The Internet -- for me too?

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The Internet has now come to stay. There is hardly a child in Colombo who has not heard of it. Radio and TV programmes, not to mention the numerous ISPs (Internet Service Providers) operating here, have done much to popularise it across the country.

Military Industry

Few indeed today realise the military origins of the Internet. It is because the Internet is today a tool of extensive commercial applications. Fewer indeed realise that the profession of electrical engineering -- the profession in which I first started -- is one of the bloodiest of professions, perhaps next only to a job at the local butcher’s. Those who know the etymology of “civil engineer” -- a man charged with putting up buildings and roads and treating our collected excrement -- will know that they were called that because all other engineers worked for the military and were non-civilians. Today it is said that some 85% of electrical engineers either directly or indirectly through contractors and parts industries, work for the military -- indeed a strange fact in Sri Lanka where most EEs do paper work. After all, radar to track enemy movements, electronic controls in shooting down moving targets, electromagnetic communications to be in touch with fighting forces, signal processing to interpret images of enemy sites, coding technologies to scramble and unscramble messages, computers to do complex strategic calculations on massive data and effect control of the on-board navigational equipment of aircraft, are just some of the numerous instances where the military drove the EE industry.

Origins of the Internet

So also the Internet. During the cold war, it had been the practice to have many missiles ready to fire at the “enemy”. These included submarines out at sea and stationed under water for months close to the USSR, missile-laden aircraft which came back to refuel only after a new set had taken off to take over their duties, etc.. However, it was feared that with all these precautions, in the event of an attack on the US and the president’s pushing the button on the black box that always travelled with him thereby commanding all land-based, airborne and naval systems to fire, a hit on the command communications system would way-lay the signal going out commanding retaliation. It therefore fell on electrical engineers to devise a computer communications network with no central command centre and the ability of a message to choose a variety of paths from source to destination so that should one path be down because of a hit, another might be taken. This was developed under the US government agency DARPA which in time involved universities in the project. The reason -- and this is my opinion -- is that government is intrinsically inefficient and the American university system under its professoriate is one of the most dynamic and enterprising systems in the world. With university involvement, the Internet came into full maturity. However, the use of graduate students on the project meant that there were talented and bright minds tinkering with the project. They used the network to send E-mail to their friends in other participating universities. Thus was the commercial utility of the network realised. The network began to grow. The US National Science Foundation involved more universities and private ISPs also came into play, making the Internet what it is today.

Usage of the Internet

The principal uses of the Internet today are mainly four, of which the first two dominate by far. To enumerate,

i) Electronic mail. In E-mail files of text are sent or received over the Internet. Although I say text consisting of the characters of a computer keyboard, this includes graphics which can be encoded
using special programs as text and then de-coded (de-encoded in the barbaric language of computer scientists) upon receipt to recreate the graphics. More recently E-mail also has come to include faxes where mail is sent to a special address cheaply over the Internet and then a commercial partner in the country of receipt sends it as a fax at local telephone rates. Internet mail, however, is not considered secure since it passes through a multiplicity of machines from source to destination. Usually the system manager at any node can view the message and even alter it if he is a little savvy. As a result, in the US, while a signed order by fax has some legal validity even in banking transactions, E-mail does not have that same integrity of standing.

**ii) Web pages.** The fastest growing area of the Internet, the web, has seen phenomenal growth of late and consists of programs, text and multimedia effects placed on a machine that is on the Internet. Web pages are very attractive and now have found their use as courseware in university teaching. Any user has access to pages on the web except when blocked by passwords. Much research material has been placed on the web this way since universities in the developed world give generous computer space to staff and students for personal pages and academics have made their papers available this way to a much wider audience. Companies have since moved in, advertising themselves with their own web servers. Other companies have devised web crawlers, that is computer programs that “crawl!” and search through the web for key-words, index them and then offer free search engines to users which are very valuable in research since, for example, by typing in the name of a scientist, we can obtain his contact information and a list of papers he has published, besides much other information. The search programs make their money by selling advertisements to be viewed while using their programs. More recently commercial outlets have also used the web to make transactions with a credit card. One looks at a catalogue, and orders a list of things which are then paid for with a credit card. The goods are transferred by mail or courier usually. Web-based baking is also now establishing itself rapidly, although remote access banking still usually means going via a telephone through an operator who asks for passwords, mother’s maiden name etc. for identification before permitting an account to be operated. Again, because of the insecurity of the Internet, special scrambling techniques are used when transferring credit card information and passwords. Newspapers and magazines too have now gone on the Internet and it is possible to read pretty much all Sri Lankan English papers and even journals like Asia Week, Madras Hindu, etc. from their web pages without charge. How they will recover their costs remains to be seen. The easy access to web servers through university machines has resulted in a lot of pornography. On the commercial front it is possible using the Internet to pay and arrange to be met by a prostitute as one lands in a big US city. A young American teen-age couple from Los Angeles invited all Internet viewers recently to view their site at a prescribed time to see them live in intimacy when the girl, as she claimed, lost her virginity. These social issues of censorship and how it is to be effected, remain to be addressed by society. And because the Internet was designed to have no central control, no control by a “Social Conscience Czar” is possible, even if we agree on a uniform social consciousness in an international enterprise. It is a lesson that certain countries with firm control on the flow of information are learning to their regret only after going for the Internet in a big way.

**iii) FTP:** File transfer protocol is used to transfer a file from one machine to another. This usually means having ones own machine here and another machine or account on another machine. This is rare in Sri Lanka and the commonest application is when getting material from the public access computers of foreign companies that offer their programs as samples. This too is happening less because more and more companies are allowing access to their programs through their web sites.

**iv) Telnet:** Telnetting is a process by which one connects over the Internet to a remote machine, logs in and works with that machine. Having this facility is dear to those who travel frequently and need to check regularly with their machine for E-mail. This again is a very specialised need in a Sri Lankan context.

*Paying for the Internet*
Fortunately, it is possible to buy E-mail, the most useful thing about the Internet, separately from providers without the rest. We can communicate easily with friends, relatives and colleagues abroad. It takes one short telephone call to the provider in the morning to receive mail. We then compose replies as well as other mail, and with a separate call send it all away. This process can be repeated as many times a day as we please. For a family with a computer and telephone line, the additional cost is trivial, E-mail services being available for Rs. 250 a month plus a little for usage. It is full Internet services that are expensive and the cost of the service, from Rs. 1500 to 4500 a month, can pale into oblivion when compared with telephone charges for browsing the web, especially from outside Colombo. It is a personal decision about which there is little controversy.

Paying for the Internet in Universities and Public Institutions
As a matter of public policy, it ought to be controversial if universities and other public institutions ought to provide for full Internet services to all students and employees as we presently are trying to do, but strangely, it has not been the subject of debate as it ought to have been. That is the nature of government funds and how they are utilised -- if it is free, I will take it.

There is really little to debate about providing an E-mail account to every student. I have a quotation on my table from a private company for Rs. 7500 a month under their Globetrotter programme for unlimited E-mail usage by an unlimited number of patrons at the Open University. With our 18,000 students, who would quarrel with the offer? The problem is with dedicated full Internet services.

The University Grants Commission’s LEARN
The UGC, through its Lanka Educational and Research Network, or LEARN, offers services to all universities. LEARN in its time provided invaluable service by introducing E-mail to universities at a time when there were no private providers. Their charges are Rs. 4.5 lakhs for 1998 per campus of a typical university, with a charge of 2.25 lakhs for smaller institutions like NARESA (now renamed NSF). Their service is to the door-step with the institution being responsible for internal connexions. But if one takes the number of users at a given time and takes the cost per user, the charge is phenomenal compared to what is available from commercial houses. A university has already paid its charge of Rs. 3 lakhs for 1998 and is still not connected with more than half the year gone. Another with no internal local area network has ordered the service which therefore only one person can use at a time. This same service with significantly enhanced data-transfer speeds could have been obtained for Rs. 1500 a month from the private sector. These things happen because ordering from the UGC’s LEARN is the easiest since the usual competitive bidding our government strictly insists on usually is not required and so it would appear that we all take the easiest path and order the service without regard to how tax-payer money is used. That appears to be the nature of government agencies.

LEARN sees itself as growing to be the Internet service provider for all government universities, and research institutes. It is a noble goal, but those of us who are mindful of how government functions are skeptical. Six months after joining the LEARN administrative committee as a university representative, I am still not on LEARN’s E-mailing list despite several reminders. Can this same LEARN be entrusted with this massive responsibility of providing services to all universities? My experience with how university administrations work tells me that any government enterprise like LEARN would be out of its depths in shouldering such a heavy responsibility. In a rapidly changing area like IT where obsolescence comes quickly, it is all the more dangerous. Horror stories like suddenly finding a million rupees worth of IT equipment arriving at a university, a good part of which is obsolete or no longer required, and being told it was ordered by a previous manager 18 months ago, are not rare.

Those who run government white-elephants are usually powerful and defensive. Others are reluctant to express themselves for fear of offending the powerful. So we all play the game. The rot goes on. However, wiser administrators in the university system now find it efficacious to contract out
anything they can to the private sector. Such contracted services like cleaning and gardening appear to work well while internal administrative personnel and unions appear to be the more intractable of our problems. IT related work especially is increasingly done on contract and through extended warranties, but Internet services seem to be one rare exception that is yet to be free to follow the natural and correct trend.

*For me too*

Costs and efficiency aside, do we need to offer full Internet services at every workstation in a university? At various universities I have observed reading pornography being one of the main preoccupations of students using the Internet. As a result women find it awkward to use the same rooms with these pictures on some computer screens. Some US companies have reported a loss of productivity as employees go surfing on the net, all the while giving the appearance of being busy so long as others cannot see the screen.

In a 3-month study still underway in its second month at the Open University, an Internet site was made available to all patrons of our library. A preliminary finding is that while it was in constant use from morning till evening, only 2 used it for research, 20 for studies-related browsing and all the others, the preponderant majority, for sending E-mail and general browsing.

Should we then say “For me too” for Internet services like others or be careful about the way we spend public money? I for one certainly think that modern graduates need to be made familiar with using network services. But this does not need the Internet on every workstation. This can be easily accomplished through the provision of full E-mail services to all students at modest cost, a few commercially contracted Internet stations spread across a university dedicated for research, and a campus web-server accessed over a campus-wide local area network. The web server can be used to host course material, campus notices and announcements, faculty directories and so on. If necessary, one station could be provided in each student reading room for general use such as E-mail, general searches and accessing foreign magazines and newspapers and, it is unavoidable, pornography. The effect on women using the same reading room will need to be assessed.

Another advantage of using the private commercial sector is that we would have much faster repairs and responses. Would a commercial company permit a situation as at LEARN where a customer has paid Rs. 3 lakhs for annual service and no connexion has been given for 7 months with the prospect of having to return the money for the unserviced period? Would the private sector permit the situation as at present when for several days a good part of the E-mail through LEARN was being bounced back due to congestion after 5 days of trying to go and this was followed by a period of 10 days early in July when the system was fully down? Simply to survive, a private company would move to rectify the situation. Although private ISPs also have problems, they respond much faster. And indeed, it is far easier to scream at a contractor to get things done when they go wrong than at one’s colleagues at LEARN.

Let’s go commercial and get much more for our money.

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