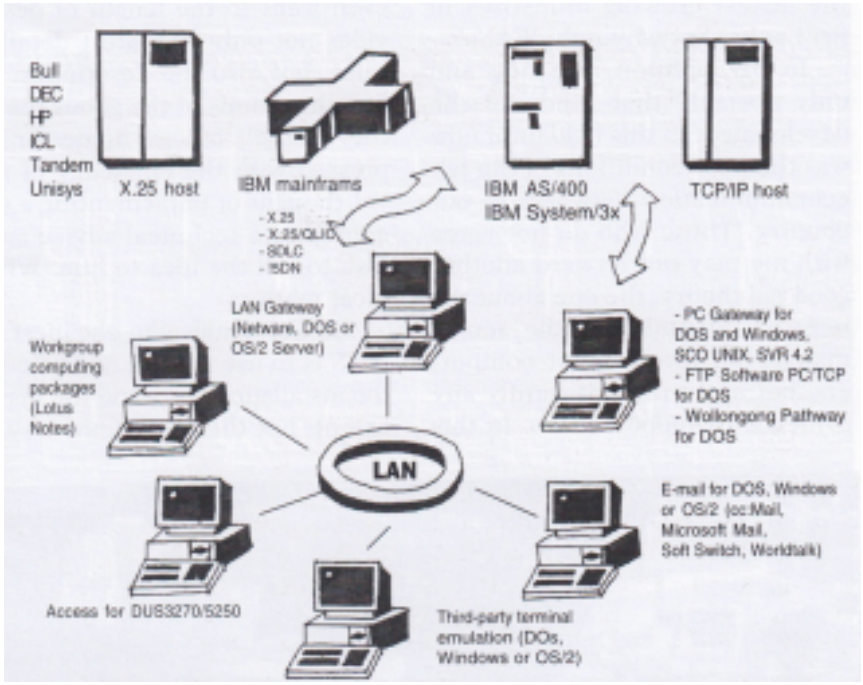
Are we ready for the Intranet?



I s Sri Lanka ready for Wide Area Computer Networking (WAN)?” was the topic selected by Dr Abhaya S Induruwa, Head of the Computer Science and Engineering Department, Moratuwa University, for the technical report he submitted at the Annual Transactions of the Institution of Engineers Sri Lanka, in October 1989. If he were to put forward the same question today, perhaps he would consider rephrasing it as “Is Sri Lanka ready for Intranet?” (mind the spelling, it is not Internet but Intranet) which may be more specific and more relevant now, but it is difficult to think the term even existed at that time. Anyway, that does not matter. Let it be WAN or Intranet, the question still remains. Are we ready for it?
Before trying to provide an answer for that, let me explain, the meaning of the term

‘Intranet’, in case you have never heard it before. Please remember that just like in the case of ‘Internet’, it is difficult to give an exact definition for this word. As Tony Westbrook, the popular columnist of the PC Magazine puts it, ‘Intranet’ is the application of Internet technologies to business. In other words, it is nothing but wide area networking, using the Internet protocol. (With Internet becoming so popular and every Tom Dick and Harry getting their computers connected to it one by one gradually, it will certainly be suicidal to use some other protocol!) I do not intend to go in-depth into the latest developments in this particular field because it will just be a repetition of Westbrooks’s column in the PC Magazine (UK) June 1996 issue, which any interested party can refer. What is worth mentioning is that, Intranet is one of the hottest topics in the computer and networking community and very soon, whether you like it or not, it is going to be a household term just like its elder brother Internet’.

Probably, the only party so far in Sri Lanka, that fully understood the importance of WANS in their day-to-day activities, is the Banking sector. There, it is something indispensable. The wide area networks have entered the banks firstly to carry out inter-branch transactions and later many banks have extended this facility by enabling the customer himself to carry out the transactions by using an Automatic Teller Machine (ATM) even after the normal banking hours. Today, we find that some banks even give customers the opportunity to do the transactions without leaving their desks, using their own desktop terminals which have been connected to the bank network via modems and phone lines.



Nevertheless, these banking networks are not general purpose computer networks. Both Hardware-wise and Software-wise they are application specific, and sometimes developed exclusively to cater to a particular bank. Nobody can use an Automatic Teller Machine for a purpose other than depositing or withdrawing money and a further software development using the same infrastructure is not possible at all. In addition, each bank is having their own network using nonstandard protocols, with inevitable duplication. Thus, this development can hardly be called as an advancement on Intranet. Business organizations are not the only institutions which can get the full benefits of Intranet. In fact, the first Intranet installed in the island (in December, 1994), the Lanka Experimental Academic and Research Network or ‘LEARN’, was not a business-oriented network. It connected the Moratuwa University to the Open University and Colombo University via 64 kilobytes per second links and used the omnipresent protocol of the day, the Internet protocol instead of the x.25 protocol as originally planned. This network, which is a clear manifestation of the untiring efforts and the dedication of the academic community of the Moratuwa University, as far as I know, is the best, if not the only, example for an advanced Intranet in Sri Lanka at the moment.

Most of the other universities and research institutes, specially the ones situated away from the capital, can gain the benefits of such a network equally if not more. Since Sri Lanka is a small country and almost all of our universities are controlled

and funded by the government, implementing a network interconnecting the local area computer networks at all the universities, or expanding the ‘LEARN’ itself to the outstation universities should not be a difficult task, at least in theory.

So, what prevents all these developments? Why still does a scientist working somewhere near Kandy, have to travel to Colombo to acquire important documents from the Public Library?

As Dr Induruwa points out in a different paper named ‘Advances in Computer Networks in Sri Lanka’ (IEE Sri Lanka Centre Annual Sessions, 1994), though Sri Lanka was quick in integrating computers into its national economy, the proliferation of computer networks in the country was comparatively slow from the very beginning. According to him, the reasons can be two-fold. One is the inadequacy of the communication infrastructure facilities in Sri Lanka and the other is the low level of user awareness.

Out of these two reasons, I agree only with the first. Low level user awareness had been put forward as the scapegoat for the unpopularity of WANs in Sri Lanka or generally for the unpopularity of the computers by many but hardly anyone justifies it. For example, think of cellular phones. Most of the present cellular phone users did not know what a cell phone system was just a few years ago. That had not prevented the cellular phone industry becoming an ever growing industry and one of the fastest growing industries in Sri Lanka. So, why only WANS?

In my opinion, the one and only obstacle that hindered the development in this field until now was the poor conditions of the telecommunication networks in our country. Those who do not agree with me may put forward another good old theory, the one about the negative attitudes at the senior managerial levels about computers, but again there is hardly any evidence to support it too. In this Internet era, it is difficult to think that the business tycoons and the policy makers are unaware of the importance of WANS.

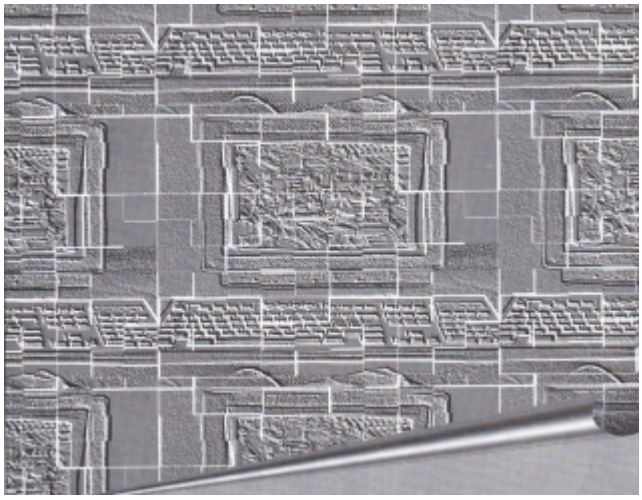


I am convinced of this fact, after having a lengthy discussion on this topic recently with a medium scale Sri Lankan entrepreneur, who owns a famous group of companies which has several factories outside the capital. To show his interest and knowledge on this subject he started describing one of the computer systems he saw at a massive German factory. He even went to the length of describing how this computer system provides not only the latest details and status about the production and sales, but also the description of each vehicle which passes the gates and the details of the goods they carry to its directors and managers be they at their offices, homes or even on the road. He was obviously impressed with the efficiency of the system. Though this person has not. yet thought of implementing a similar system for his organization, with appropriate technical advice and a little push, it will not be a difficult task to sell the idea to him. What prevents that today is only the technical matters.

In Sri Lanka, the cheapest and the easiest method to implement a WAN is to use the existing voice communication network. By doing this, the installation costs and the maintenance costs can be reduced to a great extent, but this technique may not always be practical. The telephone network we have at present, though islandwide, is hardly adequate for the requirements of a critical WAN. The most significant problem of using a Public Switched Telephone Network (PSTN) is the time it takes to transfer data. Because PSTNs are naturally designed for voice transmission its bandwidth is irritably slow. In theory, PSTNs can transfer data at a rate of 64 kilobytes per second but in most of the cases even one fourth of it cannot be achieved in practice.

According to my experience, the maximum data transfer rate that can be achieved locally is lim ited to 19.2 kilobytes per second. That also is possible only if both. the sending and the receiving points are located within Colombo city area and if the transmission is done at night, when the traffic is at its minimum. This also might not be at continuous connection. If one is lucky enough he/she will be able to make the connection, but it is very common for either the link to get disconnected in the middle of a data transfer session or the modem itself changing to a slower rate for communication, provided it is intelligent enough.

In the island, we find quite a few commercial organizations who communicate with their principals/clients in other countries daily through PSTN lines (IDD connections) and many of them find the technique is both successful enough and affordable. Freight forwarding companies and the courier services are at the top of this list but they are not alone. Many multinational business organizations, including somet of the factories in Katunayaka Free Trade Zone communicate with their principals, less frequently. Quite possibly, these few cases might be the only successful non-academic and non-banking WAN connections in Sri Lanka, which even with the use of the PSTN lines are fast enough. With the advent of the direct Internet connections these organisations can now use the common Internet protocol (converting their WANs into Intranets!) instead of a thousand-and-one non-standard protocols, but I am not sure if anybody is taking advantage of it.



Ironically, the data transfer be- tween a point in Colombo and one outside Colombo, which may be just several kilometres away, is pa- thetically slower than the data transfer between Colombo and Sin- gapore or for that matter Colombo and London. Recently, I learned this the hard way when I tried to connect a Local Area Network

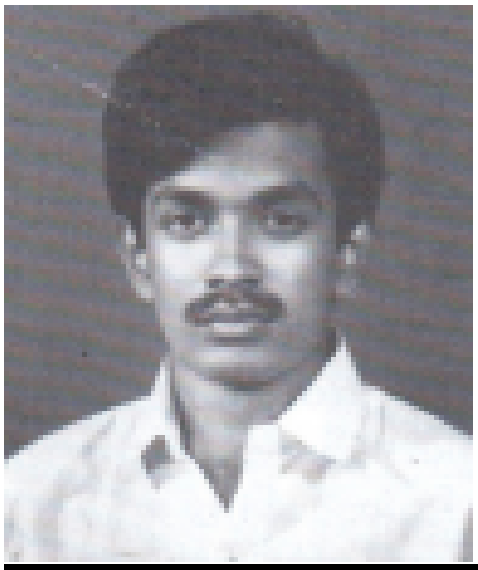
at Colombo to one somewhere near Galle.

The apparent alternatives to the PSTN lines are the Integrated Switched Data Network (ISDN) lines and the Public Packet Switched Data Network (PPSDN) lines. There are at least three local telecom operators who offer x.25 based PPSDN services. Somehow, the expense of a non-PSTN wide area network can be extremely high.

To obtain the exact cost for such a link, a few months before, I consulted the Managing Director of one of the major PPSDN service providers and provided him the details of two imaginary local area networks one in Colombo (Two File servers plus 10 work stations) and the other one in Katunayake Free Trade Zone (One File server plus seven work stations). I told him that these two are required to be linked together and also explained that a one-to-one connection between all the computers in the two locations is not sought and the only thing needed is fast and reliable connection between the two networks, in such a way that the databases at both locations get updated simultaneously. He did the calculations based on these conditions and the estimated initial cost itself was somewhere around Rs 400,000. This does not include the rent which should be paid according to the usage of the line and the monthly maintenance cost of Rs 6000. These figures may be slightly higher than the actual, but even then an organization other than a Bank or a huge multinational company cannot afford a link like this. Intranet will simply be a dream for many of us with such charges. I think this huge cost is a result of the massive overheads these service providers have to bear. Thus only an islandwide telecommunication giant can bring down these rates.

Under these circumstances, I believe, all the Information Technology Professionals in the island will see the privatisation of the Sri Lanka Telecom as a definite progressive step. It is extremely difficult for any government organization to provide a high quality and a continuously updated service under the strict rules and regulations. For example, Sri Lanka Telecom is one of the earliest x.25 based PPSDN providers in the island, that also at the cheapest rates available, but they could never provide a good service due to the inflexible state-sector environment. It was not because they did not have competent engineers and technicians but with all the red tape coming in the middle, the technical people could never provide the prompt and quality service that they would have liked to. With privatisation, we can hope that all the bottlenecks of that era can be successfully overcome and they also will be able to offer a competitive service at a lower rate than their rivals. Only after that will we be able to say ‘yes’ wholeheartedly to the question mentioned at the

beginning of the article.



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