competence, as agreed in its operational plan, to satisfy the needs of the community.

Reporting:

The following information shall be provided by UKERNA quarterly: lists of training courses, together with the date, the location, the number of attendees and cost of the event per delegate per day (ex VAT).

A3.4.4. Newsletters

Specification:

UKERNA shall provide regular technical and other information to the Community by publishing a regular newsletter.

Performance Indicators:

The quality and regularity of publication, together with circulation figures.

Reporting:

Copies of all newsletters as released.

An annual report listing the technical reports and newsletters issued.

A3.5 Initial Technical Advisory Services

Specification:

UKERNA shall offer a general, start-up advisory service on networking matters to new client institutions.

The service shall be provided via the site Computer services or centres. The service shall include direct response to queries, guidance on finding relevant information, the identification of appropriate experts within the Community to whom reference can be made, and advice on the design of local area networks.

Performance Indicators:

Completeness of advice available; quality of advice given. Degree to which the take up of the connection by the institution is greater than would have been the case without the support service.

Reporting:

The following information shall be provided by UKERNA quarterly:

- List of client institutions making use of the start up service
- Agreed start and end date of the advisory service for each client institution.

A3.6 Network User Groups

Specification:

UKERNA shall attend meetings of the JANET National User Group and of its regional sub-groups (Scotland and Northern Ireland, North East, North West (including North Wales), Midlands, South West (including South and mid-Wales), South East and London in order to provide information on new or changed services as required, and to allow users to give feedback on the Service Levels achieved and provide general input to UKERNA on all matters.

Performance Indicators:

Value of the UKERNA contribution to user group meetings as perceived by meeting attendees.

Reporting:

The following information shall be provided by UKERNA quarterly:

- List of user group meetings attended;
- Number of UKERNA staff members attending each meeting.
- List of any exceptional actions arising out of the meetings

An annual report on the user perceived value of these meetings including any feedback from users.

A4 SECURITY SERVICES

A4.1 Security Monitoring and Information Dissemination

A4.1.1 Response

Specification:

UKERNA shall set up procedures to monitor unauthorised use of its own and its clients' services and act in an emergency to counteract unacceptable use of the network.

UKERNA shall provide procedures for rapid assistance to client institutions in order to help them respond to attempted unacceptable use of the network

Performance Indicators and Services Levels:

- (a) UKERNA shall respond to requests for assistance from client institutions within one hour during the periods specified in A1.2 above.
- (b) In the case of serious incidents, UKERNA shall provide emergency procedures to initiate appropriate action on behalf of client institutions within two hours outside these periods.

Reporting:

Number of reports outstanding at the beginning of the month; number of new reports; number of reports closed and the number outstanding at the end of the month; number of new reports by classification. Reports where one incident affects, or has consequences for, a number of institutions will be counted as one, not as a number of smaller ones.

A4.1.2 Awareness

Specification:

UKERNA shall provide training and presentations on computer security both as independent events and as part of the general training, conference and User Group programme.

Performance Indicators and Service Levels:

(to be defined in a subsequent revision of the SLA)

Reporting:

(to be defined in a subsequent revision of the SLA)

A4.1.3 Liaison

Specification:

UKERNA shall participate in an internationally agreed Rapid Response Unit scheme which is established to combat unauthorised use of networks and host machines.

UKERNA shall take note of the work of both formal and de facto standards bodies and make use of internationally agreed standards for computer security of its own and its clients' services.

UKERNA shall provide a central point of contact to facilitate co-ordination of computer security initiatives across client institutions.

Performance Indicators and Service Levels:

(to be defined in a subsequent revision of the SLA)

Reporting:

(to be defined in a subsequent revision of the SLA)

A4.1.4 Information

Specification:

UKERNA shall maintain a list of approved contact points and service hours at client institutions and peer organisations.

UKERNA shall advise approved staff from client institutions on protection mechanisms to be adopted in relation to network access to host machines.

UKERNA shall provide the client institutions with regular information on general levels of threat and countermeasure available.

UKERNA shall maintain publicly available information about computer security threats and countermeasures.

Performance Indicators and Service Levels:

(to be defined in a subsequent revision of the SLA)

Reporting:

(to be defined in a subsequent revision of the SLA)

Annex B

Format for the Annual Budget and Operational Plan

B.1 Objective of the documents

The budget and the operational plan, taken together, should present a complete picture of the intended development of the services over the planning period (three years). The first year shall be covered in detail and the second and third years set out at a more strategic level.

The main headings for the budget and the operational plan shall mirror the headings used in the service level agreement.

B.2 General Information

The plan should offer a brief review of the present situation, particularly of recent developments and challenges, and should indicate the current vision of developments during the planning period, indicating the main initiatives and service improvements expected. The budget should include the current financial baseline.

B.3 Structure of the proposals

The proposals made shall distinguish clearly between the maintenance of the existing core programme and any new initiatives or extensions proposed.

New initiatives should be structured into largely self-contained options, including any dependencies, to facilitate prioritization. Financial details of new proposals should include their full marginal costs or savings.

B.4 Financial Details

Separate budget items will be included for each of the service categories defined in Annex A (i.e. for every clause numbered Ax.y.z)

For each service, the following financial heads shall be used:

- a) management and coordination;
- b) staff involved in provision of the service;
- c) capital items;
- d) recurrent charges for services (leased lines, other network services, etc);
- e) software and hardware support (software licences, maintenance and minor consumables);
- f) continuing operational sub-contracts;
- g) one-off subcontracts scheduled for this planning year (service deployment, piloting, etc.);
- h) other costs (to be itemised in notes);
- i) general costs (rent, rates, travel, staff equipment, insurance, etc);
- j) prediction of related non-JISC income.

A total estimate of income, covering all service categories defined in Annex A, will also be given.

B.5 Planning Details

Separate planning items will be included for each of the service categories defined in Annex A.

For each service category, the following planning information shall be provided:

- a) major objectives to be achieved, such as introduction of new services;
- b) performance or value for money objectives to be achieved to enhance existing operations;
- c) milestones and target dates in support of these objectives.

Annex C

Format for Quarterly Report on the Operational Plan

C.1 Heading for the report

The report shall mirror the structure of the currently approved budget and operational plan, on a clause-by-clause basis, reporting on each service category in turn. It may include a short summary drawing attention to major issues or achievements.

C.2 Updating targets

For each target in the operational plan, the report shall state either:

- a) that the target has been met in full, at or before the scheduled time;
- b) that the target has been met in full, but at a later date than scheduled; there shall then be a report on the reasons for the slippage and a brief assessment of the impact of the slippage on the service concerned;
- c) that the target has not been met in full; there shall then be a report stating the reasons for the slippage, what aspects have been met and when, and what aspects remain outstanding and when they are now scheduled to be met, with a brief assessment of the impact of the slippage on the service concerned.

Annex D

Format of Financial Plan

D.1 Objective of the plan

This plan will indicate the monthly expenditure profile of the agreed budget for the service year ahead.

D.2 Format of the Plan

The detailed reporting mechanisms, including the format of machine readable reports shall be agreed between the JISC Secretariat and UKERNA and published as “Format and procedures for financial returns from UKERNA to JISC”, V1.0”.

However, the general form of the report shall be a table with twelve monthly headings and separate reporting lines for each of the service categories defined in Annex A, together with a column total.

VAT shall be identified separately.

The gross total, with VAT, shall be included at the end of the report.

Annex E

Change Control Procedures

E.1 Principles

E1.1 Where the JISC or UKERNA see a need to change the Services the JISC may at any time request, and UKERNA may at any time recommend, such a change only in accordance with the Change Control Procedures as set out at section 2 of this annex.

E1.2 Neither the JISC nor UKERNA shall unreasonably withhold its agreement to any change.

E1.3 Until such time as a change is made in accordance with the Change Control Procedure, UKERNA shall, unless otherwise agreed in writing, continue to supply the Services as if the request or recommendation had not been made.

E1.4 Any discussions which may take place between the JISC and UKERNA in connection with a request or recommendation before the authorisation of a resultant change to the Services shall be without prejudice to the rights of either party.

E1.5 Any work undertaken by UKERNA, its sub-contractors or agents, which has not been authorised in advance by a change to the Services and which has not been otherwise agreed in accordance with the provisions of Paragraph 1.3 of this Schedule shall be undertaken entirely at the expense and liability of UKERNA.

E1.6 In general, the TAU will act on behalf of the JISC Secretariat in the conduct of the Procedures

E2. Procedures

E2.1 Within the JISC secretariat, TAU shall create and follow suitable procedures for the administration of Change Control for the SLA.

E2.2 Within UKERNA, procedures for the administration of Change Control for the SLA shall be defined in the current version of Quality Manual P/13.

E2.3 Usually, proposals for Change Control will be discussed informally between the JISC Secretariat, or the TAU, and UKERNA before proceeding with the formal procedure. In the event that agreement cannot readily be reached, then the parties involved will undertake to seek wider consultation and reconvene within a reasonable period, aiming to achieve a negotiated outcome.

E2.4 The originator of a request for Change Control, whether acting on behalf of the JISC Secretariat or UKERNA, shall arrange for completion of Parts 1 and 2 of the form shown at E3 of this Annex E.

E2.5 The originator of the form shall obtain a reference number for the proposal from the Change Control Administrator at UKERNA.

E2.6 The originator will then forward the completed form to the TAU, who will endeavour to obtain formal acceptance of the proposal from both the JISC and UKERNA

E2.7 When formal acceptance has been obtained from both parties, the TAU will update the register of changes agreed by Change Control and will make any necessary amendments to the published SLA.

E3 Request Form for Change Control

JISC/UKERNA SLA Change Control Request

Sequential number (to be inserted by the UKERNA Change Control Administrator)

FI/SLA/Amend/98/000

Part 1 - to be completed by the JISC Secretariat or UKERNA

Title of Change	
Originator	
Date of this Request or Recommendation	
Reason for Change	
Full Details of Change (detail on separate sheet if necessary)	
Timetable for implementation and, if appropriate, criteria for acceptance (detail on separate sheet if necessary)	

Part 2(a) - to be completed by UKERNA if request is to be rejected

Reason for rejection of request for change (detail on separate sheet if necessary)	
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Part 2(b) - to be completed by UKERNA if request is to be pursued

Costs (ex VAT), in current financial year, of completing the change	
Anticipated costs (ex VAT), in subsequent financial years, of maintaining the change	
Schedule of payments, if appropriate	
Proposed effective date for the change, if accepted	
Impact, if any, on other aspects of the services	
Date of expiry of validity of this information	

Part 3 - Signatures

ACCEPTED on behalf of UKERNA

Signed		Position	
Date			

ACCEPTED on behalf of the JISC

Signed		Position	
Date			

Annex F

Additional site reporting requirements

In addition to the client institution listed in standing document “Institutions sponsored by the JISC”, the following sites shall be included for reporting purposes. Inclusion of these sites is on the basis of their importance for the operation of the network, or as information providers to the academic community; the addition of sites to this list is subject to the change control procedures, but does not have implications for the operational budget.

British Library - Sheraton Street

British Library - Document Supply Centre, Boston Spa

DANTE

HESA

Telehouse

UCAS

UNET

ACCEPTED on behalf of UKERNA by:

ACCEPTED on behalf of the JISC by:

Position: _____

Position: _____

Date _____

Date: _____