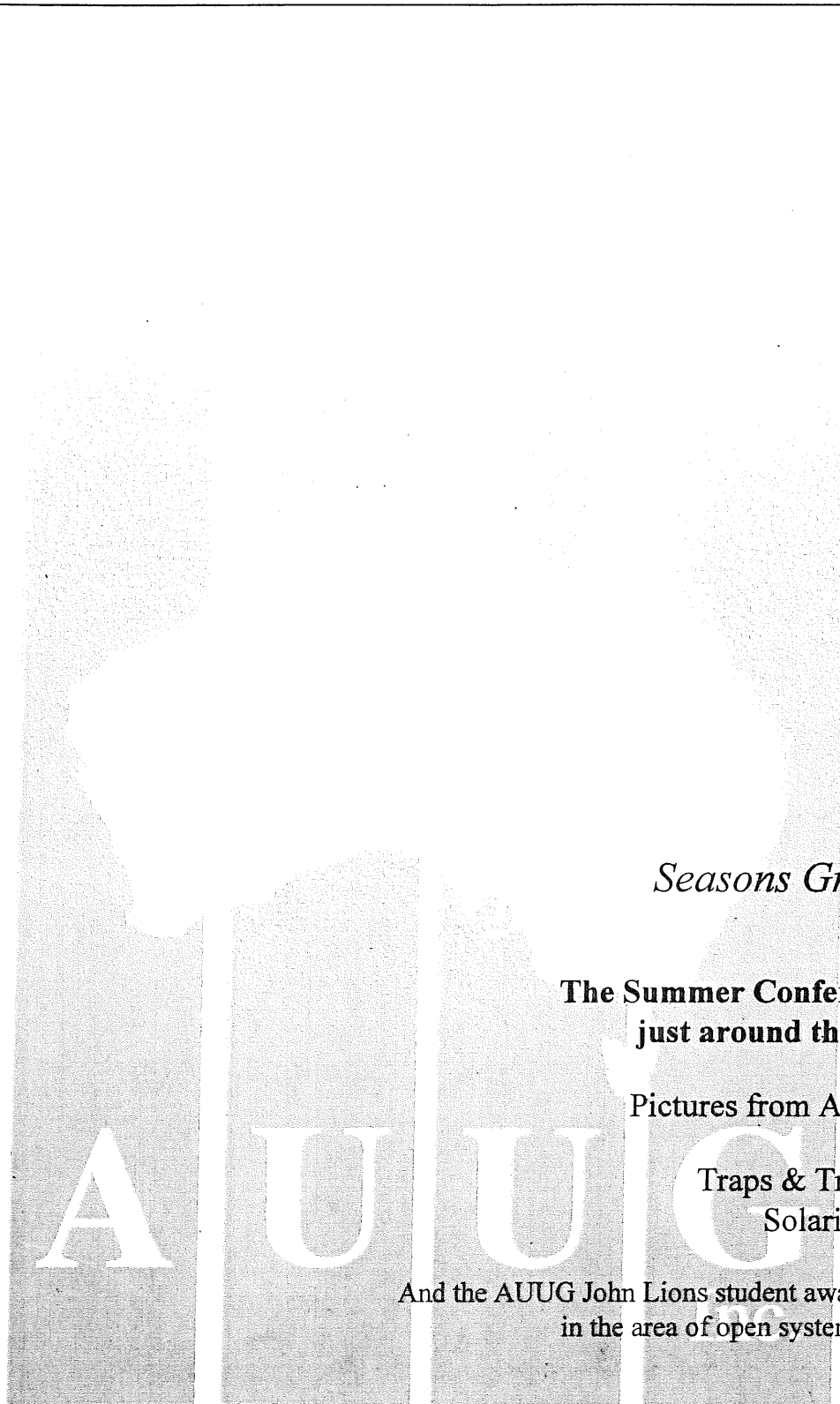


AUUGN

The Journal of AUUG Inc.

Volume 18 • Number 4

December 1997



Seasons Greetings!

**The Summer Conferences are
just around the corner ..**

Pictures from AUUG'97!!

**Traps & Tricks AND
Solaris Musings**

**And the AUUG John Lions student award for work
in the area of open systems goes to ..**

UNIX & OPEN SYSTEMS USERS

AUUGN

The Journal of AUUG Inc.

Volume 18 • Number 4

December 1997

AUUG Membership and General Correspondence

The AUUG Secretary
PO Box 366
Kensington NSW 2033

Tel 02 9361 5994
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

Luigi Cantoni

Luigi.Cantoni@auug.org.au
STM
Suite 3, 77 Millpoint Road
South Perth WA 6153

Peter Laytham

Peter.Laytham@auug.org.au
SCO
Level 7, 157 Walker Street
North Sydney NSW 2060

Mark White

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

AUUG Business Manager

Elizabeth Egan
busrmgr@auug.org.au
Level 4, 90 Mount Street
North Sydney NSW 2060

AUUGN Editor

Gunther Feuerisen
gunther@ibm.net
PO Box 366
Kensington NSW 2033

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Contribution Deadlines for AUUGN in 1998

Volume 19 • Number 1 • February 1998 :	January 17th 1998
Volume 19 • Number 2 • May 1998 :	April 7th 1998
Volume 19 • Number 3 • August 1998 :	July 7th 1998
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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

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<http://www.auug.org.au>

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

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Back Issues Department
PO Box 366
Kensington NSW 2033
Australia

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

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During normal business hours.

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Editorial

Günther Feuereisen <gunther@ibm.net>

I can't believe it. I'm sure I looked at my calendar just the other day, and I'm sure it said something about August – where did December come from??



As the temperature rises to levels more commonly seen whilst cooking pizza, it's a good time to reflect on the last year – assuming I could remember some of it ;-)

So instead of reflection, I think I'll push on and look towards '98 – it's almost summer conference time again .. both AUUG-NSW and Canberra have calls for papers.

Roadshows are going to start happening soon .. Neil Gunther's (nice surname ;-) Performance Tuning tutorial looks a must – for all of you out there who have heard those dreaded words: “Could you do a performance analysis ..”, this is a MUST! (Is there anyone out there who doesn't have to do this?)

And as always, with the impending holidays, it's Party time – so if you're at a Chapter Party, and you get some happy snaps, send them in! I'd love to publish them next issue!

Until next year, keep safe and see you in '98!

Happy Holidays!



President's Column

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

Another year comes to a close, which gives me license to perform that ol' crystal ball gazing trick again. Not that I claim any especial ability in matters prescient, but it sure is fun to guess who is going to fall over their own feet in the coming year. And it's even more pleasant to cheer on the good guys as they take the open systems battle to another year, locking lightsabres with the evil dark lords... or have I mixed up my plots?

Before we turn our attention to 1998, however, I'd like to say thanks to the BSD community for providing us with two Christmas presents: NetBSD 1.3 and OpenBSD 2.2. This assumes that the release schedule

goes to plan, but free systems seem to arrive on time while commercial ones consider a year late to be aggressive. What a strange world we live in.

FreeBSD beat their sibling projects to the punch with a release in October. I'll leave it to the peanut gallery to decide which flavour is "more functional" or "better". I'm sure Linux has had lots of releases recently, as well, but who can keep track of that part of the world?

To every person who contributed even as little of one line of code to a free Unix effort: we owe you big time. Thanks for your generosity, your time, your vision and your faith in open systems. We are all the richer for your work. And can you please do it again next year. :-)

Which brings us rather neatly to 1998. Linux has popularised the idea of an open system beyond anyone's wildest dream, and the scary thing is that the momentum seems to be ramping up. At the same time, the various BSD projects, aside from bring us marvellous theatre with their organisational schisms, have brought their systems to a level of maturity which matches and exceeds the commercial competition.

Anyone can pick up a free Unix today and turn their PC into a workstation. It's easy, quick and cheap. And if you run Linux you get access to loads of commercial packages as well as all the free stuff. If you run BSD, you have Linux binary compatibility, and the same advantages.

This has got to start eating into the marketshare and profits of the industry's largest monopoly. And with multiple ongoing anti-trust investigations into their behaviour, I'll be betting that the doorway is open for PC vendors to start bundling Linux with each sale.

That being said, I kind of feel sorry for Microsoft. The Titanic only had to deal with one iceberg (and that was problem enough). With Microsoft, first it was anti-trust, then Lotus, then anti-trust, then the Internet, then anti-trust, then Java, then... but you get the picture. What's next on the radar? Electronic commerce?

In case you're reading this Bill (yeah, right!), I'll let y'all into a little secret. You can't monopolise this industry. You made a damn good run at it though, and for that you have to be admired. The problem is that it's all built on illusion. People without passion or soul or understanding buy the image for a while, but there are more people out there who are smart, motivated and independent. And they have worked out how to realise their ideas so that they coexist and synergise with the works of other like them. The results are systems that we call open.

1998 is the year that the Microsoft illusion will vanish. People have learned that there are alternatives and that it is OK to want to go somewhere else today. Shades of "no-one ever got fired for buying IBM"?

But let's not dwell on the ruins of the past. 1998 will be the year Java went supernova. What a superlative job Sun have done in bringing a new language and a new platform to the world. With nary a foot placed wrong, they have broken the Windows dominance of the desktop, opened up the embedded marketplace, avoided divide and conquer gambits and captured the imagination of millions. All in record time, and with the blessing of the international standards community.

What next for Java? Just about all the API's are done, so now I'll be betting on performance, performance and performance. I'll also be expecting to see Java in consumer goods (how about a JRE for the Nintendo 64?) as well as lots of NC's. Meanwhile, I guess Microsoft will push on with the-language-formerly-known-as-Java++.

A rigorously standardised, high performance, high level language is going to cause interesting activity in the operating systems front once again. Particularly as devices that are emphatically not general purpose computers, but are nonetheless programmable, start becoming ubiquitous. Yes, I want my video recorder on the Internet.

1998 may see the outing of several dark horse technologies. A Java interface may make CORBA palatable to the masses. IPV6 may be rolled out by forward thinking router vendors and ISP's. SET may fly (oink!), though the talk is far better than the walk at present.

Government policy on cryptography is going to come to a head in many influential jurisdictions in 1998. Is a common, easily reproduced piece of code a munition? Or is it a piece of code? The USA seems to want to restrict crypto severely, whilst most of the rest of the world favours widespread deregulation. This one is too early to call yet, but with good cryptography being the heart of modern operating system, application and network security, I'm certainly hoping for the latter outcome.

Imminent death of the net? Traditional to predict, but not likely this time around, even with mighty efforts of a few lowlifes. Want to become the richest programmer alive? Fix the spam problem once and for all, because I don't think we've seen the nadir yet.

With one monopoly tottering on the brink of collapse, who is the next Darth Vader? Sun with their standardisation stranglehold on Java? Not likely since they have been so damned paranoid about being seen to be squeaky clean. Netscape? Come back next year when they have rewritten Navigator in Java. Cisco with their clear dominance of the router world? In fact they have an almost scary devotion to open systems internally, and besides, they always buy the drinks at conferences.

Maybe we can put down our trusty lightsabres for a while and just get on with dreaming, creating, building and having fun. Maybe 1998 will be that year.

Finally, thank you, gentle reader, for surviving my column to this point and for supporting AUUG through the year. We hope we have brought you a measure of wisdom, controversy, information, philosophy, humour and plain good fun in the year past. And, as always, we will strive to do better.

Wishing you Christmas cheer and high hopes for the New Year!

❖

The AUUG John Lions student award for work in the area of open systems

Lucy Chubb <Lucy.Chubb@auug.org.au>
AUUG Vice-President

The John Lions award has been instituted to recognise the leading role that John Lions has played in bringing UNIX to Australia, the formation of AUUG, and the promotion of the values held by the open systems community.

After Ken Thompson and Dennis Ritchie published a paper "The Unix Time-Sharing System" in May 1974, John Lions decided to base his Operating Systems course around understanding the source code. In addition to that, he founded AUUG as a group of computer scientists who had a common interest in the UNIX Operating System.

The applicant for this award must be a full time student at an Australian University. The award is for an in-progress or recently completed honours or postgraduate thesis in the area of UNIX and open systems. The judges will be looking for things like interesting uses of open systems technology, contribution to understanding of open systems, programs, tools or knowledge about UNIX and open systems.

The prize consists of \$1000, one year's membership of AUUG, announcement of the winner at the main AUUG conference and in AUUGN (the AUUG Journal), a framed certificate, and the winner's name inscribed on a permanent awards board displayed in the AUUG office.

The winner of the inaugural Lions Student Award is Jerry Vochtelo, a Phd student at the University of New South Wales. A summary his submission is:

Mungi [HERV94] is a single address space operating system that is being developed at the University of NSW. Mungi is implemented on top of the L4 micro-kernel [Lie96] designed by Jochen Liedtke. Mungi protection [VRH93] is password capability based. In line with open systems philosophy one of the aims of Mungi is to provide extensible kernel services. Mungi offers a mechanism called protection domain

extension (PDX) [VERH96] that allows the extension of kernel services. The Mungi kernel provides system calls as described in [HVER97]. Mungi is currently implemented and running on a custom R4600 board and on an SGI Indy. The current implementation supports a fast PDX mechanism.

PDX allows the freedom of separation of mechanism and policy. We can create modules that implement other systems. (There is a project underway to port linux to Mungi). I am currently writing a module that implements Unix like rwx file protection on Mungi Objects (A similar exercise is planned for NT like protection). This is done by having a PDX module maintain the protection domain of processes that wish to access object using Unix file permissions. A set of emulation modules in a library could then be used to choose the protection environment the user operates under.

I have outlined the protection mechanism of Mungi, which is the basis of my thesis. In particular, the protected service mechanism, Protection Domain Extension has been highlighted. PDX allows users to add protected services at any time, allowing the freedom of creating and exporting services to other users. This results in a flexible, extensible and open operating system.

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[VRH93] Jerry Vochtelo, Stephen Russell, and Gernot Heiser. Capability based protection in the Mungi operating system. In Proceedings of the 3rd International Workshop on Object Orientation in

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We felt that Mathew Flax, also of the University of New South Wales, deserves a commendation for his entry "Project Dynamic", a description of which can be found at
<http://www.cse.unsw.edu.au/~flatmax/~webMedia/webMedia.html>

The evaluating committee, currently consisting of Greg Rose, David Purdue, and myself, thanks this

years applicants and hopes that future years will see ever increasing interest in this award.

Finally, AUUG wishes to thank the USENIX Association and several other anonymous donors for contributions towards setting up the fund for the Lions Award.

Lucy Chubb
AUUG Vice-President



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Upcoming USENIX Conferences

January 26-29, 1998

7TH USENIX SECURITY SYMPOSIUM
San Antonio, Texas, Marriott RiverCenter Hotel
Sponsored by the USENIX Association
In cooperation with The CERT Coordination Center
Program Chair: Avi Rubin, AT&T Labs - Research
<http://www.usenix.org/events/sec98/>
Program now available

April 27-30, 1998

4TH USENIX CONFERENCE ON OBJECT-ORIENTED TECHNOLOGIES AND SYSTEMS (COOTS IV)
Santa Fe, New Mexico, El Dorado Hotel
Sponsored by the USENIX Association
Program Chair: Joe Sventek, Hewlett-Packard Laboratories
Tutorial Chair: Doug Schmidt, Washington University
<http://www.usenix.org/events/coots98/>
Tutorial and Paper submissions: December 2, 1997

June 15-19, 1998

23RD USENIX ANNUAL TECHNICAL CONFERENCE
New Orleans, Louisiana, Marriott Hotel
Sponsored by the USENIX Association
Program Chair: Fred Douglass, AT&T Labs Research
<http://www.usenix.org/events/no98/>
Manuscripts submissions due: November 25, 1997

August 3-5, 1998

2ND USENIX WIN/NT WORKSHOP
Seattle, WA, Madison Hotel
Sponsored by the USENIX Association
Program Co-Chairs: Thorsten von Eicken, Cornell University and Susan Owicki, InterTrust STAR Lab
<http://www.usenix.org/events/usenix-nt98/>
Refereed paper submissions due: March 10, 1998

August 5-7, 1998

2ND USENIX LARGE INSTALLATION SYSTEMS ADMINISTRATION OF WINDOWS NT CONFERENCE (LISA NT)
Seattle, WA, Madison Hotel
Sponsored by the USENIX Association
Program Co-Chairs: Ian Reddy, Simon Fraser University and Remy Evard, Argonne National Laboratory

<http://www.usenix.org/events/lisa-nt98/>
Refereed paper submissions due: March 10, 1998
All other submissions due: March 31, 1998

August 31-September 3, 1998

2ND USENIX WORKSHOP ON ELECTRONIC COMMERCE
Boston, MA, Tremont Hotel
Sponsored by the USENIX Association
Program Chair: Bennet Yee, University of California at San Diego
<http://www.usenix.org/events/ec98/>
Extended abstracts due: March 6, 1998

Sept 14-18, 1998

6TH USENIX TCL/TK CONFERENCE
San Diego, CA, Princess Hotel
Sponsored by the USENIX Association
Program Co-Chairs: Don Libes, NIST and Michael J. McLennan, Bell Labs
Innovations for Lucent Technologies
<http://www.usenix.org/events/tcl98/>
Paper, demonstration, and panel proposals due: April 8, 1998

For more details about these events, please contact:
USENIX Conference Office, 22672 Lambert Street,
Suite 613, Lake Forest, CA 92630 USA; +1 714 588
8649; Fax: +1 714 588 9706;
conference@usenix.org

Or email to info@usenix.org; in the body of your message, state "send conferences."



Minutes:

AUUG Chapter Council Meeting

8/11/97

10:00 AM to 4.00 PM

Level 4, 90 Mount Street, North Sydney

Attendees:

Michael Paddon	MP
Stephen Boucher	SB
Lucy Chubb	LC
Malcolm Caldwell (NT)	MC
Liz Egan	LE
Enno Davids (VIC)	ED
John Wright (ACT)	JW
Geoffrey Day (TAS)	GD
Peter Chubb (NSW)	PC

Luigi Cantoni (WA) LCa

Apologies:

Stuart Remphrey (QLD)t SR

NOTE:

All statements regarding monetary values have been omitted, since only audited figures can be presented to the membership.

1. APOLOGIES

Stuart Remphrey (Qld) SR
Michael Paddon MP (arrived late)

2. VICE PRESIDENT REPORT

The aim of the Chapter Council Meeting is to provide a forum for chapters to discuss amongst themselves what does and doesn't work, other chapter specific topics and ideas, whilst at the same time having the opportunity to liaise with the Executive Committee.

3. CHAPTER REPORTS

ACT (By John Wright):

The ACT President went to the US for 3 months of the calendar year, and upon his return has commenced organisation on the Summer Conference.

This year's Summer Conference was on a par with previous years' although it was noted that attendance was a little lower.

Advertising went out in the form of paper mail, as well as electronic. The email list has approximately 400 contacts, although it may now be slightly less due to a recent clean up.

ACT are currently looking into swapping speakers between the chapters for this years' event.

To date, they have received an offer of a part Perl tutorial, although the speaker appears slightly nervous at the idea of presenting.

Regarding monthly meetings, the venue has now been changed. It is now being held at ANU and numbers have dropped considerably.

Visiting speakers have proved to be good, with Pauline van Winsen attending next week.

The Summer Conference has been scheduled for 11-13 February 1998 at ANU. This is prior to term time.

It was noted that in regards to the Internet Project, the Sun boxes supplied belong to AUUG.

TAS (by Geoffrey Day)

This year's summer conference attracted approx 50 delegates, down by about 25 from last year, with about 30 attending drinks later.

Talks at the event included "Samba" by Andrew Tridgell.

The numbers have been gradually going down, therefore this year really needs to be good.

There have been sporadic monthly meetings, with approximately 10-20 attendees. The venue was previously at the University of Tasmania, it is now at CSIRO. However, since this move, attendance is down by about 50%, therefore a move back to the University is likely.

So far this year, there have only been local speakers, although the chapter is looking at having interstate speakers attend.

SAGE has just formed a chapter in Tasmania. In order to maintain the identity of both groups, separate monthly meetings have been held, alternating between SAGE and AUUG. As the computer industry in Tasmania is small, there is overlap between both groups, therefore AUUG will host the meeting one month, and SAGE the next.

The Summer Conference will be held on 16 February 1998. Tasmania would like an international speaker. In addition, they are looking at inviting David Conrad (Qld).

James Patterson, has the TAS AUUG machine located at the University of Tasmania, where he runs the webserver etc.

NSW (by Peter Chubb)

Last year's summer conference was scheduled to be held at Bathurst, although this was later cancelled due to low registrations.

A later conference was held at UTS and this time on a Saturday. One reason for this was due to the fact people had found it hard to have time off during the working week.

There were 4 talks held, and approximately 50 people attended, mainly technical people.

Regular monthly meetings have been held, with speakers including Larry Webber, Jon Hall and Pauline van Winsen.

The usual attendance is between 10-30.

There is a large overlap between AUUG and various other groups, eg 80% same as SLUG, 30% same as SWIGS.

The venue of the NSW meetings has recently changed. Previously they were held at the Occidental. However, they are now being held at the Wesley Centre which is a smoke free venue. Attendance was initially down following the move, however it is now picking up.

This year's summer conference will be held 20-21 February, with tutorials scheduled for the Friday and the conference for the Saturday, and promises to be a very technical event. NSW would be interested in having Neil Gunther attend, should he decide to come to Australia.

WA (By Luigi Cantoni)

Perth's numbers at the summer conference are now approximately 40, as opposed to around 100 two years ago. Next year they are not looking at a large event as it is now losing money, but in particular keynote speakers and tutorials. They are contemplating holding it on a Saturday as this may work better.

Meetings are held most months (on the 3rd Wednesday of the month), with technical speakers proving most popular. An Intel talk was very well received.

Original numbers to the meetings was around 40-50, with numbers now stable around 20.

A recent change of venue has occurred, however this has not affected attendance.

Member numbers are not a problem for WA, rather member interest in meetings, to which the chapter would like to spark new interest.

VIC (by Enno Davids)

The main activities have been the same as in previous years.

This year's summer conference saw numbers down on previous events with 40 attending, including speakers.

The event itself went well, although it proved hard to get presenters and to put a program together.

The Call for Papers deadline was 31 December, however nothing had been received by this date, therefore the conference date was put back.

Many presenters arrived just 5 minutes before their talks, which caused a lot of stress for the organiser.

VIC holds regular monthly meetings which alternate between technical and social.

Differing groups of people attend, depending on the topic scheduled to be presented.

Meetings vary in size, with the lowest attendance being 10 and the largest 25.

Membership numbers appear to be lower.

This year's Christmas meeting will be a barbecue.

An extra pre-Christmas meeting may be held at the "Go-Karts".

Next year's summer conference will be held around 24-25 March, with VIC interested about the idea of scheduling it for a Saturday.

NT (by Malcolm Caldwell)

This year's summer conference was held at NT University and attracted approximately 25 delegates.

A paper found to be of particular interest, focused on computers and the law, including copyright law.

Monthly meetings have been held, with good attendance being noted early in the year. However, there was a three month period when the majority of the NT Exec Committee were overseas, and therefore meetings were not held.

As a "special" one-off meeting there was a change of venue, however the result of which was that nobody attended.

The next meeting will have Greg Rose attending to do a presentation.

The NT Summer conference will be held in April, with the suggestion to be proposed to hold the event on a Saturday.

ACTION ITEM

Chapters should email Liz Egan, stating who they propose to have as Summer Conference Sponsors.

QLD (by Stephen Boucher)

Having spent some time in Brisbane recently, Stephen Boucher reported that the regular monthly meetings were well attended with approximately 20-40 people.

SA (by Michael Paddon)

The SA Chapter has been extremely quiet. Michael Paddon has investigated the situation, and as of 6 months ago, the AUUG Executive Committee voted to have the chapter suspended.

One of AUUG's main sponsors is based in Adelaide, and hopefully they may be able to assist.

SWIGS

A social evening is held at Softway, on the first Friday of each month, usually drinks followed by dinner, and discussions on Unix. Attendance varies from 6-50. AUUG purchased the glasses for SWIGS earlier this year.

4. ROADSHOWS & OVERSEAS SPEAKERS

Neil Gunther (a performance consultant) is available for one month from 24 February. Enno has been liaising with him to date. He can be used alongside the Summer Conferences and as one day "specials" in other states.

Malcolm Caldwell has spoken with Evi Nemeth who is agreeable to come out - at this stage during February.

Lucy Chubb has been speaking with Dan Klein who is currently looking at coming out in June. His topics include CGI, Web Programming, Perl, Secure Software and Firewalls. He may be able to talk on more than one subject, therefore he could be used for two days in each chapter.

5. CHAPTER CONFERENCES

Negotiations for overseas speakers to be handled by Liz Egan.

6. COMMUNICATIONS

Speakers should be broadcast via meeting notices etc, in order to notify other chapters of good talks that are scheduled.

Details should be forwarded to Liz Egan, who can notify the chapters.

AUUGN can be used as a forum to chase up locals for interesting topics, events etc.

It was suggested that monthly speakers have their notes printed in AUUGN.

Photos taken at local events should also be included in AUUGN.

7. SHARED EXPERIENCES (problems and ideas that have worked well)

Peter Chubb stated that combined SLUG and AUUG events have worked quite well.

It was suggested that AUUG could try co-operating with other groups, as there appears to be an overlap in a lot of areas. This included sharing potential speakers.

8. CHAPTER FINANCES

The auditors have requested information to be supplied by the chapters for the financial years ended 31st May 1996 and 1997. This includes:

- a) invoices and paid statements from suppliers;
- b) pay-in books;
- c) bank statements; and
- d) summary of receipts and payments.

Chapters requiring funding should contact the AUUG Executive Committee. There should not be any problems with all reasonable requests.

Chapters need to keep a better track of all accounts details going in and out.

All contracts over the value of \$1,000 need to be sent to the AUUG office for approval by the AUUG Executive Committee, as these cannot be signed off by individual chapter representatives.

Any monies received from the summer conferences and processed by the Secretariat

should be banked into the relevant chapter account. Ensure you notify the Secretariat to do so, when organising your local events.

9. OTHER BUSINESS

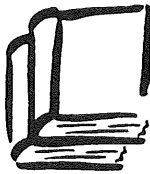
On-Line registrations - this can be arranged by Michael Paddon and will be put in place in time for the summer conferences.

It was suggested to have a facility on the Web pages whereby personal membership details could be amended, including options as to how notification of meetings etc were received, be it in electronic or paper format.

MEETING CLOSED 2.30pm



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Neil Gunther to speak on Performance Tuning

Neil Gunther, a noted expert on performance tuning of UNIX systems and related technologies will be presenting a series of one day tutorials around the country in February 1998, and to launch his new book on the subject.

Further details including registration and pricing can be found at the AUUG website:
<http://www.auug.org.au/> or by calling AUUG on 1-800-625 655.

CITY	VENUE	DATE
Melbourne	International House	9 February
Canberra	ANU	11 and 12 February <i>(Summer conference will be held 11-13 February)</i>
Hobart	University of Tasmania	17 February <i>(Summer conference will be held 16 February)</i>
Brisbane	TBA	19 February
Sydney	TBA	20 February <i>(Summer conference will be held 21 February)</i>

HIGH PERFORMANCE WEB and DATABASE TECHNIQUES

A 1-Day Workshop Presented by Dr. Neil J. Gunther, Performance Dynamics Company, Mountain View, California
<http://members.aol.com/CoDynamo/Home.htm>

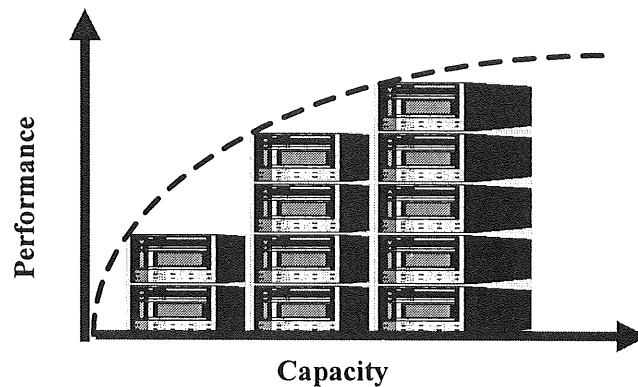
PURPOSE

A vigorous 1-day workshop on techniques for assuring high performance on UNIX servers that support web, intranet, and database applications. Tailored for UNIX, DBAs and other technical staff involved in server procurement and application development.

Dr. Gunther explains performance techniques that are streamlined to meet the fast-paced demands of the modern business environment. These days, management just wants a sense of direction; not the actual compass bearing. With these techniques you will be able to satisfy that requirement, and help your organization make good decisions that meet realistic performance goals.

Attendees will be given the opportunity purchase Dr.Gunther's new book:

THE PRACTICAL PERFORMANCE ANALYST
 (published by McGraw-Hill) <http://members.aol.com/CoDynamo/Book.toc.htm>



COURSE DETAILS

Sizing By Numbers

- Rules-of-Thumb/Speeds and Feeds
- Comparison of Prediction Methods
- Gathering and Using Benchmark Data
- SPEC Rates, NFS and SDM
- TPC and Custom Benchmarks
- Case Study: Replacing an IBM-600S

Server Scalability

- UNIX Server architectures
- Scalability analysis
- Clusters and parallelism

Queues For Those Who Can't Wait

- Single server queueing analysis
- Multi server queueing analysis
- Parallel queueing analysis

Untangling Web Servers

- Network Issues
- Caching Techniques
- Web Server Capacity Models

Client/Server Applications

- 3-tier architectures
- Oracle financials
- SAP/R3 applications

ABOUT THE INSTRUCTOR

Dr. Neil Gunther is founder and principal consultant of Performance Dynamics, whose clients have included: Amdahl Corporation, Gartner Group, Tandem Computers and the Transaction Processing Performance Council. He holds an M.Sc. degree in Applied Mathematics and a Ph.D. in Theoretical Physics. He spent 8 years as a computer science researcher at Xerox PARC, and was a Senior Scientist and Manager at Pyramid Technology for 4 years. Dr. Gunther lectures worldwide and has written innumerable articles on various topics in performance analysis. Most recently he was awarded Best Technical Paper at CMG'96. Dr. Gunther is a member of CMG, ACM and the IEEE.

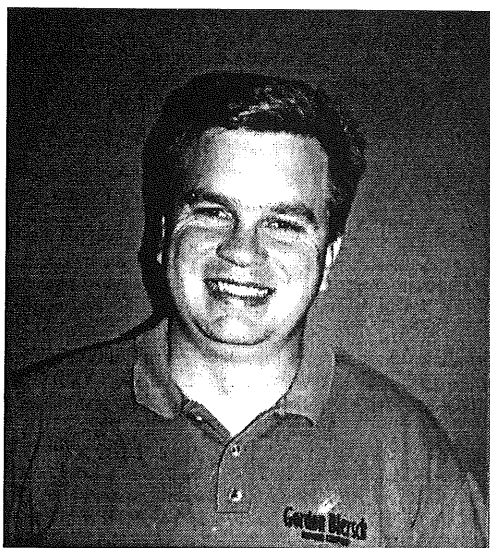


AUUG97 Conference Report

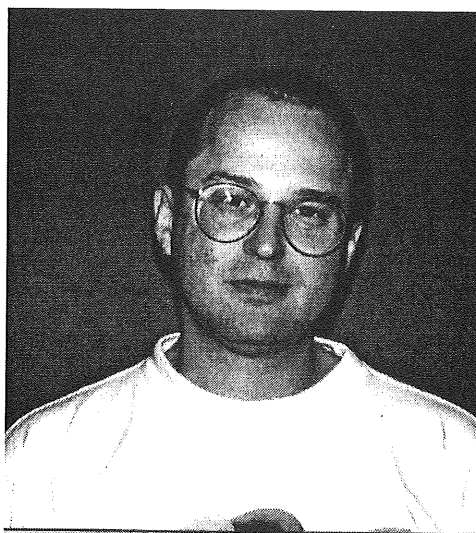
Lucy Chubb <Lucy.Chubb@auug.org.au>
Photos and Captions: Lucy Chubb

The AUUG annual conference is not just a great place to hear what's going in the open systems area in Australia, learn new skills in a tutorial, or see what the exhibitors have to tell you about their latest products and activities, but it is also a great place to meet the people.

The character and success of the annual AUUG conference depends more on two people than any other. These are the Conference chair and Programme chair. For the 1997 conference those positions were filled by Mark White and George Michaelson.



Mark White, Conference Chair

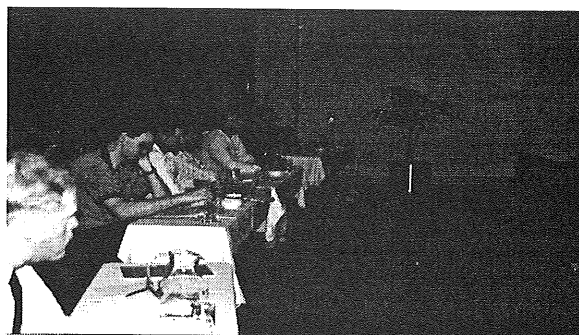


George Michaelson, Programme Chair

Of course, Mark and George didn't have to do it all by themselves. They were ably assisted by conference committee members Stephen Boucher, Lucy Chubb, Michael Paddon, Rick Stevenson, and Bob Waldie, and programme committee members David Hughes (Bambi), Michi Henning, Dave Matthews, David Purdue, Greg Rose, and Pauline van Winsen, by AUUG's Business Manager Liz Egan, and by Wael and Sara Foda of ACMS.

As either Mark or George will tell you, organising a conference the size of AUUG97 is a long and time consuming task. Organisation started just after AUUG96 and the organisers don't get a rest until the conference is actually over. Their reward is to learn more than they ever wanted to know about organising a conference, seeing people enjoying the conference, and maybe (if they're lucky) getting to hear some of the speakers.

The two days before the conference are occupied by tutorials. This year's tutorials were popular, with topics such as "The Domain Name System (DNS) and Internet Naming Directory Service", "An Introduction to UNIX Kernel Internals: Data Structures and Algorithms", "Sendmail Inside and Out (Updated for Sendmail 8.8)", and more.

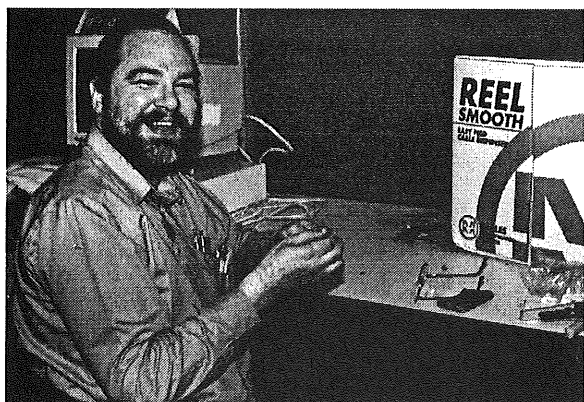


The "Theory and Practice of Cryptography" tutorial.

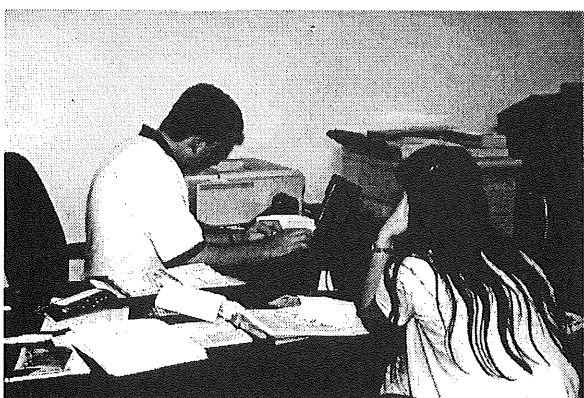
During that time the conference organisers were busy with last minute organisational details for the conference and exhibition, including setting up the conference network.



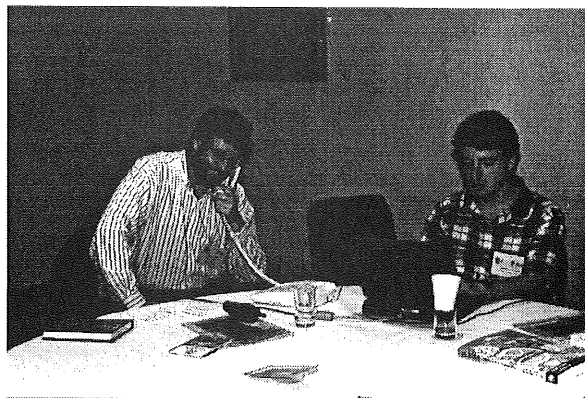
When a good coffee couldn't be had, the organisers maintained their caffeine levels thanks to the generosity of Jolt Cola.



There's always lots of cable making for a conference.

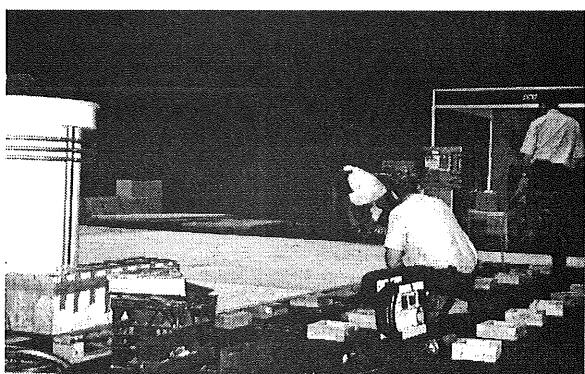


Mark White and Liz Egan busy with their laptops.

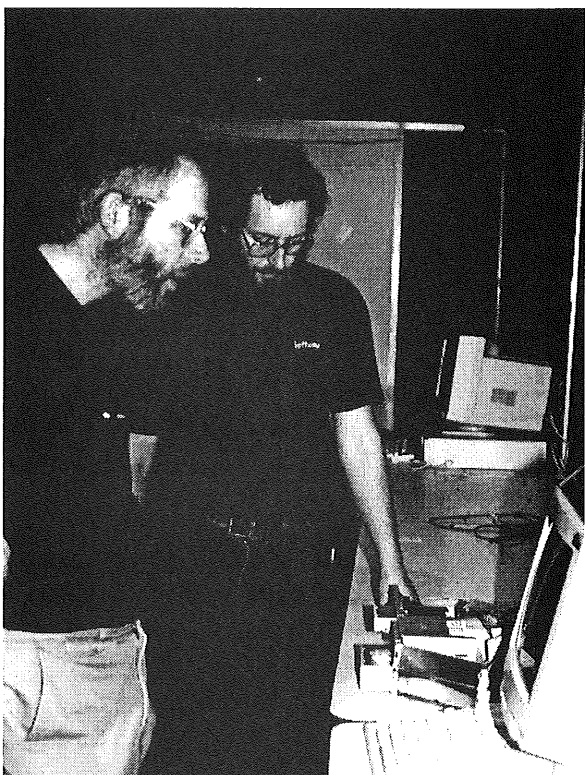


Michael Paddon and Malcolm Caldwell.

The exhibitors also had to move in and set up their stands before the conference started. They generally get a day to do that.



Installing a raised floor for the Digital stand.



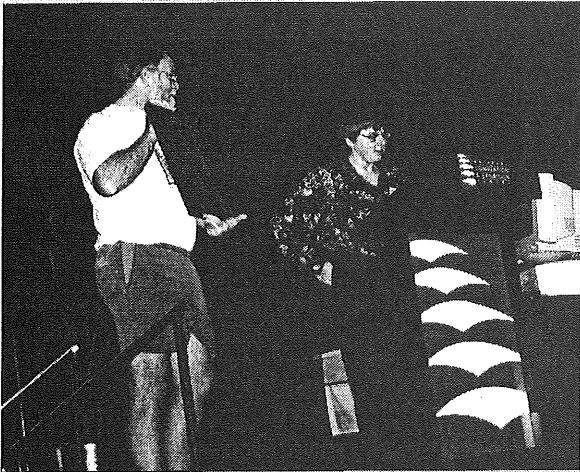
Red hat came to the rescue with an acceptable OS for the email machines. Here Robert Hart (Red Hat) and Peter Chubb are installing Red Hat Linux.

The formal opening of the conference was done by John Brandl Executive Director of the Queensland Government's IIB (Information Industries Board), which was the major sponsor of the conference.



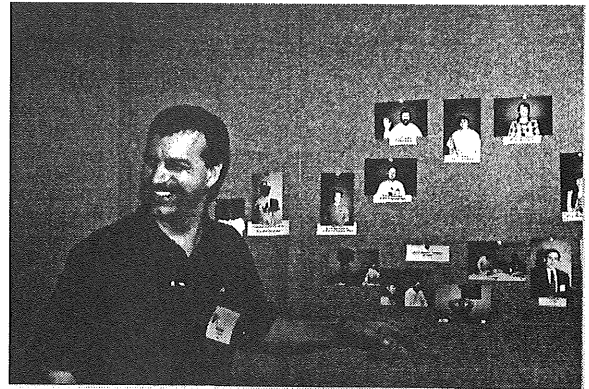
IIB speaker opening conference.

During the first session, the John Lions student award for work in open systems was announced. The award has been instituted to recognise the leading role that John Lions has played in bringing UNIX to Australia, the formation of AUUG, and the promotion of the values held by the open systems community.



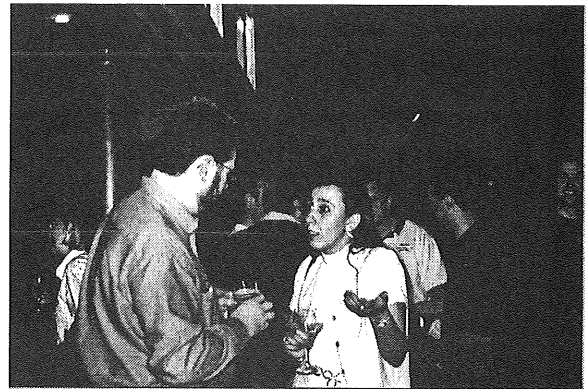
Lucy Chubb and Greg Rose announcing the John Lions student award.

During the conference the "official photographer" Lucy Chubb displayed conference photos at the AUUG stand.



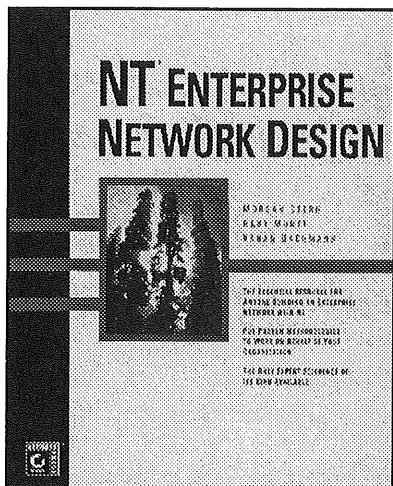
AUUG Executive member Peter Laytham looks at the photos displayed on the AUUG stand.

On the Wednesday evening delegates enjoyed drinks and finger food in the exhibition area sponsored by Dascóm.



Michael Paddon and Liz Egan at the cocktail evening.

New from Addison Wesley Longman



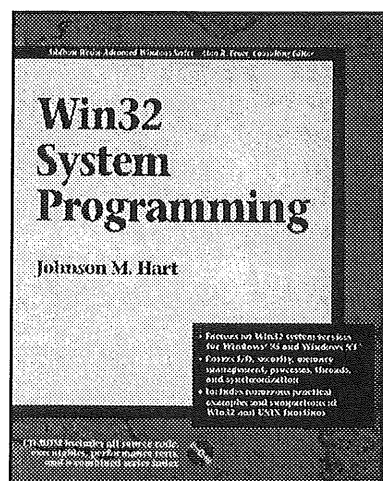
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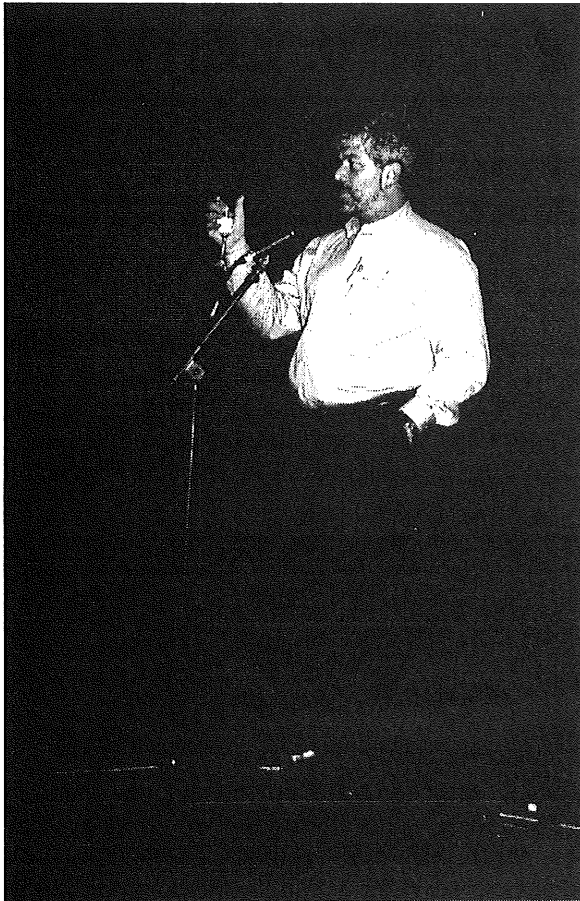
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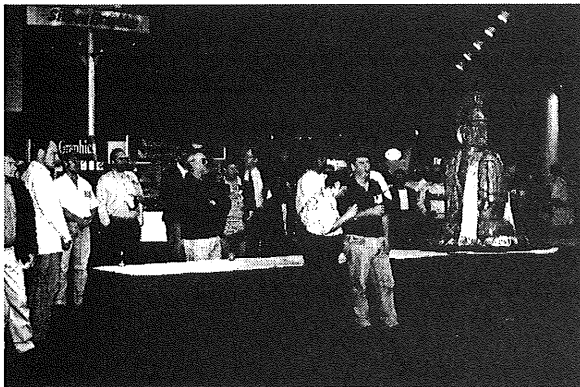
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Cocktail sponsor John Havers of Dascom.



The gathered crowds listening to the John Havers.

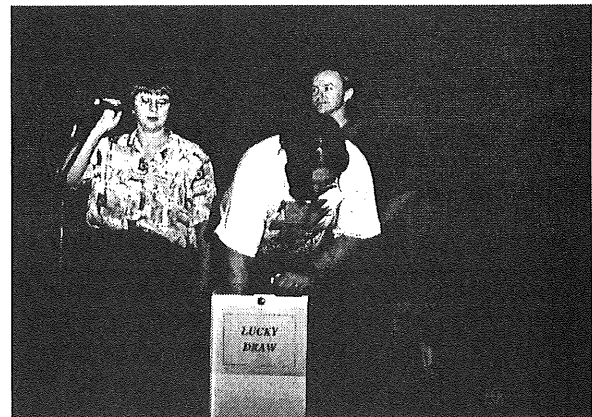
In the exhibition, delegates were trying out the Digital racing car simulator, buying books, looking for answers to the daily quiz (prizes included an Aquanta VN notebook from Unisys, a Nintendo 64 from Silicon Graphics, lots of AUUG memorabilia packs, and other goodies), and generally investigating the various stands. The racing car simulator made a nice crunch sound which could be heard throughout the exhibition every time the car struck something. There were lots of crunches.



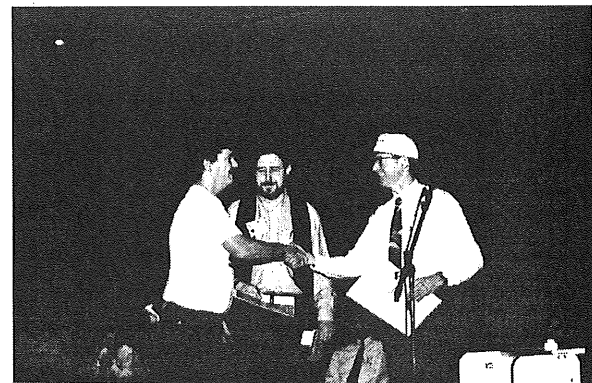
Liz Egan trying out the Digital racing car simulator and making "crunch" sounds.



Lucy Chubb also making "crunch" sounds.



David Purdue drawing the winning entries from the daily quiz while Lucy Chubb wait to announce them.



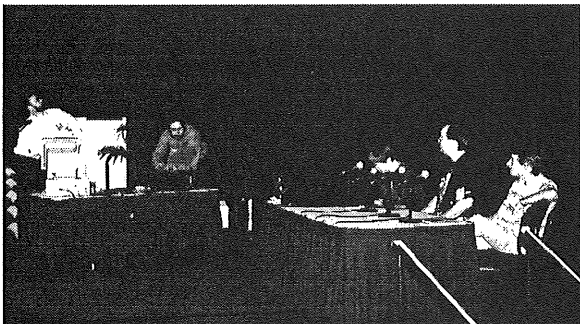
The winner of the Aquanta VN laptop is congratulated by a Unisys representative.

Jolt provided six packs for new members.



A new AUUG member receives his Jolt six pack.

The AUUG AGM took place on Thursday evening, after which the old favourite "the exploding whale" (sometimes said to be an urban legend) was shown. If you missed the whale (or just want to enjoy it again) you can fetch it from <ftp://ftp.auug.org.au/pub/auug/amusing/>.



Part of the exec on stage at the AGM.

Balloons were provided on the tables at the conference dinner and (as usual) were the cause of some inter-table rivalry.

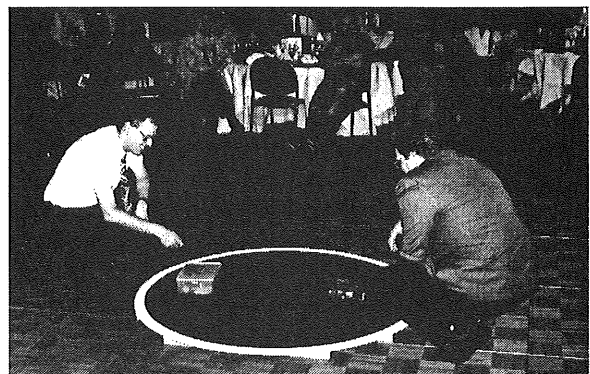


A table full of bearded gentlemen.

Later, entertainment was provided by (who were they?) with their "sumo wrestling robots" -- the "casserole dish", the "lunch box", and the lego construction. The "casserole dish" had a weight advantage over the others and became the eventual winner. The poor old lego construction kept missing the edge of the ring and toppling out backwards.



Three sumo robot owners being interviewed by Michael Paddon.



The Lunch Box and the Lego robot prepare to fight it out.

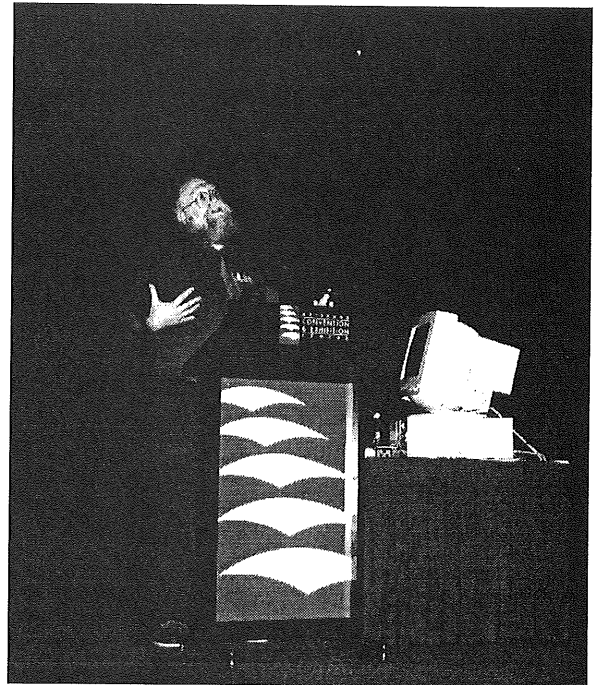


The owner of the "casserole dish" robot explains something.



Greg Kable, dinner sponsor representative, talking to a giveaway drink coaster.

The great lineup of plenary speakers included guests from overseas Eric Allman, Jon "maddog" Hall, Phil Karn, Marshall Kirk McKusick, Paul Mockapetris, Patrik Falstrom, Duane Wessels, and local Danny Smith.



One of the invited speakers, Jon "Maddog" Hall.

More photos of AUUG97 may be found at the AUUG web site. Look at:

<http://www.auug.org.au/auug97/pictures>

or go in through the AUUG home page.

By the way, it's not too early to start thinking about submitting a paper to next year's conference in Sydney, which not only lets you share with other what you have been doing, but gets you free registration to the conference!



AUUG-NSW 1998 Summer Conference

Peter Chubb <peterc@sw.oz.au>

What? When is it? How can I help? I hear you all ask....

The AUUG-NSW Summer Technical Conference will be held on Saturday 21st of February 1998, with a full day of Tutorials on the previous day (Friday 20th Jan) (this is because many people find it relatively easy to get time off work for tutorials, but hard for a one-day conference).

What you can do now is:

- Write it in your Diary!
- Submit an Abstract for a talk to me (peterc@sw.oz.au). People who give a talk get into the conference free!

A Topic --- you want a topic? Email me for ideas.

- Offer to present a Tutorial.
People who present tutorials can opt either for free conference registration, or half the nett income for that tutorial, whichever they prefer.

Almost anything Unix, System-Admin, security, network, interoperation could be a possible tutorial.

The venue will be somewhere central in Sydney. And we're going to try to keep the cost down, so there'll be no excuse for not coming!

Deadlines:

December 12 th	Abstracts due
January 23 rd	Authors Informed, conference details finalised.
February 6 th	Camera-Ready papers due for printed proceedings
February 20 th	Tutorials
February 21 st	Papers presented.

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December 1997

9th Annual Canberra Conference and Workshops

CALL FOR PRESENTATIONS AND WORKSHOPS

AUUG in Canberra is holding its 9th annual conference and workshops on the 11th, 12th and 13th of February 1998. There will be two days of workshops, followed by the one day conference. The venue will again be the Australian National University.

As well as national speakers, we are looking for presentations from local individuals and organisations in any area of UNIX, Open Systems or Networking. Presenters for half or full day workshops on any subject are also welcome (workshop presenters receive a modest honorarium).

Any organisations interested in sponsoring the conference and/or workshop are most welcome. The conference and workshops always attract a good attendance, with over 100 people from throughout the Canberra region attending the 1997 conference and workshops.

Maybe you have been hesitant about the idea of presenting, using such excuses as "No one would be interested in what I am doing." or "Everyone will think that my work is of too low a standard." Don't be put off by such thoughts, because to all other people, you are part of the "everyone". If you are unsure of the worthwhileness (tm) of what you would like to say, then please contact John or Michael at the addresses below to discuss your ideas.

We look forward to hearing from you with your ideas for the 1998 conference and workshops.

For further details, please contact:

Programme Chair:

John Wright
johnw@canb.auug.org.au

Workshop Organiser:

Michael Lightfoot
Michael.Lightfoot@auug.org.au

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Solaris Musings

by David Purdue
Regional Systems Engineering Manager
SunSoft Pacific
<David.Purdue@Aus.Sun.COM>

TIME SYNCHRONISATION

An important problem in the development of distributed operating systems is time synchronisation. It is important that the elements in a distributed operating system have the same idea of the time, so that they all agree on the order that events occurred in.

In the operating systems we use day-to-day there is still a need for our machines to at least have broad agreement about the time of day. This is most apparent when doing a distributed make – if machines disagree about the time then they may not correctly assess whether files on a remotely mounted file system need recompilation or not. In addition, there are cryptographic protocols being deployed that rely on machines agreeing on the time.

The Internet solution to this problem is the Network Time Protocol (NTP, specified in RFC1305). NTP attempts to synchronise your computer's clock to an external time reference attached to a NTP server on the Internet. There are many such servers around the Internet, most of which use time signals from the GPS navigation system to keep synchronised to UTC (coordinated universal time). For more information on NTP, look at <<http://www.eecis.udel.edu/~ntp>>.

An NTP server and several utilities are included in Solaris 2.6, and in this article I discuss the simple ways of using the built in NTP to get your Solaris machine time synchronised.

NTP ON SOLARIS

There should be no need to install NTP on Solaris 2.6, as it comes as part of the "Core Solaris, (Usrc)" package that is installed with all Solaris software clusters.

The default installation will place the NTP daemon and utilities in the appropriate bin directories, and even puts start up scripts in to /etc/rc2.d. However, the scripts do nothing unless there is an NTP configuration file in place. While it is possible to put the configuration file anywhere, these scripts expect to find it at /etc/inet/ntp.conf.

You will find two sample NTP configuration files in this directory, ntp.client and ntp.server. ntp.client sets up the simplest possible NTP configuration – the server will start and will just listen on the NTP multicast address for transmission from multicasting NTP servers. ntp.server is designed for setting up strata 1 servers, i.e. NTP servers that have a time device directly attached. You probably want something in between these extremes.

SETTING UP LOCAL TIME SERVERS

The first thing you should do is to identify where your organisation will get its time service. If you can get it from your own GPS system, then set that machine up as a time server by copying ntp.server to ntp.conf and editing appropriately. However, you will probably have to identify a strata 1 or strata 2 time source on the Internet – try looking in <<http://www.edcis.edul.edu/~mills/ntp/servers.html>> for one near you. Remember, you should only point one or two time servers in your organisation to these public servers, and then synchronise all your other machines to the local servers.

Having identified a time source, it is time to set up your local servers. This is done by editing /etc/inet/ntp.conf. this file has much the same format as other UNIX config files: blank lines and lines that start with a hash (#) are ignored. A minimal config file just specifies the upstream server that you will synchronise your host to:

```
server ntp.time.org.au
```

It is recommended that you keep a drift file. This file is used to record how much your local clock drifts compared to the time standard, and when the value is set correctly allows the NTP daemon to reduce timing errors. This value is calculated by the daemon anyway, and if the drift file exists it will store the value once per hour. The reason to have a drift file is so that when the daemon is restarted, it can read the value from the file and start its calculations from that point. Without it, it has to assume zero drift each time it starts. Put this line in ntp.conf, and ensure that the file exists:

```
driftfile /etc/inet/ntp.drift  
# echo 0.0 > /etc/inet/ntp.drift
```

Finally you must determine how the other machines in your network will synchronise to the time servers you are setting up here. You could point them directly to the servers you set up, or you could have them listen for either broadcast or multicast time packets from these servers. If you are using the latter approaches, then you must add a broadcast line to ntp.conf. The argument is either the broadcast

address for your local network, or it is a multicast address – the address 224.0.1.1 has been reserved for NTP.

```
broadcast 203.45.167.255  
broadcast 224.0.1.1
```

Having configured NTP you should start it, either by rebooting or by executing the start script by hand:

```
# /etc/init.d/xntpd start
```

Be warned: after you start the daemon it will probably take about 5 minutes to settle down and do the job of time synchronisation properly.

OTHER MACHINES

Once you have time servers set up on your network, and if you have them broadcasting time information, it is easy to set up other machines to get synchronised. If you are broadcasting time packets, then the ntp.conf file should read:

```
broadcastclient
```

If your servers send out multicasts:

```
multicastclient
```

You can also specify a drift file for other machines.

The advantage of configuring your other machines this way is that you can move your main time servers without having to reconfigure other machines.

IF NEAR ENOUGH IS GOOD ENOUGH

The NTP daemon, as noted in the man page, has achieved a bit of bloat over the years. If you do not need all your machines synchronised to the millisecond, it may be more economical to use the ntpdate command to keep them in synch:

```
# ntpdate ntp1 ntp2
```

If ntpdate is given a number of servers, it will take several samples from each and use the standard NTP clock filter algorithm to choose the best one. The strategy with ntpdate is to put one ntpdate command in the boot scripts (I would suggest as the last line of /etc/init.d/inetd), and then use cron to run ntpdate every one or two hours.

CONCLUSION

I have given here the minimal configuration to get Solaris 2.6 machines synchronised with NTP. I have ignored a lot of fine detail, including security which may be important to many users – NTP has a number of security features to prevent unauthorised people tampering with your clock.

Some of this configuration information will apply to other UNIX implementations, but the file locations will probably differ and you will probably have to retrieve and install the software yourself from the NTP web site given above.

If you have questions about NTP on Solaris 2.6, please drop me an e-mail and I will summarise the answers for a future edition of Solaris Musings.



HELLURIAN

Congratulations AUUG

Did you have fun at the AUUG '97 conference and exhibition? We did!

We're sure all who attended will want to join us in congratulating the organising committee, and the AUUG executive, for putting on a wonderful event. The content, the venue, the people: it was all there, it was all quality stuff.

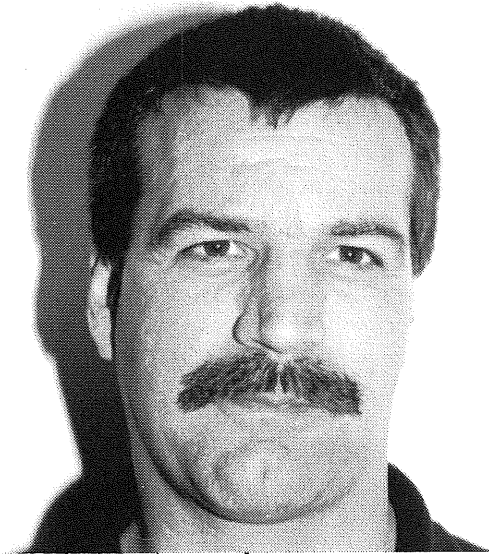
For those of you who couldn't make it, well, let us just say that the helium was a real gas! Probably the waiting staff were being just a little tetchy when they *raced* around and removed all of the ice buckets. As if they'd float! :-)

Next year will be in Sydney. We hope to see you there.

For now, keep in mind what Jon 'Maddog' Hall said so succinctly:

There's only one enemy.

Meet the AUUG-Exec



PETER LATHAM

In 1986 I emerged from Uni of Canterbury bachelored in electrical and electronics engineering, and in love with the Engineering Schools PDP 11/70. My career started with Telecom NZ Special Projects where I 'guinea pigged' installing LANs/WANs for PCs running something gross called DOS. Some had an even more gross add-on thing called Windows, and some were electronic 'fluffy dice' known as a Macintosh's. UNIX was something vague other people talked about, I had never seen a # prompt, and I pined for my VAXes.

I first encountered UNIX in 1989 - starting with Interactive UNIX on a Compaq "lunchbox", then Sun, DG and HP - making Windows and UNIX talk nicely to each other using stuff called TCP/IP, and RPCs, and sockets, and NFS, and FTP and all sorts of other neat bits and pieces. UNIX was OK, but I still pined for my VAXes.

UNIX <=> Windows integration work bought me to Australia where, having done time working with early versions of NT, I escaped back to UNIX proper (still not a VAX, but better than the DOS or Windows things).

Currently I am involved in promoting network computing tools produced by SCO.

When not pining for VAXes or working with UNIX I love gardening and bush walking, the latter

especially if the bush is liberally scattered with tempting little vineyards and wine-tasting stops. For longer distances between wine-stops I prefer my mountain bike, or for more extreme distances my Peugeot 306 S16.



Chapter News:

WAUG

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

JULY REPORT

Our July meeting centred around a talk given by Peter Connolly of SUN MicroSystems. Not surprising was the subject of the talk; namely the Java phenomenon - the actual title was "Java Computing in the Enterprise".

The first point raised was that of "Why Java?". A primary answer was one we've all seen mentioned many times - "Total cost of ownership". Peter displayed diagrams (produced from survey statistics) showing that about half the cost of PC ownership is support and that this cost is hidden and can't be budgeted for.

He raised the point that it's cheap to use Java "where it makes sense". That is, using a (network-supplied) Java application rather than one loaded from the local hard disk, diskette or CD-ROM.

Peter used the example of "A well-known DBMS developer" spent approximately 75% (of a budget measuring in the hundreds of millions) on supporting their many versions on different platforms. Imagine the impact if they could reduce this ratio by supporting a single cross-platform version.

The second main theme dealt with using Java in embedded systems. The example Peter cited was of a 4KB smart-card. This included the card OS, the Java Virtual Machine (JVM), encryption and the ability to up- and down- load programs and data. Of course, not all the class libraries are present (windowing isn't really needed on a smart card, after all) - but they will run if the need ever arises.

From there, he moved to discussing Network Computers (NC's); basically, devices with no local disk - just a network connection and memory. At this point, Peter displayed a diagram showing that about

50% of users are "low intensity, low diversity" users. In other words, for most of the time, they only use their machine for one task. NC's (or thin clients) suit these types of users

On the other hand, NC's are not targeted towards "high diversity, high intensity users". Such people "need" their workstations. Similarly the typical office automation centric user (who fits into the "high diversity, low density" category) isn't really catered for yet - the products are still under development. *[Author's note: this talk was given in July and there have been improvements in this area since then.]*

What of transition from existing core applications? Peter commented that there still may be problems in this area as such applications typically have their source code measured in the thousands of lines. However, the JVM can be linked into an application, allowing the developers to load classes, etc. Over time, more and more code can be replaced until the application has been migrated.

Generic servers can provide these applications; so long as the JVM is there. In this way, organisations can make their hardware or operating system purchase decisions based on other criteria (e.g. installed base, support capabilities).

Similarly, users could choose their favourite front-end (e.g. Windows 95, Common Desktop Environment) and run it on their preferred platform. The selling points for operating systems would become based purely on the OS and not the "pretty stuff" the user sees.

Peter then dealt with some new developments in the Java arena. JavaBeans provide a component model to use within Java's object-oriented framework. It's aimed at users who don't have to be programmers.

He discussed the Just-In-Time compiler concept and the new "Hot Spot" technology (yet to make a public appearance). The improvements SUN are looking for with Hot Spot are to produce Java applications which run close to or at native-compiled code.

Programmers have become accustomed to working in integrated development environments. Peter then discussed SUN's Java WorkShop 2.0 (which is written in Java) and Java Studio. He describes Java Studio as "probably the best component based development tool on the market at the present time and allows non java programmers to build java applications in minutes". Peter also described IBM's VisualAge as "brilliant". It's refreshing to see a company representative giving a competitor's product the thumbs-up. *[Author's note: Java WorkShop 2.0 is now shipping.]*

The last part of his formal talk described an amazing example of the network in real use. An organisation spent 18 months in developing an application in Access. They had over 2,000 PC's, of which about 800 needed to have the application physically installed. Many of those PC's couldn't handle the software as they needed to be upgraded. Another employee of the organisation re-wrote the core parts of the application in SAS and used Perl as a CGI tool. It was distributed to users in six (6) days. The organisation's CEO uses this software almost exclusively. That organisation now has a policy (mandate?) that all new work must be web-based. Peter's final point on this example was that "every project by that group has been on time and on budget". *[Author's note: the company cited here has recently begun their first external (Internet-based) customer application, using server-side Java servlets and JDBC connecting to Oracle]*

After the formal part of the talk was over, the group began a more general discussion, mostly on related points. Some of the key topics were "filtering Java on a firewall (can we?, should we?), "JavaScript and Java (what's the difference" and "certification of applets".

Of course there are several valuable reference sites on the Internet; two of which are:

<http://java.sun.com/>

The JavaSoft home page; you can get all sorts of interesting Java info and downloads from this page. This page also links to the Java Developers Connection, run by JavaSoft, the JDC site requires registration but is free and gives early access to many java products and technologies.

<http://www.gamelan.com/>

Has lots of examples of Java code and applications, source is available for many of the applets and applications and is a source of inspiration.

As I took so long getting this report to paper, I sent my initial draft to Peter for proof-reading. He has kindly offered this comment:

Finally, I would add that if anybody reading the article wants to know more and can't find what they want on the web, they can contact me at Sun Microsystems in Perth on (08) 9388 2161 or Email me at Peter.Connolly@Aus.Sun.Com

Finally, much as I hate to admit it, I still haven't written my first Java program. :-(

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AUGUST REPORT

Our speaker at the August meeting was Daniel Baldoni (yep, I get to write my own meeting report). My "talk", entitled "Disaster Recovery - Just Say No", was aimed more at getting the audience involved than in my just spouting facts and opinions (the title was deliberately chosen to be provocative). Our chapter president, Don Griffiths, subtitled the talk "A Real Floating Point Processor". A hint to future speakers, don't let anybody who knows any/all of your murky past introduce you. ;-)

First, let me set the scene...

The Fremantle Port Authority, (where I'm employed as the Systems Administrator) is a 24-hour operation. That is, we always have users; we don't have round-the-clock computer operations staff on-site. Our computer room (located on the 6th floor) is fire-rated, has two air-conditioning units (one of which has a humidifier), two UPS's, a Vesda smoke detector and a Sentinel 2000 which monitors everything else. This was all protecting one Pyramid mini-computer, 5 SUN's, a couple of PC's and various network infrastructure components, all sitting on a raised floor.

It's February 1997 - a very hot and humid week here in Perth. Our story begins...

A major power spike across the southern suburbs results in both our air-conditioners being tripped out when the resulting surge overloads their supply circuit. Unfortunately, the Sentinel doesn't "see" a problem as the air conditioner can't provide an alarm in this case, and the UPS's have happily flattened the spike.

The room starts to heat up and the Sentinel dutifully logs the rising temperature (once it gets beyond our preset warning level). Sometime about "now", the humidifier springs a leak. Fine - the water-on-floor sensors should detect this and cause an immediate power cut, right? Wrong! It turns out that our computer room was originally a shower recess; the floor is (slightly) sloped and the water didn't hit the sensors.

At 32 degrees (and 83% humidity), the Sentinel cuts the room power (as the temperature had gone over our preset limit). Water continues to leak...

02:15 My phone rings. I'm half-roused thinking I'd heard something. Listen ... nothing. But, before I'm asleep, it rings again. So, I get up to answer it.

It's Paul (our Network Administrator) trying to convince me "we've been flooded". Now I'm awake (as opposed to up). Users had called him in 20 minutes earlier (after at least an hour of down-time). I asked him to get in touch with our on-call electrician.

02:40 I arrive to find almost 30sq.m. of carpet around the door of computer room saturated - to the point that I could easily see reflection in it and stepping onto (into?) the carpet sent waves away from me. Both Paul and Bob (our electrician) had been mopping up for about 15-20 minutes before I arrived and each had emptied 4 or 5 ten litre buckets. The computer room only had lighting.

We switched off everything in preparation for a gradual power-up we had the area properly dried (and electrocution became less risk). A plumber fixed the leaking spigot and the supply valve was shut off to prevent further problems.

We continued mopping the floor (I wager some of my lecturers envisaged me mopping floors, but not like this).

06:00 We gradually re-instated power ... lights, AC#1, AC#2, Vesda, Sentinel and both UPS's ... then, the actual computing and equipment.

We kept the Sentinel isolated (prevented it from cutting the as AC#1 kept generating alarms while it was being worked on and we couldn't have the power cut during the day.

07:30 Our staff cleaner starts cleaning/drying the department carpets with a hired wet/dry vacuum cleaner (how he knew where to get it at that time of day is still a mystery).

08:00 All machines are back on-line and all user services are available. This is when we started working on incident reports for management, and analyses to improve the situation. Air conditioner maintenance personnel arrive.

10:00 Cleaner finishes drying the carpets (he deserves a mention!).

14:30 Paul and I are dead-tired so we both call it a day. I left instructions with the Assistant Systems Administrator along the lines of:

"AC service guys will finish around 4:00pm. When you leave, turn Sentinel key from Isolate to Normal - because we must have power control over the weekend."

16:30 My phone rings but this time I sleep right through it.

17:15 I wake up (for no apparent reason) and check the answering machine (out of habit). There's a message from the ASA along the lines of "HELP!". Of course, I'd told him to de-isolate the Sentinel but not to (or even how to) check for pre-existing alarm conditions. The result? As soon as he turned the Isolation Key, all power to the room was cut off. This is an unnerving experience when you're expecting it - when you're not, it's downright terrifying!

When I called him, he had all the servers up again (because of good operational documentation). It took a while, but I convinced him to de-isolate the Sentinel again - after checking there were no active alarm conditions. (To this day, he shies away from the Sentinel.)

What did we learn from this experience?

Good documentation is essential. It must include clear step-by-step instructions on how to start/stop any equipment and services (e.g. DBMS).

- o Assume the reader has little (or no) knowledge about what they're doing or the environment they're in. In a worst-case scenario, a newcomer may need to "repair" a situation.

- o Include contact lists for support personnel (for those times when something outside the scope of the documentation occurs) and for vendor support.

Naturally, this must include after-hours contact details as appropriate.

- o Also include a contact list of user representatives (e.g. section heads) to be contacted at various stages of the dealing with the problem.

- o All such documentation must be kept in an easily accessible location. Our "red file" is kept in the Computer Room with a second copy at our hot site.

Ideally, all appropriate staff will have a copy on their desk.

- o It must be kept up-to-date and organised. This may sound trivial but the documentation's usefulness can drop substantially in a distressingly short period. Remember that not everybody will know what you do.

- o Keep hard copies as soft-copies won't be available if the machine that you really need operational just happens to be the one holding your documentation (after all, we all know Murphy wrote the law on computer dysfunctionality).

Pro-actively plan to minimise the effects of a disaster. Document these plans and ensure that appropriate staff have their own copies. When making any such plans, consider each risk in terms of:

Chance of it occurring

Result/effect:

Repair/replacement costs

Downtime

Lost opportunity

Lost reputation

There's little (or no) point spending thousands of dollars to protect against a one-in-a-billion chance which has minimal impact. But, you should certainly spend more than a few hundred dollars for a one-in-a-thousand chance with large impact. Where do you draw the line? That decision should definitely involve input from senior management. Quantified risk analysis is beyond the scope of this discussion (as well as beyond the author <grin>).

When (not if) a disaster of any sort occurs, take note of anything which doesn't go according to your existing plan. Review (only broadly) the plan while you're working on the immediate problem; involve other staff to get alternate points of view. Go over the plan (updated or not) the following day (after some well-earned sleep) and again a week or so later. Adjust your formal plans/procedures as indicated by the disaster's effects/events and any constructive comments received while remedying the situation. Of course, the plans should also be updated as the operating environment (hardware, software, networking, user needs, etc.) evolves.

While actually working on the problem, delegate somebody to act as a user liaison. Let them answer the phones and keep the users off your back while you deal with the situation. This point was raised by Danny Smith during his workshop tour earlier this year. I recommend you extend it until you are satisfied that your documentation, etc. has been updated as necessary.

There are some secondary advantages (yes, I do mean advantages) to a disaster occurring:

- o Get your next budget increase request ready; you may be able to convince management of your needs citing the problems you faced in dealing with the recent problems. Of course, you might also find yourself out-sourced because of those same problems.

- o Use the disaster (and your means of rectifying it) as an educational tool for your less experienced staff. There will come a time when they need to be able to understand (rather than just going through the motions) what it is they're doing to fix a problem. It's better for them (they gain skills), for you (you gain a more skilled colleague) and for your employer (they gain a more skilled employee - notice a trend?).

I have seen organisations who concentrate on what they call Disaster Recovery or Disaster Prevention but I believe the two must be developed together. From the start, I was aiming to involve the audience

in a discussion; one point raised towards the end (sorry, I didn't catch the "author's" name) was along the lines of:

Some management people shy away from terms like Disaster Recovery and Disaster Prevention. If you want management involvement, use the buzzword "Business Continuity Planning". This is a good approach as it immediately lets you start planning how to reduce both your risk of an "event" and the effects of that "event" in the one set of plans.

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Chapter News:

AUUG-NSW

Peter Chubb <peterc@softway.com.au>
AUUG-NSW Secretary

The last few meetings have turned out quite popular -- Charlie Brady spoke to a packed room on ssh and php, Andrew McRae was very interesting in his talk about Cisco's development environment, and Pauline van Winsen's talk on how to fight SPAM email was extremely useful --- especially with Nick's comments on his problems at zeta.org. And straight after the winter conference we had a special double-header with Larry Weber from Javasoft and Jon Hall from DEC -- another very interesting pair of talks.

If you didn't hear about these meetings, then you're probably not on the mailing list. If an email message bounces twice, the offending address is deleted from the list.

To subscribe to the AUUG-NSW mailing list, send email with the word 'subscribe' in the body of the message to :

`auug-nsw-memb-request@auug.org.au`

If you're an AUUG member but would prefer not to be on our electronic mailing list, please phone or email me to arrange for announcements by FAX.

December's meeting will be a Chinese Dinner at the Silver Spring Restaurant, 477 Pitt St., Sydney, at 7.00pm sharp on Thursday 18th December (get there at 6:45pm). Food will be \$20 per head, drinks extra. Please email me to say if you are coming. There'll be an email announcement soon, and a reminder just before the day.

January's meeting will be a barbecue in a park somewhere in Sydney --- an announcement will be emailed to the `auug-nsw-memb` list as usual.

And planning is well in hand for the Summer Conference, on February 20 and 21 -- see the call for papers in this issue of AUUGN.

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Chapter News:

Canberra

9th Annual Canberra Conference and Workshops
Call For Presentations and Workshops

AUUG in Canberra is holding it's 9th annual conference and workshops on the 11th, 12th and 13th of February 1998. There will be two days of workshops, followed by the one day conference. The venue will again be the Australian National University.

As well as national speakers, we are looking for presentations from local individuals and organisations in any area of UNIX, Open Systems or Networking. Presenters for half or full day workshops on any subject are also welcome (workshop presenters receive a modest honorarium).

Any organisations interested in sponsoring the conference and/or workshop are most welcome. The conference and workshops always attract a good attendance, with over 100 people from throughout the Canberra region attending the 1997 conference and workshops.

Maybe you have been hesitant about the idea of presenting, using such excuses as "No one would be interested in what I am doing." or "Everyone will think that my work is of too low a standard." Don't be put off by such thoughts, because to all other people, you are part of the "everyone". If you are unsure of the worthwhileness (tm) of what you would like to say, then please contact John or Michael at the addresses below to discuss your ideas.

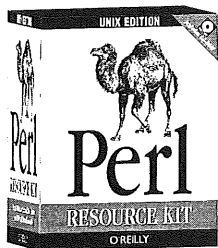
We look forward to hearing from you with your ideas for the 1998 conference and workshops.

For further details, please contact:

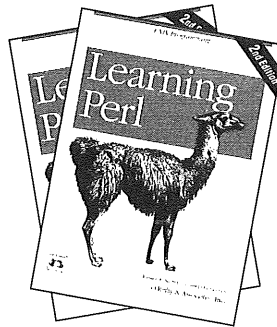
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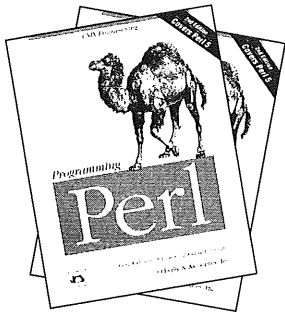
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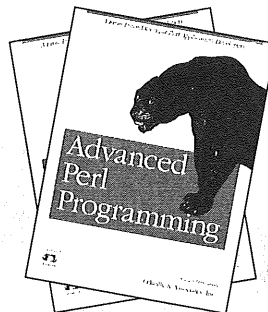
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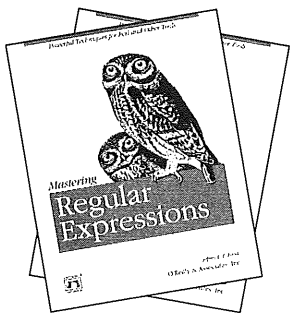
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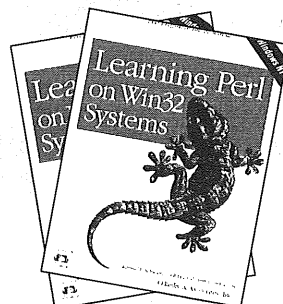
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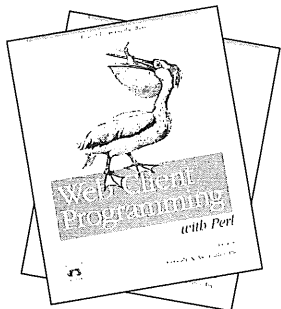
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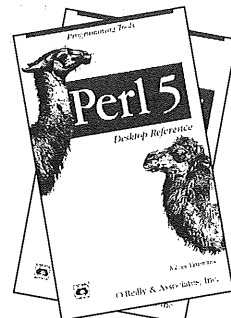
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UNIX Traps & Tricks

Sub-Editor:

Günther Feuereisen <gunther@ibm.net>

Welcome to this issue's column! Thanks to this month's contributors - how about the rest of you? I know you are out there, and I know you are doing stuff on UNIX - so send me something! ;-)

On another note, if you have any UNIX related questions, drop me a note, and we'll try and solve it for you, who knows, your question may turn up in a future UT&T!

Meanwhile, on with the show!



From: Glenn Satchell <Glenn.Satchell@uniq.com.au>

Here's something very simple, which can also be very useful. There are many useful tools that can be used to measure system performance and the like, but reconciling logs from different tools can be almost impossible as the lines are typically not time stamped.

This little script reads from it's standard input and writes the same data on the output and adds a time stamp. The format of the time stamp can be changed by using a command line parameter:

Typical usage is:

```
$ command | datelog "date_fmt"
```

where "date_fmt" is a valid parameter for the date(1) command. See the manual page for a list of possible options. If nothing is specified then the default is hours, minutes and seconds.

Example output:

```
$ vmstat 5 | ./datelog "+%H:%M:%S"
15:13:17 procs      memory          page          disk          faults          cpu
15:13:18 r b w    swap free re  mf pi po fr de sr f0 s3 s1 --  in  sy  cs us sy id
15:13:18 0 0 0    90412 21872  0  49 28  0  0  0  0  0 12  8  0   70 201  81  5  4 91
15:13:23 0 0 0    86812  8664  0 228  0  0  0  0  0  0  2  0  0   44 482  68 14  9 78
15:13:28 0 0 0    85604  7380  0 405  4  0  0  0  0  0  8  0  0  176 890 149 73 22  5
```

```
#!/bin/sh
# Glenn Satchell, glenn@uniq.com.au
#
# add timestamps to standard input stream for logging
#
DATEFMT=${1:-+"%H:%M:%S"}
while read line; do
    echo "`date $DATEFMT` $line"
done
exit
```



From: David I. Bell <dbell@canb.auug.org.au>

This is a simple method of checking the value of constants in a C program at compile time. It's most important use is in programs which require that an `int` be 32 bits, or that the size of a structure doesn't change when switching different compilers due to differences in padding.

I think this is pretty tricky and neat. It is my own invention. Probably other people have thought of a similar way to check constant expressions, but I never heard of them.

There are two files following. The `check.h` include file, and an example program `.c` which demonstrates it's use. Enjoy!

The `check.h` include file:

```
/*
 * Macros to check constant expression values at compile time.
 * The program will not compile if any of these checks fail.
 * This is useful, for example, for making sure that the size of an
 * integer is as expected, or that the size of a structure is what
 * was expected.
 *
 * The CHECK_ASSERT macro checks that the specified constant expression
 * is nonzero. This is similar to assert, but for constants.
 *
 * The CHECK_SIZE macro checks that the specified type or variable
 * has the specified size.
 *
 * These macros work by attempting to define an external array of size 1
 * (which is never referenced). If the condition is true, the definition
 * succeeds since the expression used in the definition collapses to the
 * value of 1. But if the condition is false, the expression collapses to
 * the value of -1 which defines the array with an illegal size. The line
 * number of the resulting error message indicates which check failed.
 *
 * Author: David I. Bell (dbell@canb.auug.org.au)
 */

#ifndef CHECK_H
#define CHECK_H

/*
 * Check that the specified constant value is nonzero.
 */
#define CHECK_ASSERT(value) \
    extern char _CHECK_FAILED_ [(2 * ((value) != 0)) - 1]

/*
 * Check that the specified type or variable has the specified size.
 */
#define CHECK_SIZE(type, size) \
    CHECK_ASSERT(sizeof(type) == (size))

#endif
```

An example program `.c`:

```
#include <check.h>

/*
 * Check that the size of an integer is the same size as a long.
 */
CHECK_ASSERT(sizeof(int) == sizeof(long));
```

```
/*
 * Check that an integer is 4 bytes.
 */
CHECK_SIZE(int, 4);

/*
 * Check that the following structure has no padding as we expect.
 */
typedef struct
{
    short s1;
    char c1;
    char c2;
    long s3;
} DATA;

CHECK_SIZE(DATA, 8);

main()
{
}

❖
```

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 Membership#: _____

Application for Institutional Membership

Section A: MEMBER DETAILS

The primary contact holds the full member voting rights and two designated representatives will be given membership rates to AUUG activities including chapter activities. In addition to the primary and two representatives, additional representatives can be included at a rate of \$70 each. Please attach a separate sheet with details of all representatives to be included with your membership.

NAME OF ORGANISATION: _____

Primary Contact

Surname _____ First Name _____
 Title: _____ Position _____
 Address _____
 Suburb _____ State _____ Postcode _____
 Telephone: Business _____ Facsimile _____
 Email _____ Local Chapter Preference _____

Section B: MEMBERSHIP INFORMATION

Renewal/New Institutional Membership of AUUG \$350.00
 Surcharge for International Air Mail \$120.00
 Additional Representatives Number @ \$80.00

Rates valid as at 07/96

Section C: PAYMENT

Cheques to be made payable to **AUUG Inc** (Payment in Australian Dollars only)

*For all overseas applications, a bank draft drawn on an Australian bank is required.
 Please do not send purchase orders.*

-OR-

Please debit my credit card for A\$ _____
 Bankcard Visa Mastercard

Name on Card _____
 Card Number _____
 Expiry Date _____
 Signature _____

Please mail completed form with payment to: _____ Or Fax to: _____

Reply Paid 66
 AUUG Membership Secretary
 PO Box 366
 KENSINGTON NSW 2033

AUUG Inc
 (02) 9332-4066

Section D: MAILING LISTS

AUUG mailing lists are sometimes made available to vendors. Please indicate whether you wish your name to be included on these lists:

Yes No

Section E: AGREEMENT

I/We agree that this membership will be subject to rules and by-laws of AUUG as in force from time to time, and that this membership will run from time of joining/renewal until the end of the calendar or financial year.

I/We understand that I/we will receive two copies of the AUUG newsletter, and may send two representatives to AUUG sponsored events at member rates, though I/we will have only one vote in AUUG elections, and other ballots as required.

Signed: _____

Title: _____

Date: _____

AUUG Secretariat Use

Chq: bank _____ bsb _____

A/C: _____ # _____

Date: _____ \$ _____

Initial: _____ Date Processed: _____

Membership#: _____



UNIX® AND OPEN SYSTEMS USERS

Membership
Application

AUUG Inc Secretariat

PO Box 366, Kensington NSW 2033, Australia

Tel: (02) 9361 5994

Free Call: 1 800 625 655

Fax: (02) 9332 4066

email: auug@auug.org.au

ACN A00 166 36N (incorporated in Victoria)

http://www.auug.org.au

Notification of Change

You can help us! If you have changed your mailing address, phone, title, or any other contact information, please keep us updated. Complete the following information and either fax it to the AUUG Membership Secretary on (02) 9332-4066 or post it to

AUUG Membership Secretary
 P.O. Box 366
 Kensington, NSW 2033
 Australia



UNIX® AND OPEN SYSTEMS USERS

(Please allow at least 4 weeks for the change of address to take effect..)

- The following changes are for my personal details, member #: _____
- The following changes are for our Institutional Member, primary contact.
- The following changes are for our Institutional Member, representative 1.
- The following changes are for our Institutional Member, representative 2.

PLEASE PRINT YOUR OLD CONTACT INFORMATION (OR ATTACH A MAILING LABEL):

Name/Contact: _____

Position/Title: _____

Company: _____

Address: _____

Postcode _____

Tel: BH _____ AH _____

Fax: BH _____ AH _____

email address: _____

PLEASE PRINT YOUR NEW CONTACT INFORMATION:

Name/Contact: _____

Position/Title: _____

Company: _____

Address: _____

Postcode _____

Tel: BH _____ AH _____

Fax: BH _____ AH _____

email address: _____

AUUG Secretariat Use

Date: _____

Initial: _____

Date processed: _____

Membership # _____

