AUUGN

The Journal of AUUG Inc.

Volume 18 • Number 1
February 1997

"Meet the Exec" - a new feature for '97!

The long awaited survey results!

It's Election time!

Book reviews, Chapter news,

Traps & Tricks and more!

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AUUG Membership and General Correspondence

The AUUG Secretary
PO Box 366
Kensington NSW 2033

Tel: 02 9361 5995
Fax: 02 9332 4066
Toll Free: 1800 625 655
Internet: *auug@auug.org.au*

AUUG Executive

President:
Michael Paddon
Michael.Paddon@auug.org.au
Australian Business Access
723 Swanson Street
Carlton VIC 3053

Vice President:
Lucy Chubb
Lucy.Chubb@auug.org.au
Softway Pty. Ltd.
79 Myrtle St
Chippendale NSW 2008

Secretary:
David Purdue
David.Purdue@auug.org.au
Sunsoft Pacific
Level 4, Sunsoft Building
44 Hampden Road
Artarmon NSW 2064

Treasurer:
Stephen Boucher
Stephen.Boucher@auug.org.au
MTIA
509 St. Kilda Road
Melbourne VIC 3004

Committee Members:
Malcolm Caldwell
Malcolm.Caldwell@auug.org.au
Northern Territory University
Casuarina Campus
Darwin NT 0909

Alan Cowie
Alan.Cowie@auug.org.au
Northern Territory University
Casuarina Campus
Darwin NT 0909

Frank Crawford
Frank.Crawford@auug.org.au
ANSTO
Private Mail Bag 1
Menai NSW 2234

Mark White
Mark.White@auug.org.au
Tandem Computers
143 Coronation Drive
Milton QLD 4064

Pauline van Winsen
Pauline.van.Winsen@auug.org.au
Uniq Professional Services
PO Box 70
Paddington NSW 2021

AUUG Business Manager:
Elizabeth Egan
busmgr@auug.org.au
Level 4, 90 Mount Street
North Sydney NSW 2060

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AUUGN Correspondence

Please send all correspondence regarding AUUGN to:

AUUGN Editor
PO Box 366
Kensington NSW 2033

Internet: *auugn@auug.org.au*

Submission Guidelines

Submission guidelines for AUUGN contributions are regularly posted on the **aus.org.auug** news group.

They are also available from the AUUG World Wide Web site at:

http://www.auug.org.au

Alternately, send email to the above correspondence address, requesting a copy.

AUUGN Back Issues

A variety of back issues of AUUGN are still available; for price and availability please contact the AUUG Secretariat, or write to:

AUUG Inc.
Back Issues Department
PO Box 366
Kensington NSW 2033
Australia

Conference Proceedings

A limited number of copies of the Conference Proceedings from previous AUUG Conferences are still available. Contact the AUUG Secretariat for details.

Mailing Lists

Enquiries regarding the purchase of the AUUGN mailing list should be directed to the AUUG Secretariat.

Tel: (02) 9361 5994
Fax: (02) 9332 4066

During normal business hours.

Disclaimer

Opinions expressed by the authors and reviewers are not necessarily those of AUUG Inc., its Journal, or its editorial committee.

Contribution Deadlines for AUUGN in 1997

Volume 18 • Number 2 • May 1997 :	**April 7th 1997**
Volume 18 • Number 3 • August 1997 :	**July 7th 1997**
Volume 18 • Number 4 • November 1997 :	**October 7th 1997**
Volume 19 • Number 1 • February 1998 :	**January 7th 1998**

Editorial

Günther Feuereisen <gunther@ibm.net>

Having survived the silly season (well, apart from a broken ankle), and successfully moved house (not that I can actually find anything), it's time to get back into full swing!

Things are changing around the AUUGN scene too. We're moving this year to a quarterly journal, which will hopefully allow us to give you more high quality articles and reviews, whilst still giving the Editorial team time for other activities between AUUGN issues.

What can you expect this year? The unexpected. We'll be adding some new features and columns as the issues go by. We start this issue by looking at the people who make AUUG tick - meet your AUUG Exec in Liz Egan's new column.

Expect new columns in the upcoming issues. If you wish to become involved, drop me a note.

At the end of the day, this is your journal. Where we go is up to you, but if you don't read AUUGN and just toss us on the shelf with all the other back issues, we may just fade away.

So how do we save AUUGN? Well, firstly you have to read us, and then write back. An article, an idea or even a criticism is welcome. Drop me some email, and let us know what you'd like to see here. I can't promise we'll satisfy every request, but we'll sure try!

So sit back, relax, and read on. And if you think of something to say, drop me a note - I'm only a clickety-click away..;-)

See you in May!

Correction to last issue: Several photos from the "Images from AUUG '96" section were actually taken by Lucy Chubb. Sorry about that oversight Lucy!

President's Column

Michael Paddon <Michael.Paddon@auug.org.au>

Security is everyone's problem. Lord knows, in my role as a network administrator, its certainly my problem.

If the AUUG survey results that I'm holding in my hot little handare a reliable guide, chances are that you feel the same way I do. Around one third of the responses were from people describing themselves as system or network administrators. You are the people that lose sleep over security.

But let's face it, we are all at risk when the walls come crashing down. Valuable data, personal information, money, and even our jobs may be on the line. This applies equally to executives as it does to secretaries, to star programmers and to Joe Average Surfer. I will however reserve a special hell for the programmers who still use gets() and strcpy().

We all depend on the infostrate for our day to day activities. Ask yourself what you do when you arrive at work and find all the machines down. Hang around aimlessly? *[Order Pizza - Ed.]*

And if you think you don't care, think about all those companies who are hooking their web site up to their databases. With data about you in it. You don't even have to be involved to be a victim.

Today, the prosecution would like to begin its case by introducing the defendants. First in the dock is Mr Sendmail. Now Sendmail is a valuable member of the community, doing good work wherever installed. But it appears that this pillar of the Internet has a secret dark side, an uncontrollable lust for security violations! (I've always wanted to work the word "lust" into an AUUGN column...)

Now I don't want to have a go at Eric Allman, who does a wonderful job of reacting professionally and rapidly to reported problems, but neither can we deny the fact we have a problem with this code. We are averaging one serious security hole in Sendmail per month. I once asked Eric if he ever regretted writing the thing...

Is this a problem with Sendmail? Some deep, regrettable, but unique flaw? The prosecution calls Monsieur Apache to the stand. A remote root exploit discovered and patched in the last month, in the most used piece of web server software in the universe.

Maybe it's free software? Bzzzt. Have a look at the AUSCERT archives as well as at each major vendors patch sites. Commercial software is worse, not better.

Actually, it stands to reason that free software is better off since the scrutiny it is subjected to is significantly more intense. Similar open systems are better off than vendor specific system, since the same scrutiny dynamic applies. The scariest scenario is hooking a proprietary system to the Internet. Anyone who does so is either a fool or just doesn't care about security.

The really annoying thing is that the techniques required to make a system secure are well understood. Don't believe me? Multics was the first system to ever gain B2 status and is still arguably more secure than NT or Unix; and it is positively ancient. Mind you, it doesn't support a setuid bit... hang on, I think I'm detecting a pattern here. In any case, it seems that precious few people care until it is too late.

In the face of this apathy it was quite reassuring to hear that the Open Group is addressing the problem from a standards point of view. The Baseline Security 96 Standard has been announced, which, unfortunately, I have not yet managed to sight. The details available on the web site indicate that it provides for C2 level security plus features to prevent stupid administration errors.

I recommend to the Open Group the model of the IETF, which makes all of its standards freely available on the web, while still maintaining a viable commercial model. Openness is a concept which has been changed to by the web to include the concept of universal access. Get with it.

The Open Group promotes DCE as a solution to network security. DCE is a strong technology, but very weak in terms of installed base. What a shame it isn't embedded into browser software, and shipped with every Unix. Another lesson about the meaning of open today: free reference implementations for non-profit use. If the Open Group really get behind DCE it can still succeed beyond their wildest dreams, but time is running out.

Finally, the Open Group is promoting a new digital certificate standard, and is getting involved in the building of a public key infrastructure. These are both excellent endeavours, which should be widely supported.

Another ray of hope is the OpenBSD project. The people behind this system have raised quite a ruckus in the (somewhat political) BSD world, however their goals are highly laudable. "Pay attention to security problems and fix them", says their web page, and their complete audit of the Unix source for common bugs (such as buffer overruns) backs their words with actions.

Finally, the greatest weapon of all is to act as a community. If we cooperate, we can build more secure systems and ensure that problems are dealt with promptly. The glue to this process is, without a doubt, AUSCERT.

I recently had the pleasure of dealing with AUSCERT on a rather amusing, and yet serious denial of service attack. A miscreant had taken advantage of a name resolver quirk and a loose 2nd level DNS policy to divert all requests aimed at a dozen or so well known web pages to another site. This only affected people in the net.au domain.

The amusing part was that many of the redirections were going to www.teenpics.com. The annoying part was the major ISP who detected problem early on and decided not to tell anyone else. And the excellent part was the professionalism shown by AUSCERT in responding to the incident. Give them your money, they can do good things with it.

I'll just pop my stack a few levels... What else did I find of interest in the AUUG survey? Just about all of it, which means that I certainly don't have the room for a full analysis here. You can rest assured that you will see a full summary in the pages of this or the next AUUGN .

A few points of note (I can't resist). Most of you seem to be connected to the Internet now, which may even make my preceding meanderings relevant. It certainly starts to raise interesting questions about the delivery medium of AUUGN and conference proceedings. Personally, I like both hardcopy and online versions: one works in the bath and the other one doesn't have to be carried.

A majority nominated AUUGN as the most informative publication you read. While this is certainly flattering, it is also embarassing since I know we can do so much better. We certainly will be striving to exceed your expectations this year.

On a related note, most of you have never submitted an article, opinion piece or paper to AUUG for publication. This is a shame since I know from simply talking to people at chapter meetings that just about everyone is doing something of interest. Please think about contributing.

The chapter activities are highly valued, and this vindicates the efforts of the local committees. It also is beginning to look like we have critical mass to form several SIG's (Special Interest Groups), which in the

AUUG context are simply non-geographical chapters. I be interested in hearing from anyone who can help kick off a SIG in, say, administration, networking or security.

The survey also gave you a chance to tell us where you think we can lift our game, and this, most of all, was invaluable. My thanks to all of you who participated in the survey. You are helping to shape AUUG in a very direct sense.

Finally, I'd like to single out whoever it was who described the greatest benefit of AUUG as "geekspace". Exactly. I'll see you there.

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A letter from the Secretary

David Purdue <David.Purdue@auug.org.au>

Dear AUUG Members,

Every year the AUUG Secretariat sends out a renewal notice, reminding you to rejoin AUUG for another year.

However, in this fast-paced industry of ours, it is not uncommon for people to change jobs, change address, even move interstate. Sometimes they neglect to inform the AUUG Secretariat of their move, or the notification gets lost.

The following is a list of people we have lost track of in the past year. If you have current contact details for any of these people, please send them to the AUUG Secretariat - call 1800 625 655, fax to (02) 9332 4066, or email to <auug@auug.org.au>.

Brett Adam, Christopher Baird, Gwen Baker, Lynn Benn, Ralph Billes, Pamela Cass, George D'onofrio, Olivier Danoy, Helen Davies, Dany Dayan, Sam De Francesco, Ken Doig, Richard Ford, Berny Goodheart, Jeremy Hamlyn, David Winston Joseph, Peter Lawrey, Justin Lister, Mary Martin, Paul McConnell, Gavin Mercer, John Moody, Shane Moore, Mike Mowbray, Matthew Moyle-Croft, Krisztina Nagy, Jean Pierre Avcoin, Conrad R. Newman, Cathy Record, Cameron Strom, Alban Teh-Howell, David Tcin, Barry Thompson, Trevor Webeck, Arnold Wong, Ken Wood.

We appreciate your help.

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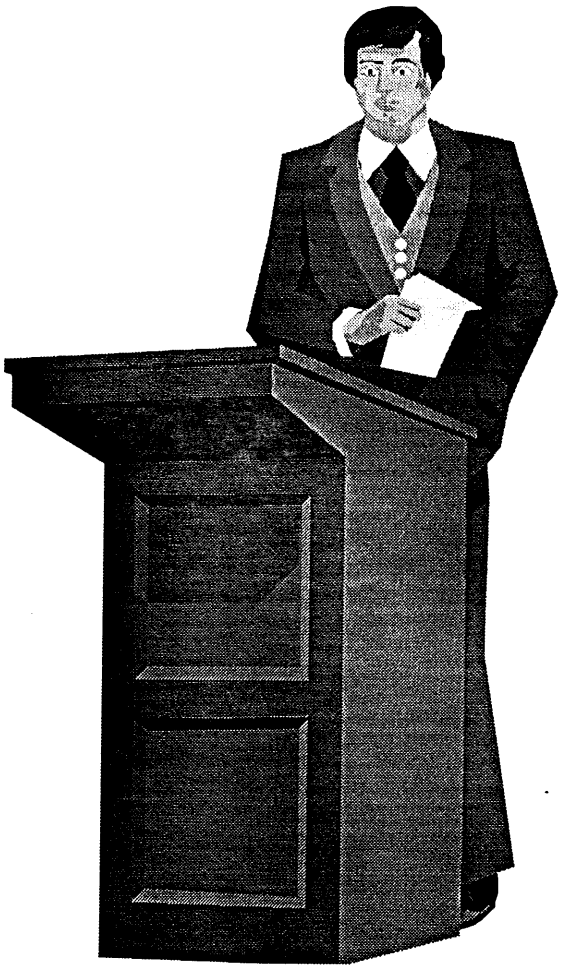

Call for Papers

AUUG97 Conference
September 3-5, 1997
Brisbane Convention & Exhibition Centre,
Queensland,
Australia

THEME: "TECHNICAL SOLUTIONS"

The 1997 AUUG winter conference will be held at the Brisbane Convention & Exhibition Centre, Queensland, Australia, between September 3rd and 5th.

The conference will be preceded by two days of tutorials, on September 1st and 2nd.

The program committee invites proposals for papers and tutorials relating to:

- Technical aspects of Unix and Open Systems
- Networking, Internet (including the World Wide Web)

- Business Experience and Case Studies

As the theme of this years conference is "Technical Solutions", papers with a strong technical flavour are particularly welcome.

Presentations may be given as tutorials, technical papers, or management studies. Technical papers are designed for those who need in-depth knowledge, whereas management studies present case studies of real-life experiences in the conference's fields of interest.

All presentations must be accompanied by a written paper for the conference proceedings.

Speakers may select one of two presentation formats:

Technical presentation:
a 25 minute talk, with 5 minutes for questions;

Management presentation:
a 20-25 minute talk, with 5-10 minutes for questions (ie a total 30 minutes);

Panel sessions will also be timetabled in the conference and speakers should indicate their willingness to participate, and may like to suggest panel topics.

Tutorials, which may be of either a technical or management orientation, provide a more thorough presentation, of either a half-day or full-day duration.

Representing the largest Unix and Open Systems event held in Australia (with an average 600 attendees based on the 1995 and 1996 conference attendance) this conference offers an unparallelled opportunity to present your ideas and experiences to an audience with a major influence on the direction of computing in Australia.

September is a very good time for being in the southern hemisphere, and you would be well advised to timetable additional travel within Australia and take the chance to see some more of the country. Brisbane is ideally placed for further travel on the eastern seaboard.

SUBMISSION GUIDELINES

Those proposing to submit papers should submit an extended abstract (1-3 pages) and a brief biography, and clearly indicate their preferred presentation format.

Those submitting tutorial proposals should submit an outline of the tutorial and a brief biography, and clearly indicate whether the tutorial is of half-day or full-day duration.

SPEAKER INCENTIVES

Presenters of papers are afforded complimentary conference registration.

Tutorial presenters may select 25% of the profit of their session OR complimentary conference registration. Past experience suggests that a successful tutorial session of either duration can generate a reasonable return to the presenter.

Tutorial presenters who are interested in arranging a follow-on tour of Australia with repeat presentations of their course should indicate this in submitting a proposal. This can only be undertaken by joint arrangement with AUUG, and must follow after the conference to ensure its financial viability.

IMPORTANT DATES

Abstracts/Proposal Due:
May 15, 1997

Authors notified:
June 4, 1997

Final copy due:
August 1, 1997

Tutorials:
September 1-2, 1997

Conference:
September 3-5, 1997

Proposals should be sent to:

AUUG Inc.
PO Box 366
Kensington NSW 2033
AUSTRALIA

Email: **auug97@auug.org.au**

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How to Handle Email Spamming ... Take 2!

Craig Macbride <craig@rmit.edu.au>

I've just been getting around to reading last year's last AUUGN. I feel that someone must write a follow-up to the "How to Handle Spamming" article in Vol 17, numbers 5 & 6, since its suggestions are of a rather "head in the sand" nature. So, here goes:

A recent article in AUUGN discussed the handling of unsolicited email, but fell short in many areas. For a start, "Spam" in its own right with no further context usually refers to excessive multi-posting, often accompanied by excessive cross-posting, to news groups. To quote the appropriate FAQ, "spam" means "the same article (or essentially the same article) posted an unacceptably high number of times to one or more newsgroups."

The sending of junk email to individuals is usually referred to as unsolicited commercial email (UCE), junk email or email spam, so the original title of the article in Vol 17, numbers 5 & 6 is rather misleading. Yes, some people use "spam" to mean "anything I don't like that's on the net", but that definition is vague enough to be useless.

For a more complete discussion of the matter of unsolicited email in general, there is much available on the Web. For example, check http://digital.net/~gandalf/spamfaq.html or http://www.cciweb.com/iway7/spam.html. They are certainly worthwhile sources for further reading for those who want to investigate further but hadn't previously. I will just address the basic matters raised in the previous AUUGN article.

Checking that your own ISP's acceptable use policy includes penalties for Internet abuse is nigh on useless, since the chance of the spam eminating from your own provider is incredibly small. It is good for the ISP to have such a policy, for their own benefit, as they can remove users more easily if they do start junk emailing. However, the vast majority of unsolicited email comes from the USA.

There has been more and more comment recently on the net itself about using filtering mailers. My personal opinion on this is that it should be avoided. It'd be like those who don't like crime boarding up their windows. It just makes it easier for the undesirable element to wander around outside and do their thing to everyone else and basically helps turn the world into a worse environment, no matter how effectively you convince yourself that everything is fine because you can't see out any more.

Similarly, the use of fake email addresses on news posts, like the suggested "NO_JUNK_MAIL@anywhere", so that the UCE list collectors don't know who you are, is a very bad solution. Technically, Usenet posts are supposed to have a valid email address in their "From:" line to comply with the relevant RFC. People who validly want to email a comment to you will be frustrated. I have even seen whole threads on news groups about how irritating this practice is, so there's a fair bet that at least some readers of your posts will be annoyed by the faked "From:" lines. Even if you put in an address that includes your real address plus something to fool the automated address list collectors, it is still a pain for others to contact you, as they can't just "reply".

As for replying to the junk emailer, often you might as well. In most cases, they are selling something and have real email addresses in the body of the message, if not the header. It is not hard then to check the headers of the email for validity at least and enquire to the postmaster account at the sender's site. If the sender's site looks suspiciously like it is controlled by the UCE sender himself, and the message was handled by another site on the way to you, I would definitely send email to the postmaster of the intermediate site. Some sys admins of big systems, such as at IBM, react very quickly and effectively when junk email is being forwarded through their systems, determining the location of the culprit and preventing further occurrences.

The suggestion of contacting your own sys admin when you have received UCE is a poor one in most cases for several reasons. I could understand this advice being given to newbie users who have just bought a Windoze machine from a department store, but this is the AUUG. I sincerely hope that most of the readers of these articles who are posting to news groups and getting onto junk email lists have more than enough competence to be able to handle determining the source of the message, etc, themselves.

Do you honestly think your ISP has the time or inclination to investigate each individual UCE from other machines? Unless you are paying a great deal for a massive support staff, I really doubt it. If your Internet access is through a large business or university, it is even less likely. Your sys admin is likely to wonder why you are trying to make them check into something you can do yourself.

Apart from that, there is the matter of speed. Checking logs and dealing with net abusers is always best done quickly. If all users passed net abuse reports to their sys admins, not only would those people not have time to handle them all, but any that did get handled would probably be handled in a less than timely manner. On the other hand, if thousands of end users send messages to the ISP of a junk emailer, the problem will probably be dealt with swiftly.

In most cases, there is nothing difficult to do, and UCE very often comes from obvious, well-known providers (aol.com, for one). If you are lazy and don't want to bother using traceroute, nslookup, etc, to validate the sending address, it takes little effort to make a one-line comment in reply to the junk email saying that you don't appreciate it and cc'ing it to the postmaster@site.name. Increasingly, big providers have a special abuse@site.name account for such reports, too. If the user name was forged, the mail will bounce, and it is possible that the site that appeared to be the source wasn't. However, the site will want to investigate any such forgery which implicates it in any case and try to prevent similar incidents, so there is nothing lost.

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Is Everything Changing Too Fast?

Frank Crawford <Frank.Crawford@auug.org.au>

Talk to anyone in the computer industry and they will tell you that everything is increasing at an exponential rate, be it CPU performance, memory size, disk capacity or software size. The only thing that appears to be constant is cost. By that I mean that the cost of any computer system be it a supercomputer, workstation, PC or even a "cheapie" costs pretty much the same this year as any year, even though the performance expected from each changes.

This phenomenon is not only related to hardware, software as well is increasing in functionality, complexity and size at a similar rate. If it wasn't, what would you do with all the extra hardware? And despite the fact that the cost is "fixed", because the sales are increasing, the income to computer companies is increasing exponentially. Finally, the time between releases is decreasing exponentially putting tremendous pressure on everyone in the industry.

While initially this sounds good, humans can only adjust to so much change and those involved in the computer industry are no different. If you look at those in all areas of the industry you will find most are suffering from the rapid pace of change rather than benefitting.

One example is the much publicised Internet and in particular the World-Wide-Web, or "World-Wide-Wait" as it has often been described. The issue here is the lack of skilled staff able to keep up with the demand for capacity. It takes a number of years for people to gain the necessary experience or even undertake the minimum in training. This will not change in the near future, and the only sign of improvement is to automate some of the processes. Even so, automation takes time to design, test (an item often skipped) and then implement, all done at a human pace.

A more drastic example is the latest in programming languages, Java. This is a language which has been around for a year, is still in the process of being designed, initial implementation written and distributed and at the same time major projects being written. While this sounds good in theory, anyone who has used Java will point out that while the concept is good, there are a number of major problems with the current implementations, and that anyone claiming to be an expert is probably just the opposite. Although there are reports of some job ads requiring two years experience in Java, despite it only being available for a little over one year.

Barring the designers, no one in the industry has had time to complete a single major project, let along the three that folklore says is required. Even common sense will show that inexperienced users building on buggy software is not good practice, but seems to be accepted practice in the computer industry.

Next consider the rate of software release, even if software can be written fast enough, how do you get it installed? When the PC was first developed, most people never considered modifying the software shipped with the system. Later they started to buy the occasional new version from a computer shop. Today, software vendors are producing new releases every year or so, and selling direct to the public. If a car manufacturer expected you to change major components every six months to a year, they would be laughed at.

If you consider the future it becomes even worse. The current limitations in time taken in distribution and installation has been identified as a problem. To overcome these problems, it is planned to take the human out of the picture. Instead of the user purchasing software on a CD-ROM, it can and will be directly downloaded over the Internet, and, to automate

it even more, products like Java applets and Microsoft ActiveX not only download, but install the "software" with no human intervention. That just leaves the human to pay for it at their convenience.

This exponential change is quickly reaching a crisis, affecting all areas of the computer industry. Due to the time to get products to market, steps that involve human analysis are being trimmed or skipped, for example, detailed testing. Designers are under increasing pressure to get the product out as quickly as possible and so take short cuts, leave out what to them may be non-critical items. However, as the users of the software don't always use it as expected by the designer, this is perceived as a bug. One which won't be fixed, because the software designers have already moved on to other projects.

The only way to combat these problems is for computer users to start demanding computer companies stop trying to get things out quickly, and rather allow sufficient time to do a correct job at a human pace.

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1996 - the year of internet Commerce

Phil McCrea

What a year 1996 was for Internet Commerce! It was certainly a year when the corporate world took stock of the internet in its various guises, coining words such as Intranet and Extranet. Market research organisations such as Forrester, Jupiter and IDC almost fell over themselves in the superlatives they used to predict internet growth.

Let's just recap some of the highlights of 1996 in relation to Internet Commerce.

- Netscape went public with a flourish
- Ozemail and Sausage Software also went public - in the US and in Australia respectively
- Advance bank set up Internet Banking, and have announced plans for electronic cash
- Digicash established an office in Australia
- The first Australian Computer Money Day conference was held in Newcastle in April
- The Australian Broadcasting Authority got to understand what content regulation is all about!
- The first NCs begin to emerge. These store data on central servers rather than on the local PC, but some people feel strangely queezy about this - presumably they keep their money at home rather than in a bank...
- Java promises to challenge WinTel's desktop domination - truly liberating technology!
- We will soon be renting software on demand using Java applets - and possibly paying for it with ecash
- The forces are lined up in relation to Java with Sun, Oracle, Netscape, IBM et al strongly supporting Java; Microsoft is paying lipservice to Java but also championing Active X
- In an effort to obtain wider acceptance, Microsoft has handed Active X over to the standards group, The Open Group
- "On Australia" fell apart: Telstra has gone alone without its partner Microsoft
- Microsoft finally caved in to the Internet and gave up on the idea of a proprietary on-line service; the Net is now driving Microsoft's main strategy
- Other proprietary on-line providers - Compuserve et al - caved in to the Net as well
- Telstra senior management finally took the Internet seriously - when it became clear that IP traffic across the Pacific will soon exceed voice traffic...
- Telstra's "Big Pond" appears to have subsumed its separate Internet activities
- The great cable rollout rolls on - both above and below the ground, much to the chagrin of some local Councils
- Telstra and Optus are running trials of IP over cable modems in Melbourne and Sydney respectively
- Mastercard and Visa finally agreed on a standard security protocol - SET - and awarded the contract to Terisa systems to develop it for them
- Intranets suddenly becomes the word on everyone's lips, with Gartner and Forrester forecasting IP everywhere, and the corresponding demise of IPX and other proprietary protocols
- Altavista was launched by Digital - what an amazing success!
- The number of ISPs in Australia exceeds 300!
- The Internet Society, ISOC-AU, was created
- BT and MCI merged to form a major force in global telecommunications, forcing other major players such as AT&T, Deutsche Telecom and others into alliances
- The Financial Review became a finance AND technology newspaper, and organised the inaugural Australian Web Awards

I'm sure there are other highlights that I've missed - no doubt readers will point out their favourites.

So what's in store for 1997? It's dangerous to forecast in this business, but here goes anyway:

- IP will begin to become pervasive everywhere - hotels will soon be installing IP sockets in rooms,

providing instant internet connectivity - no dialling, no modem problems!

- NCs will start to proliferate, particularly in the corporate world, and may well become the standard Internet terminal. These will be permanently connected to Net like a telephone, with no noticeable booting time - "IP dial tone".
- The cost of PCs in corporations - around $12K pa according to Gartner - is causing corporations to ret-think their PC policy: Microsoft will come out with a slimmed down PC requiring less maintenance
- In homes, internet `appliances' will begin to appear - based on the NC. WebTV will be the first, followed by electronic directories located on walls next to telephones
- Modems will increase in speed to 56K, encroaching on ISDN speeds. ISDN may have a short life. ADSL, having been shunned for a while, is making a comeback
- Cable modems, running native IP, will start to be offered to consumers, and will be taken up readily by the SOHO market
- There will probably be a big shakeout in ISPs, as the big players such as Optus, Telstra, AT&T, IBM et al begin to dominate
- SET security will be an integral part of web browsers later this year, enabling secure credit card payments over the Net. Watch the floodgates open - we will never have come across a phenomenon like it
- Internet commerce will start to infiltrate the wholesale supply chain, reducing costs, and causing headaches for the established VANs
- The Commonwealth Government awarded Telstra the task of setting up electronic commerce infrastructure for its own purchasing. Renamed Transigo, it may well provide the backbone facilities for electronic commerce for the nation

Finally a wish list for 1997!

- That all our politicians would come to understand the potential of the internet: we give diesel rebates to the mining and farming community who represent an ever shrinking percentage of our GNP... The real future of our country is in our knowledge industries including internet commerce;
- That all our politicians would actually use the internet - in order to understand its potential;
- That the NSW Government in particular would recognise the potential of the internet as a business enabler; Victoria is showing the way here.

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You all do backups, don't you?... Don't you?

Glenn Satchell

In this day and age one would expect that backups are performed regularly on most computer systems. Sadly, this is an area that, like security, is often neglected until it's too late. It's even worse when one finds that although backups have been made, the data still cannot be recovered due to faulty media.

In this context the term "backup" means copying data to other disks and systems as well as the more popular tape media such as 4mm, 8mm and DLT.

It is depressingly common to hear of cases where important files have been inadvertantly overwritten or deleted. The unfortunate individual then finds that there are no backups to restore from. For remote or rarely used systems it can be easy to forget to do regular backups. Even for critical systems, sometimes key data such as system configuration files are not backed up, even if transient user data is.

In one recent example an email gateway system had a special sendmail configuration to allow for uucp, internal networks and internet mail. Some months later the customer was installing a series of system patches, one of which overwrote the customised sendmail configuration file. The system had not been backed up for over six months and now hundreds of users were denied a range of critical services. The sendmail configuration file had to be re-created, a difficult task given the amount of testing and verification required. If the system had been backed up a disaster would have been averted and become a 10 minute restore job.

There are other reasons why it might be necessary to restore from a backup - users may delete their files during a cleanup and then find that there was that important report they now need; an upgrade to a software package may overwrite an important configuration or license file; and of course a hardware failure may destroy or corrupt a whole disk.

These examples highlight the need for regular backups. The more frequently files are changing on the system the more frequently it needs to be backed up. It is generally recommended that systems be backed up at least once per day. Some sites even perform backups in the middle of the day as well as the evenings.

A backup scheme doesn't have to be elaborate or difficult. With the advent of cheap, high capacity tape drives it is common to be able to backup all data every night, thus avoiding having to go through multiple tapes to find the file or files that need to be restored.

Standard backup tools such as dump, ufsdump, cpio and tar come with every Unix system, so it is often not necessary to spend large amounts of money on complex commercial backup schemes. A simple shell script using one of these commands and clear documentation can be all that is required. Using the system scheduling utility, cron, to automatically execute your backup means that the daily backup ritual can now be reduced to replacing the tape in the drive each day.

Obviously for more complex network-wide backups more elaborate schemes are justified and it is here that the third party backup systems, with their additional features are a cost effective way to backup and manage large volumes of distributed data.

For those that have a hard time convincing their managers about the cost justification of backups, it is only necessary to consider the time and cost that would be involved in repairing the broken hardware, recreating the lost data, and then catching up the lost time.

If a disk has a hardware failure and everything is lost there may be many man-years of work involved to recreate it. Consider also the frequency of backups compared to the cost of tapes. If you only do weekly backups then the possible cost is a whole week's work if you lose a disk.

For mission critical data it may be cost effective to provide redundant copies of data using disk or system mirroring products. These types of solution obviously cost more, but they provide the ability to run without interruption if a disk or system fails.

Whatever strategy you use for your backups it is important to document how it works and how to retreive data from the backup. In the event of a disaster, reading the documentation should provide a step-by-step procedure to retrieve the required files in the minimum of time. This is especially important when many users may be affected.

Is your business insured? Of course it is. Is your data insured? Only if you have a properly configured backup scheme. Remember: backups are insurance for your data and if everything works well you may never need them, but you have to have them all the same.

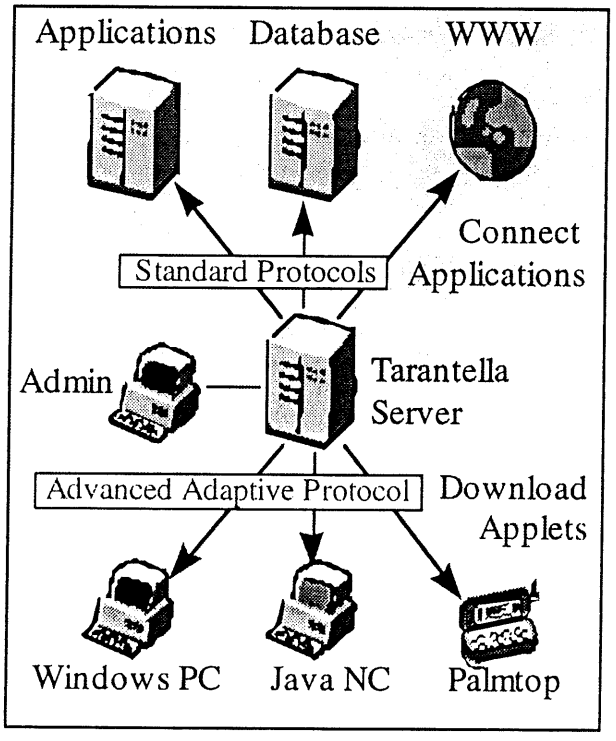
❖

Java for all?

Submitted by: Dennis Costello <dennisc@sco.COM>
SCO

For many the decision whether to re-engineer applications for Java is looming ever closer. But soon, technology will be available to run those legacy applications on Network Computer (NC) devices without rewriting them - a stepping-stone solution that will give users a taste of the internet way of computing without the pain and cost of a new system.

The Tarantella project from SCO aims to connect heterogeneous clients with legacy Enterprise applications. It is a UNIX based computing environment that distributes enterprise services to diverse client devices. The Tarantella server - which can be run on any of the major brands of UNIX - runs processes which appear to legacy systems as standard terminals, X11, character, 3270 or Winframe (Citrix/ICA), but which in turn serve the applications to Java based display engines down loaded to the client. Client devices must simply comply with or exceed the NC reference profile.



Standard protocols (such as TCP/IP and RPC) are used to connect applications with "protocol engines" that run on the Tarantella server. The Advanced Adaptive Protocol (AAP) ensures the full exploitation of every client capability, rather than a lowest common denominator approach. First the Tarantella server queries the clients (support for this is standard in the Java Virtual Machine) and uses the best method of serving the application, then monitors the session communications, tuning parameters such as server cache and packet size to ensure optimal performance. For example, if the client is a PC running Windows and a PC X server, it would be more efficient to run an X-client using the X server than as a Java applet, and if the connection is via a serial line then full compression with minimal server cache may provide the best performance.

At its core, Tarantella has an Application Server Access Datastore (ASAD) daemon and a Session Manager. The ASAD provides a central point of contact for the whole system, and as such can implement user authentication in a central manner. It is permanently running on the Tarantella server, being run as a background process at system boot time.

The Session Manager provides a central access point for all the application sessions running on the SCO Tarantella server. The session manager converts ASAD protocol requests into a format understood by the protocol engines. It listens on a well-known port on the Tarantella server, starting up protocol engines on demand, with a model of one protocol engine of each type for each user. If a user already has a protocol engine running, then the Session Manager connects the relevant display engine to that existing protocol engine.

This architecture eliminates the need for local software installation and management. All client software is downloaded on demand from the server as a Java applet, allowing it to be quickly and easily updated on the server as new versions become available.

And because Web browsers can run on a whole range of desktop devices -- from NCs and ultra-thin clients, to Java virtual machines running on Windows PCs, UNIX workstations and Macintoshes, UNIX applications can be deployed onto all these platforms. In fact, any application that is accessible to UNIX can be viewed from a Java platform - using additional server side "plug-ins" SCO Tarantella also lets IBM 3270, 5250 and Windows applications (under the Citrix ICA/Winframe engine) be displayed within the Web browser.

A feature of the architecture is the ability to suspend and resume sessions allowing a user to move between URLs via the forward/back buttons or links without having their sessions closed as the dynamic links are lost. There are two main classes of resumable channels: temporary (which persist from page to page navigation and which end either when the browser

session ends or after an amount of time) and permanent, which persist across browser sessions.

More information on Tarantella, including a more detailed version of this article, is available at http://www.tarantella.sco.com/

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Book Reviews

Sub-editor: Frank Crawford
<Frank.Crawford@auug.org.au>

Well, enough of all this Internet and back to some real books. In this edition we have a number of reviews of books on Unix programming and internals, programming languages and two on Web sites and publishing (okay, so I couldn't get rid of all of it).

Again, I have to thank Danny Yee, who has offered a few of his reviews, without any coaxing. He has no connection with any of the publishers, but does reviews of a number of books, for everyones benefits. His reviews can be read on the web from http://www.anatomy.su.oz.au/danny/book-reviews/

At present I don't have many books for review (although lots outstanding!) although I do expect to get a few shortly. The current practice is to post a note to the mailing list <auug-books@ansto.gov.au> and the newsgroup aus.org.auug when we have new books available. Unfortunately, this disadvantages members without network connections, or on the end of a low speed link. For people in such a position, either mail, via the AUUG PO Box, or fax me on (02) 9717 9273, with your contact details and preferences.

❖

UNIX INTERNALS: A PRACTICAL APPROACH

by Steve D. Pate
Addison Wesley Longman Limited
1996, 654 pages
ISBN 0-201-87721-X

Reviewed by: David Williams
<d.williams@newcastle.scantech.com.au>
Quality Coal Consulting

This is a most engrossing book, specifically concerned with an in-depth examination of the Unix kernel. It is specifically concerned with SCO OpenServer Release 5. The author identifies his purposes as being to demonstrate the flow of control through the kernel using crash, adb and other operating system features. In addition, the book shows how the features of the kernel utilise the capabilities of the 80x86 and Pentium processors to demonstrate how the kernel makes use of features such as memory management, context switching, time and interrupt management.

The text abounds with useful illustrations and sample outputs which greatly help in understanding the commentary. The author has also included many interesting programs that are very useful in providing practical and "hands-on" examination of topics raised for oneself.

A wide range of technical topics are well covered, from bootstrapping and initialisation to extracting kernel structures, to COFF and ELF file formats, to device drivers and inter-process communication facilities.

I have no hesitation in recommending this book to Unix programmers and system administrators - I feel it will well be a good addition to any bookshelf.

❖

UNIX SECRETS

by James C. Armstrong, Jr.
IDG Books Worldwide
1996, 946 pages
ISBN 1-56884-499-9

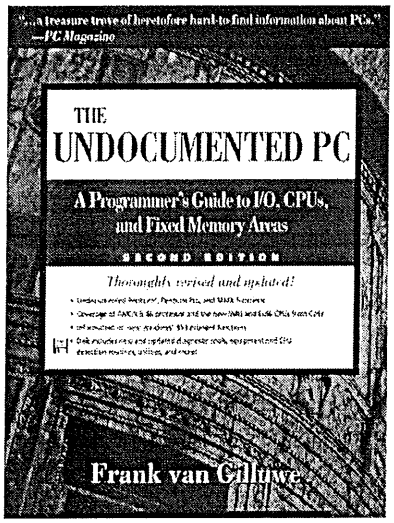
Reviewed by: Steven Clark <clark@hal9000.net.au>

This is a well written book. It is also a very large book, with nearly 900 pages devoted to descriptions of UNIX features, how they work, and how they can be used. The author targets the intermediate UNIX user who wants to develop their skills and knowledge to 'expert' level. I found it easy enough to read, and practical enough in its layout and style, that it could easily be used by a beginner who wants to learn how to use UNIX thoroughly. Yes, I am very impressed with this book.

At first, the size of the book had me feeling a little daunted. As I began to read, I found myself enjoying it immensely. I soon began to use it as a reference more than a fireside read. I think most regular UNIX users will find the main value of the book as a detailed hands-on reference. For beginners, the structure of the book and its concise style make it a great tool for learning-by-doing. Each chapter begins with a short list of topics it will cover, and ends with a summary of them. (This follows one of the more popular education models and opens possibility for using this book as a reference text for new UNIX users, such as university undergraduates)

The book is divided into 47 chapters arranged in 11 parts, each dealing with one aspect of the UNIX

NEW! from Addison Wesley Longman



The Undocumented PC 2nd Ed

Fully updated and revised, this new edition contains even more undocumented and hard-to-find information than the bestelling first edition. This includes comprehensive coverage of Pentium, Pentium Pro, and MMX functions, AMD's 5k86 processor, 5x86 and 6x86 CPUs from Cyrix, the Windows 95 Keyboard functions and more.

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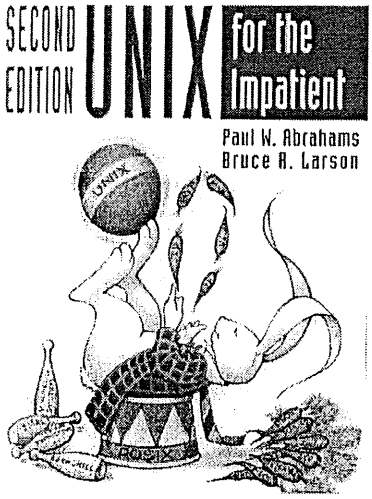
ISBN: 0 201 47950 8 RRP: $62.95



Unix for the Impatient 2nd Ed

Thoroughly updated to account for recent developments, the second edition of this bestselling book is an in-depth, comprehensive guide to UNIX–a handbook that you can use both for learning and as a ready reference. This book is written for the technically oriented UNIX user who doesn't want to wade through verbose tutorials, but isn't already an expert.

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system. Each is illustrated with real examples which are examined in the text. The author uses notes to mention related information, warnings to highlight potential mistakes, and short stories to provide context and develop the conversational tone. Cross-references within the text point to more detailed discussions of related issues, while many undocumented features are revealed along the way. A number of chapters were written by other people at the authors invitation. These sit quite well along side Armstrong's own writing, using a similar tone and style.

The book covers Accounts, Command Shells, File System Navigation, Editing, Processes, Networking and Communications in the first six parts. The main tools are explained in some detail, including what all the various switches do. Shell programming is explored, as are ed, vi, emacs, egrep, awk and a number of other tools. UUCP, NFS, NIS, email, and other Networking and network features are explained.

The X Window System is covered, along with the most common utilities and window managers. Topics covered include configuration files (naturally) as well as how to use a large number of X utilities (clocks, calculators, etc.). Even games and toys get a mention. On the useful side, there is a whole chapter devoted to integrating X into your UNIX environment (setting up .xinitrc and window manager configuration, mostly).

Then the book tackles Software Development in the UNIX environment. This covers advantages and disadvantages of UNIX, the development process, and describes the most common programming languages and development tools. Code optimisation, lexical analysis and parsing are also examined. A large number of GNU Tools are covered (Even Nethack gets a mention :)

The basic problems of System Administration are considered, with plenty of practical advice. The discussion of sendmail is a practical guide to setting up sendmail - as well as plenty of warnings and advice.

The final chapters on UNIX Variations and Directions include a heroic attempt to chart the lineage of UNIX variants. Linux is covered briefly (the author uses it at home) but FreeBSD/NetBSD are only mentioned. Also mentioned are Multiprocessor machines, and Standards - especially POSIX. Windows NT and Open VMS get a brief comment, as does Plan 9.

The CD-ROM included with the book contains source code for most of the GNU Tools discussed in the book, and a few other utilities. The CD-ROM used Rock Ridge extensions.

This book is huge, with the Table of Contents alone running for over 20 pages. It is a very comprehensive look at using UNIX, and well worth considering if you want to learn more about UNIX and how to get the most out of it as a user. I recommend it heartily to anyone - it now lives next to my Linux machine along with my ORA Nutshell books.

❖

APPLIED UNIX PROGRAMMING VOLUME 2

by Bharat Kurani
Prentice-Hall
1997, 1250 pages + diskette
ISBN 0-13-304346-0

Review by: Greg Wickham
<G.Wickham@Deakin.Edu.Au>

Writing a review of a well written paper or book is easy. Writing a review of a badly written paper or book is an arduous and difficult task. The reviewer has a responsibility of substantiating any criticisms by supporting them with constructive and accurate arguments. Unfortunately the reviewers overall opinion of Applied UNIX Programming Volume 2 falls inter the latter category.

To (exactly) quote from the preface of the book "The objective of APPLIED UNIX PROGRAMMING, Volume 2, is to provide examples for the UNIX library function along with the X/Open Single UNIX Specification manual pages in a single book.". This objective has been met, however it is necessary to ask whether the result is worthwhile.

The book is divided into four chapters. Each chapter is composed of the manual pages for a specific group of functions. Chapter 1 (1043 pages) is titled "System Interfaces" and is composed of the manual pages for the functions which are found in the C library, international library, and maths library. For each function, the manual entry is presented in addition to a small program which demonstrates the use of the function. There are two deficiencies with this presentation. First, occasionally lines of the manual pages are highlighted with a small coded annotation. Having examined the book I can not determined why these annotations exist and what the annotation code means. Second, related functions are not documented as such. For example, "bstring", "bcopy", "bcmp", and "bzero" are all grouped together on a single manual page under Solaris. However in this book, each appears on a separate page with no reference to the other functions.

Chapter 2 (74 pages) contains the manual pages for functions which are used when programming with sockets. At the tail end of the chapter four example programs are presented which illustrate the use of the documented functions. A deficiency in the presentation of these programs is that the bulk of the comments exist at the beginning of each program. Smaller comments are scattered throughout the programs which document the conceptual operation rather than rationalise the use of the network orientated functions.

Chapter 3 (84 pages) is initially confusing to the reader as its title is "Transport Interfaces" yet the opening page continually references to the acronym XTI. This confusion is further compounded by the preface of the book which refers to TI (Transport Interfaces) yet has no mention of XTI. In general, the comments concerning chapter 2 can be essentially repeated verbatim on chapter 3. A curiosity which exists in this chapter is the inclusion of a two and half page program which illustrates the use of the pipe() library call. Although not documented anywhere, it appears as if the author has selected the sample programs to compare their performance in similar tasks using BSD (Chapter 3) and XTI (Chapter 4). However, as there is no corresponding XTI equivalent of the BSD socket_pair() call, pipe() was then used without explanation.

Finally, Chapter 4 (47 pages) is titled "Internet Protocol Address Resolution Interfaces" and is composed of a collection of manual pages, each with a program which illustrates the use of the presented library functions.

Without a doubt, the objective of the book which was to present a collection of manual pages in a single volume has been met. However, the overall presentation of the book which includes sample programs eludes to greater things. This illusion is completely false. The sample programs in chapter 1 and 4 are mostly terse without adequate comments. Having learnt to write network programs on a staple diet of [Stevens] and [Rago], the examples which are presented in chapters 2 and 3 are completely without merit. The lack of a tutorial style presentation implies that only an experienced user would be able to decipher the example programs, and even in that case those programs not be worthy of being reference material.

A closing comment, with apologies to Greg Black, is "Leave it on the shelf with the first volume.".

[Stevens] W. Richard Stevens,
"Unix Network Programming",
Prentice Hall,
ISBN: 0-13-949876-1,
1990.

[Rago] Stephen A. Rago,
"UNIX System V Network Programming",
Addison Wesley,
ISBN: 0-201-56318-5,
1993.

PROGRAMMING PYTHON

by Mark Lutz
O'Reilly & Associates
1996, 904 pages + CDROM, US$44.95
ISBN 1-56592-197-6

Reviewed by: Danny Yee <danny@cs.su.oz.au>

Despite the predictable reptile on its cover, "Programming Python" is not at all snake-like. It is, rather, a friendly, welcoming, bear-like book. Lutz begins with a "teaser" chapter which shows off Python's features - for those familiar with the language a taste of things to come; for newcomers a glimpse of its power and flexibility. This is followed by instructions on obtaining and installing Python (which is on the accompanying CDROM, along with lots of other goodies).

Part two works its way through the language, from the most basic features through to object-oriented programming. This is done through the construction first of some simple shell tools and then of an increasingly sophisticated menu system (all the examples are on the CDROM). The overall approach is not very systematic (boxes are used for side-trips and digressions), but the result is pretty comprehensive. I often find overly discursive explanations annoying, but that wasn't the case here. Lutz continually provides new information and doesn't repeat himself, and I found myself learning even in sections I expected to be uninteresting.

Part three deals with advanced topics, applications of Python and its interaction with other systems. I read the chapters on persistent information, implementing objects (stacks, sets, and other data structures), and language and text processing. Other chapters cover graphical user interfaces (tk), extending Python in C, and embedding Python. There is also a brief look at Python's place in the software development cycle.

Though an introductory tutorial is included as an appendix, "Programming Python" is not aimed at the newcomer to programming (and there is room for another book here, since Python would make a great teaching language). Nor, though a technical reference is provided as an appendix, is it particularly useful as a reference - but then the online documentation for

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Python is pretty good. "Programming Python" is more a "tour" of the language.

If you are approaching Python from experience with other languages, then I recommend reading chapter two in the bookshop (and possibly the final section on the development cycle). That should give you enough of an idea of Python's features and Lutz's style to decide if Python and "Programming Python" are for you. Those already using Python are, unless they are real wizards, sure to learn something new from "Programming Python", if not about language features then about the idiom and ethos of the language.

❖

How to Set Up and Maintain a Web Site 2nd edition

by Lincoln D. Stein
Addison-Wesley
1997, 793 pages + CDROM
ISBN 0-201-63462-7

Reviewed by: Danny Yee <danny@cs.su.oz.au>

I was favourably impressed by the first edition of "How to Set Up and Maintain a Web Site", so I am pleased to see it updated and expanded. The basic structure of the original edition is retained: an introduction to the Web and how it works; a chapter on setting up a Web server (this edition covers Apache, WebSite, and WebSTAR) and another on making it secure; chapters on HTML, tools for creating and processing it, and HTML style; and chapters on using server scripts and writing them (using Perl). New to this edition are chapters on Javascript and Java and a CDROM with the examples from the book, an assortment of tools, and lists of useful sites on the Web itself.

No glitz, no glamour, no hype, no colour photos, no ornamental graphics - "How to Set Up and Maintain a Web Site" just has clear explanations, informative examples, accessible information, and good advice. With its technical detail and sophistication (and assumption of general operating system skills), it is not for the newcomer to the Web who simply wants to set up a home page. If you are faced with the task of setting up a Web "site", however, and want one volume to guide you, then this is the one you should get. Server administrators and users doing sophisticated Web publishing will find it a handy volume to have around.

A very minor peeve is that the back cover is, for no obvious reason, folded in and - as seems to be invariably the case when this is done - folded too short, leaving the cover unable to carry out its primary duty of protecting the back pages of the book. Otherwise the layout and design of "How to Set Up and Maintain a Web Site" are up to the same standard as its content. (I sometimes wonder whether it is worth printing books about the Web on acid-free paper, though!)

❖

The Art of Electronic Publishing the Internet and Beyond

by Sandy Ressler
Prentice Hall
1997, 450 pages + CDROM, US$39.95
ISBN 0-13-488172-9

Reviewed by: Danny Yee <danny@cs.su.oz.au>

"Oh no, not another book about the Web!" was my first thought on unpacking "The Art of Electronic Publishing" - and "OH NO! .... not another book about the Web!!!" is the first sentence of its preface. And, though it begins with ninety pages on the Web, it actually does cover publishing quite generally. Ressler discusses standards and their application, document processing and management, typography, SGML, ODA, VRML, fonts, graphics formats, colour standards, TeX and troff, software packages, CDROMs and DVDs, ISO 9000, and lots more. There are also case studies of a number of publishing projects, among them the Second Edition of the Oxford English Dictionary, the CAJUN project, and the Text Encoding Initiative.

Though its superficiality is unavoidable (how much can you say about DTD construction or METAFONT in a few pages?), "The Art of Electronic Publishing" also exhibits a certain laziness in its use of materials: a Microsoft press release, quoted verbatim, hardly makes a good explanation of ActiveX, let alone a useful evaluation; and, while it was good to see a mention of the Electronic Frontier Foundation, I don't think the complete text of the 1990 press release announcing its creation was a sensible inclusion. Most distressingly, given its subject, "The Art of Electronic Publishing" displays obvious signs of sloppy editing and proofreading.

"The Art of Electronic Publishing" does offer a useful overview of the entire electronic publishing world,

with its many components and its variety of standards and software systems. It also contains plenty of pointers to sources for more information. Though much of the material was familiar to me, much of it was not, and I picked up quite a few useful bits of information from it. It was also a lot of fun to read.

❖

THE JAVA LANGUAGE SPECIFICATION

by James Gosling, Bill Joy & Guy Steele
Addison-Wesley
1996, 825 pages
ISBN 0-201-63451-1

Reviewed by
Brendan Quinn <brendan@sofcom.com>
Sofcom Internet Publishers

It's about time we saw something down-to-earth about Java. I, for one, am thoroughly sick of the hype surrounding the language, telling us how it will change our lives and what it will do for our future. Can't we just get on with using it, instead of wading through marketing-speak and snoring through glossy presentations? Now, at last, we can.

This book almost goes to the other extreme, not rating very highly in the readability stakes. About the only hint of frivolity in the book is the copious use of quotes, taken en masse from the online Bartleby Library. Every blank space in the book is peppered with quotes, some only vaguely relevant to the surrounding content. They pale against the witty and relevant use of quotes in Stroustrup's C++ volume.

That said, the book was written not as a dictionary of quotations, but as a language reference, and in that capacity it performs very well. No other book could hope to document the language as thoroughly as this, especially as it was written by three of the team that designed the language, including Java demi-god James Gosling. From the fourteen page contents listing right through to the 55 page, double column index, this book drips information.

After spending a couple of pages explaining what a grammar is, the book proceeds to go through each part of the language in amazing detail. The lexical tokens, data types, casts & conversions, name space, packages, classes, interfaces, arrays and exceptions are each given a chapter, in many cases explaining why certain decisions were made in the language design and providing examples where they would be useful.

Then the authors go on to explain the internals of the compiler and run-time environment, including loading and linking, expression evaluation, control flow and threads. Just in case there was something they left out, they included the full LALR(1) grammar for Java, so if you have a really curly question, you can look it up in the grammar and work it out yourself! Or I suppose you could write your own compiler with it.

After those 20 pages of straight BNF, the rest of the book is much more useful: full documentation of the java.lang, java.io and java.util intrinsic classes. These docs are much better than the online API descriptions, giving examples and discussing the underlying algorithms where they are not obvious. It even documents which methods are slated for introduction in Java 1.1. I assume the other classes (java.awt, java.applet, java.net and the new Java 1.1 classes) will be documented in other volumes of the JavaSoft Java series.

So the final verdict? An excellent reference manual for serious Java programmers. Newcomers be warned that this is definitely not an introduction to Java, even for C or C++ programmers; for that you still can't go past Flanagan's "Java in a Nutshell" (O'Reilly 1996). From chapter one the "Java Language Specification" assumes a working knowledge of the specifics of Java application programming. It takes up where Flanagan left off, giving us the full lowdown on the language and not leaving any gaps.

Interestingly, the word "applet" doesn't even appear in the index, which demonstrates that the JavaSoft team are trying to make the computing community realise that Java is a well designed, robust and clean third generation language, not just a toy for making pretty animations on Web pages. And they just might do it.

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UNIX SYSTEMS PROGRAMMING FOR SVR4

by David A. Curry
O'Reilly & Associates
1996, 596 pages, $69.95
ISBN 1-56592-163-1

Reviewed by:
John Dodson <johnd@physiol.usyd.edu.au>

"Unix Systems Programming for SVR4" is an O'Reilly & Associates Nutshell Handbook, featuring a large male Lion on the cover. The reasoning so the Colophon states, is that "UNIX and it's attendant programs can be unruly beasts. Nutshell Handbooks

help you tame them". The Lion, being carnivorous, is possibly one of the most feared by Humans of the great Cats may be overstating the ferocity of Unix, but for the beginner to Systems Programming on any version of Unix is perhaps a most fitting vision.

All programs, except those written by the most perverse programmer, use the services supplied by the underlying operating system. It makes life simpler to do so. However being able to tie the documentation found in section 2, and parts of 3, of the Unix manual (/usr/man/man[23]) together into a coherent, concise and understandable document for the beginner is no easy feat, but one that David Curry has managed well in "Unix Systems Programming for SVR4".

He takes the programmer gently through the forest (which is full of carnivorous compilers) that are the Unix system calls.

There are chapters on all the necessary concepts the programmer will need to write and port applications programs for SVR4. Specifically the author has written the book for Solaris, HP-UX, and Irix versions which are SVR4 compliant. However with almost all versions of Unix now being SVR4 and POSIX (and everything else) compliant it is also applicable to them, although David has not tried his example programs on them.

The book is well structured, and gradually builds up to the more complex concepts and interfaces. In particular code fragments used early in the text are used later to build on and illustrate more advanced programming techniques.

After dealing with the more basic system and library functions, such as I/O, file and directory manipulation and locking, memory-mapped files, in the first 6 chapters, chapter 7 deals with that ubiquitous problem "time". It being perhaps the most trivial part of a program to port, once you have mastered its political and geographic complexities.

Importantly David manages to point out the security risks associated with writing programs which use system services. In chapter 8 he includes an excellent checklist to be used when writing or considering set-user-id and set-group-id programs which was adapted from Matt Bishop's original.

There is a short chapter on System Configuration and Resource Limits which with the advent of POSIX has basically been standardized through all Unix versions.

We then begin to get into the more complex programming areas. The porting minefield that is Signals, is well covered in chapter 10 followed by a chapter on Processes. Both chapters are well illustrated with program examples. As is the following chapter on raw Terminal I/O, a subject that will always give the programmer hours of fun, but which looks like passing away as graphical interfaces require a book of their own rather than just a chapter.

Interprocess communication is dealt with in chapter 13 and is concluded with advice from the author with which I can only concur "System V IPC should probably be avoided unless absolutely necessary", unless you are a purist.

He makes a similar comment following the networking chapters regarding the Transport Layer Interface, and once again I can only agree that if you want elegance use TLI, but if portability is the goal use sockets.

The last chapter, "Miscellaneous Routines" is probably one of the best for the beginner, as it gives insights into the workings of many of the "standard" Unix tools & functions. Of particular interest to some will be the segment on Internationalization.

The Appendices, which probably take up 10% of the book, also contain valuable information which it would take some time to extract from the system header files

The most useful parts of the book for the programmer porting existing applications are the "Porting Notes" segments at the end of the explanation of each concept or chapter which deal comprehensively with the differences between the various Unix flavours in the current context. Also each chapter commences with a short form contents, and ends with a very good summary of what was covered. This gives the reader the opportunity to confirm what they have learnt, in good teaching style.

This book, and it's example code fragments, which are available on the web, are a valuable resource for Unix Programmers.

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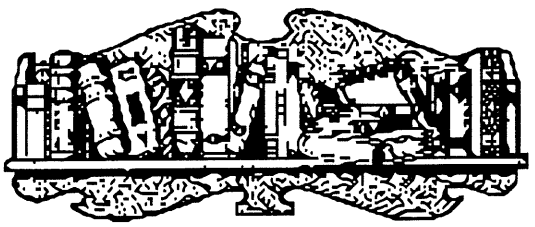

Meet the AUUG Exec

Sub-editor: Liz Egan <bugmgr@auug.org.au>

In order to get to know those people on the AUUG Executive Committee, AUUGN will now feature an article on a couple of members in each edition. Featured this month are David Purdue, AUUG Secretary and Lucy Chubb, AUUG Vice President.

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DAVID PURDUE

Technical Account Mgr - SunSoft
AUUG Secretary

David Purdue is the Secretary of AUUG Incorporated, and has served on the AUUG Management Committee for nearly two years, previously being, at different times, AUUGN Editor, Assistant Returning Officer and Returning Officer. He has been a member of AUUG for nearly 10 years.

David Purdue is a Technical Account Manager for SunSoft, responsible for post sales support in Australia, New Zealand and Asia South. A large part of his life is spent solving someone else's problems.

David is also Secretary of the AUUG NSW Chapter, and heavily involved in organising their Summer Conference, and is on the programe committee for AUUG'97. He also is a director of ISOC-AU, and a member of SAGE-AU and the IEEE Computer Society.

All this serving on committees has driven David up the wall - literally. David has recently taken to climbing at the local indoor climbing gym. However his first love is music; David plays several instruments and is a proponent of Morris Dancing.

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LUCY CHUBB

Senior Consultant, Softway Pty Ltd
AUUG Vice President

My career in computing was something of an accident. I wanted to do maths, but had to find something else to fill the rest of my timetable. At enrolment in second year the computer science subject advisor happened to be sitting next to the the maths subject advisor, and so that's what I enrolled in. Soon afterwards I met UNIX (it was version 7 then --- and quickly learned to use the editor ed without echoing changes because the hard copy terminals most of us were using were so slow!). Exploring UNIX was so enjoyable that I was regularly among a small group of people thrown out of the computer labs late at night (well after closing time) by the security guards.

After three years at NCR, where working on a mainframe in the absence of UNIX taught me to really appreciate the power of UNIX, I returned to university to complete an MSc and a Phd. My MSc was a port of version 7 UNIX. I focussed on rewriting the memory management system (partly because the existing code was so complicated that I gave up trying to understand it :-). It's the most complicated "hello world" program I've ever written --- it took porting an operating system and writing a couple of device drivers before my little user program would run :-) It was in the last stages of finishing my MSc that AUUG founder Associate Professor John Lions suggested that I submit a paper to the 1987 AUUG conference. That

was my first introduction to AUUG. My Phd had nothing to do with UNIX.

During my Phd I took a job with Softway (a company that deals mainly in open systems, communications software, and systems and network security). I have recently done some casual lecturing in Distributed Operating Systems at the University of New South Wales. A number of Softway-ites have been very involved with AUUG in the past, so it was easy to become more involved myself. Apart from going to lots of winter conferences, I ran the Sydney Summer Technical Conference in 1992 and 1993 (before chapters got off the ground), have served as a committee member on the National Executive in 1994 and 1995, and am currently vice president.

I have a curiosity which has a hard time coping with the fact that there are only 24 hours in a day. My current technical interests include UNIX (particularly the kernel and device drivers), computer security, cryptography, computer communications, distributed systems, software engineering, and software quality. (And if anyone wants to know, I'm a vi user and I run Linux.)

Don't think I spend all my time with computers. I also enjoy bush walking, photography (mostly nature, but sometimes to be seen with a camera at AUUG events), weight lifting, Chinese painting, good food and wine (especially red), and reading. My favorite authors include Jane Austen, Dorothy Sayers, Patrick O'Brian, whoever it was who wrote Beowulf (and others too numerous to list).

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AUUG News: Queensland

Mark White <m.white@pacific.tandem.com>

1997 promises to be a huge year for the chapter, with the 1997 Chapter Technical Conference to be held on April 24th, and of course Brisbane will host the AUUG 97 National Conference - "Technical Solutions" - from September 3-5 at the Brisbane Convention and Exhibition Centre.

The Chapter's schedule of monthly meetings began in fine style on Tuesday, January 28th, at the Inn on the Park, Coronation Drive, Milton. Our guest speaker for the evening was Greg Kable, Regional Technical Manager for BEA Systems. Greg's topic was "The Future of Network Computing" and included Greg's own views on the history of client/server computing, the defintion of a universal client, and a justification of why middleware is so valuable in the commercial computing world.

Greg concluded his well-received presentation with a peek into the future - Java, distributed objects, and ORBs abound in this next generation of client/server. Outlining his views for an architecture combining the best of the object world with traditional transaction processing technology, Greg's good news was that such products are just around the corner. A good presentation, and a good evening was had by all.

QAUUG Chapter meetings are always held on the last Tuesday night of every month, from 7:00 pm at the Inn on the Park, 507 Coronation Drive, Milton. The next few dates are:

February:	7:00pm, Tuesday 25th February
March:	7:00pm, Tuesday 25th March
April:	(No monthly meeting, Chapter Technical Conference)

As a final note, the Chapter Technical Conference will be held on April 24th at Brisbane's Parkroyal Hotel. There are still some presentation slots open for this event so if you have something interesting to say, let us know about it! You can contact the QAUUG committee by e-mail (qauug-exec@auug.org.au) or call the AUUG secretariat.

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AUUG News: New South Wales

Sub-editor: Matthew Dawson
<dawson.matthew.ms@bhp.com.au>

You may notice that this issue's chapter report is more substantial than usual. This is an attempt on our part to make better use of this forum to promote all chapter activities. We are hoping to increase membership participation in all events. This means you.

Please remember that this is your user group. If you don't participate then you are not getting as much out of it as you should be.

CHRISTMAS PARTY

On December 19 a Christmas party was held jointly with SAGE-AU. The venue was the House of Guang Zhou restaurant in Haymarket and guests started to filter into the establishment around 6:45 PM. Mind you it wasn't until 7:30 PM that there were enough attendees to class the party as having started. And as per usual it was the people who had to travel furthest on the day who were first to arrive; I flew in from Melbourne and Peter and Julie Gray drove up from Wollongong. This particular quirk seems par for the course with AUUG events. :)

The meal was your standard Chinese banquet and the service was great - especially when you consider that they were feeding 19 adults. No mean feat by my standards at least. The meal itself was laced with discussions of topics ranging from the woes of the Piper plane company to the latest information about the US Crypto-product export laws. Standard fare for a group of IT professionals I suppose.

After the meal a few of the group moved on to The Lord Nelson, an English-style pub somewhere in Sydney, but most called it a night. I guess some of us were more to dedicated to their work than others...

I happened to have my camera with me on the night so here are the results [over]:

Clockwise from front left: Paul Russell, Unknown, Michael Usher, Greg Rose (obscured), Phil Saunders, Paul Colquhoun, Danny Yee, Unknown, Peter Gray and the photographer's (Matthew Dawson) chair.

Clockwise from front centre: Julie Gray, Ian Crakanthorp, David Herd, Charlie Brady, Unknown, David Purdue, Catherine Allen, Rodney Campbell and Francis Liu.

JANUARY MEETING

David Purdue

The January joint meeting of the AUUG NSW Chapter and the SAGE-AU NSW Chapter went ahead as usual on the third Thursday of the month, despite the fact that we did not have a speaker organised. Fifteen people turned up, of which 4 were AUUG members, 3 were SAGE-AU members and 8 were members of both.

In place of a speaker, we organised a Q&A session, trying to take advantage of the broad technical expertise present. This was slow to get going - apparently all the attendees were able to answer their own questions - until Frank Crawford reminded us of the suggestion that we should have a Microsoft bashing session. This prompted a lot of discussion, covering strengths and weaknesses of Windows NT, the problems created by Microsoft's refusal to publish all its application programming interfaces, to various solutions for allowing UNIX users to run Microsoft applications.

After an hour's discussion, we retired to the Bowler's club, where we had 14 people crowded around one table to enjoy an excellent Chinese banquet.

UPCOMING EVENTS

Following is the current timetable for all events relevant to the NSW membership. The latest timetable information for any of our activities is available at http://www.auug.org.au/nswauug/.

SUMMER CONFERENCE

Catherine Allen and David Purdue

It is with great regret that the Committee of the AUUG NSW Chapter announces the cancellation of the 1997 Summer Technical Conference. It is being cancelled due to lack of registrants.

In place of the Summer Conference we will be holding our usual monthly meeting. This will take place on the evening of Thursday, 20th February 1997, at 6:30pm for a 6:45pm start. Venue is 'The Occidental Hotel' as usual (see below for details).

Our featured speaker at this meeting will be Greg Rose, who will be talking about US Cryptography Export Regulations. Here is an abstract for his talk:

"Regulations covering the export of cryptographic software from the USA to other countries have, as of January 1st, moved from the Department of Defence ITARs to the Department of Commerce EARs (export Administration Regulations). In this talk, Greg will attempt to give an accurate and up-to-date picture of the ramifications of these changes, as viewed from within the USA and as they apply to us in Australia."

Greg is well known to the Australian UNIX community, is currently a Staff Engineer and Manager of Quallcomm Australia, and can identify at least three activities that make him a professional cryptographer. Expect a lively and heated discussion on the politics and practicalities of crypto.

In addition, we have arranged for Greg to present the Richard Stevens Network Programming tutorial. Richard Stevens is the acknowledged guru in this field, and this tutorial was the best-seller at USEnix.

The tutorial will be presented in the board room of the AUUG offices, level 4, 90 Mount Street, North Sydney. The tutorial will run from 2pm to approximately 5pm.

The cost of the tutorial is $150 for AUUG Members, $200 for non-member. The tutorial is strictly limited to 10 places.

To register for this tutorial, please call the AUUG Secretariat on 1800 625 655.

One final thing. If a particular reason kept you from registering for the conference, please let us know, so that we can address any problems before the next technical conference. Please e-mail:

auug-nsw-exec@auug.org.au

ANNUAL GENERAL MEETING

The NSW chapter of AUUG will be holding its Annual General Meeting on March 20 at the Occidental Hotel (see below for location). It will be starting at 6:45 PM sharp.

TIMETABLE

Date		Activity
February	20	Richard Stevens' Network Programming tutorial (presented by Greg Rose) Monthly Meeting (Guest speaker: Greg Rose)
March	20	Annual General Meeting
April	17	Monthly Meeting
May	15	Monthly Meeting
June	19	Monthly Meeting
July	17	Monthly Meeting
August	21	Monthly Meeting
September	3-5	AUUG Conference and Exhibition - Technical Solutions (Brisbane)
	18	Monthly Meeting
October	16	Monthly Meeting
November	20	Monthly Meeting
December	18	Monthly Meeting

All monthly meetings are held jointly with SAGE-AU. Members should arrive at 6:30 PM for a 6:45 PM start. The venue is:

The 2nd Floor Function Room
The Occidental Hotel
43 York Street
Sydney

The Occidental is a block towards Town Hall from the York Street exit of Wynyard Station.

STAYING IN TOUCH

As a result of the expense in producing mail-outs for all major chapter activities, the committee has decided that mailouts will now occur quarterly. To ensure that you always have access to an up-to-date version of this timetable we are maintaining a copy at <http://www.auug.org.au/nswauug>.

The Chapter Committee also sends notices of events to the AUUG NSW Members mailing list. If you are not currently subscribed to this list send a message to <majordomo@auug.org.au> with the message body:

subscribe auug-nsw-memb

If you do not have an e-mail account or would prefer to be faxed all notifications phone David Purdue on (02) 9904 7057 or e-mail him at the address below.

CONTACTS

Wayne Bell
Chair
wayneb@sydney.dialix.oz.au

David Purdue
Secretary
david.purdue@aus.sun.com

AUUG NSW committee
auug-nsw-exec@auug.org.au

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AUUG News: Victoria

Enno Davids <enno@metva.com.au>

The Victorian chapter of AUUG will be holding a one day event on March 25th, featuring speakers presenting papers on various technical themes related to the Open Systems and Internetworking fields. The venue will be the

Park Royal Hotel
534 St. Kilda Rd
Melbourne, 3004

The cost is expected to be around $150 per attendee with the usual incentive scheme for early registrants and AUUG members.

As it currently stands, the program consists of the following speakers and we will be adding suitable interstate (or others) to complete the program.

Object Oriented based simulation of distributed and concurrent systems
Arnold Pears, Latrobe University

Implementing UNIX High Availability
Michael Brown, The Fulcrum Consulting Group

Using off-the-shelf PC hardware for Open Systems
Luke Mewburn, connect.com.au P/L.

DES demystified
David Burren, The Convergent Group (Asia-Pacific).

Tsunami: taking the network down with Java
Michael Paddon, Australian Business Access

Python: Yet Another Object Oriented Interpretive Scripting Language
Enno Davids, Metva P/L.

The program is being finalised by the end of February and details will be posted on the AUUGVIC web pages at:

http://www.vic.auug.org.au/auugvic/av_chap_conf.html

or can be obtained directly from either:

president@vic.auug.org.au
chapconf@vic.auug.org.au

❖

AUUG News: Western Australia

Daniel Baldoni <dbaldoni@freport.wa.gov.au>

This month's meeting is probably the most technical we've had for quite some time. Our speaker was Brian Feige, National Technical Manager for NJS Technologies and he spoke about new and developing hardware technologies, centred mainly on memory. Some of the "items" described are specific to Intel processors - but with Linux and the free BSD variants becoming more widespread, expect to see software taking advantage of them as well as Windows 3.1/NT/95 applications.

As you may expect, Brian started out with the basics by describing SIMMs (Single In-line Memory Module). These come in 30- and 72- pin versions which are 8 and 32 bits wide, respectively. They use Fast Page mode addressing, keeping (typically) 4 code pages in memory. They feature a single wait state and are relatively slow (>60ns). Brian also pointed out that they aren't very intelligent in that they don't know where the next address is (remember this comment - it will show up again).

The next logical step was the DIMM (Dual In-line Memory Module). The only real difference is that these chips have dual addressing sets. They are available in a wide variety of package sizes.

ECC memory is what's most likely under the hood of your SPARC boxes. These chips provide reliability by using byte-word comparisons. Two bits are used as checksums - one for the data in a location and one for the data as it's accessed. If the checksums don't agree, the location is re-read. The memory is effectively slower as a refresh cycle is triggered whenever a comparison fails.
EDO (Extended Data Output) packages are available in a variety of sizes. They use a pointer to the next available address and zero wait states to produce a faster service (40-70 ns). Brian warned that people using Pentium 133's shouldn't use chips rated at less than 60ns because they (the Pentiums) use a 66ns bus. Using slower memory could cause memory errors (try solving a problem like that when the chips themselves test out fine).

The latest improvement are SDIMM/SDRAM (Synchronous DIMM) packages. These are 128-pin and 64 bits wide. They don't have a refresh cycle because instructions and code are stored sequentially and they're FAST (10-15 ns). Now, that "sequential" comment has probably intrigued you - it certainly got the discussion raging at the meeting. A series of questions (actually, it was one question repeated several times by different people with varyious phrasings) were fired at Brian. Most of us believed memory was one big list (remember your first year Computer Science courses?) and Brian spent quite a bit of time trying to explain how it really works - I'm not going to go into the details because most of it went straight over my head (and I wasn't the only one suffering that embarrassment). Suffice it to say, that a lot of the work is done by the supporting hardware. If you want clarification, I suggest you contact a hardware engineer.

Advances in memories weren't the only things Brian discussed. He also described the Universal Serial Bus. Contrary to what some believe, this is not a diversion from the PCI bus architecture. It is an extension to existing serial bus technology supporting up to 64 addressable (similar to SCSI) devices on a single port, with speeds ranging from 10kb/s to 10Mb/s. Work is currently being done on device classes (to avoid problems where devices don't "like" one another). For example, one driver will handle all keyboards and will work properly with a driver written for all modems.

The DMI (Desktop Management Interface) is a mechanism which will allow a user to configure all of their existing Plug & Play cards. Whether this is a software-only solution or a hardware/firmware solution (as was done by the mid-later Amiga models all those years ago) wasn't made clear.

A MMX (Multi-media eXtensions) Pentium has an extended instruction set. The 57 new instructions provide better performance for common operations involved in using sound, video etc. Multimedia software is expected to have two versions shipped and detect which processor is running at installation time, and install the appropriate version. These chips are expected to be available in March or April this year.

The final feature I noted was the AGP (Accelerated Graphics Port). This uses a dedicated channel on the PCI bus to provide increased bandwidth. It is expected that newer PC graphics cards will be cheaper.

As I stated up front, this was the most technical talk we've had for some time and I may have misread my notes (especially considering the delay in getting this article to our beseiged AUUGN staff <grin>). If anybody spots a glaring error, please don't hesitate to get in touch with me or the editorial staff so that it can be corrected in a later edition.

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I hereby certify that the applicant on this form is a full time student and that the following details are correct.

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Date: _____

AUUG Secretariat Use

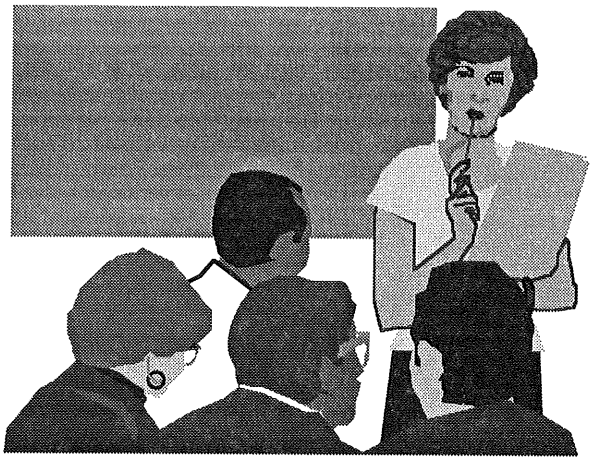
Chq: bank _____ *bsb* _____

A/C: _____ *#* _____

Date: _____ *$* _____

Initial: _____ *Date Processed:* _____

Membership#: _____



Minutes of the Annual General Meeting of AUUG Inc. (Draft◊)

Held at the Latrobe Theatre, World Congress Centre, Melbourne 3000.

Thursday, 19th September 1996.

Present: 60 members and 5 non-members signed the register.

The meeting opened at 1715.

1. Apologies

Phil McCrea

2. Minutes of the previous meeting

Held over, as the minutes had not yet been published.

3. Returning Officer's Report

Presented by Peter Chubb as the Returning Officer.

Michael Paddon was elected as President - unopposed.

Lucy Chubb was elected as Vice President.

David Purdue was elected as Secretary.

Stephen Boucher was elected as Treasurer - unopposed.

Malcolm Caldwell, Alan Cowie, Frank Crawford, Pauline van Winsen, and Mark White were elected as General Committee Members.

Chris Maltby and Greg Rose were elected as honorary life members of AUUG.

MOTION: That the Returning Officer's Report be accepted.

Neil Murray/Scott Colwell - CARRIED.

4. President's Report

• Welcome to the new life members.

• Robert Elz (kre) has declined the honorary life membership he was elected to last year.

• John Lions is not well. This is the first AUUG conference that John has missed and we miss him.

• Robert Elz has resigned as AUUG's Public Officer, and so we need to find a new Public Officer.

• Phil Anderson has resigned as AUUGN Editor. We thank him for his efforts, and we are now looking for a new editorial team.

• Many thanks to our corporate sponsors: Digital, Sun and Telurian.

• In the last year:

- we held Chapter Conferences in all capitals, including Adelaide where we staged a Tutorial session.

- The "Java in a Demitasse" roadshow presented by Dave Flanagan covered about 1/2 the country.

- A Chapter Council was held.

- We had regular articles in the Australian and OSR.

- We updated our membership collateral: Handbook, Survey and Forms.

• All members are encouraged to get involved with the upcoming Chapter Technical Conferences.

• AUUG'97 to be held 3rd-5th September in Brisbane.

• Thank you all for coming to the conference.

◊ These minutes will be ratified at the next AGM.

MOTION: That the President's Report be accepted.

Peter Chubb/Neil Murray - CARRIED.

5. Secretary's Report

Current Membership:

- 261 Institutional (511 people)
- 689 Individuals
- 32 Student
- 3 Life

Total: 985 members (1235 people)

People by State:

- NSW: 420
- Vic: 293
- ACT: 185
- QLD: 151
- WA: 100
- SA: 51
- NT: 29
- Tas: 14
- Overseas: 20

MOTION: That the Secretary's Report be accepted.

Peter Gray/Lawrie Brown - CARRIED.

6. Treasurer's Report

• Balance sheet presented (see attached). These figures are unaudited.

• Current value is $163,954.98.

• Over $50,000 of this is held by Chapters.

• We gave AUUG'96 a $30,000 float, which we should get back.

Q. Will chapters get audited?
A. No, it is too expensive to audit them all. 2 will be chosen.

Q. Why is there no history shown?
A. Didn't think about it. The history is in the public record.

Q. Why are the accounts unaudited?
A. Time constraints between close of financial year and AGM.

MOTION: That the Treasurer's Report be accepted.

Greg Rose/Drew Aimes - CARRIED.

7. Ratify appointment of Peter Chubb as Assistant Returning Officer

As a result of the 1996 election, the position of Assistant Returning Officer was left vacant. The AUUG Management Committee appointed Peter Chubb.

MOTION: That this meeting ratify the appointment of Peter Chubb as Assistant Returning Officer of AUUG.

David Newell/Mirek Karmen - CARRIED.

8. Appointment of new Public Officer

Held over - called for volunteers.

9. AUUG'97

Held over for general discussion.

10. Other Business

AUUG'95 & AUUG'96

Greg Rose noted that for the past two conferences, the original Programme Committee Chair was not the person who saw the job to completion, and in both years the programme was rescued by the solid efforts of certain individuals.

MOTION: That this meeting give a vote of thanks to Piers Lauder and Lucy Chubb.

Greg Rose/Peter Chubb - CARRIED BY ACCLAMATION.

AUUG'97

Comments by David Newell:

- Delighted it is out of Sydney/Melbourne.
- However, are we restricted by the 1987 motion that we alternate Syd/Mel?

Michael Paddon:

- The Syd/Mel cycle was for business reasons.
- We must put service before profit, subject to the constraints of financial responsibility.

Stephen Boucher:

- We are in a position where we can financially justify the move.

- We are not planning on a loss.

Numbers:
- This year: 432
- Last year: 842
- Year before: 653

MOTION: That the Management Committee be free to organise the annual in the city of their choice.

Neil Murray/Scott Colwell - CARRIED.

Greg Rose dissented, as he felt the motion was not appropriate the Management Committee could act without it.

Comment by Chris Mugden:
- regarding drop in attendance - a colleague says it is "too much of the same thing."

Questions from the floor:

Q. Is a year long enough to organise a conference?
A. We can't really plan any further ahead.

Q. What is the anticipated financial result for AUUG'96?
A. (Stephen Boucher) Too early to tell.

Q. (Catherine Allen) Who is organising AUUG'97?
A. No appointments made yet.

Michael Flower:
- The exhibition is getting tired.

Michael Paddon responds:
- We are trying to make the conference profitable.

MOTION: That this meeting be closed.

Michael Usher/Peter Chubb - CARRIED.

Meeting closed at 1820.

❖

AUUG Inc. Election Procedures

These rules were approved by the AUUG Inc Management Committee on 14/12/1994

1. NOTICE OF ELECTION

The Returning Officer shall cause notice of election to be sent by post to all financial members no later than March 15 each year.

2. FORM OF NOTICE

The notice of election shall include:

(a) a list of all positions to be elected, namely:
- President
- Vice President
- Secretary
- Treasurer
- Ordinary Committee Members (5)
- Returning Officer
- Assistant Returning Officer

(b) a nomination form;

(c) the date by which nominations must be received (in accordance with clause 21(2) of the Constitution, this date is 14 April);

(d) the means by which the nomination form may be lodged;

(e) a description of the format for a policy statement.

3. POLICY STATEMENT

A person nominated for election may include with the nomination a policy statement of up to 200 words. This word limit shall not include sections of the statement stating in point form the nominee's name, personal details and positions held on, or by appointment of, the AUUG Management Committee and chapters.

Policy statements exceeding the word limit shall be truncated at the word limit when included in the ballot information.

The Returning Officer may edit policy statements to improve readability, such edits being limited to spelling, punctuation and capitalisation corrections and spacing modifications.

Use of the UNIX wc program shall be accepted as an accurate way to count words.

4. RECEIPT OF NOMINATIONS

In accordance with clause 21(2) of the Constitution, nominations shall be received by the Secretary up until

April 14. A nomination shall be deemed to have been received by the due date if one of the following is satisfied:

• it is delivered by post to AUUG Inc's Post Box, the AUUG Secretariat's Post Box or the AUUG Secretariat's street address no later than 2 business days after April 14 and is postmarked no later than 12 midday on April 14;

• it is delivered by hand to the Secretary or the AUUG Inc Secretariat no later than 5 pm on April 14;

• it is transmitted by facsimile to the Secretary or the AUUG Inc Secretariat no later than 5 pm on April 14.

5. REQUIREMENT FOR A BALLOT AND DUE DATE

In accordance with clause 21(5), no later than May 1, the Secretary

• shall advise the Returning Officer of all valid nominations received;

• and if a ballot is required, shall advise the Returning Officer of a date no later than May 15 for the ballot for all contested election.

In accordance with clause 42(3), the due date for return of ballots shall be 4 weeks after the date advised above.

6. FORM OF BALLOT PAPER

The ballot paper shall contain:

• details of all positions for which the number of nominations exactly equals the number of positions to be filled;

• for each position for which a ballot is required, the names of all persons seeking election to that position, except those already elected to a higher position, with a square immediately to the left, for the elector to place a voting preference;

• instructions on how to complete the ballot paper;

• instructions on how to return the ballot paper;

• a brief description of how the ballot is to be counted.

The ballot paper shall not contain any identification of existing office-bearers.

The ballot paper shall be accompanied by a copy of all policy statements submitted by all persons nominated, including any persons elected unopposed. These policy statements may be truncated or modified as outlined in 3.

7. METHOD OF VOTING

Voting for each position shall be by optional preferential vote. The number "1" must be placed against the candidate of the elector's first preference, and a number other than "1" against any or all of the other candidates. Preferences shall be determined by the numbers placed against other candidates, which must be strictly monotone ascending to count as preferences.

A vote shall be informal if:

• it does not have the number "1" against exactly one candidate.

8. SECRECY OF BALLOT

The ballot paper shall be accompanied by two envelopes, which may be used by the elector to ensure secrecy. On completion of the ballot paper, the paper may be placed inside the smaller envelope. This envelope is then placed inside a second envelope. The elector must then sign and date the outer envelope, making the following declaration:

"I, _____, member number _____, declare that I am entitled to vote in this election on behalf of the voting member whose membership number is shown above, and no previous ballot has been cast on behalf of this voting member in this election."

9. RETURNING BALLOT

To be considered to have been returned by the due date, the ballot paper together with declaration as above must be returned by one of the following means:

• it is delivered by post to AUUG Inc's Post Box, the AUUG Secretariat's Post Box or the AUUG Secretariat's street address no later than 2 business days after the due date and is postmarked no later than 12 midday on the due date;

• it is delivered by hand to the Returning Officer or the AUUG Inc Secretariat no later than 5 pm on the due date.

10. METHOD OF COUNTING

Where there is an election for a single position, the votes shall be counted by the preferential method. Where there is more than one position to be filled, the votes shall be counted by the modified preferential Hare Clark system described in Schedule 1.

11. METHOD OF ELECTION

A person may be elected to only one position. Elections shall be counted in the order of positions described in 2(a). When counting ballots, any person previously elected shall be deemed withdrawn from that election, and all ballot papers shall be implicitly renumbered as though that person was not included.

12. NOTIFICATION OF RESULT

In accordance with clause 42(7) of the Constitution, the Returning Officer shall advise the Secretary in writing of the result no later than fourteen days after the due date. The Returning Officer shall advise all candidates for election of the result no later than fourteen days after the due date. The Returning Officer shall advise the AUUGN Editor in writing of the result no later than fourteen days after the due date. The AUUGN Editor shall include the results in the first issue of AUUGN published after receiving the results from the Returning Officer.

13. PUBLICATION OF THESE RULES

The Returning Officer shall advise the AUUGN Editor of the current rules, and the AUUGN Editor shall cause the current rules to be published in the first issue of AUUGN published on or after 1 January each year. Where no issue of AUUGN has been posted by February 28 in any calendar year, the Returning Officer shall cause the current rules to be distributed with the notice of election.

14. OCCASIONAL VARIATION FROM THESE RULES

Subject to the Constitution, the Management Committee may authorise occasional variations from these rules. Such variations shall be advised in writing to all members at the next stage in the election process in which information is distributed to members.

15. EXECUTION

Where these rules require the Returning Officer to carry out an action, it shall be valid for the Returning Officer to delegate execution to the Secretariat from time to time employed by the Management Committee.

16. RETENTION OF BALLOT PAPERS

The Secretary shall retain that ballot papers and member declarations (as specified in 8) until the AUUG AGM of the calendar year following the year of the election, unless a general meeting of AUUG directs the Secretary to hold them for a longer period.

Schedule 1

1. Each ballot paper shall initially have a value of one.

2. The value of each ballot paper shall be allotted to the candidate against whose name appears the lowest number on the paper among those candidates not elected or eliminated. If there is no such candidate (i.e. the ballot paper is exhausted) the ballot paper shall be set aside.

3. A quota shall be calculated by dividing the number of formal votes by one more than the number of positions remaining to be elected, and rounding up to the next whole number.

4. If any candidate is allotted a total value greater than the quota, that candidate shall be declared elected, and the ballot papers allotted to that candidate shall be assigned a new value by multiplying their previous value by the excess of the candidate's vote above the quota divided by the candidate's total vote. This new value shall be truncated (rounded down) to 5 decimal places. Ballot papers that subsequently have a value of zero shall be set aside. Steps 2 and 3 shall then be repeated.

5. If no candidate is allotted a total value greater than the quota, the candidate who is allotted the lowest total value among those candidates not elected or eliminated shall be eliminated. Steps 2 and 3 shall then be repeated.

6. Where (a) two or more candidates declared elected at the same stage of counting according to Step 4 have an equality of votes, and it is necessary to determine which is deemed elected first,

or

(b) a candidate is required to be eliminated under Step 5, and two or more candidates have an equally low vote,

the Returning Officer shall return to the immediately preceding stage of counting and

(i) in the case of candidates elected, deem first elected the candidate with the highest vote at the immediately preceding stage, and

(ii) in the case where a candidate is to be eliminated, eliminate the candidate with the lowest vote at the immediately preceding stage.

Where an equality of votes still exists at the immediately preceding stage, the Returning Officer shall continue proceeding to preceding stages until a result can be determined.

In the event that candidates have maintained an equality of votes throughout the entire counting process, the Returning Officer shall determine which candidate is to be determined first elected or to be eliminated by lot in the presence of the Assistant Returning Officer.

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AUUG Inc. 1997 Annual Elections Call for Nominations

David Purdue <David.Purdue@auug.org.au>
AUUG Sectretary

Nominations are invited for the following positions within AUUG Incorporated:

- President
- Vice President
- Secretary
- Treasurer
- Ordinary Management Committee Member (5 positions)
- Returning Officer
- Assistant Returning Officer

Nominations must be made in writing and must be signed by the nominee and three (3) financial voting members of AUUG Incorporated, and must state which position(s) are sought by the nominee. The nominee must be a financial ordinary member of AUUG Incorporated, and can nominate for any or all of the above positions. While any ordinary member may be nominated to more than one position, no person may be elected to more than one position. Election to positions is determined in the order shown above.

A sample nomination form can be found on the next page.

Nominees may include with their nomination a policy statement of up to 200 words. This word count will not include sections of the statement stating, in point form, the name of the nominee and posiions held on, or by appointment of, the AUUG Management Committee or positions in AUUG Chapters.

Policy statements that exceed the word limit shall be truncated at the word limit when included in the ballot information.

Nominations must be recieved by the Secretary of AUUG Incorporated by the 14th of April 1997, and may be lodged by one of the following methods:

(1) by post to:

The Secretary
AUUG Incorporated
PO Box 366
Kensington, NSW, 2033

(the nomination must be received no later than April 16th and must be postmarked no later than 12 noon on April 14th 1997).

(2) by hand to:

The Secretary (David Purdue)

OR

The AUUG Incorporated Secretariat

no later than 5pm on April 14th 1997.

(3) by FAX to:

The Secretary (fax to (02) 9904 7057, marked Attn: David Purdue)

OR

The AUUG Incorporated Secretariat (fax to (02) 9332 4066)

no later than 5pm on April 14th 1997.

❖

AUUG Inc.
1997 Annual Elections
Nomination Form

We,

(1) Name: _____ AUUG Member #:_____ and
(2) Name: _____ AUUG Member #:_____ and
(3) Name: _____ AUUG Member #:_____

being current financial members of AUUG Incorporated do hereby nominate:

_____ for the following position(s):

(Strike out positions for which nomination is not desired. Each person may be elected to at most one position, and election shall be determined in the order shown on this nomination form.)

- President
- Vice President
- Secretary
- Treasurer
- Ordinary Management Committee Member (5 positions)
- Returning Officer
- Assistant Returning Officer

Signed (1) _____ Date _____
Signed (2) _____ Date _____
Signed (3) _____ Date _____

I, Name:_____ AUUG Member #: _____
do hereby consent to my nomination to the above position(s), and declare that I am currently a financial ordinary member of AUUG Incorporated.

Signed _____ Date _____

The AUUG Membership Survey

Liz Egan <busmgr@auug.org.au>
AUUG Business Manager

Towards the end of last year, AUUG sent out a Membership Survey to our members. Following is a summary of the results of this survey, most of which were fairly predictable, although in some instances there were some surprising statistics and various interesting comments.

SECTION A
MEMBER PROFILE

Length of time respondents have been AUUG members

More than 65% of respondents have been members of AUUG for 3 years or more, with 45% members for more than 5 years.

Age of Members

The most common age group of members is 25-34 with 38%, followed closely by the 35-44 age group with 31% of members.

Qualifications

The majority of members have a university degree, this accounts for more than 80%, out of which approximately half have obtained an honours degree or post-graduate qualification.

Experience with UNIX

Responses indicate the level of experience our members have with UNIX systems is fairly evenly distributed from 1 year to more than 10. A third however, have more than 10 years.

Other popular associations

The most popular other associations our members belong to ranked in order are:

- ACS - 28%
- IEEE - 24%
- Decus - 14%
- SAGE - 13%

Primary job functions

The majority of members are:

- Systems/Network Administrators - 32%
- IT Manager - 19%
- Consultants - 19%
- Technical Staff Member - 18%

Type of organisation

Respondents are employed in a wide range of industries with the most popular as follows:

- Education - 22%
- Development - 18%

-	Government/Miliary	-	17%
-	Consulting	-	11%

Leading versions of UNIX

The leading versions of the UNIX operating systems used by organisations ranked as follows:

Solaris 2.*	-	74%
SunOS 4.*	-	51%
Linux	-	44%
Digital UNIX	-	33%
AIX (IBM)	-	29%
HP/UX	-	28%
SCO	-	24%
IRIX	-	24%
System V.4	-	15%
Other BSD	-	14%
BSDI	-	13%

Another 11 variants of UNIX are in use.

These systems are used by more than 75% of the staff in almost a third of the responding organisations.

Other operating systems

The other operating systems most used by organisations ranked as follows:

Windows 3.X	-	75%
MS-DOS	-	71%
Windows NT	-	61%
Windows 95	-	61%
Windows	-	47%
Macintosh	-	46%
Netware	-	35%
OS/2	-	29%
Mainframe	-	22%
VMS	-	11%

Another 13 other systems are also in use.

Approximately two-thirds of the organisations use these other systems more than 50% of the time.

However, more than a third of the organisations use UNIX more than 75% of the time.

UNIX applications personally used

The UNIX applications personally used rank as follows:

Network / Internet	-	69%
Communications	-	64%
Software Development Tools	-	55%
Text processing (native UNIX)	-	55%
FSF (GNU tools)	-	46%
Database Management	-	28%
Word processing (commercial vendor)	-	22%
Desktop publishing	-	19%
Office automation	-	7%
CAD / CAM / CAE	-	5%

Accounting	-	5%

Internet

93% of organisations have access to the Internet

Store and forward connections

Only 17% have a store and forward connection.

Nature of TCP/IP connections

This is fairly evenly distributed with approximately a third using a modem, a third ISDN and the remaining third various other connections.

65% have personal access to the Internet via work, with the rest via an ISP, and only 7% do not have any access.

Uses of Internet

For both work and personal purposes, Internet connections are used for very similar purposes, the top two being electronic mail, and browsing and searching.

-	Electronic mail	-	90%
-	Browsing and searching	-	85%
-	File transfer	-	79%
-	Usenet News	-	71%
-	Accessing remote sites	-	54%

Computer publications

The top six main publications read ranked in order are:

- AUUGN
- The Australian
- IEEE Computer
- Computerworld
- Byte
- OSR

SECTION B
AUUG PERSPECTIVE/PARTICIPATION

Recruitment of members

40% of members had recruited a new member for AUUG, of which two thirds had recruited individuals and one third institutional.

Submission of papers

The majority of members had not submitted papers for publication or presentation. The main reasons cited appeared to be a shortage of time. However, many felt they had nothing worth writing about. *(This is often not the case - if you are unsure, please talk to an AUUG Exec/Local committee member before deciding against it. They will be able to discuss your ideas with you, and possibly help you in putting together a presentation. If you find your topic interesting, in most cases other AUUG members will also!!)*

The main incentives to motivate a member to submit a paper, include being given enough time to do so and also having some assistance in publishing a paper (understanding what is the standard required/expected). As well discounts, free registrations etc are all incentives.

AUUG meeting the needs of members

Almost 90% of members feel that AUUG meets their needs. The main reason is that it gives the individual an opportunity to meet and exchange information with other professionals in the same field, whilst at the same time being a good forum for keeping up to date and providing technical information.

Events

Most members had attended some form of AUUG event, the latest in most cases being AUUG 96.

For those who hadn't attended, their reasons varied from being too busy, budget considerations, timing or travel restrictions.

The main reasons people attended were to hear local technical talks, attend tutorials, meet with other people and hear international speakers.

Special interest groups

The top five special interest groups which appear to be of greatest interest are as follows, with an even split between highly and moderately technical.

- System Administration
- Networking
- Security
- Internet
- UNIX Internals

Almost 20% of members were interested in leading a Special Interest Group. *However, many of you did not put down your name or which group you were interested in. For those concerned and still interested, please contact Liz Egan via email: busmgr@auug.org.au.*

Local meetings

57% of members had attended a local meeting, thus leaving a significant amount of AUUG members not taking advantage of this opportunity.

Just over 20% had attended between 3 and 6 meetings, with almost 60% attending 3 or less.

Over 90% of members however, found the meetings to be beneficial with main reasons cited as being:

- able to meet local members - hear what others are up to
- interesting talks
- informative, targeted and local

The main reasons cited for these not being beneficial was mainly due to lack of interest in a particular speaker or lack of a meeting.

The main reasons why a local chapter meeting has not been attended are mainly:

- due to time constraints
- too far away
- only recently joined AUUG*(all the more reason to attend!!)*
- inconvenient time
- topics not of interest
- late notice *(AUUG will be addressing this issue)*

Local Chapters

55% of members feel that the establishment of "Local Chapters" has encouraged their participation in AUUG for the following reasons:

- dealing with local people and the local contact aspect. As one member put it:

  "AUUG has a large membership. Easy to feel dwarfed. Local chapter puts networking and participation more in reach. Otherwise my only participation would be by mail/email.

- more contact and can get involved more than once a year at the conference

- local events (gives a sense of belonging)

Of those who answered "No", the main reasons appear to be:

- location or timing of meetings

- too busy to attend

The order of most important activities of a Local Chapter which appeal to members are:

- Regular meetings
- "Help List" of contacts for specialist questions
- Discount Internet Access
- Library of books, tech journals, conference proceedings

AUUG benefits

The most important benefits AUUG offers are placed in the following order:

- AUUGN
- Summer Conference
- AUUG Conference & Exhibition discount
- Roadshows

The popularity of discounts ranked as follows:

- Books
- Publications subscriptions
- Training
- Network Access

Members would like these benefits advertised a little more. *(AUUG will be looking into this, and ensuring these features will appear in AUUGN and on the Web pages).*

* * * * *

On behalf of AUUG, I would like to thank those members who participated in this survey. It has proved to be a very informative exercise. By doing so, the AUUG Executive Committee can use the results to address various issues and in turn endeavour to meet the needs and requirements of our members in order to make your membership worthwhile and beneficial to you.

❖

UNIX Traps & Tricks

Sub-editor: Günther Feuereisen <gunther@ibm.net>

Well here we are. It's a new year, we're all rested, and my inbox is empty. Knock! Knock! Knock! Is anyone out there?

To start the new year off, we're finishing the tar debate, as well as my opinions on "The shell programming language of choice". Also there's a quick and dirty script on how to monitor the status of other machines on the network.

Oh, and by the way, if you haven't made your New Year's resolution yet, then how about "I promise to submit an article to Traps & Tricks before the end of '97!"

See you next time!

❖

TAR - THE SEQUEL

I received the following from Brett Lymn <blymn@awadi.com.au> regarding Vol.17 No.4 of AUUGN:

"I cringed a bit when I saw the tar copying stuff in vol 17 No 4 of AUUGN. The commands you used will work fine as long as you do not make a mistake - if you make a typo in the argument for the cd command then you run the risk of zeroing all the files in either the source or destination directory (depending on where you did the copy from). When I do copying via this method I use the && shell construct so that the tar will run if and only if the cd command worked. My normal copy syntax is something like this:

```
tar cf - . | ( cd /target/directory && tar xBpf - )
```

This will not run the tar if cd fails which is safer than unconditionally running tar. I normally use the B and p arguments to tar B is to ensure that tar reads full blocks of data (which is not guarenteed with a pipe without special handling) and p to set the permissions exactly as they are in the archive rather than applying the umask."

Brett raises a very valid point. Using tar carelessly, or without thinking about the consequences, can have rather drastic repercussions, as with any other command that can alter files. For the newbie users, please be careful, and try something like what Brett says.

As a System Administrator, to do anything useful, I need to be root. When you are root, you learn to re-read what you just typed BEFORE you press return. I remember when I started out, I made, as everyone does, some silly mistakes as root (overwriting a password file comes to mind), - but you learn.

It's a case of how you do things. You can either use commands that always protect you against mistakes (e.g. always using rm -i), or you can scan what you type BEFORE you hit return, and then use forceful commands (aka rm -f).

I've been doing it for so long that I opt for the second, and the prescan is an automatic action these days. What you use, is up to you. Go for what you feel comfortable with.

❖

AWS : CHECK FOR WORKSTATION STATUS

I wrote this script a while ago - it took me the better part of 2 minutes (which is about all the time you ever have to do anything useful ;-). Its aim was to keep an eye on machines I was administering. I used it to either send email to me, or in a slightly hacked version, I ran it in an xterm in a corner of my screen, and could very easily pick up when a machine fell off the net.

What it does show, is how to embed some perl in some shell (Korn shell in this case). Nothing fancy, and it could probably be done in a nicer way, but considering it took me 2 minutes - I no complain. The nice bit was, it worked! Who needs Network Management software? ;-)

The reason for embedding is simple - I don't like writing scripts which call other scripts. You lose one of the scripts, your toast. If you want to do that use the Korn shell feature of function definition. Just define a whole bunch of functions, and call them from the main part of the script. I do this extensively when creating simple menu interfaces (I'll try and dig up an example for next time).

Anyway, enjoy. If you have any questions, drop me some email. It's fairly obvious what it does. The format of the hosts file is one hostname per line. Any line prefixed with a # is ignored.

```
#!/bin/ksh
#
# aws - a script for checking Workstation Status
#
# Last Update on 10Aug95 by gunther

/usr/local/bin/perl -e '
$home = $ENV{ 'HOME'} ;
$mesg="";

open(MACHINES,"$home/etc/hosts") || die "aws: cannot find hosts file\n";

while (<MACHINES>) {
  chop;
  next if (/^#/);
  $p = `ping $_ -c 1 2>&1`;
  if ($p =~ /100\%/) { $mesg = "down"; }
  elsif ($p =~ /NOT/) { $mesg = "unknown"; }
  unless ($mesg eq "") { printf("$_ is $mesg\n"); }
  $mesg = "";
}

close(MACHINES);
' > /tmp/aws.$$

if [ -s /tmp/aws.$$ ]
then
  echo >> /tmp/aws.$$
  echo `date` >> /tmp/aws.$$
  /bin/mailx -s "Workstation Status" gunther < /tmp/aws.$$
fi

rm /tmp/aws.$$
```

❖

SH, CSH, KSH, PERL, SED, AWK OR C - WHICH SHOULD I USE?

One of the questions I often get asked is "Which is the better language to write shell scripts in?"

[Now, you don't write scripts as such in C. But sometimes, writing it in C is just so much more efficient, quicker and easier, that it can replace UNIX shell scripts.]

Now, my own opinion is it is a matter of personal taste. I know some people swear by one or the other. A guy I was speaking to the other day was raving about perl. Perl seems to have really taken off as the shell programming language of "hype". It's "Perl this" and "Perl that". Don't get me wrong, I think perl is great, I've been using it for 4 years or so now, but sometimes you can do things quicker in another language.

The other disadvantage, is that perl does not ship as standard with most flavours of UNIX. It doesn't with Digital UNIX 3.2g and below. It didn't with AIX up to 4.1.4. It wasn't there on Solaris 2.5.1. I haven't checked the other platforms lately. Admittedly it may have been an "option" on some extra CD's, but at the sites of I've been at lately, I haven't had those additional "options".

Now if you go to a commercial site, where they often have an Operator who just "Puts the tape in" and that's about it, it's highly unlikely you'll find perl or any other GNU neat stuff. So if all you can script in

is perl, and you need the GNU tools do anything, you won't be hanging around for long.

So what am I saying? Well, my philosophy is simple. If I have a problem, or I want to write a script to do something, then I think up an algorithm on how I want to solve it. I then think of how I would write it. Whatever language construct pops in my head first, will undoubtedly be the easiest way to go. That's what I write the script in. Admittedly, I often think "If I only had perl on this machine", but I make do with sh/ksh, sed, awk and your other friendly UNIX tools. I generally program in sh, because I know that anything I write will port to any flavour of UNIX.

As we move forward, and additional tools like perl start becoming standard UNIX tools, on distribution CD's, things may change. But at the end of the day, if you can write the same thing multiple ways, you'll never be at a loss for a solution, and you won't ever look like a goose.

❖