

<b>IBASE</b>	
INSTITUTO BRASILEIRO DE ANALISES SOCIAIS E ECONOMICAS	
Rua Vicente de Souza, 29- Botafogo 22251 Rio de Janeiro. RJ, BRAZIL	
telephone	(55-21) 286-0348
telex	2136466 BASE BR
telefax	(55-21) 286-0541
GEONET	GEO2:IBASE
PEACENET	ibase
ALTERNEX network address	72412120479

## SETTING UP AN INDEPENDENT NGO NETWORK IN BRAZIL: THE ALTERNEX NETWORK NODE

Carlos A. Afonso

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This short text describes the origins, objectives and perspectives of a data communications project undertaken by IBASE in Brazil. Together with similar projects in Canada, the U.S., England, Nicaragua, Australia and Sweden, this project points to new directions in alternative uses of telematics by individuals and popular organizations in Latin America.

### IBASE: A SHORT STORY

The Brazilian Institute of Social and Economic Analyses (IBASE) was founded in 1981 by a group of political scientists, sociologists, economists, computer experts and others, with international experience in other countries of Latin America, Europe, the U.S. and Canada. This international dimension is an important element to explain not only IBASE's conception but also the proposed methodology, objectives and practice of the institute.

IBASE is a non-profit consultancy and research non-governmental organization (NGO). It is not linked to any political party and has no religious affiliations. IBASE provides studies, consultancy, data processing, data communications and other services to rural and urban workers' unions, community organizations, popular education and documentation centers, other consultancy groups, students and others. Based in Rio but working with groups and other NGOs throughout Brazil

and from abroad, IBASE's teams total nearly 100 people-- including researchers, helpers, students on assistantships, administrators, and volunteers.

As a service provider, IBASE receives several requests from those groups, usually related to one or more of the following themes, issues or activities:

- specific studies on the social, political and economic situation of specific areas in which the groups are active;
- studies to support alternative proposals to official policies;
- production and circulation of audiovisual and printed materials for training and popular education;
- data communications and data processing services;
- surveys;
- support to seminars and workshops.

The basic goal of IBASE's work is to contribute to the attainment of social justice, solidarity, sustainable social and economic development, and a participatory democracy. The main objective of the institute to achieve this goal is to democratize reliable social, economic and political information to civil society, as well as to contribute in providing adequate and effective means for this democratization.

Until 1988, IBASE's activities resulted mostly in regular publications, books, newsletters, radio programs, audiovisual kits, articles and studies in newspapers, magazines and other periodicals.

However, since its foundation, IBASE has been closely following up the so-called "microchip revolution"-- which, for the purposes of the theme of this paper, could be translated as the accelerated democratization of telematic power, as the home computer of the late seventies has become a powerful data processor and communicator, thus bringing mainframe power of the mid-seventies to the hands of the family or small organization at home appliances' costs on a world scale.

In Brazil, IBASE has been the first NGO to use microcomputers both for its internal administrative and research needs and as a tool in support of other groups' activities. From a single 8-bit CP/M-80 machine in 1981, to a local area network (LAN) of more than 25 16-bit MS-DOS computers in 1989, the institute's data processing facilities provide services such as: databases, desktop publishing, statistical analysis and data processing of surveys, computer consultancy and services to other groups and NGOs, etc. In addition, since 1985 IBASE has been experimenting with remote sharing of data between microcomputers. Since that year, IBASE has been a member of the first worldwide initiative to constitute a microcomputer-based network of NGOs-- the Interdoc project, initiated in 1984 by IDOC, an independent organization based in Italy. Interdoc today includes groups in most European countries, and members in Latin America, Asia and Africa.

### NETWORKING AND NGOS

In 1985, Interdoc became a more effective network when their members began to join Geonet, a data communications service based in London. This is a private

for-profit service which, through special agreements, has been providing electronic mail and bulletin board services at lower than commercial costs to Interdoc members.

Physically, the Interdoc network became a sort of star-network-- in which all groups link their microcomputers, via phone lines and data communication carriers-- to a minicomputer in London, run by a commercial firm which centralizes all data exchange among these groups. The center of this "star" (the machine which provides the data exchange services) is what we call a node.

On the other hand, groups in several countries started to experiment on various forms of microcomputer communications, thus setting up nationwide or even world-wide remote bulletin board systems (RBBS), using standard phone lines. The most outstanding of these RBBS-based experiments is Tom Jennings's Fidonet system, which has set a de facto standard in electronic bulletin board exchange systems.

At the same time, groups in England and the U.S. also began to develop methods and facilities to organize communications networks using microcomputers. In 1984, peace movements in California joined forces to create an international computer network, culminating in 1985 in an experimental e-mail system called PeaceNet I. In 1986 a much more sophisticated system was open to users on a national and international scale-- PeaceNet II. Another network, focused on environmental concerns, EcoNet, was organized in 1982, under the coordination of the Farallones Institute in California. In 1987, Farallones transferred EcoNet to the Institute for Global Communications (IGC)-- a new institute originally created to run PeaceNet.

Meanwhile, European peace and environmental movements created GreenNet. Originally operated through the Geonet system, they installed their own node in 1987, using the same type of equipment and software as PeaceNet. In 1988, a regular link between IGC and GreenNet machines was established.

The EcoNet/PeaceNet/GreenNet efforts share a common objective: to build network facilities by developing their own communications services, or nodes, used by thousands of individuals and organizations, at minimum cost. This became possible because of the tremendous increase in processing power of microprocessors and their operating systems' software-- thus, full communications services which were possible only through the use of mainframes until the early eighties (at the hardware cost of more than US\$500,000) could now be provided by an IBM PC AT- class machine with Intel's 80386 processor and adequate memory, tape and disk capacity, at the relatively affordable cost of less than US\$15,000.

One of the most significant advantages of this approach is that, since software and modem technology today allows each of these machines to "talk" to each other in a completely automatic and error-free way (even through standard long-distance phone lines), AT-based nodes could be installed in several countries, thus reducing communications costs to the users (who would not need anymore to make international phone

or data calls). Internode messages (i.e, messages from users of one node to users of another) would be exchanged in an optimized way, using data compression techniques and high-speed, error-free modems (making internode calls at pre-established time intervals, say, two or three times every 24 hours), thus making the cost of an international message much lower than via an international user-to-node connection. Another important advantage is that the network initiative of EcoNet/PeaceNet, GreenNet and similar groups aims at providing these services on a non-profit basis, thus further reducing communications costs. Also, additional interconnected nodes can be installed as local needs arise, in a modular way, and the capacity of each node can also be expanded as technology advances and demand for services increases. Since all nodes share the same operating system and communications software, maintenance and development can be a joint undertaking, further improving the efficiency of the network.

## IBASE AND THE APC NETWORK

The PeaceNet/EcoNet/GreenNet initiative evolved into a proposal to create an international association to foster the development of non-profit computer networks, under the initial name of Association for Progressive Communication (APC). The goals of APC generally coincide with the ones of IBASE: struggle for social justice and respect for human rights, concern for the environment, and fostering sustainable development and participatory democracy. The association would use its resources (technical expertise, software) among participants, while each node would be fully autonomous to pursue its objectives within the general aims of APC.

In 1988, IBASE agreed to join the APC Network. A project for setting up a node in Brazil was submitted to the United Nations Development Program (UNDP). It was formally approved in December of that year, with financial support from UNDP, IBASE, and from the Italian government through CESVI (Cooperation and Development), an Italian NGO. Among the factors that contributed to IBASE's decision to participate were:

- the close coincidence of aims and objectives of the APC initiative and IBASE's;
- the specific interest of IBASE in contributing to developing alternative means of information exchange;
- the possibility of providing a service not only to Brazilian but also to other Latin American groups at costs much cheaper than using Geonet or other commercial services;
- the relatively advanced data communications system available in Brazil;
- the proven expertise of IBASE in working with microcomputers.

## THE ALTERNEX NETWORK NODE

To further develop its expertise in data communications, in 1988 IBASE installed an X.25 gateway to Brazil's

packet switching system (RENPAK). Through a technical agreement with the Brazilian Interdisciplinary AIDS Association (ABIA), IBASE designed the first remote access database system on AIDS. It allowed any user to obtain information on hospitals, treatment methods, prevention, etc, by connecting a microcomputer to the RENPAK system via a local telephone call from most of the larger Brazilian cities, and also from other countries.

In March, 1989, IBASE started to operate an RBBS system based on Tim Stryker's MajorBBS software-- it was rewritten to work with the X.25 gateway. At the same time, IBASE's technicians, with advice from IGC experts, started to assemble an 80386 machine to run Unix-- the operating system of the APC network.

These experiments were extremely important for evaluating the consequences of proposing to maintain a round-the-clock, reliable communications service by a non-profit NGO. This involved a significant operational reorganization and infrastructural improvements (such as uninterruptible power supply, systematic back-up of users' transactions, efficient on-line maintenance procedures, etc).

On July 18th, 1989, the ALTERNEX Node started to operate its full e-mail and conferencing services from the Unix machine, automatically interconnected to the other nodes of the APC network:

In the meantime, similar nodes were being installed in Australia (Pegasus), Canada (The Web), Nicaragua (Nicarao), and Sweden (FredNaet). At the time of this writing, all these nodes are also fully operational, thus constituting a worldwide 7-node non-profit network in which each node is capable of handling up to 5,000 users.

Since August, 1989, a direct phone line allows users to connect to ALTERNEX without having to go through the packet switching system. This is especially useful for users of the Rio de Janeiro area (where hundreds of NGOs are located). This line is capable of MNP level 4 error correction, and IBASE supplies communications programs to emulate error correction with standard modems, so users are able to connect without noise-induced errors even with long-distance calls.

## PERSPECTIVES

Although most of the programming for the system is already developed, the network demands the availability of Unix programmers in each node-- both for maintenance and joint technological development. In the case of IBASE, for example, technicians are working on a system which will allow the DOS-based LAN to share the X.25 gateway with the Unix machine-- thus allowing services such as remote access databases to be run from standard MS-DOS computers, and permitting local users to access the Node from any computer in the LAN. Once this software is fully debugged, it will be available to other nodes.

There is also the need for an operator and a secretary to handle administrative tasks such as accounting, user registration and billing, etc. Other running costs include leasing of communication and phone lines, preparation of newsletters, manuals, mailing, etc. The current esti-

mate of running costs for the ALTERNEX Node is nearly US\$5,000/month. Since its official opening in July, the Node has seen its user list grow by more than one user per day. Current projections indicate a total of nearly 600 users by mid-1990, although participation by Brazilian NGOs has not yet caught up as much as initially expected. The main reasons for this are:

- lack of understanding of the potential of the network, coupled with a fear of the new technology involved;
- lack of resources to purchase microcomputers and phone lines (a phone line in Brazil must be purchased, at costs that might reach US\$4,000 and up).

As to the first reason, we believe the animation campaign being carried out by IBASE is overcoming these limitations. The second one is hard to solve-- most of the more than 4,000 Brazilian NGOs are very small, running mostly on voluntary work. As an alternative to this economic difficulty, IBASE is proposing with several other larger NGOs the setting up of "community e-mail agencies"-- rooms equipped with a microcomputer and printer, connectable to ALTERNEX, and permanently open to smaller community groups. Our estimates are that these "agencies" could be implemented in two months in at least 25 of the largest Brazilian cities, handling an average of 25 users each. Many human rights and environmental organizations could benefit from these "agencies". IBASE is presently seeking financial support to help in setting up the basic hardware and phone lines for this project (estimated at about US\$7,000 per "agency"). IBASE already maintains its "agency", with data communications, telefax and telex services available to groups in Rio de Janeiro on a non-profit basis.

A interesting development is the growing number of users from other Latin American countries (Chile, Peru, Uruguay, Colombia), as well as users from Italy and Japan. Shortly after its July inauguration, the ALTERNEX Node had more foreign than national users.

For comparison, the user rosters are approximately as follows:

PeaceNet/EcoNet:	3,000
GreenNet:	600
The Web:	340
FredsNaet:	200
Pegasus:	200
Nicarao:	100

Another important development is UNDP's interest in continuing to support the development of this network in Latin America. A regional project to study ways to expand the network is being carried out by UNDP, in consultation with IGC, IBASE and CRIES (the NGO in Nicaragua which operates the Nicarao node).

