EARN Document
Title: Proposal to evaluate IXI for EARN traffic using
NJE/OSI
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1 Introduction

The purpose of the proposed activity is to evaluate the use of
IXI for carrying EARN NJE traffic from a technical point of view
using the NJE/OSI protocol stack. Tests will consider the
throughput, reliability, serviceability, management, and
responsiveness to problems.

This activity is concerned only with the use of NJE/OSI over
IXI. It is recognized that the EARN-IXI project group is also
interested in the evaluation of other protocol stacks over IXI,
such as SNANJE over IXI, VMNET via routers over IXI, NJE over
DECnet over IXI, or X.400 over IXI. It is understood that such
evaluations may be the subject of other proposals, and will be
necessary before EARN traffic is committed to any of these
protocol stacks.

2 Organisation

The project manager is H Deckers.
The GBOX project leader is N O'Reilly.
The EBOX project leader is D Bovio.

The countries showing interest are:

* Ireland
* Great Britain
* Netherlands
* France
* Spain
* Yugoslavia
* Italy

* Germany

The management contacts are:

* Ireland - D Jennings
* Great Britain - P Bryant
* Netherlands - K Neggers
* France - J C Ipollito and C Micheau
* Spain - L Ferrer ZCCBLFR@EBOUB011
* Yugoslavia - not known
* Italy - M Sommani
* EOC - J Striplin
* EARN Office - H Deckers
* Germany - not known

The technical contacts are:

* Ireland - Tom Wade
* Great Britain - Peter Chiu
* Netherlands - Erik-Jan Bos
* France - Nadine Grange, C Michaeu, and D Dumas
* Spain - O Romeu ZCCBORR@EBOUB011
* Yugoslavia - not known
* Italy - M Sommani
* EOC - N O'Reilly
* EARN Office - D Bovio.
* Germany - P Sylvester?

IXI will not take a direct part in the project but wish to be
kept informed. The contact is Maria Pallares.

3 Connections

For details of connections, see EARN documents

        EARN-IXI DOC90-2   Description of G-box nodes
(N.O'Reilly)
        EARN-IXI DOC90-11   Description of E-box nodes
(D.Bovio)

4 Description of tests

Details of the tests to be performed will be found in the EARN
document EARN-IXI DOC90-13.

A number of lead sites and the NJE links to be tested between

them will be identified. These sites will be chosen so that a number of G- and E-box sites are represented. The links to be tested will include links between systems of the same kind and between systems of different kinds. These links will be chosen so as to avoid the possibility of disruption to live traffic, including pilot traffic.

Lead sites identified for G-box tests are University College Dublin (UCD), Rutherford Appleton Laboratory (RAL), Katholieke Universiteit Nijmegen (KUN), and the EARN OSI Network Operations Centre (EOC).

Lead sites identified for E-box tests are GMD Bonn and CNUCE Pisa.

The identification of these sites is not intended to exclude the participation of other sites where there is interest and where resources are available. However, effort will be focussed at the lead sites.

Tests will be conducted in well-defined phases, each phase to be completed and a report presented before the following phase is started. Each NJE link will be tested separately, as differences are expected in the type and configuration of the equipment in the path of each link.

A particular phase of testing will be completed between systems of the same kind (G-boxes or E-boxes) before the same phase of testing is begun between systems of different kinds (G-boxes and E-boxes).

The tests will be run under co-operation between local staff and EARN staff.

There will be a report at the end of each phase recording the test results including any problems encountered and their solutions.

A final report at the conclusion of phase 3 for the lead sites will be presented.

4.1 Phase 1 (a) - initial connection of system to IXI (per system)

The technical objectives are:

Connection to IXI possibly via other networks.

Testing with X.29 to a similar system.

4.2 Phase 1 (b) - testing of NJE/OSI link (per link)

Testing of selected NJE/OSI link.

Establishment of NJE/OSI link capable of carrying files and
Nodal Message Records (NMRs).

4.3 Phase 2 - confidence testing.

The technical objectives are:

Identify parameter profile for optimum performance. This will
be done by repeated tests with a large file using different
values of the parameters.

Determine protocol overhead at the different OSI levels and of
file-handling overhead in the NJE application. This will be
done using optimal parameters by measuring the throughput for a
single large file and for a series of small files.

Determine protocol overheads of using different available
transport service protocols.

Establish application-level throughput using the standard test
suite for comparison with results of tests of NJE over other
protocol stack.

Determine reliability of NJE/OSI link by operating traffic for
long periods over the link and observing any malfunctions.

Establish operational procedures for monitoring long term
performance changes. It is expected that factors outside EARN's
control, such as competing traffic, will affect performance.

4.4 Phase 3 - pilot traffic.

The technical objectives are:

To move live traffic to the IXI network as a pilot operation.

Of particular importance is to study the effect of complex

traffic patterns or the effect of other non EARN traffic. It should be remembered that EARN traffic may be disadvantaged on IXI as traffic will be spread evenly between the competing calls on a well loaded network even though the EARN traffic is transmitted on behalf of many users while other calls will be on behalf of a single users.

Traffic will probably be moved a part at a time to IXI. A fall back position will be maintained in case of problems.

4.5 Phase 4 - operation.

Traffic will be moved permanently to IXI. This will be subject to satisfactory results from the earlier phases, and in accordance with the EARN change control regime.

5 Progress reporting

A report shall be produced by the Project Manager for each Executive meeting in order to monitor progress.

There will be a report at the end of each phase for each NJE/OSI link carried over IXI. More detailed reports will be necessary for the first few links between lead sites.

6 Fault reporting

This will be the subject of a separate "operational procedures" document.

Suspected IXI faults will be reported the appropriate IXI reporting point in each country and not to EARN staff or IXI staff.

7 Documentation

A documentation system will be set up for documents generated by the project and those from other sources needed by the project.

Project documents will be held by LISTSERV at UKACRL, using the file name EARN-IXI and a file type of the form DOCyy-nn. The file EARN-IXI INDEX will contain the index to the project documents.

8 Service

A service should not be provided without the agreement of the
Executive and this only after a careful study of the relevant
reports.

Some study is needed to determine a reasonable topology for a
service use. This is a combined IXI EARN problem and must take
full account of the traffic requirements and the results of the
study.

9 Timescales for G-boxes

Detailed timescales will be set out in the document

        EARN-IXI DOC90-14   G-box test timescales

For the lead sites phase 1 will be completed during the first
two weeks of September. Note that this phase will be complete
much sooner for some sites. The remainder of the sites will
complete phase one at the rate of one per month.

For the lead sites phase 2 will be completed during the first
two weeks of October.

For the lead sites phase 3 will be complete during the first two
weeks of November.

10 Timescales for EBOXes

Detailed timescales will be set out in the document

        EARN-IXI DOC90-15   E-box test timescales

11 Manpower

Phase I testing between the first three lead sites (RAL, UCD,
KUN) and the links between them required about 4 man-weeks over
a six-week period. Phase II testing between these sites is
expected to require a further 3 man-weeks. It is estimated that
between one and two man-weeks per site will be necessary for
testing at further sites.

Project management will require between 50% and 100% FTE,
distributed over a number of individuals.

From EARN:

H Deckers, N O'Reilly, and D Bovio.

From each site:

There will be management and technical effort on each site
although the lead sites will probably invest more effort.

12 Distribution lists

The distribution list EARN-IXI@FRMOP11 will be used for project
co-ordination for the time being. A smaller list or lists may
be set up in the future for strictly technical discussions.

It is noted that separate lists are used for co-ordination
between those involved in the management of each G-box, such as
IEGBOX-l@eoc.NL for IEGBOX.

[End of document]