

From our President . . .

While writing this article, I had one of the all time classic excuses for it being late to the editor. My home system had a hard drive crash. While running the restore tape and hand picking gems of files and data from the still smoking disk, I had a fair amount of time to reflect on the past decade of System Administration (or at least my view of it). As I placed the tiny near disposable 10Gb IDE disk into my system, replacing the relatively massive 2Gb SCSI disk, it caused several memories of ten years ago to be triggered.

When I was working back late that night helping the DEC systems engineer replace the 300Mb drive in one of the Vaxen, it required at least two people to lift the actual spindle/head unit. The next few hours were spent restoring from several 9-track reel-to-reel tapes to get the information back on the disk. The "beast" box next to this stricken machine sported a whopping 2Gb's of disk and two cpu's. My thoughts back then were "Wow! 2 Gig. I am glad I don't have to restore that tonight." (NB. It was over 50+ 9-track tapes back then.) The vax we were working on was one of a few nodes in the Queensland "Internet" as it was back then, but being a vax, DECNet was its primary networking protocol. She had a AUI connected Thick-Net cable sporting a whopping 10Mbit/s. 10-base-T was just starting to become available and we were planning to have an experimental network to test this new technology. Y2K (or date/time) related issues were still important back then. I remember asking how to enter Jan 1st, 2000 into VMS's "XX-XXX-19XX" prompt at bootup. As a side note I tried the far flung date of '99 and the version of VMS complained that a ludicrous time had been entered and refused to boot.

As my personal 5Gb SCSI tape drive clicked to a halt at the end of the restore, I paused and compared what has changed and what has stayed the same.

Disk drives have gotten a lot smaller (and much lighter), cheaper and have more capacity, but they still crash at the worst times.

Tape drives have gotten a lot faster, higher capacity and physically smaller, but like a decade ago, they are still hopelessly behind disk technology.

CPU's have become lightening fast, yet the bug-bear of multiple CPU's still haunts the industry. A heat-sink was an oddity on a CPU ten years ago.

Networking has of course, become a lot faster, but not in the same league as disk, tape and CPU. That oddity called the "internet" is now the "Internet", what network didn't make up in speed, it made up in connectivity.

Operating Systems used to be very expensive items and in some cases you had to pay for how many users you had on the system. MSDOS was fairly cheap and any number of users could use it (be it one at a time). Now, most of the then heavy duty OS's are free (and giving away their source code) while Microsoft is still cheap, though expensive compared to free I guess, and it is moving to a pay per user model.

System Administration. Well a lot of things have changed and some have stayed the same. My current predicament was still the same - System Administrators

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Secretary's Report

Well the Editor's constant hassling has worn me down and here is the obligatory Secretary's Report. I must admit to wondering whether my aimless ramblings do much to inspire or entertain the membership. To this end I am calling for suggestions from you as to what information you would like to see presented in this regular report. Forward your suggestions to secretary@sage-au.org.au

A number of members expressed dismay at the recent appearance of SPAM on the sage-au list. As mentioned at the time the executive is following up on various member suggestions to provide a degree of protection against this problem. Just before Christmas we offered to moderate the list to eradicate this problem while an automated solution was implemented. This idea was loudly and repeatedly objected to by members, so the list remains open. We not so humbly request your patience in the interim, and please do not exacerbate the problem by needlessly complaining to the list about the amount of SPAM being received.

Another idea we are looking at to reduce list noise is a Systems Administration Resources link page on our Web Site. Again, if you have any suggestions for great sources of System Administration information and help, please submit them to secretary@sage-au.org.au. Don't forget however, that often questions have been asked before - a quick search of the mailing list archive may well save a new post to the list on a previously discussed subject. I draw your attention to a section of the FAQ on this topic

How to search the mailing list archives

Before posting to the list it may pay to see if your question has been discussed on the list previously. To do this members may search the list archives. In a web browser go to

<http://www.sage-au.org.au/maillist/>

and follow the appropriate links from there.

On the subject of the FAQ, this is now posted to the list automatically each month, and I am looking to add new information to this document so hopefully you will find more and more useful stuff in it. The next cab off the rank will be a section detailing policy on sending commercial email to the list, e.g. advertising training courses. Expect this in your next issue of the FAQ early in March.

Related to this point is another request for your feedback. Recently a suggestion was put to the executive that we change the sage-au-jobs list to sage-au-careers, and allow advertising of personal development opportunities as well as positions available to this list, which would remain moderated. What are your thoughts on this idea? Let me know at you know where...

Finally it is already the time of year where preparations begin for our annual election of the Committee of Management. These positions are very important to the continuing growth of SAGE-AU, and I would encourage anyone who has some spare time and the inclination to help make SAGE-AU stronger to consider throwing their hat in the ring and nominate for a position. The call for nominations is included with this newsletter, asking for nominations for a total of 8 voting board members (President, Vice-President, Secretary, Treasurer, and four general committee members). Additionally nominations are sought for the non-voting positions of Associate Member Representative, Returning Officer, and Assistant Returning Officer. It would be nice to see sufficient interest (for a change) to actually require ballots for most positions.

Anthony Vialle, Secretary

FIND A NEW MEMBER DAY!

One of the many inserts in this edition is an up-to-date membership form. Please make it a priority to find a prospective new member and give them the form. Remember, the more members we have, the better facilities we can provide for all. Make every day Find a New Member Day!



From our President (from Page 1)

are still doing backups and fixing hardware, spending late nights sweating over hot terminals. A lot of the principles are still the same, though with vastly different technology underneath. The user interface has changed, yet the system administrator still has to revert to simple text based tools to do the low level work.

On the other side of the coin, we are now shouldered with the roll of "regional network policeman" for our little corners of the Internet, with issues ranging from Copyright (aka Digital Agenda Bill) to Censorship. Computer Security has gone from "passwords" to firewalls and PKI. The technology changes have in some areas helped System Administrators do their job just a little bit easier. Nowadays we have manuals and information on the web, so instead of not reading the paper manuals, we can now not read the electronic ones. :)

Computers have taken a much more visible roll in society and so has society's dependance on them. With this, the increase in number of System Administrators and the increase in the profile of the profession. Ten years ago, a taxi driver taking me in to work at 3am would ask me what I do for a living. "System Administrator" "Whatz that???" "I work with computers, ...". Recently, I was asked the same question and the response now is to ask me how they can set up security on the linux box they have been playing with. In a way, System Administration has gone from being a dark art to a curse. Instead of my family being worried about me spending too much time with computers, they now wish me to spend time with theirs.

By the time this newsletter reaches you, SAGE-AU will have it's first Gold Sponsor. eServ have stepped up to take that honour, having been a long time supporter of SAGE-AU, right back to the very first conference. On behalf of SAGE-AU we welcome them on board and look forward to their continued support in years to come.

This year's conference is certainly shaping up to be an excellent feast of presentations from Australia and abroad. Top names as Bill (William) Cheswick who was the co-author of "Firewalls and Internet Security", Dan Klein, and David LeBlanc. We may even have a few other luminaries attending the conference but as yet we can not confirm those. :)

This time of year in SAGE-AU's calender is when the organisation starts to seriously prepare for its annual conference and its AGM. Part of that preparation is organising the new executive for the next financial year. So, in this newsletter you should find a call for nominations for the national executive positions within SAGE-AU. I strongly urge you all to consider applying for nomination and to get your hands "dirty" and put some effort into improving SAGE-AU.

David Conran, President

General Information

SAGE Advice is the official newsletter of the Systems Administrators Guild of Australia. It is produced four times per year and distributed free of charge to members of **SAGE-AU** via e-mail or snail mail.

Editorial Committee

editor@sage-au.org.au

Membership Information

office@sage-au.org.au

Contact Details

Contact details for SAGE-AU are:

Secretary
SAGE-AU
GPO Box 2974 Ph: 03-9625-2823
Sydney NSW 2001 Fax: 0500-5444-88

SAGE-AU ftp and WWW servers

ftp://ftp.sage-au.org.au/pub/SAGE-AU
http://www.sage-au.org.au/

SAGE-AU Committee

President

David Conran
(David.Conran@member.sage-au.org.au)

Vice President

Geoff Halprin
(Geoff.Halprin@member.sage-au.org.au)

Secretary

Anthony Vialle
(Anthony.Vialle@member.sage-au.org.au)

Treasurer

Donna Ashelford
(Donna.Ashelford@member.sage-au.org.au)

General Committee

Jason Andrade
(Jason.Andrade@member.sage-au.org.au)

Luke Mewburn

(Luke.Mewburn@member.sage-au.org.au)

Russell Noble

(Russell.Noble@member.sage-au.org.au)

Andrew van der Stock

(Andrew.vanderStock@member.sage-au.org.au)

Associate Representative

Hal Miller

(Hal.Miller@member.sage-au.org.au)

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Editorial

by Andrew van der Stock (ajv@greebo.net)

It's been an interesting three months for me – time has literally flown by since I last gathered all the articles for Lee to put together and make into the journal you have in your hands.

As SAGE-Au garners more permanent sponsors, they will help improve SAGE-AU and SAGE Advice by allowing us to reprint the best articles from other journals or web sites. If you or your organization wishes to become a sponsor, it's not that expensive (we have sponsorship levels from \$500 and up). SAGE-AU has a large number of very qualified members that make the investment a wise one.

You might have noticed how chunky this issue is. Please use the membership form to sign up one or more of your friends. Feel free to photocopy the form and give it to everyone you know who will benefit from membership to SAGE-AU.

Every organization requires new people to infuse new ideas and life into them from time to time, and SAGE-AU is no exception. If you have an itch you wish to scratch, consider nominating yourself or someone you think will make a difference for an exec position in the forthcoming elec-

tions. The lucky candidates who earn a spot in the exec will need to dedicate about 8-10 hours a week, maybe more if they take a major role, but it's worth it.

From the June edition on, the best article written specifically for SAGE Advice (decided by the Exec, no correspondence, yada yada) will win their favored single volume system administration-related book, such as an O'Reilly tome. If you'd like to be surprised, let us know.

As many of you now know, the Y2K was a bit of a fizzer. In my view, this is due in no small part by the many people in IT who worked so long and so hard at fixing the major problems, and those who had to work over the critical period fixing up those last minute snafus. I hope that all of you who had to work on this important issue managed to get some form of life back after the big date.

As usual, I have not received any letters for the last three months, so there's no letters section this month. If you have an article you think might help other administrators, please let me know about it. Make me happy: editor@sage-au.org.au



PROPOSED CHANGES TO THE RULES OF ASSOCIATION

Included with this issue of SAGE Advice are several ballot papers. These address some changes to the Rules which the Committee believe are important to the ongoing good management of the organisation.

Ballot 2000-A (Cleanup of Ballot Procedures) is a number of changes to clean up the Rules in relation to Ballots and the positions of Returning Officer and Assistant Returning Officer.

Ballot 2000-B (Schedule of Membership) changes the Rules to defer the definition of membership classes, their requirements and fees into a separate Schedule of Membership, with the Rules containing the controls and limitations governing the making of changes to the Schedule.

Ballot 2000-C (Typographical Corrections) are minor changes to the Rules to fix certain typographical errors.

Each ballot is to be voted on separately, and each consists of a single motion to accept the changes en-bloc, or to reject them.

The enclosed ballot forms describe the changes in detail, and the Web site contains annotated copies of the Rules to make the effect of the changes clear by the surrounding context.

Please take the time to review these changes, and cast your vote on them. The Ballots close on 10th April 2000.

Thanks

Geoff (Mr Rules) Halprin
Vice-President



SAGE-AU 2000

Over the last three years we've suffered the cool July conditions of Melbourne, Canberra and Sydney for the annual conference. As a nice break from the snow and frost, this year's conference heads north to the relative warmth of the Gold Coast, Queensland.

The conference will be held from Monday 3rd to Friday 7th of July, 2000. The first three days will comprise the tutorial program, with the conference proper commencing on Thursday 6th. Bond University (cnr Cottesloe Dr & University Dr, Robina) provides the venue this year. The past few years have seen the conference held at some interesting locations, such as Melbourne Zoo, Old Parliament House and a Sydney hotel - so it seems fitting for Australia's first private university to host the 2000 conference.

The conference dinner will be held after the AGM on Thursday evening. We are planning an fabulous evening at Seaworld with a few surprises thrown in. A ticket to the conference dinner is included in conference registration, and extra tickets will be available.

Our conference program looks great. We have three international guest speakers: **Daniel Klein**, **Bill Cheswick** and **David LeBlanc**. While we don't generally 'theme' the conference, all three guest speakers have strong backgrounds in security. Our choice of speakers also reflects the variety of architectures our members find themselves working with.

In addition to our headline guests, we have had a strong response to the Call For Papers, internationally and domestically. The tutorial program looks like being the best we've had yet. Some of the best tutorials from last year will be re-run this year (for those who missed out) in addition to tutorials from out international guest presenters and the best quality tutorials submitted by our members.

Daniel Klein has been working with the internet since 1974 and UNIX since 1976, including teaching in a range of UNIX orientated areas. Daniel's experience spans a number of disciplines, including real-time processing, compilers, medical systems, kernel internals, general system administration and security. More recently Daniel's interests have focused upon web-based servers and delivery systems. He has a Masters of Applied Mathematics from Carnegie-Mellon, and has strong links with the USENIX Association, regularly contributing to conferences and serving as the Tutorial Coordinator.

For more than 25 years **Bill Cheswick** has been involved with operating systems security, logging into his first computer system in 1969. Bill joined Bell Labs in 1987 where he has worked on a broad

range of projects, including OS kernels, network security, viruses, mail systems and the Plan-9 operating system. Bill co-authored the first book primarily focusing on internet security, *Firewalls and Internet Security: Repelling the Wily Hacker*. Bill is recognised as an authority on internet and security matters, being named "one of the seven avatars of the internet" by Clifford Stoll.

David LeBlanc is currently employed at Microsoft as a Senior Technologist in ITG Information Security, and specialises in penetration testing on Microsoft's networks. Prior to working at Microsoft, he led the development team for the Windows NT version of the Internet Scanner at Internet Security Systems. Dr LeBlanc received a Ph.D. from the Georgia Institute of Technology in Environmental Engineering in 1998.

We've got a strong conference program and a great venue. Now is the time you need to add this event to your diary and approach management about sending you to Australasia's premier system administrators conference.

Diary Entry
SAGE-AU'2000 Conference
Monday 3rd to Friday 7th July 2000
Bond University
Gold Coast, QLD
Details: <http://www.sage-au.org.au/conf>

Why Uptime Sucks

by Andrew van der Stock (ajv@greebo.net)

In the rarefied world of mission critical computing, it is imperative that businesses can rely on critical services being as close to 100% available as possible. For some particular mission critical sectors (such as finance, health and emergency services), this can mean true 24x7 fault tolerance. However, for most companies, although they require high availability, true 24x7 operation is not necessary. In this article, I'm going to try to demonstrate why uptime is a poor indicator of an operating system's ability to provide high reliability, availability or serviceability (RAS). RAS has been with the IT industry since the mainframe days of the 1960's. RAS is about risk mitigation. To what extent you mitigate your risks (and thus how much money you spend implementing and practicing it) determines how available your data is. In this context, uptime means nothing and indeed is detrimental to the larger goal of data availability.

To give you a feel for this important topic (which admittedly is very dry), I'm going to ask a few simple questions. On your high uptime servers, do you take basic reliability steps at all? Do you backup your data? Do you rotate the backup media so that you have more than one backup? Do you verify the backup immediately after taking it? Do you regularly apply the latest recommended security or DoS kernel patches? Do you have a disaster recovery plan in place for each of your servers? Do you ensure that you're only running protocols and daemons that you require on your servers? If you answered "no" to any of these very basic reliability questions, then you are not taking RAS seriously. RAS is a huge field, which could fill several really boring books, and still not cover all the bases. RAS covers processes like change management, risk management, and does not stop at the machine room door.

In most small to medium enterprises (SME's) - which are by far the largest employers in most industrialised countries - it is only necessary to provide high availability during core hours. Core hours can be as short as just 42.5 hours a week (9 am to 5.30 pm, five days a week, or just 25.3% duty cycle). As long as the services that drive the business needs of the organization are continuously available during core hours, uptime itself doesn't matter. For example, most typical SME's can save more than 70% of their annual IT operating costs (and be environmentally friendly at the same time) by simply running their servers and associated machine room equipment only during core hours. For most small businesses, this actually happens when they close their notebook or turn off their PC before going home. The maximum uptime of these business critical servers will never be more than nine hours, and yet they achieve high availability with little or no redundancy.

In larger organizations, uptime is not as important as data availability. I am personally aware of one airline that would be out of business within twelve hours of losing their airline booking system. This airline - and most others as well - take extraordinary measures to ensure that they have redundancy at all levels and practice and use disaster recovery techniques every day. They built a hidden data centre bunker that Saddam Hussein would be proud to be sheltered in just in case leafy Melbourne Australia ever came under attack by weapons of mass destruction. They have another data centre in another part of the city, and a third smaller site in another capital city. They transfer operational control of their highly available mainframes to the various sites regularly to prove to themselves that at least a few aspects of the disaster recovery plan works. In this case, their mainframes do not have lengthy uptime statistics - they rarely run for more than a week, but uptime is completely unimportant - in fact, it's irrelevant.

Organizations have to take a holistic view of data availability. Measuring individual operating systems or servers is not useful because if the data is important enough, there should be a suitable level of redundancy to ensure its high availability. This includes taking appropriate levels of risk mitigation (there is no such thing as 100% risk avoidance) in locating data centres, how freaked out they are about data espionage, how they can provide redundant paths to all systems and sites whilst still providing sufficient throughput to continue business. With sufficient redundancy, 100% uptime is not only a useless indicator, but actually detrimental to proper operations of a highly available site.

For example, Federation Starship USS Voyager (NCC 74656), suffers regular infestations of highly deadly aliens, such as species 8472 and the Hirogen. If Engineering had proper change management of known defects, they would have upgraded or researched for solutions to this annoying and regular occurrence. However, if Lt Torres turned out to be an uptime freak, the eventual solution to upgrade the shields would never be implemented because it would devastate the uptime statistics, even though it could save valuable crew lives. She would wait until the shields failed and then implement the new, untested shield configuration, probably while senior management called every few minutes to see how things were going because they were losing crew like so many gummy bears. Of course, she'd look like a hero when the shields came back on line. Sound familiar yet?



To give another real world example, let's take issue with USS Voyager itself. Voyager is an excellent example of how not to create a mission critical system. Voyager (and for that matter, the other Federation starships before her) have an amazing lack of redundancy and automation. In almost every case, a critical system in the starship fails because there are no redundant parts (such as a computer core or warp drive), a lack of alternate paths or require human intervention to fix simple problems. To put this in 20th Century perspective, do you have just one UPS for each of your machine rooms? Can you service that UPS (change the fuse, replace a battery) without powering down the machine room? Can the machine room continue operating safely with the loss of the UPS? To me, the UPS is an example of a critical failure point in the reliability chain. Voyager (and most IT shops) contain far too many critical failure points. Luckily Voyager is just a TV show (ok, so it's a way of life to many of us), but IT is a hard reality for the world today.

Linux, other OSS OS's, Windows NT/2000 and most proprietary operating systems have far to go in all aspects of reliability, availability and serviceability. There's no low cost RAS operating system as yet, and to make it worse, the training costs are generally far higher than the costs of the hardware and the software that make high availability possible. There's no point in having a fault tolerant cluster if it is not managed properly.

When I first started writing this little essay, I was going to bag pretty much every operating system. Then I realised that there was not much point as the issues I address here have a much wider application for the System Administration community. Administrators need to start taking into account mean time between failures (availability lapses) and learning core skills like root cause fault analysis rather than typing uptime and assuming that your services have all been available for that length of time. SAGE-AU can help lead the way by providing the skills necessary to manage highly available systems.

Items for Sale

<u>Item</u>	<u>Member Price (\$)</u>
SAGE Job Description Booklet	15.00
SAGE Computing Policy Booklet	15.00
SAGE System Security Booklet	15.00
SAGE Educating & Training Booklet	15.00
SAGE-AU'94 Proceedings	15.00
SAGE-AU'95 Proceedings	15.00
SAGE-AU'96 Proceedings	25.00
SAGE-AU'97 Proceedings	25.00
SAGE-AU'98 Proceedings	25.00
SAGE-AU'99 Proceedings	25.00
SAGE-AU'98 Conference Video CDROM	50.00
SAGE-AU'99 Conference Video CDROM	60.00
SAGE-AU Polo Shirts (Navy & Black)	25.00

Note:
Postage & handling is charged at \$3 for the first item, and \$2 for each additional item (for Aust residents - overseas postage charged at cost).

Many of these items are in short supply, so "first in, best dressed". To order any of these items please complete an order form which you can find at:

<ftp://ftp.sage-au.org.au/pub/SAGE-AU/Forms>

Mailing Lists

sage-au	sage-au-exec
sage-au-announce	sage-au-membership
sage-au-chairs	sage-au-jobs
sage-au-conf	sage-au-skills
sage-au-pubs	sage-au-standards
sage-rg-exec	sage-rg-tres
sage-nsw-exec	sage-nsw
sage-qld-exec	sage-qld
sage-vic-exec	sage-vic
sage-wa-exec	sage-wa
sage-bris	sage-rocky
sage-tas	sage-act

Most of the mailing lists are available for members to subscribe to.

Please see the page on the website, at:
<http://www.sage-au.org.au/resource/maillist.html>
for information about joining the various lists.

A System Administrator's Trip to the Hill

by Geoff Halprin (geoff@sysadmin.com.au)

A lot of heat and wind has been generated throughout our industry and in the press over the past few months in relation to the Online Services (Internet Censorship) Bill. Whilst many Netizens have grave problems at a personal level with what that bill does and seeks to do; it must be noted that the bill does not place system administrators in a position of ethical dilemma or legal liability.

As system administrators, we should be far more worried about another bill, the Copyright Act (Digital Agenda) Bill 1999. This bill, which is presently before the parliament, might just make much of our work illegal. Use, downloading and authoring of security tools would be outlawed. Communication of information about security flaws would be illegal. Simply changing file permissions might expose you personally to a lawsuit. Of course, this is an Australian law, so these activities would only be illegal in Australia, placing our country's entire information infrastructure at vastly increased risk.

“As system administrators, we should be far more worried about another bill, the Copyright Act (Digital Agenda) Bill 1999.”

None of the above appears to be intentional. The Bill has the stated goal of attempting to bring the Copyright Act into the Digital era. In fact, SAGE-AU fully supports the intent of the Bill. Unfortunately, there are a number of codification errors which inadvertently cause the aforementioned side effects.

When this bill was first made available as an exposure draft by the Attorney General's Department, SAGE-AU made formal submission seeking to clean up the wording and remove these side effects. That submission was, we believed, well received. However, when the final bill recently entered parliament, we were dismayed to find that none of our changes was in place.

When the bill was introduced to parliament, it was passed off to the House of Representatives Standing Committee on Legal and Constitutional Affairs (LACA) for review. This committee was seeking input from the public, both as written submissions, and also at public hearings.

It was time for SAGE-AU to become more involved.

We made another formal submission, almost identical to the first, this time to LACA. We then requested an opportunity to appear before the Committee to present on these matters. Due to tight timeframes and busy schedules, the Melbourne public hearing was cancelled, and the schedule for the remaining public hearings was revamped and turned into "round tables" where relevant

interest groups spoke for and against particular amendments. It was now to be in Canberra, at Parliament House.

Each round table was to focus on several key areas of the Bill. Relevant to SAGE-AU was the definition of "effective technological protection measures" and "circumvention devices and services", and the sections of the proposed bill dealing with criminal and civil actions for breaches relating to these protection measures.

On October 21, I took a trip to Canberra to appear as a witness before LACA at one such round table. There were representatives present from the Australian Digital Alliance, the Business Software Association of Australia, and the International Intellectual Property Association, among others.

Shortly after the morning began, I introduced myself, the profession of Systems Administration, and SAGE-AU. I then went on to discuss the issues at hand, the problems they presented, and how we might resolve

these problems through changes to the Bill.

The Committee seemed very open to the concerns raised, and had intelligent questions. There was an agreement from all present that there was a legitimate need for protection for system administrators, but, of course, no agreement on how that would be best achieved. What ensued was argument about various mechanisms, their side-effects and desirability. All up, over half of the round table session was dedicated to our issues and all other verbal submissions that morning were viewed in light of how they would affect our community.

The day represented a successful venture for SAGE-AU into the political process. Of course, we are yet to see what impact will result from these efforts, and we are continuing to pursue other avenues to ensure as best we can that there is adequate protection for system administrators in the final bill.

The Committee reports in early December. We will keep you informed of our progress on these issues. If you are interested in this bill and the submissions and hearings, you can find details at:

["http://www.aph.gov.au/house/committee/laca/digitalagenda/inqinf.htm"](http://www.aph.gov.au/house/committee/laca/digitalagenda/inqinf.htm)

No, Andrew, I don't have the time ...

by Paul Wallin (pwallin@coalop.com.au)

No Andrew, I just don't have the time asked to write a 400 word article on what I know about Linux and daylight saving issues (which is very little), or on Active Directory planning (which is less).

Last night at about 9pm, our Executive Director of Business Development rang me from a doctor's surgery waiting room in Johannesburg. He couldn't dial-in to get his email? Could I help him? That capped off a pretty typical day.

My background task for the day was to come to grips with SNMP on an old external SNMP adapter for an APC uninterruptible power supply. I learnt more than I really wanted to know, but at least now I have the building blocks to allow us to be a bit more proactive in monitoring the power at our main site. And we need it. Last Saturday night we lost power, the UPS exhausted its batteries after about 4 hours, and then we lost all services. It turned out to be a breaker on a power surge unit, but it cost me several hours of sleep.

It's capital budget time. My draft IT budget wasn't smiled upon. While fiddling with SNMP I managed to find a way to cut and paste our plans for 2000/01 to spread them over a few more years.

One of my daughters just rang from home. Printing problems – can I help?

A third of our IT team of three is on leave. One of the users at his main site just rang in. His local hard disk drive has just crashed, and well, no, he hasn't actually been saving his data on the network. I can't go myself, I have a meeting arranged to finalise the Maintenance agreement on our core commercial applications, and another one in a round of meetings about our corporate telecommunications costs. Get a contractor on site ASAP and let's see if we can revive the drive long enough to clone it ...

Next week we have an IT Auditor arriving from South Africa. He will be here on site for 3 whole weeks. He has sent ahead a huge scope document. We have a lot of skeletons to argue over. Probably the most trivial but highest profile is that old chestnut, password policies. We have to make his local travel arrangements. One of the secretaries in our Sydney office was arranging flights, accommodation, hire cars, but she has been off with the 'flu for the last two days. Time to put on the travel agent hat...

Damn, the "intranet" just stopped working. Why could that be? I hope it is just something to do with some tidying up we were doing in the DNS tables in advance of the IT Audit.

Strange – just got a test email from our corporate international help desk. I wonder if it has anything to do with that bounce message last week from our Chief Executive in London. Is there a problem brewing in the background? I hope it has nothing to do with the hand-crafted directory import/export routines I have been using to try to avoid a full synchronisation of the whole GAL of about 9,500 mailboxes.

Where are those capital approvals for the switch upgrades!!! Must start the paper chase. Funny isn't it. One of the budget items that got pushed back was the one that involved electronic requisitioning, approval and order placement!

A week after the IT Auditor goes, I will be attending the bi-annual meeting of IT Managers from around our multinational group. We'll be meeting for two days, and the agenda includes a session on how we are going to design a global Active Directory. I fear there is a *fait accompli* in the background, and that there will be some head-bashing going on. It could more a matter of submission than co-operation. I must find time to research this damned Active Directory thingy.

At least while I am there I might be able to argue the toss over some subnet renumbering and routing issues that are delaying the roll out of some applications over the international private WAN. I must get around to doing that Cisco course that I have a voucher for. I've had the voucher for 7 months, and it expires in May. But when can I find 5 clear days?

An old mate just rang asking for career advice. Should he stick in a relatively well-paid job where he isn't all that happy, or take the plunge and go contracting. I wish I knew the answer to that one. All I could do was confirm his confusion.

Light digression – just worked through about 40 unread messages on a Fortran email list. Three separate threads one (believe it or not on GOTO's versus EXIT/CYCLE), another on double precision implementation, and another on biographical information about the 12th Century Italian mathematician Fibonacci. Very entertaining.

Just checked the TACACS logs – our Executive Director in the waiting room eventually got through.

I think I've got the flu.

No Andrew, I don't have time to write that article...

*Paul Wallin is IT Manager,
Coal Operations Australia Limited*

Perl Command Line

by Bradley Marshall (bmarshall@PIsoftware.com)

As many of you know, Perl is a useful scripting language. However, you can also write many useful one liners with it - there are plenty of options available to modify its behaviour.

The standard way of doing things as a Perl one-liner is as follows:

```
$ perl -e 'print "Hello World\n";'
```

As you can see, you simply put the perl code between quotes - this is useful for testing out perl idioms, or for simple code. A slightly more advanced one-liner for crypting passwords would be:

```
$ perl -e 'print crypt("password","salt"),"\n"'
```

Note that this will be put in any shell history files, and be viewable from the process list, so don't run this with any sensitive passwords. A better way to do this would be as follows:

```
$ perl
print crypt("password", "salt"),"\n";
^D
```

This will output the crypted password on STDOUT. This is useful in many other cases for testing code.

Perl also has syntax checking, which is useful when combined with use strict and #!/usr/bin/perl -w - which is important to use on all scripts. To test out syntax, try the following:

```
$ perl -c script.pl
```

This is useful when debugging code, as it shows you syntax errors. It also doesn't actually execute the code.

The next useful idiom that command options gives you is options that let you loop over a given file. This can be useful for editing a file, and taking actions based on the contents, or even editing it in place. There are many variants on this, as follows.

The basic option to do this is -p. It is equivalent to the following code, and makes perl operate a little like sed.

```
while (<>) {
    ...           # your script goes here
} continue {
    print or die "-p destination: $!\n";
}
```

For those of you who don't know perl, <> is effectively a loop over the file, putting each line into a variable available for processing.

This is useful when you want to make a change, and print each line after processing it. An example of this would be:

```
File:
The cat sat on the mat.

$ perl -pe 's/cat/dog/' file
The dog sat on the mat.
```

Slightly different to this is -n - this is almost the same as -p, but it doesn't print every line. This is equivalent to the following code.

```
while (<>) {
    ...           # your script goes here
}
```

Another useful modifier is -i. This allows you to either edit the files in place, or back them up. As in the previous example, you can edit the file in place.

```
$ perl -pi -e 's/cat/dog/' file
```

This edits the file in place - this can be useful for global search and replacements. If you're cautious, however, you can leave a backup by adding an extension, such as `-i.bak`. This will leave a backup file with the contents unmodified.

For even more fun, you can use `-a`, which turns on autosplit mode. This modifier to `-n` or `-p` adds an implicit split inside the while loop, and is useful for columned data. By default, it splits on space, but you can change it with `-F`, which specifies a regular expression to split on. A useful example of parsing password files would be:

```
$ perl -an -F: -e 'if ($F[2] > 100) { print $F[0],"\n"; }' /etc/passwd
```

This splits on a colon, and puts the result into `@F`. This can be useful for finding out information based on context.

To include modules in these scripts, use the `-M` option. For example:

```
$ perl -Mfoo -e '....';
```

This is equivalent to:

```
#!/usr/bin/perl
use foo;
```

One thing to note however, is that perl one-liners are rarely run with `use strict` or `-w`. If you find yourself using these, it might be time to consider a script. It is important to know when to keep with one-liners, and when to use a script. Additionally, remember that you can use any of these options in a script.

As you can see you can get quite a lot of functionality for very little code, and can save yourself a lot of time, both in script development time, and in finding out information from files. These options allow you to use the functionality of perl, without having to write a full blown script by giving you well tested, well known code. For more information about these options and more, see both *perl(1p)* and *perlrun(1p)*.

An Interview with Tim Leatherman, founder of Leatherman Tool Group by Andrew van der stock (ajv@greebo.net)

Q. The marketing on your web site suggests that most of your customers are the outdoors type. Why do you think that geeks have taken to your tools as well as they have?

A. I think anyone who wants to save a few steps finds our tools useful. By the way, I'm not a geek in the computer sense (as you can tell from my response to your e-mail, I struggle with even the most elementary uses), but I am a bit of a geek (apron and pocket protector) as a tool designer.

Q. On slashdot a while back, a survey asked how respondents shaved. One of the alternatives was the Leatherman (others included various razor types and a weed whacker). Do you know of any of your customers who has actually shaved using a Leatherman?

A. No. We check the sharpness of the knife blades all the time by seeing if they are sharp enough to shave the hair on our arms, but we've never tested them by seeing if they will shave the hair on our faces. Help me keep my liability premiums low. If it's a choice of the Leatherman or the weed whacker, try the weed whacker!

Q. What's the most unusual use of a Leatherman tool that you've heard of?

A. That's a tough one. We get so many letters. All the "Tool Tales" are true. The other day my Dad was telling me what happened when he took one of our relatives to the hospital. When the doctors and nursing staff

found out his name was Leatherman, they crowded around him and started telling stories.

The first doctor had a complaint. He said the tip of his small screwdriver had twisted. My dad told him the tool is guaranteed 25 years (which is true), send it in, and the company will be happy to fix it (which is also true).

The second doctor told about how he was on a mercy mission in Africa and someone's tooth needed pulling. They were days away from a dentist, so this fellow reached in with his Leatherman® tool and extracted the tooth successfully.

The third doctor told about how he was once in the company of someone who got something stuck in his throat. The doctor got his Leatherman® pliers in there and pulled the object out - saved the guy's life.

Q. Are there any Leatherman models designed with the computer user in mind?

A. Not specifically. If any of your readers want to send me a list of the features they would like to have in such a tool, I'd be happy to consider designing a tool specifically with the computer user in mind.

Q. What's your favorite model?

A. Another tough one. Right now I am carrying a Wave and Crunch on my belt and a Micra on my key chain.

Leatherman Tools:

<http://www.leatherman.com>

XFree 4.0

by Bradley Marshall (bmarshall@Pisoftware.com)

As many of you may have heard, XFree 4.0 will be released "Real Soon Now". This will be a major new release of the XFree code, with many improvements, and new features. I'll be covering some of the major improvements and changes, and also discuss the release schedule.

The current development version (or snapshot) of XFree, 3.9.17, was released on Dec 31st, 1999. These snapshots are mainly intended for developers, or those who like to live on the bleeding edge (remember, its called the bleeding edge for a reason). Snapshots are expected to be released about every 4 to 6 weeks, with the final release of XFree 4.0 intended for sometime in the middle of 2000. Although this is a development version, it can give a good indication of what the released version will contain.

A list of supported cards and related drivers, as taken from the release notes for XFree 3.9.17 is as follows:

Driver Name	Description
apm	Alliance Pro Motion
ati	ATI
chips	Chips & Technologies
cirrus	Cirrus Logic
fbdev	Linux fbdev
glide	Glide2x (3Dfx)
glint	3Dlabs
i740	Intel i740
mga	Matrox
neomagic	NeoMagic
nv	NVIDIA
r128	ATI Rage 128
rendition	Rendition
s3virge	S3 VIRGE
sis	SiS
tdfx	3Dfx
tga	DEC TGA
trident	Trident
tseng	Tseng Labs
vga	Generic VGA

One of the major changes is that there is no longer many different servers for different video cards. There is now a single x server, called XFree86, which can have different

video drivers either statically or dynamically linked to it. This run-time loader, donated by Metro Link (<http://www.metrolink.com/>) doesn't rely on the operating systems native dynamic load, which means the modules can be used on multiple architectures. These modules can be used for many extensions to the server, ranging from video drivers, to input drivers and font rasterisers. As many of you can imagine, there can be security issues with this as the X server runs with root privileges. This means it will be important to only load modules from a known reliable source - the XFree group are working on a method for ensuring this.

Another addition to the server is support for a wider range of 3D capable graphics cards. This includes integrating GLX extensions for 3D rendering in a X11 window - the library used for this is Mesa (<http://www.mesa3d.org/>). Work for this was done by Precision Insight (<http://www.precisioninsight.com/>), with funding from Redhat (<http://www.redhat.com/>) and SGI (<http://www.sgi.com/>). Additionally, they did work on DRI (Direct Rendering Interface), which provides an interface for directly sending 3D data to the video card. This means many of the popular 3D cards such as the Voodoo range from 3dfx (<http://www.3dfx.com/>) and TNT and GeForce from NVIDIA (<http://www.nvidia.com/>) are usable under X.

Multi-head support has also made progress of late, with many configurations working quite well, mostly using multiple PCI/AGP cards. Further work is still being done on this area - expect more support in future snapshots. Another related extension to multi-head support is Xinerama, which was included in X11R6.4. This allows to use multiple physical monitors as a single virtual screen, as long as the screens all have the same root depth. There are many bug fixes included in these snapshots, with more improvements expected in future releases.

So as you can see, there has been many improvements made in many areas, keeping XFree up to date with all the latest hardware, and adding many neat new features. For more details about these and many more new features that will be included, please see <http://www.xfree.org/> and the release notes distributed with the snapshots.



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Regional Groups

QLD Report : Bradley Marshall & Mark Suter

Our President writes, "The Queensland regional group continues strongly thanks to the efforts of the Secretary and Treasurer despite the continued absence of the President travelling on extended vacation." Traitor :-)

President: Sam.Lor@member.sage-au.org.au

Secretary: Mark.Suter@member.sage-au.org.au

Treasurer: Brad.Marshall@member.sage-au.org.au

The Queensland Chapter's membership has continued to grow with 13 additions bringing the total to 155. New South Wales and Victoria both gained 12 members, bringing their totals to 160 and 163 respectively. Nationally, membership increased to 595 with 46 additional members.

Our current venue at the University of Queensland has proven suitable and we expect to continue using this venue. Attendance at the meetings has generally been around 20.

In September, Bernadette Hyland from Plugged In Software gave one of the most popular talks for 1999 - "Contracting as a Sysadmin". This talk was very well received and prompted many questions.

For October, we had a double act from the UQ campus: Jason Andrade, DSTC, with "Scaling your Sysadmin - the Junior to Senior transition" and David Conran,

AusCERT, with "Network Probes and why you should report them". These two short talks worked well and Auscert is now receiving many more network probe reports :-)

Village Roadshow Limited was generous in allowing us to screen "The Matrix" at our December meeting, allowing us to finish a good year with a lot action and a large dose of special effects. Thanks to David Conran for the lend of his personal DVD player.

The mixture of talks continue to attract members to the monthly meetings. We wish to thank David Conran for his continued creative backup erasure methods. The products of David's labour are available to members from the website.

<http://www.sage-au.org.au/resources/videos.html>

Thanks to all the members who have attended the meetings and special thanks to those people who have presented.

We are continually looking for new talks and would appreciate feedback and suggestions. If there are topics that you would like to see covered, or if any of you have presentations that you would like to give, please contact either of us.

<http://www.sage-au.org.au/rg/qld/>

NSW Report : Titus Chiu (titus@ebinteractive.com.au)

The NSW Chapter has been relatively quiet the last report. Three months have passed, however we have only had two meetings held in Sydney with numbers of 28 (December) and 22 (February).

In December, a Christmas party was held for all members which was well attended. NSW Treasurer David Scott provided the venue featuring the magnificent Sydney Harbour, as well as a couple of helping hands for food. Many thanks to David's wife and mum! The evening was a great success (even accounting for a few religious arguments :-)

No meetings were held for the month of January where most people were either away on holidays, or laughing at their employer about not doing anything about the Y2K problems that were presented over a year ago.

In February, Zebee Johnstone presented the topic "MCSE - one sysadmin's viewpoint". As enterprises are more

and more pushed into using MS products in various aspects of the business processes, so are system administrators pushed into dealing with and integrating MS products into the environment that they administer. The talk told us how much use an MCSE really is for hands-on admin, as well as job prospects.

The current NSW executives were voted in March last year, hence it is time for me to call an AGM for NSW in 2000. The NSW AGM will take place during the March meeting and a new executive will be voted in.

Nominations for the positions of President, Secretary, Treasurer and Meeting Organiser should be sent by email to:

<ajv@greebo.net>

with the subject header:

[NOMINATION] FirstName LastName



ACT Report : Roy Meuronen (roy.meuronen@member.sage-au.org.au)

The last couple of months has been interesting for me. An office move, an NT desktop rollout, and Y2K precautions. Most of this was achieved with minimal loss to productivity.

The most commonly uttered phrase was "I don't get paid enough to defend Microsoft". The most satisfying achievement was cutting the external web server from IIS to Apache running on Linux. The most useful tool was the internet.

I can't even imagine doing my job without internet access. I ask a question of the sage-au mailing list, and I get a dozen answers, and a heap of advice. Tools, drivers and knowledge is available at all hours on the web.

And at the end of the day, I head for the singletrack on my mountain bike with a community of riders brought together by the mtb-oz mailing list.

Cool.

We have a busy year lined up for SAGE-ACT in 2000. Already we have met in January with a session on network monitoring hosted by Richard Siggs of Spirit Net-

works (www.spirit.com.au). A group of about 10 members learned of the surprisingly simple but effective monitoring and alerting systems used by this rapidly growing ISP. The group was then privileged to be offered an arms length viewing of Spirit's Phillip point of presence (POP).

February will see Warren Toomey of ADFA sharing his experiences of teaching system administration. There are plenty of other topics in the pipeline that should nicely take us up to the culmination of the year in July at SAGE-AU 2000 on the Gold Coast.

Meetings are held on the last Tuesday of each month at 18:00. As of the March meeting, SAGE-ACT will return to our regular meeting venue (same building, different company) at the training facilities of Assist Pty Ltd, 40 Thesiger Court, Deakin.

With sincere thanks to Assist Pty Ltd for their support - Assist (Accounting Systems Software Implementation and Support Team) are a professional financial systems implementation company, and the premier solution provider for Oracle Financials in the ACT. Find out more at www.assist.com.au.

WA Report : Tom Hallam (thallam@ee.uwa.edu.au)

The WA branch of SAGE has been quite active. We've met every month with the exception of January.

We're trying to get a speaker for every odd month and have a general discussion on every even month.

Meeting topics have included:

Multi platform solutions - The use of emulators and virtual machines and their application to configuring and testing systems.

Computer Angels - A charity organisation which reconfigures old computers with linux and makes them

available to people who would not normally have access to computers.

Configuration Management - What configuration management systems are used by SAGE members.

Y2K - How did you deal with it and how did it affect you?

The meetings are held at The Moon and Sixpence Pub, 300 Murray St Perth, with pre meeting drinks at 6:00pm and the meeting start at 6:30pm.

TAS Report : Geoffrey Day (geoffrey.day@member.sage-au.org.au)

The last meeting held in Tasmania was a "Pre-Christmas" short talk followed by drinks and food.

Solution6 (formerly CVSI) provided a very nice venue above Salamanca. Taking the easy way out we simply down loaded David Conran's "Network Probes and why you should report them" talk from the SAGE-AU ftp site, projecting it so everyone could see and hear the talk.

A beach barbeque was scheduled for January but due to lack of organisational effort has not taken place yet. Hopefully this will be held in mid February.

Most effort has been put into organising the upcoming "Tasmanian 2000 IT Conference" that is scheduled for April 3rd. The conference is a only one day and pre-

sents a variety of IT related talks from local and interstate speakers. For more information see <http://www.tas.auug.org.au/conf>.

If you would like to give a talk at the conference or a local meeting please contact the SAGE-AU Tas exec at sage-tas-exec@sage-au.org.au as we are always looking for speakers.

Due to Bron Godwana's success in finding employment in Victoria he has resigned from the exec of SAGE-AU Tasmania. John Dalton has been persuaded to join the exec as secretary, with Geoffrey Day as President while the position of Treasurer is currently vacant (Any volunteers ?)



VIC Report : Steven Pemberton (steven.pemberton@member.sage-au.org.au)

Meeting Venue

After discovering on Tuesday afternoon that our regular venue was unavailable we relocated January's meeting to the CSIRO BRI offices in Parkville. The new venue was well recieved, so we moved February's meeting too.

The CSIRO BRI office has a large conference room with A/V facilities, is free (allowing us to supply food gratis), has ample onsite and street parking, and is close to public transport. It's only downside being after hours access is restricted.

We are considering permanently relocating the monthly meeting to the CSIRO BRI offices. Please contact the Victorian Executive if this is inconvenient for you.

The CSIRO BRI office is located at:

CSIRO HSN/BRI Building
2nd Floor Board Room
343 Royal Parade
Parkville

Recent Speakers

November

Chris Hedger presented a talk on Rio Tinto's email system. The talk covered the migration from many different systems to a corporate standard, in this case MS-Exchange. Also interesting was the amount of independence each company within Rio Tinto retains, and how this affected the process.

David Burren demonstrated his portable Unix setup. The system was automated as much as possible and David was running local HTTP, DNS, SOCKS and X11 servers. David explained how the system was configured, via Perl scripts to detect what sort of network it was connected to, and to turn on or off appropriate services.

December

Our Christmas function attracted 30+ members for an informal get together and drinks.

January

Richard Keech explained Redhat's support and training offerings in Australia. They see more interest in Linux training than commercial support. One explanation was that Linux is being used by technical people who think they can support the system inhouse, or Linux may not yet be deployed in roles that demand 24x7 support contracts.

An open forum on Y2K issues unearthed few horror stories. Why did I work New Years Eve then? :(

February

Michael Paddon introduced us to OpenBSD, explaining OpenBSD's focus on security issues, built-in OpenSSH encryption, and default "Secure" installation. E-Sec have built their firewall products using OpenBSD. Michael also awarded OpenBSD CDs for anyone who asked a good question.

Tim Ebringer explained what e-cash systems are, and how they might work. The talk introduced many interesting ideas, such as how a bank may vouch for the value of an e-cash file without seeing it's content. Some key attributes of e-cash are anomimity, transferability, divisibility, and usability.

Upcoming Speakers

Each month we attempt to present two talks on complimentary subjects. As you can see we are still looking for companion talks for March and May.

Please contact the Victorian Executive if you feel you can contribute. Don't make us come and get you! :)

March

Rob Davies - "Configuring the TCB on AIX"
Second Speaker - Position Available...

April

Chris Russell - Storage Area Networks
Oscar Cetin - The IBM Enterprise Storage Server

May

Laurie Davis - "Managing IT Staff"
Second Speaker - Position Available...



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Regional Groups (www.sage-au.org.au/rg)



Victorian Chapter

The Victorian group currently meets on the second Tuesday of the month at 6:45pm at

The Public Office
Top floor, 100 Adderley Street, West Melbourne
Ph: 9328 2821

President: Steven Pemberton
Steven.Pemberton@member.sage-au.org.au

Secretary: Colin Linahan
Colin.Linahan@member.sage-au.org.au

Treasurer: David Keegel
David.Keegel@member.sage-au.org.au

List Chair: Morrie Wyatt
Morrie.Wyatt@member.sage-au.org.au

The group mailing list is sage-vic@sage-au.org.au.



NSW Chapter

The NSW group currently meets on the second Tuesday of every month at 6:45pm at

Level 9/50 Miller Street
North Sydney
Phone 02 9779 1869 or
0417 232 934 for entry after 7pm

President: Titus Chiu
Titus.Chiu@member.sage-au.org.au

Treasurer: David Scott
David.Scott@member.sage-au.org.au

Secretary: Andrew Whyte
Andrew.Whyte@member.sage-au.org.au

Syd. Organiser: Zebbee Johnstone
Zebbee.Johnstone@member.sage-au.org.au

The group mailing list is sage-nsw@sage-au.org.au.



Queensland Chapter

The Queensland group currently meets at 7:00pm on the second Thursday of every month at

Room 343, Level 3
General Purpose South Building (No. 78)
The University of Queensland
Staff House Road
St Lucia Brisbane

President: Sam Lor
Sam.Lor@member.sage-au.org.au

Secretary: Mark Suter
Mark.Suter@member.sage-au.org.au

Treasurer: Brad Marshall
Brad.Marshall@member.sage-au.org.au

The group mailing list is sage-qld@sage-au.org.au.



ACT Chapter

The ACT group currently meets at 6:00pm on the last Tuesday of every month (excluding December) at

ASSIST Pty Ltd
40 Thesiger Court
Deakin ACT

Interim President: Roy Meuronen
Roy.Meuronen@member.sage-au.org.au

Interim Sec./ Treasurer: Steve Jenkin
Steve.Jenkin@member.sage-au.org.au

The group mailing list is sage-act@sage-au.org.au.



West Australian Chapter

The West Australian group currently meets at 6:00pm on the first Tuesday of every month at

Moon & Sixpence British Pub
300 Murray Street, Perth

Organiser: Tom Hallam
Tom.Hallam@member.sage-au.org.au

The group mailing list is sage-wa@sage-au.org.au.



Tasmanian Chapter

The Tasmanian group currently meets on the third Monday of every month at a different location depending on the event being held (check <http://www.sage-au.org.au/rg/tas> for info.)

President: Geoffrey Day
Geoffrey.Day@member.sage-au.org.au

Secretary: Bron Godwana
Bron.Godwana@member.sage-au.org.au

Treasurer: Vacant

The group mailing list is sage-tas@sage-au.org.au.