

The Tiny Islands of Cyberspace: Making the Web Truly Worldwide

By David Zgodzinski

With the help of dedicated entrepreneurs, the Internet is making an appearance in third world countries. Over 186 countries can now be reached by e-mail. Nonetheless, the continents of Africa, Asia, and South America are still tiny islands in cyberspace.

The number of computer hosts on the Internet located in the U.S. has now been surpassed by the number of hosts in the rest of the world. About 98 percent of all the computer hosts on the Net are located in countries in North America, Western Europe, Japan, and Australia--countries that together have only 15 percent of the world's population.

Connecting billions of people in developing countries to the Net will take some work. Three elements are necessary--the right tools, the right rules, and the right people. The Internet doesn't particularly care how the job gets done. The Internet has its own agenda. It wants to grow.

Access is one problem, connectivity is another. If you look at a map of connectivity displaying the physical lines of communication of the Internet, you get a very skewed distribution. Through most of the world, there is very little connectivity and very few central hubs. And then there are the United States.

Internet connections in Europe and Asia are joined to the American coasts to connect to nodes on the American backbone. It's an inefficient system, where, in many instances, communications between neighboring countries must pass through the U.S. backbone.

But that is beginning to change. In June, MCI and British Telecom announced Concert, a high speed global backbone for the Net. Concert's "InternetPlus" backbone will start with the existing BT and MCI networks. There will be a combination of these links in regional "superhubs." Five of the hubs are already under construction. Within a year, these will be expanded to 20 hubs in central locations around the world.

The hubs will have 45-Mbps connections to one another. Eventually, ConcertPlus will offer connectivity to the Internet in 1200 locations in 70 countries, increasing the overall international capacity of today's Internet by 30 percent.

While this high speed network will soon be expanding in developing countries in Asia and the Pacific, South America and Africa will be coming on board sometime in 1997, it is hoped.

In most developing countries, the initial Internet connection and its subsequent growth are the result of the efforts of a small group of people, or even one individual, who has a passionate devotion to the Net. They get the rules changed and implement the technology. These people are the shamans of the Global Village.

The African Continent

Africa has the lowest teledensity (phone lines per population) in the world. The continent has 12 percent of the global population, but only 2 percent of the world's main telephone connections.

In December 1995, AT&T and Alcatel joined forces to put Africa One into motion. First, the plan is to surround the whole continent with an undersea cable, connecting all the coastal areas. Second, all countries in Africa will be connected in a regional network. Third, the African network will be linked to the rest of the world.

Eventually, 35,000 km of fiber-optic cable connecting 41 African nations will handle traffic at 2.5 gigabits per second. If financing arrangements for the project can be arranged soon, construction will begin this year and be finished by 1999. Increased connectivity will go a long way towards bringing the Net to Africa, and vice-versa.

Ghana

Nii Quaynor, a businessman who runs Network Computer Systems in Ghana has begun commercial Internet service in that African country. At the start, Ghana Telecom demanded prohibitively high connectivity charges for an international data link. Quaynor appealed to the representatives of Ghana Telecom and the government minister in charge of communications, and received approval to install and use an international satellite earth-station, thereby reducing costs. In 1993, gh.com was born.

Today, Quaynor's service has more than 800 subscribers and is growing at a rate of about 100 percent per year. Most of his customers are commercial clients, using the Net for basic communications with overseas contacts. They are charged \$50 per month for full access and unlimited use. Of the company's costs, 80 percent still go towards its satellite link.

The Internet has created an opportunity for his company's subscribers to win software contracts in the United States; a local company that subscribes to Quaynor's service has used the Internet to win a contract to perform architectural drawing for a Canadian company.

Uganda

Daniel and Lisa Stern are a couple of Americans in Uganda who have started The Uganda Connectivity Project, which has raised money to put together an Internet "road show". The Sterns have outfitted a truck with deep-cycle batteries and a 1000-watt inverter, thanks to sponsorships from the MCI foundation, IBM, and the Reuters news agency, who have donated computers and modems. With the truck, the Sterns will travel to villages in Uganda and introduce kids to the Net.

Education is not free in Uganda, schools are often far from villages and books are scanty. The project will allow computer operations in remote areas, where linking to the Net will be done via mobile phone. Daniel Stern says that one of their goals is to establish learning centers with PCs linked to the Internet. They are still looking for donations of used equipment.

India

Improving the infrastructure is only one piece of the puzzle. It can be more difficult to make changes in the regulations that govern a country's telecommunications system than to change its technology. India is a prime example of how telecom regulations damage the accessibility of the Internet, and thus keep the country out of the loop.

India has well over 900 million people. The country has a connectivity advantage over other developing nations. English, the current standard on the Internet, is spoken by a large percentage of the population. There are many computer literate individuals in the country. The high-tech industry is first rate in India, with many multinationals opening facilities in the country.

All these elements should point to flourishing Internet activity, except for one minor detail. In 1885, The British, then in control of the country, passed the Indian Telegraph Act, which allowed the Indian Department of Communications to completely dominate the industry. They do so with relish, and have been rigid in protecting the monopolies of the country's telecommunications operations. Currently, the only public access commercial ISP in India is VSNL--a government corporation. With a monopoly, access prices were kept high. India has private companies that can resell e-mail access to the Internet but licensing and connection fees are high, so these companies have been forced to charge high prices. In another protectionist tactic, tariffs on communications equipment were exorbitant, and charges for communications prohibitive.

But recently, thanks to concerted lobbying, the Indian government has somewhat loosened the stranglehold of the Department of Communications. Tariffs on computer equipment and software have been relaxed, and the cost of modems has dropped. In December 1995, the Telecom Commission of India decided to allow private ISPs to offer Internet connections. As of yet, none have been sanctioned, but it's in the cards.

Seemingly to gear up for competition, VSNL recently cut their charges in half to about \$.90 per hour for full TCP/IP access, and \$.30 an hour for a shell account. Now, there's a two-week wait for a TCP/IP account because of the demand. An Indian Internet explosion could follow a further loosening of the rules.

South America

Red Cientifica Internet del Peru is a nonprofit network, owned by 6,000 organizations throughout the country who are users of the service. The Peruvian network started operations in December 1991 with three modems and a 386 computer as a server; in February of 1994, the network was connected to the NSF backbone, and Internet service began. JosQ Soriano is the head honcho of the network. He has been the driving force behind the expansion of its activities into 23 towns along the length of Peru.

The Red Cientifica has 300 phone lines currently operating and wants to have 800 installed by the end of the year. It also has two 512K satellite connections to the Net. "Everybody pays to become a member of Red Cientifica." says Soriano. Internet service is not a gift to these people. It is a privilege that they are willing to pay for.

Red Cientifica has set up group access locations (cabinas publicas) Each cabina is a room with about 40 computers, a printer and an Internet connection available to the public. All the users have full e-mail accounts. Red Cientifica started with one cabina in Lima, and currently has four in operation. They want to have 23 eventually, one in each of the major municipalities that the network serves.

The only losers are the telephone monopolies and the postal service, who see their total control over communication threatened by the Internet.

Everybody gains from the growth of Red Cientifica. The towns gain because residents are now able to communicate with the rest of the world. The people of Peru gain. Education, health services and businesses gain. The only losers in the equation are the telephone monopolies and the postal service, who see their total control over communication threatened by the Internet.

Soriano is a major force in the Latin American & Caribbean Networking Forum. He says that one of the group's major objectives is relaxing Telecommunication laws, and deregulating telephone monopolies in the region.

Eastern Europe

The Open Society Institute is a charitable foundation set up by George Soros, the billionaire investor originally from Hungary. He has set up philanthropic organizations to fund projects that aid the cause of freedom, peace, and economic development. These projects are predominantly in Eastern Europe, but have recently expanded to other countries such as South Africa. Open Society Institute is concerned with opening Internet access for developing countries.

The Institute has spent about \$14 million funding projects in 68 countries, and doesn't waste much money on a bureaucracy. The organization has representatives in every client country that bring a potential project to the attention of the funders. The funders choose the project, but the Open Society Institute does not dictate exactly how the money is spent. It funds access to the Internet, training, and to a lesser degree, equipment. The Society offers from \$50,000 to \$100,000 per project. "That can go a long way," says Jonathan Peizer, chief information officer of the organization. "For \$25,000 to \$50,000, you can put up an e-mail BBS in Tadjikistan or Bosnia. For \$50,000 you can sponsor a 64-Kbps Internet link in central Europe."

Romania has been a particular success for the foundation. Peizer estimates that 100,000 people in that country have been given access to the Internet as a result of the Open Society Institute's efforts.

There are four VSAT access points in different cities in Romania, and the Institute foots the bill for connectivity. In each location, there are rooms with PCs that have full Internet access. Each city has a club whose members are given e-mail accounts. More than 200 schools are users of the network, as well as hospitals, museums, and some businesses.

"Our main concern is to promote the use of Internet and to force the commercial providers to lower the prices, which were 300 times the price of the ones in Bulgaria, and more than ten times higher than in western Europe" says Daniel Buleu, a representative of the Open Society Institute in Romania.

One busy location funded by Open Society in Bucharest has 35 phone lines for dial-up access. Peizer says "Romania has a very low penetration of computers. In effect, if parents want to buy a computer for their child, they have to sell their car. But it's not the number of PCs in a country that's important. It's the access to PCs."

There are thousands of technicians, entrepreneurs, and philanthropists working to increase Internet access in the developing nations. They all have different goals, but one common denominator. They want to make connections.

The Internet will be much more important to the poorer countries of the world than it is to their wealthier neighbors. It's a type of reverse colonialism. For a relatively small cost, citizens of developing countries can exploit industrialized wealthy nations for an endless supply of that precious commodity--information.

David Zgodzinski is a freelance writer based in Montreal.
<http://www.internetworld.com/current/thirdworld.html>