MISANET: The Southern African Press on the Net

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1. Purpose

The purpose of this workshop is to illustrate how relatively low-cost technologies can be used to set up a news infrastructure for a group of newspapers. The aim is to encourage others to do likewise, and to solicit further ideas for improving the service.

By way of example, services being set up by the Media Institute of Southern Africa (Misa; the services are collectively called MISANET) are described. Our role in this is technical facilitation (first author) and providing infrastructure (other authors); Misa is an initiative of the independent papers of Southern Africa, including the South African *Weekly Mail and Guardian*, *The Namibian* (Namibia), *Mmegi* (Botswana), *Savana* (Mozambique) and *Weekly Post* (Zambia).

Given that the focus of this workshop is technical, we do not attempt to describe Misa's role; this is not to say that we consider our role as more important.

Most of these newspapers are only marginally viable; some have closed, The advent of desktop publishing in the 1980s made small-scale newspaper production possible; we aim to lower the startup costs further, while helping to make existing papers more viable. By selling a service, existing papers can potentially lower their break-even point, while newer papers will be able to start with a smaller reporting staff, and spend less on expensive wire services by using MISANET-like services.

Most Computer Scientists are well aware of both potential and real use of the Internet as a means of disseminating information. However, commercial operations with a less technical bent have only recently become aware of the value of net access. An article in *Fortune* of March 7 illustrates this point: even computer companies like IBM have been relatively late in getting connected. However, realization of the potential benefits combined with publicity surrounding the "information superhighway" have resulted in massive growth in commercial use of the net, to the extent that the majority of traffic is now commercial (the cross-over point was apparently June 1991).

This commercialization does not mean that services have to be expensive. On the contrary, there is no particular reason that a service provider's charge for a relatively low-speed link should be much higher than the cost of a phone line. Proliferation of service providers is likely to push costs down to affordable levels.

This workshop starts with a deeper discussion of these issues, followed by a definition of the intended audience. It goes on to give a plan of the workshop, followed by the intended result. Finally, some background material is described.

2. Issues

Compared with older technologies for disseminating information, such as faxes, the cost of disseminating by e-mail, UUCP or Usenet news is much lower.

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This workshop illustrates how some of these ideas can come together to provide a relatively low-cost service for a regional chain of small newspapers.

This development is particularly exciting for two reasons: the growing concentration of newspaper ownership into big conglomerates has had a sterilizing effect on news, and is anti-democratic. A cheap infrastructure for independent papers to share information and sell it to other news providers or consumers counters this trend. Secondly, the high cost of international news gathering tends to work against good coverage of news from relatively poor parts of the world with a limited local news infrastructure. A cheap Internet-based news infrastructure makes it possible not only to sell news at more affordable rates to conventional news providers (newspapers, radio—even television though this is initially restricted to text and still photographs by bandwidth limits) but to offer news direct to the public.

The major issues to be addressed in the workshop are the kind of services that can be cost-effectively provided, low-cost ways of implementing them, how they make low-startup cost newspapers more viable, and how the individual can become more informed about the state of the world.

3. Intended Audience

Prospective newspaper publishers, current newspaper publishers, African Studies and international politics scholars, people interested in third world advancement and generally those interested in the use of technology to enhance democracy will be interested in the workshop.

The extent to which discussion is weighted towards technical issues versus potential services will depend on feedback from the audience.

4. Plan

The workshop describes initial networked services—MISANET—being set up by the Media Institute of South Africa, and the technology used.

Approximately half an hour is needed to present the services, and another half hour to discuss technology.

An hour and a half is needed altogether to allow time for discussion.

The workshop is intended to discuss the way the services Misa plans to offer will be implemented and solicits input from participants on whether the services and the way they are structured can be improved.

Some key features of implementation include public domain UNIX clones, public-domain software, key Internet protocols and services and the relationship between commercial and academic networks.

4.1 Services

Planned services for MISANET (intended to be in operation before the conference) include

1. an electronic newsletter
2. a general information exchange forum
3. a contact list of independent media and important institutions in Southern Africa
4. a press freedom forum
5. a job forum for journalists
6. a training forum with information on journalism courses etc.
7. an archive of key media information relating to Southern Africa
8. a photo archive containing both digitized photographs and other graphics relating to Southern Africa
9. a news photo service containing current-events photos
10. a news wire service with selected articles from the Southern African independent press

It is also envisaged that individual newspapers may be published electronically, perhaps in a similar way to the Clarinet commercial Usenet news hierarchy. The *Weekly Mail and Guardian* is likely to be the first of these.

Also planned by Misa: e-mail contact between newspapers and journalists, and links with the student press and trade unions.

Another long-term possibility is a best-of-the-region electronic newspaper, drawn from all the members of Misa.

4.2 Implementation

Free UNIX

Linux—a public-domain UNIX clone—has been chosen as the operating system for the initial server, which is a 386DX with 8M of RAM and a 250M hard drive. More disk space will be needed once the storage-intensive databases are in place (photos especially). This choice was to some extent fortuitous, as Linux was initially adopted in 1992 by the Computer Science Department at the University of the Witwatersrand before a stable implementation existed and has since proved to be a wise choice.

The major single advantage of Linux over other UNIX implementations is it is a complete re-implementation of the kernel, without any crufty AT&T or Berkeley code. As a result, it is very efficient. It has a very efficient implementation of shared libraries and for this reason, as well as general efficiency of coding, needs fewer hardware resources than most other UNIX variants or clones.

It is reasonably stable and by virtue of having been created with Free Software Foundation development tools (gcc etc.) presents few problems for porting public-domain software. This is more than can be said of many versions of UNIX that cost large amounts of money—a vindication of the Free Software Foundation philosophy.

public domain software

Other public domain software used includes tin, a menu-based news reader which beginners find easier than traditional UNIX newsreaders such as rn, nn and trn. A gopher client will also be set up. Elm, a reasonably friendly mail reader, is in use.

While there are many attractive internet-based tools for accessing information, an initial limitation is that most users of the service in Southern Africa will initially not have internet access and will therefore telnet in using dialup lines.

Users outside Southern Africa are more likely to have Internet access; the extent to which support for them will be made available will be assessed once demand develops.

A few good Macintosh-based programs that can be used over the Internet include NCSA Telnet, TurboGopher (University of Minnesota), Eudora (POP mail client: University of Illinois, Urbana-Champaign), and NewsWatcher (Northwestern University). Versions of NCSA Telnet and Eudora are also available for PCs.

We expect users with Internet access at least initially to be better able to look after themselves, as many will either have the tools already or be in an environment where a lot of technical support is available. This may change as more non-technical organizations start discovering the benefits of connection to the net. We are therefore initially focusing our efforts on making the telnet environment for dial-in users as friendly as possible.

key Internet protocols and services

The most important Internet protocol for users on the net is likely to initially be FTP, since this is the easiest way of moving data such as pictures and news stories.

Users with dialup lines (modem) will transfer information using kermit or zmodem.

Services such as publishing a newspaper could be set up by publishing a newsgroup hierarchy (using the NNTP protocol), with distribution restricted to sites that had paid for it.

Users with a modem would log in to the server and read news directly on the server. The drawback of this approach is it places a high load on the server.

For Internet connected users, gopher is an obvious service which is likely to be implemented; another possibility being investigated for the future is a world-wide web server.

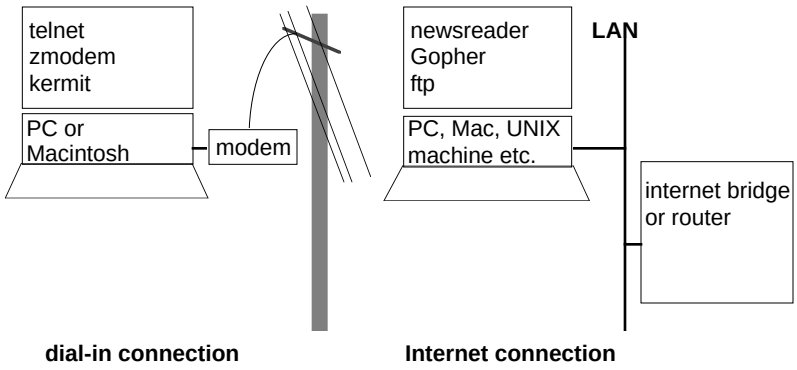

figure 1. Alternative access mechanisms
a user without Internet access will log on to the Linux server whereas users with Internet access can use network-based protocols

The weighting of effort will depend on the user profile: if a large number of Internet-connected users can be found, more effort will be expended on services for them; otherwise the emphasis would be on services for users with only modem connections.

Another issue already mentioned is developing friendlier or more appropriate interfaces to standard software for the less technically literate (which Misa believes will be most of their users). This is more of an issue for users who have to log on to the UNIX machine than users on the Internet, since there are many excellent easy-to-use public-domain programs for Macintoshes (and to a lesser extent PCs), for such services as gopher and reading news.

Figure 1 shows differences between Internet-connected and modem-connected usage

networking hardware

The hardware used by the service provider for the Misa project is described in figure 2; only the Linux machine is supplied by Misa.

The modems are for users without Internet access, while the Wellfleet router (a competing product to a Cisco router) connects the server to the Internet.

In general terms, the amount of hardware needed depends on the bandwidth required. In principle a simple setup can be started with a single computer used as a server, and a modem; this machine would have to have dial in access to an internet-connected machine.

commercial vs. academic networks

The Internet started as a research and academic network, and some academic users feel the net is somehow tainted by having commercial ventures using it.

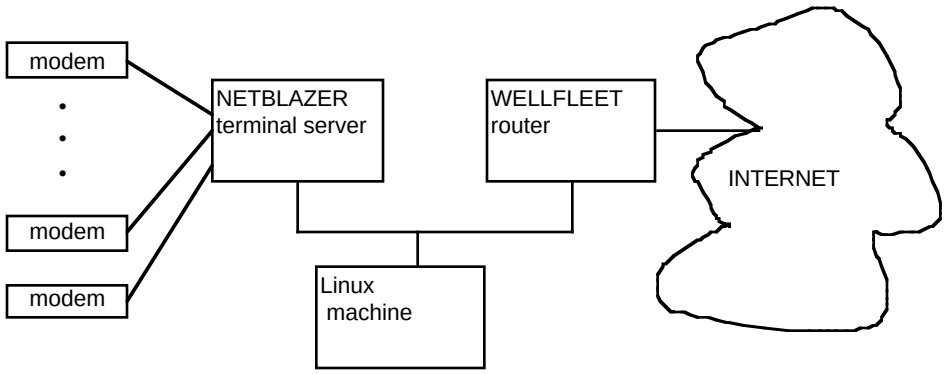

figure 2. Misa network topology

Some commercial ventures such as the MISANET initiative are of sufficient social value to justify their existence on the net.

All the infrastructure except the actual Internet link could in principle have been put in place by Misa alone, but a commercial service provider has an interest in initiating such activities for their publicity value. It's hard to imagine an altruistic organization with no profit motive would have put the same effort into supplying the infrastructure.

We see the Internet as the same kind of generic infrastructure as the telephone network, and no one would think of limiting commercial activity on the phone network so that academics could lead a more pristine existence.

Much of the underlying infrastructure was funded by DARPA, so there is a certain justice in using this infrastructure to correct the North-South information imbalance—an imbalance that has for example made it possible for the American public to ignore the civil war in Angola that was largely triggered by US foreign policy.

5. Workshop Result

We would like to build up a mailing list of people interested in setting up similar services. In addition, we are prepared to consider setting up a newsgroup for discussion on news media propagation on the net.

We would also like to build up a store of knowledge about public-domain software and other low-cost resources for projects of this nature which could be archived at an FTP site.

Finally, we would like to encourage as many people as possible to use the net as an alternative information resource.

6. Background Material

The March 7 issue of *Fortune* is a good gentle introduction to the Internet.

For an idea of the kind of news that will be available, try to find a copy of the *Weekly Mail and Guardian*[*]. Overseas subscriptions are expensive, but big university libraries have it.

The convenors

Philip Machanick is a senior lecturer in Computer Science at the University of the Witwatersrand, Johannesburg. He has given technical assistance to the alternative press in South Africa, though such papers are mostly able to survive on their own skills. He also advocates development of software and computer service exports from third world countries, as relatively low-capital industries. Although only peripherally involved with this project, he is supporting it as an example of positive use of technology.

Ronnie Apteker, Thomas McWalter and Philip Green have recently completed Masters degrees at the University of the Witwatersrand and are now senior staffers of The Internet Solution, a private company selling Internet connections and services. They are responsible for technical aspects of the project, especially network connections and infrastructure.

Other References

By the time of the conference, we should be able to supply information about electronic access to MISANET services. Bruce Cohen, chief advocate of MISANET from the press side, is reachable by e-mail at cohen@misanet.org.

Here are other sources of information about the net and computing in South Africa:

Ed Krol, *The Whole Internet User's Guide and Catalog*, O'Reilly and Associates, Sebastopol, CA, 1992.

Sy Goodman. "Computing in South Africa: An End to Apartness?" *Communications of the ACM* vol. 37 no. 2, February 1994, pp. 21–25.

[*] This newspaper started life as the *Weekly Mail* in 1985; it was one of the first papers completely typeset using Macintoshes and a LaserWriter—probably before marketing people "invented" desktop publishing. It merged with the Manchester-based *Guardian Weekly* in 1993 to strengthen its international news. During the 1980s, the government made several attempts at closing the paper because of its anti-apartheid stance.