Academic & Research Internetworking in Sri Lanka
- LEARN gets Internet Connectivity

The implementation of LEARN (Lanka Educational, Academic and Research Network) hit another milestone in January 1996 when LEARN was connected on line to the global Internet providing long awaited on line Internet access to LEARN users. This link is financed for a year by the CINTEC (Computer & Information Technology Council) of Sri Lanka. A seminar attended by more than 300 entitled "**The Potential of Internet for Academics and Researchers**", was held at the University of Moratuwa on the 3rd of January and ***LEARNnews*** news letter was launched on the same day, to mark this occasion.

The initial attempts to set up academic computer networking in Sri Lanka dates back to the early 1980s when the University of Moratuwa was successful in connecting one of its computers to a computer at the University of Colombo using a modem on a telephone line operating at 300 bps (bits per second). In terms of today's operating bandwidths, ranging from thousands of bps (Kilo-bps or Kbps) to trillions of bps (Giga-bps or Gbps), 300 bps appears to be negligibly small. Nevertheless this was a significant technical achievement given the technology of the day which sparked off a series of events in the area of data communications and computer networking for academic and research community in Sri Lanka.

In recognising the importance of both inter-university connectivity and intra-university connectivity for the sustainable academic and research growth in the country, the University of Moratuwa accepted a Computer Policy in 1983, which recommended that distributed computing and computer networking should be the guiding principal of computing infrastructure development. This was subsequently accepted by the University Grants Commission as well.

Since suitable telecommunication infrastructure for inter university connectivity was not readily available, many universities restricted the networking activities to in-house networks within the departments. Few of the early large scale networking efforts are the SORD computer network at the Faculty of Engineering, University of Peradeniya and the NEC terminal network at the Institute of Computer Technology (ICT) of the University of Colombo, which were based on proprietary technologies. One of the early attempts to deploy networks conforming to ISO recommendations is the Ethernet (ISO 8802/3) based Local Area Network (LAN) in the Department of Computer Science & Engineering of the University of Moratuwa which was commissioned in 1989.

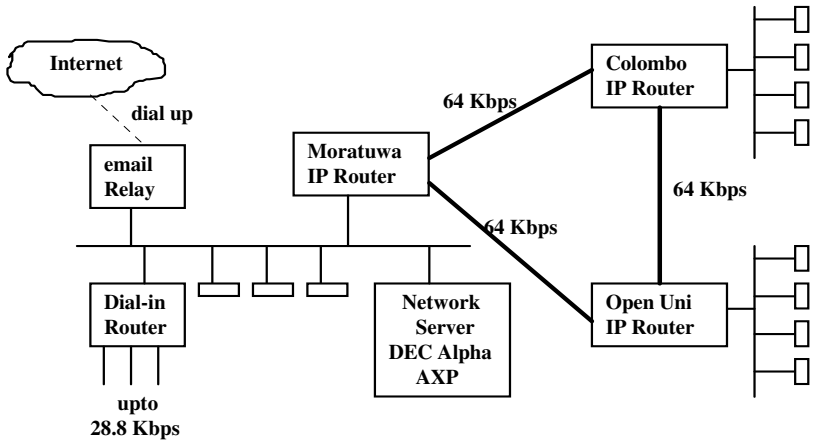
Today many of the Universities as well as research centres and other related organisations in the country use networks based on Ethernet technology, which when compared with the advancements in technology is considered a technology which supports medium network access speeds. However, the deployment of standard networking architectures have opened up opportunities for the easy internetworking of them.

Welcoming the participants of the Seminar, Dr Induruwa who pioneered LEARN, said that LEARN project was born at the University of Moratuwa in 1990 with no money, although today it has become a multimillion rupee project. He emphasised that this is a facility hitherto not available to the academic and research community in Sri Lanka and therefore expressed hope that this community will put LEARN to good use and make positive contributions to strengthen the national socio economic development process of Sri Lanka.

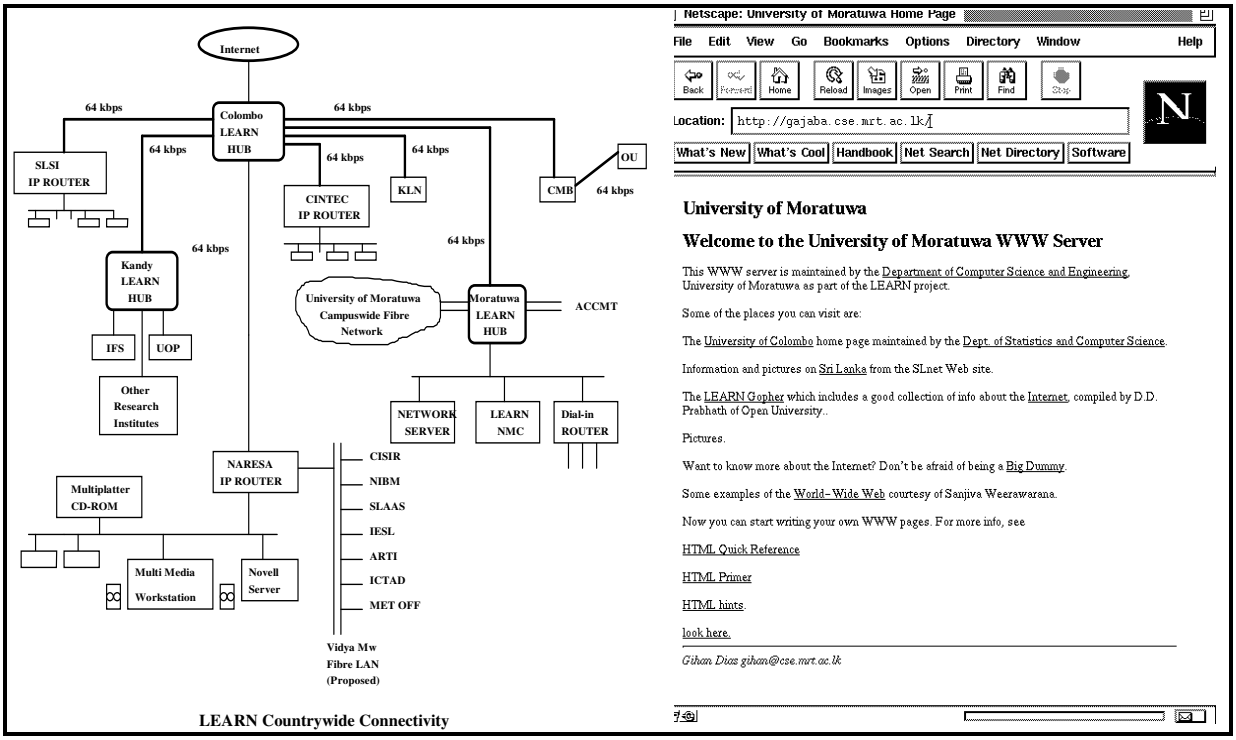
Outlining the important steps of project LEARN, Dr Induruwa said that when he first proposed this project in 1989, the academic wide area networking was based on X.25 packet switching technology which was specially prominent in the UK and in Europe. Soon the Internet Protocol (IP) based technology emerged as the norm for academic computing all over the world and LEARN was implemented using this technology. As such LEARN became the first registered IP network in Sri Lanka which provides end-to-end IP connectivity to its users. LEARN is designed to support a true open systems architecture comprising servers running a multiplicity of operating systems (UNIX, OSF/1, Novell, linux, etc) on a multiprotocol (TCP/IP, Novell IPX) platform.

The first service provided by LEARN was the ***LEARNmail*** electronic mail service which was started in June 1990 with the assistance of the University Grants Commission, CINTEC and the University of Moratuwa. By the end of 1990 LEARNmail had penetrated to many universities and research institutes in the country and as a result the traffic was rising rapidly. Since then until the end of 1995 the international email transfer was carried out with the assistance provided by LAcNet, a not for profit organisation consisting of Sri Lankans and others keen to propel the computing industry in Sri Lanka. Today LEARNmail is available at more than 60 institutions in the country and is used by hundreds of academics and researchers. Dr Induruwa thanked the UGC, CINTEC, the University of Moratuwa and LAcNet for their continued assistance.

He also thanked SLIUCC (Sri Lanka Inter University Committee on Computing) which is the standing committee of the UGC responsible for academic computer development in the country for their assistance, specially for providing Rs 3 million for the implementation of LEARN Phase I which was completed in January 1995 with the holding of a 3 day Conference on "**The Internet - Techniques & Services**" which was attended by more than 350 participants. Dr Induruwa further said that he is glad to announce the commitment of another 2 million rupees by the UGC/SLIUCC for the implementation of Phase II of the LEARN project. In Phase II which is expected to be completed within the year 1996, the universities of Peradeniya, Ruhuna, Kelaniya and Sri Jayewardane Pura and the UGC will be connected on line to LEARN, assuming that the necessary data circuits are provided by telecom operators in the country on time.



LEARN Phase I - Conceptual Connectivity



Dr Induruwa briefly outlined the current services on LEARN, which include the ***LEARNnews*** (available on line), ***LEARNweb*** (world wide web service - University of Moratuwa Home Page is shown above) and indicated that the success of LEARN depends very much on the availability of more and more services on LEARN. One such service is the CD-ROM based multimedia network being set-up at NARESA with SAREC funding. Once commissioned this network will be connected to LEARN on line and users will be able to access the CD-ROMs at NARESA remotely from the computers on their desktops. Similarly when the Libraries go on-line, their catalogues will be available on-line to be browsed by LEARN users. LEARN will also serve as a test bed for new and emerging technologies and services in the field of computer networking and data communications in Sri Lanka.

In his presentation on "**What is the Internet?**", Dr Ruvan Weerasinghe of the University of Colombo outlined the growth of the Internet from the early days when it was only an experimental facility in a few universities in the United States. Today it covers the whole world and the users are from all kinds of communities, including business, commerce and the public. He emphasised the need to have "nettiquette" in using the Internet because it is one of the biggest shared resources in the world.

The practical aspects of "**Navigating the Internet**" were discussed in three parts. First Mr Sunimal Gunawardane of the University of Moratuwa, in an interactive session, demonstrated how the Internet can be navigated using a navigational tool such as the World Wide Web. He demonstrated how the Internet information space can be searched using searching tools found on the Internet itself. This was followed by a presentation by Mr Namal Kumara of NARESA, on setting up Web clients. In his presentation Mr Shantha Fernando of the Information Laboratories showed how other services such as *email*, remote access to computers using *telnet*, transferring files between computers using *ftp* (file transfer protocol) and document delivery services such as *Gopher* can be usefully used.

Mr Chandana Gamage, who has just returned after completing his masters degree at the AIT, then shared his experience on how the resources on the Internet can be organised and used by the academics and researches for carrying out research effectively.

This was followed by a presentation by Mr Ravi Wijayaratne of the University of Moratuwa on "**Commercial Applications on the Internet**" in which he discussed how the commerce, industry and trade can benefit from having access to the vast amount of information on almost any subject available on the Internet.

The Library Access using the Internet was demonstrated by Mrs Indrani Induruwa of the Sri Lanka Standards Institution in which she showed how the resources in Libraries all over the world can be accessed from a computer on your desk using keyword searches, etc.

In his demonstration on "**Accessing the Internet using Windows 95**" Dr W S Wijesoma of the University of Moratuwa explained that many of the advanced features of Windows 95 useful for the users in exploiting the resources on the Internet are offered as standard facilities thereby making the Internet access a lot easier for the novice.

In conclusion Dr Induruwa said that the continued interest and enthusiasm shown by many hundreds to participate in the Internet related activities organised by the University of Moratuwa is very encouraging, as it is indicative of the usefulness of the Internet and its services to the academic and research community in the country. He said that he is particularly happy that LEARN is serving as a ***technology enabling facility*** and a test bed for emerging and new networking services in the country. LEARN has been responsible for the introduction of the first Internet type email service (LEARNmail - June 1990) and the first World Wide Web service (LEARNweb - January 1995) in Sri Lanka.

He then invited the participants to "net visit" the Moratuwa web site at **`http://gajaba.cse.mrt.ac.lk`** and thanked the participants, the speakers, the staff of the Dept of Computer Science & Engineering of the University of Moratuwa for their untiring efforts in making the seminar possible, very specially Univell Micro Systems and Electroteks Ltd for their technical support, and all those who contributed to the success of LEARN from its inception in 1989.