Moving to SPARC/Linux

Ade Rixon

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1 Introduction

This article describes my experiences in migrating from Solaris 2.6 to SPARC/Linux[1], running on a SPARCstation 5. Note that this project was more than simply a lab experiment; this machine sits on my desk at work and is the computer at which I spend most of my time.

The article documents the choices I made, the actions I took and the problems I encountered, and concludes with my overall impressions of Linux as a computing environment from several aspects.

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[1] http://www.geog.ubc.ca/s_linux.html

There is a lot of interest in Linux at present, both as an alternative to lesser operating systems and as the latest fad. My experience was slightly different to many for several reasons:

- I need to do *real work right now* on this machine – I am not simply an enthusiast wanting to get away from Windows. This is an existing client desktop, not a new backend Intranet server. Hence immediate availability is more important.

- I already use Unix and have a high degree of familiarity with it. In my case, I am using S/Linux as an alternative to Solaris, which is another Unix variant. Solaris is commercially supported and has a long, distinguished pedigree. It is also extremely popular in the enterprise.

- Linux for SPARC has been playing catch-up to the Intel release until quite recently. In some areas, it still has a way to go. The greater consistency of SPARC hardware has probably enabled it to reach its present stage in a shorter time than would otherwise have been possible. Nevertheless, the S/Linux people continue work to extend support for existing hardware, never mind newer architectures like the UltraSPARC.

This article will be of interest both to 'power users' familiar with other Unix variants and more general Linux users keen to see whether their favourite OS stands up as a desktop platform in a productive environment.

2   Background

I've been using Suns since I started my degree at Aberystwyth University, nine years ago. I've been administering them for over five years. And I've been a consultant working with them for the last two years.

My standard desktop has been Solaris 2.x for the last four years (I'm familiar with Windows, but I try to have as little contact with it as possible). At home I use a Mac; if you spent all day typing obscure commands into squiddly terminal windows, you'd appreciate something with only one button on the mouse too. (There are no MS platforms in my house – conscious decision.)

I have quite a nice desktop under Solaris, customised to my needs over several years. I use the Open Look Virtual Window Manager and have most of my commonly accessed applications available from its menus. My favourite ones are automatically marked 'sticky' (i.e. they appear in every desktop on the virtual desktop manager).

The applications I use most are:

Netscape – Almost continuously (unless my employers are reading this in which case, hardly ever and only for business-related purposes, of course).

Mutt – Mail client (I used Mush before that).

Tin – News client, on the rare occasions I have time for news now.

Vi – Text editing.

LaTeX – Document preparation. (My preference for LaTeX is a hangover from my student days, but I wouldn't

write a 100 page product manual in anything else.)

GhostScript & GV – PostScript viewer.

Perl – Scripting, mainly quick text processing hacks and the odd bit of CGI.

Less – Text viewer.

Xterm – To access all the above.

Scheduler – This is an internal Java-based app that we use to track activities.

You can probably tell from this list that a normal Windows PC wouldn't be of much interest to me, and that I have found alternatives for most of the common desktop apps otherwise supplied by Microsoft.

From long exposure, I am also over-familiar with Solaris as a flavour of U-nix and probably expect most Unix commands to work the Sun or SVR4 way.

In my day job, I'm a product manager and senior consultant for the high availability software my company sells, mainly on Sun (we will also soon have Linux ports, so go see[2]!) I write documentation (in LaTeX), package the code, maintain the web site and deal to some extent with the support and marketing.

It's also worth pointing out that virtually every other machine in my company is a SPARC running Solaris, including the servers. There are a large amount of public domain applications compiled for Solaris available via NFS mounts. Of course, I can always log on to the servers to use them (try doing *that* on an NT network), but one gets used to running them locally anywhere.

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[2] http://www.rsi.co.uk/

2.1 Linux awareness

I first used Linux[3] three years ago when the team I previously worked with purchased a group laptop, which we made dual-bootable between Win95 and Linux (probably Slackware but I can't remember). I didn't get much use out of it but was impressed by the richness of the environment. Most of the additional utilities that one had to compile and install by hand under Solaris, mainly the GNU stuff, were the default commands under Linux. For a hardcore Unix user and administrator, this was heaven.

Last year, the consultancy firm for whom I worked supplied each employee with a field laptop. The laptops all utilised a standard build; nominal Win95 partition and the majority of the disk devoted to Red Hat Linux 4.1 with Applixware. This time, I used the laptop often enough – partly through choice – to perform some limited configuration on the XFree86/FVWM desktop to make it work as I wanted (simple stuff like using the correct GB keymap).

At the same time, we began to install Red Hat for SPARC on a couple of the older SPARC machines in the office, such as IPCs. And after trying vainly to use Solaris 2.6 in 24Mb of RAM on my SPARCclassic, so did I. (The Classic has since been upgraded to RHL 5.1 and now lives at home, acting partly as a fileserver for my Mac and also as a home LaTeX engine.) Additionally, I wiped all traces of Win95 off my laptop and upgraded it to RHL 5.1. And I switched to the AfterStep[4] window manager – for a change.

I find Linux similar enough to the SVR4-based bits of Solaris for the transi-

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[3] http://www.linux.org/
[4] http://www.afterstep.org/

tion to be fairly painless. XFree86 configuration is a hassle, but the rest of it is fathomable with resort to Red Hat's support pages[5] and other sources on the web. I'm interested enough in Linux to track the latest news via Slashdot, but not sufficiently devoted to contribute to the source base. I'll take it against Windows any day, and against most flavours of U-nix most days. But Solaris? Hmmm...

3 S/Linux full time?

Some time ago, I installed RHL 5.1 for S-PARC on a spare 535Mb hard drive in the SS5 I normally use at work. (If my colleagues are reading this, then that hard drive is definitely *not* spare so keep your filthy hands off it!) Occasionally, I booted it up for a play and then went back to Solaris 2.6 on the other disk when I found something I needed under that OS that my Linux installation didn't have (e.g. native Netscape, sound support).

Recently, I decided to make a serious attempt at migrating to Linux permanently. Why? Um, because I felt like a change. Because Linux was clearly *where it's at* (OK, so I believed the hype too). Because Solaris 2.6 doesn't run as fast on a SS5 as 2.5.1 used to, and Solaris 7 will probably perform worse again, whereas Linux is small enough to cope better on a client desktop. (On an Enterprise 4500 however, I can assure you it will be a different story; this is really the market Sun are targetting now.) And because it might be a better environment.

On a practical basis, my company is on the verge of releasing a Linux port of its high availability product. Since this product is closely tied to the operating system environment and I am involved with product packaging and support, it makes sense to gain a working knowledge of Linux. I need at least as much as our average customer.

I admit that the one thing that made this swap a viable proposition was Netscape's release of a Navigator 4.5 S/Linux port. That really was the one piece I was missing. Unfortunately, it turned out to have its own set of problems, as I will cover shortly.

4 Hardware and software

I use a factory-standard Sun SPARCstation 5/85 with 64Mb of RAM and, as mentioned, a 535Mb hard drive for Linux. Installing RHL on this was a breeze, although I have since gone back and customised it heavily, removing unwanted packages and adding others such as the C++ development environment (for package source compilations).

SS5s are still supported by Sun but no longer sold. You can probably pick them up secondhand now for a reasonable sum.

I also chose AfterStep as my desktop environment and window manager. This was mainly an arbitrary decision based on what was immediately available and up to date in Red Hat. However, I certainly didn't want to use FVWM95, KDE or anything reminiscent of the Win95 interface (which is a *dumb* choice of model for a UI – the main justification I hear for this is to make the Win95 weenies feel at home; arse). GNOME seemed to be too immature for serious consideration, and there were a large amount of supporting bits required (I hate packages that have a long list of prerequisite installations). Enlightenment looks gorgeous, but who

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[5] http://www.redhat.com/support/

wants a pretty face when there's work to be done? I realise that I could have adopted OLVWM again, but that would have meant tracking down OpenLook libraries and recompiling source, tedious tasks that I wanted to avoid for reasons of time. (As it turned out, this problem would bite me again and again under Linux.) I also sought to make the overall experience more novel and emphasise that I *was* using a different system.

Arguably, by choosing AfterStep, I made life harder by forcing myself to adapt to an interface that was radically differed from the one I previously used. Indeed, a large amount of time was expended tweaking AfterStep to behave as I desired. I suppose this has served to keep me on my toes and test my adaptability.

Everything else I wanted was available in Linux. I use the most recent release of Mutt, which is not totally backwards compatible with earlier versions, but since I run that on the (Solaris) mail server anyway, I didn't need to recompile it.

5 Modifications

Note that I needed to retain the ability to log in to Solaris hosts with the same home directory and files, and I didn't want to make it hard to revert to Solaris if necessary. So starting from scratch was out.

5.1 Shell

I love tcsh, but it's not a standard part of Solaris and it's dangerous to place your faith in a shell whose binary is mounted via NFS. Sooner or later, one logs into a client that reads the NIS passwd file but doesn't have the NFS mounts, at which point `/usr/local/bin/tcsh`

fails. This is quite apart from what happens when the NFS server goes down (Solaris uses demand paging).

My Cshrc file (actually file*s*) is an overlong piece of historic spaghetti designed to work with Solaris, SunOS4 and now Linux. I added a few bits to take advantage of the extra facilities under Linux, such as native tcsh, and bit the bullet by adding yet another separate file to source on Linux hosts. (Received wisdom has it that csh startup files should be small and fast. I wish that wisdom would spread to my home directory.)

I also reorganised my own binary directory to make room for separate Linux binaries. I still haven't found an elegant way to add the right paths to my PATH for every version of every OS, but what the heck. (People thinking it just involves 'uname -s': *wrong!* There's more to it than that.) My lib directory is still common which occasionally causes hardship (e.g. with the additional Netscape supporting library I load), but I can live with that for now.

5.2 X11

XFree86 uses different startup files to OpenWindows, Sun's X11 environment. I created a separate startup file rather than try to make the old one work for both.

Keyboard mapping was a pain. XF86 for SPARC doesn't seem to even use the keyboard configuration available in the obtuse config file for the Intel release. It works fine out of the box with US keyboards, but I was using a UK Type 5 Sun keyboard (and I'd like to point out that we *invented* the USA anyway ;-). So no bar or backslash key – great, how do I use pipes in the shell?!

The fix was a one line xmodmap command, as most X11 users will have

guessed. I eventually worked out what it was on my own. Trouble is, I have to execute it at startup for any user, including root. Can I be bothered to customise each `.Xclients` file? Nah...

The keyboard problem persists on the console. After consulting the mailing lists on the S/Linux site, I eventually tracked down the updated `kbd` programs and maps I needed. Sadly, XF86 doesn't inherit this mapping.

5.3 AfterStep

Obviously I wanted to customise the root menu. Then I wanted to reclaim some screen real estate by forcing all those icon bars and window lists to go to the background if necessary (I *hate* big, fancy application launchers that take up half the available screen – ref. CDE). And I nearly gave up when I couldn't discover how to make windows sticky straight away. (Under OLVWM, you choose 'Sticky' from the titlebar menu. Under AfterStep, you click the little horizontal bar icon in the titlebar with the middle mouse button. Got that? S'obvious, innit?!)

I played around with some of the available look and feels, but I don't favour trendy colour schemes as a rule (OW uses mainly grey, which can be dull but gives a nice clean look). The flashiest I got was the clever twirling outline as a window is iconised or de-iconised; looks good the first ten times, grows old rapidly after that.

AfterStep's configuration files are fairly logical once you get the idea. In the later versions, you only need to copy and modify the files you want from the defaults supplied. Making changes on the fly is a bit awkward, usually involving a restart, but again the latest version is more flexible.

There are major colourmap problems that I will address later.

5.4 AMD

We use the Solaris Automounter extensively on our network. Everything that isn't on the Solaris CD is generally automounted from the servers, including home directories, binaries, sources, patches and mail spool.

The original automounter in SunOS4 was something of a joke; I believe it provided at least part of the impetus for the BSD version (which ironically suffers some of the same problems). However, the automounter in Solaris 2.x is a complete rewrite, has its own virtual filesystem (which lets it do nifty things like inplace mounts) and in later releases is even multi-threaded. More importantly, you can restart it without needing to reboot, unlike early AMD releases.

Linux only has AMD. We used to employ it at Aber until we realised how much superior the Solaris one had become and dumped it, but at least I have some familiarity with it. Fortunately, AMD has also been rewritten in the interim. Given that we already generate AMD maps from our automount maps and I wasn't going to create a whole slew of static NFS mounts, I wanted AMD.

Couldn't find it on the Red Hat CD though. Actually, it was there and I'm not sure how I missed it (the package is am-utils), but I only discovered this after downloading a patched version from Red Hat. I had some initial problems getting it to work with NIS, and eventually gave up and stuck a copy of the NIS map in `/etc` instead. Now it works, although it still uses those annoying symbolic links that we left behind in the SunOS4 automounter. (AMD is now acquiring autofs

support.)

6 Advantages

6.1 Hardware support

I had no hardware problems at all, either on the Classic or the SS5. Granted, this is fairly recent, standard Sun kit but at least many Sun users can be assured that S/Linux will work today on their machines.

6.2 Open source packages

Many administrators prefer to install a large amount of public domain and open source[6] utilities on commercial Unices. This often includes packages that have become defacto standards on the Internet, such as Gzip.

With Linux, almost all of this is unnecessary. You may have to locate updates if you're zealous about using the latest releases, but the supplied versions should be welcomed by most people. This is a particular boon if you're taking your SPARC home. I mentioned the large amount of public domain software installed on our office servers. The hours that have been invested in creating these binaries must be considerable. Linux spares you much of that 'configure; make install' drudgery.

6.3 Fixes

The Linux developers appear to have been less dogmatic about making major changes to common Unix utilities, such as forcing them to behave more consistently, easing their configuration or removing idiocies. For example, the

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[6]http://www.opensource.org/

man command acts much more sensibly under Linux than Solaris; it has a /etc/man.config file that specifies where to find man pages and what commands to use in interpreting them; it can read a man page file directly (even if compressed); it compresses pre-formatted versions; MANPATH can act as an addendum to the default paths rather than a replacement. A further example: the three variants of grep are derived from a single binary. Final proof: using tcsh and bash automatically instead of the original shells with all their limitations.

After putting up with the same set of historical irritations in every version of Unix for years, it comes as a massive relief to find someone prepared to tackle them whilst remaining mostly compatible with existing 'standards'. (Essay question: imagine you were designing a new version of Unix from scratch and did not have to remain compatible with previous versions. What would you keep and what would you happily leave out? How much resemblance does Linux bear to your finished product?)

7 Issues

7.1 Colour display

Most of the new generation of window managers appear to assume that every box contains a 24 bit framebuffer, probably accelerated. This simply isn't true of Sun hardware; 24 bit was an option on most of the workstations and an expensive, rarely purchased one at that.

AfterStep for example, needs a mass of colours for its beautiful icons and shaded backgrounds. True, you can select nogradient options and obtain reduced colour icons from the net, but it still uses sub-

stantially more colours than OLVWM.

This is a *big* problem on 8 bit displays, especially when you have Netscape trying to grab all 256 colours. Indeed, some of the AfterStep Apps won't even run unless sufficient colourmap entries are available. This results in several large gaps in your wharf (the docking area) on startup.

I suspect little will ever be done to address this. 8 bit framebuffers are an endangered species, rightly so, and there will be little incentive to sacrifice slick look and feels for the sake of legacy hardware. It effectively means though that the current surge of new wave window managers coming through can have little visual appeal to SPARC-based users.

7.2 AfterStep

AfterStep itself remains a subtly unreliable application. I often lose the focus, both for keyboard and colours. Restarting cures this, but it happens just often enough to be annoying. The latest version, 1.5 (get it from RawHide), is a massive improvement on 1.4.5 but is still in beta. It shows.

I'm still not entirely comfortable with AfterStep. There are too many elements compared to a simple window manager like OLVWM: five icons in the window titlebars alone. And I miss being able to click on any part of a window's border to bring it to the foreground. I realise that virtually every aspect of it can be customised but honestly, who's got the time? I could have downloaded and compiled the OpenLook distribution in the time I spent fiddling with AfterStep's configuration.

The question that may be levelled at me is, if I had so much difficulty with AfterStep, why didn't I try another of the plethora of available window managers? I've browsed the home pages for several and in truth, most of them look similar to AfterStep (the buttons on the titlebars are a giveaway); there was no evidence that any of the comparable alternatives would address the shortcomings of After-Step. Nor was I prepared to step back to something like TWM.

We're getting to the heart of the biggest issue facing Linux on the desktop today: ease of use. If someone like myself has difficulties (I've configured a fair few desktop systems in my time), ghod help the naïve user moving from Windows. Maybe WindowMaker and KDE are better, but what I've read of each suggests not yet.

To be fair, AfterStep has some enhancements over older window managers, such as sloppy focus and the wharf. Possibly not enough to make me persist though.

7.3 Netscape Navigator

Netscape is the largest and one of the most significant applications that I depend upon so its presence under S/Linux was essential. (You can use the SunOS version, but you need to grab the libraries from somewhere and again, I didn't have the time.) Fortunately, Netscape released an unsupported S/Linux-glibc binary of Navigator 4.5 around the time I decided to change over. Wonderful!

Then I discovered that it consistently core dumped under RHL 5.1. Returning to the S/Linux mailing lists, I eventually found out that it relied upon a vital bug fix in glibc that wasn't present in the version shipped with Red Hat. Fortunately, a later version could be downloaded from the RawHide distribution.

(**Note:** RawHide[7] is where Red Hat puts RPMs (Red Hat Package Manager) of the most recent package versions, for users who like to live on the bleeding edge. It turns out that unless you want to live in the stone age (i.e. last week), you pretty much require one or more of the RawHide updates to gain the neat stuff.)

Once that was installed, Navigator ran up fine. Colour mapping was hopeless, but I resolved to put up with colour flashing while using a private colourmap (although the colours are still occasionally wrong). It wasn't stunningly fast, but then Navigator never was.

Then the miscellaneous issues appeared . . .

- I didn't have some of my usual helper applications available under S/Linux, including Adobe Acrobat and RealAudio. Guess what? I don't have time to look for replacements. I'd rather keep my mailcap file as it is, so that it continues to work under Solaris.

- Navigator could take out the entire X session when it crashed. I could crash it just by viewing page source.

- Text entered into dialogue boxes such as file requesters and online forms was often mangled in odd ways. This made it irritating when saving files and useless when shopping in online stores.

As it stands, Navigator is reasonable for day-to-day browsing but iffy on anything more complex. Today, I had to run it remotely on the Solaris server so I could purchase some books online.

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[7]`ftp://rufus.w3.org/linux/rawhide/`

7.4   Sound support

In my real life, I'm a musician or at least a drummer. My SS5 doesn't have much bearing on my musical activities, but I do occasionally like to listen to a CD and play the odd MP3 or WAV. The CD side is covered, no shortage of players there (although I don't know of any that support internal SPARC CD audio under S/Linux). Listening to samples in S/Linux is harder. The main obstacle is getting sound card support in your kernel.

The kernel shipped with RHL 5.1 (2.0.33 – *how* old??) doesn't include the sound modules. Neither does the official 2.0.35 update. Again, you must return to RawHide to download a recent 2.0.35 kernel with the sound modules (as a bonus, it also supports Energy Star monitors).

Then you'll find that `sndconfig` identifies the SPARC audio hardware correctly but won't play a sample and generally acts weird (I'm being vague here because I couldn't see the display owing to colourmap problems). Playing samples directly seems to work OK, although brief experimentation showed that the sound module would occasionally fall silent when stressed and require restarting.

For MP3s under Solaris, I used mpg123 with which I was happy enough. Unfortunately, while it supports Sun hardware and Linux, it doesn't directly support the combination. I tried compiling it with OSS enabled but it claims not to find any supported rates on the chip, which is a lie. I haven't been able to hunt out another MP3 player (or at least one that doesn't require additional UI libraries I don't have). To date, I can't play MP3s under S/Linux – pointers welcome.

7.5 NFS performance

There appear to be some poor interactions between Solaris NFS servers and Linux clients. My SS5 freezes occasionally for seconds, and I suspect this is due to delays in NFS access. This is as likely to be a problem in Solaris as Linux, and may even be addressed in a Sun patch.

However, by using Linux instead of Solaris 2.6, I forsook NFS v3 support which immediately incurred a performance hit. V3 support for Linux is coming, maybe in 2.2. But it ain't there yet.

7.6 Xlock

For a long time, xlock wouldn't even work for me. Then I bothered to track it down, and found out that I had somehow neglected to install it.

One minor thing still bugs me: why, oh why can't I get it to display its nifty animations on a black background, despite forcing every command line flag and X resource I can find?? Using a bright white background seems to negate the 'screen-saving' idea.

It doesn't work with the options in the default AfterStep menu either. Probably easily cured – again, *time!*

7.7 NIS

All our office machines are tied into NIS. Linux has had client side NIS support for some time but again, it's still 'maturing'. It works reasonably well initially, but you may need a later version if you want it to recover after a server outage. I also had several difficulties in making it bind at boot time:

- The script that starts `ypbind` doesn't set the NIS domain, so I added this at the top ...

- ... And then discovered that the `domainname` command would corrupt the string it was given in certain circumstances. I went looking for another update. The command wasn't part of the yp-tools package as I was expecting, but rather the net-tools package. A later version of this fixed the problem.

After solving the initial headaches, NIS has worked fine ever since.

7.8 Removeable media handling

Solaris has a volume management daemon called `vold` which looks after mounting removeable media without requiring the user to have root access. It mounts CD-ROMs automatically and floppies after prompting with the `volcheck` command. On issuing the `eject` command, it automatically unmounts the volume before ejection. It can also execute arbitrary actions for particular media types, such as NFS export or starting Workman for audio CDs.

Linux seems to lack this facility by default, although I have a feeling that an equivalent tool exists ('supermount'?). I realise that the 'user' mount option in `fstab` allows ordinary users to mount a device, but it still isn't quite as *smart* as letting something else automatically take care of it.

8 Analysis

I stated a few vague reasons for switching to Linux earlier. Were they justified?

8.1 Change

Going from one version of Unix to another, particularly when both have a lot in common with the SVR4 strand, is not such an upheaval. The richness of the Linux environment makes for a marginally more pleasant computing experience. The desktop interface certainly took some getting used to and, as I mentioned above, I haven't entirely got to grips with it.

Beyond that, it wasn't such a major change. If I had previously been a Windows user (especially a reluctant, technically competent one), I'm sure the story would have been much different, considerably to the advantage of Linux.

8.2 Fashion

Obviously Linux is garnering a lot of press coverage and column inches at present, partly because it is a good OS whose time has come and partly because it presents competition to Microsoft from a wholly unexpected quarter. It makes for a good story (but beware that backlash)!

Ignoring the hype, it's fun to be part of a movement and to see whether the product lives up to its reputation from the inside. The truth is that Linux for SPARC probably isn't quite as exciting as the more widespread and popular Intel original. There's less support; you'll search harder to find S/Linux binaries and RPMs, for example. In cases where a particular application isn't open source, this can be a big drawback. (For example, without Netscape's limited efforts, there wouldn't be a decent, standard, easily attainable web browser for S/Linux.)

8.3 Performance

This would probably be the leading motivation for switching to Linux. Comparisons with Solaris performance are subjective as I never ran the two side by side or did any quantitative benchmarking (I believe available figures[8] show that S/Linux is faster). The machine didn't feel faster to any remarkable degree. However, given the increased complexity and featureset of the desktop it was running compared to OLVWM (for example, AfterStep does real time window updates while dragging), one would have to say it did more with the same resources.

Overall, the desktop felt marginally smoother and more responsive despite S/Linux's inherent weaknesses compared to Solaris (the chief factor probably being lack of NFS v3). On a level playing field (identical software and capabilities), I would expect S/Linux to come out noticeably ahead. At one point, I was forced to switch to an SS5 with only 32Mb of memory. S/Linux copes better with this restriction than Solaris 2.6. (In part, this may be because under Linux, you can run smaller programs – for example, substituting `rxvt` for `xterm`).

8.4 Environment

Better? Having instant access to all the GNU utilities is convenient, alongside other toys like NcFTP, Mutt & Tin (these would probably be more useful if Red Hat supplied the latest releases). Indeed, I didn't even know of the updated GV PostScript viewer until I encountered it under Linux; I have since compiled it for Solaris too.

On the other hand, it's a pain downloading so many megs to obtain basic

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[8]`http://www.geog.ubc.ca/s_linux/faq.html\#q_1_17`

functionality like sound and web browsing (witness the amount of updated RPMs I pulled from RawHide). I expect this will ease off as Red Hat upgrade their official releases. Linux users are used to downloading updated versions of software – the rapid churn of development is obviously part of its appeal – but those who wish to have a fully-featured environment immediately will not appreciate hunting for extra components or even essential updates elsewhere.

In some cases, those extra components don't even exist or have only unsatisfactory alternatives. Try finding a S/Linux binary for Adobe Acrobat, for example. Or a Sun-approved Java implementation (bye bye, Scheduler – OK, it ran like a dog on my SS5 anyway).

8.5 Knowledge

Yes, I definitely learnt a lot more about Linux, as one would expect. Quite a lot about configuration and a sharp appreciation of the myriad tiny differences that can occur from installation to installation. From a product support point of view, this is not going to make my job any easier. We're hoping to reduce the problems by only officially supporting one distribution initially (in this case RHL 5.1 since that's what we use in the office).

This is only on the software side. Thankfully, there is little worry about S-PARC hardware support. However, our HA product is only being sold for the Intel platform and, as we all know, there are a million possible combinations here. We're already getting email asking which disks and SCSI adaptors will work (to which the basic answer is, "Suck 'em and see").

9 Comparisons

9.1 Solaris

I'm sometimes shocked at how scornful proponents of the 'free' Unices can be towards Sun and Solaris[9]. Whilst the company has become more commercially-driven with the decision to go System V, its roots lie in hacker culture and it continues to employ leading figures such as Bill Joy and James Gosling. It has also subsidised or supported some open source development, such as sendmail and bind, in a bid to have updated versions of these ubiquitous programs integrated with Solaris (and of course, it's now a member of Linux International and is slowly responding to the calls to open up Solaris and Java). I admit I don't have much exposure to other commercial Unix versions, but that which I have suffered has shown much of the competition to lag far behind in updating their code (AIX anyone? SCO?). Indeed, I suspect some vendors are still shipping sendmail V5 in their OS. Sun have laudably released enhancements such as sendmail V8 and bind 4.9 as patches before rolling them into later releases. True, they've never been on the bleeding edge but then they have customers paying large sums for support contracts, which means they need to ship proven, stable code.

This is quite apart from the extensive work Sun has done in overhauling the SVR4 code base they purchased, the reboring of the kernel for full multi-threading being the major part. Right now, with the dedicated hardware to back it up, there's little to touch Solaris as an enterprise class Unix, which is why so many of the database vendors have

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[9]http://www.sun.com/solaris/

forged close alliances with Sun.

Some common myths about Solaris:

Solaris needs loads of patches to work
Wrong. Solaris works quite well for most applications right out of the box (which is more than could be said for RHL 5.1 SPARC). Obviously, extensive patch lists have accumulated for all versions of Solaris and at some point you're probably going to want one or more of them, but you don't *need* them to use it straight away. Even the majority of patches on the recommended list are unlikely to be required by the average site. Many Sun sites have never bothered to keep up with patches; before the Internet become widespread, this was especially common. (I can remember when SunService shipped you the notorious lockd patch for SunOS4 on QIC tape, with an envelope so that you could return the tape after installation.)

Solaris is Slowaris Sometimes true, more so with anything pre-2.4. Often true on legacy spec desktop machines. Unfair on the high end enterprise hardware.

Solaris admin tools are useless Right. The situation continues to improve with updated releases of Admin-Suite, but then it could hardly do otherwise. I've yet to see anything impressive come out under the Solstice banner. (However, even the old admintool will rescue you from entering loads of the most obscure LP print system commands to configure printing from scratch.)

Solaris desktop is dull Well I like it (not referring to CDE, of course). ;-)

Against this, how does S/Linux measure up?

- On legacy, low spec Sun hardware, it's a better bet than later Solaris releases for both performance and size. This was always a key part of its utility.

- For a home SPARC machine, should you be lucky enough, the richness of the distribution will save you a lot of time obtaining essentials such as TEX, Perl and the GNU utils.

- Regarding Red Hat specifically, out of the box 5.1 is quite poor (it doesn't sound like 5.2 is much of an improvement). You'll want to obtain updated versions of some packages, and some fiddly configuration may still be required (notably with X11). Solaris doesn't need any of this. For someone keen to set up one or more desktops quickly and without fuss, this is an important consideration. (From what I hear, Debian for SPARC may prove better in this respect.)

- The Ultra port is nearing maturity, soon to be rolled into the main development tree and may yet produce impressive results. I wouldn't be surprised if it bested Solaris on Ultra workstations. But it isn't an enterprise OS yet whereas Solaris most definitely is.

9.2 MacOS

It may be a little unfair to compare Linux with MacOS. That's rather like comparing a 4x4 with a hatchback; they do different jobs and appeal to different markets. However, I believe the comparison is worthwhile for the following reasons:

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- I also use a Mac a lot. And I did briefly consider using one instead of my SPARC once (a few academic staff at Aber did so).

- The Mac is often cited as setting the first standards for ease of use. Since this is a hurdle Linux has yet to overcome before being worth of consideration as a desktop OS for the masses, the comparison may prove instructive.

- Mac users also now have the option of running Linux (except me and my poor ol' Performa 6200, sob).

- AfterStep is based on NeXTstep. NeXT is Steve Jobs' old company. Jobs is currently redefining the mass appeal micro at Apple with the iMac. Progress runs in circles, grasshopper …

- MacOS has already fought and lost the battle against Windows, though chiefly for marketing rather than technical reasons.

I'm sorry, but MacOS beats Linux hands down for ease of use. Zealots will cry that it isn't configurable enough, hasn't kept up with UI developments, encourages a point-and-drool approach rather than actual thought and lacks a shell. This misses the point: in terms of providing the ability to use a computer to achieve something not directly related to computing (rumour has it that real users want to do this), nothing beats MacOS for staying out of your way.

I've heard many hackers point to the one button mouse on the Mac as one of the worst UI design decisions of the computing era. I disagree; whilst I can see why someone would want more buttons, the fact that only one is required is a tribute to the ease with which MacOS can be driven. Other graphical interfaces should be so lucky (look at Win95, which can't even use two buttons *consistently*).

Of course, I wouldn't want to write LaTeX on my Mac, or develop software on it. There's less to play with under the hood. And occasionally, one becomes tired with the endless clicking and dragging. But sometimes, this is all you require.

10   Observations

Linux is still very much on a growth path and requires a firm, hands on approach. Today's Linux user has to be prepared to do some digging, hunting down updated packages and following mailing lists, newsgroups and web sites to stay abreast of recent fixes and developments. I don't have as much time for this as I'd like (although I do enjoy it), because I have to do work at some point in the day. For those wanting a comfortable, fully-featured environment right now, this is a big issue. I've noted a number of areas where considerable effort was required to customise things to my requirement, and even in those there's a danger that I may give up rather than spending further time to nail the remaining irritations.

Some people may feel I'm being a little ungrateful by carping about the bugs in applications such as AfterStep. After all, it's free and you get what you pay for. Don't get me wrong: I think it's wonderful that developers are prepared to make such herculean efforts for no direct monetary reward, and the results are unarguably impressive. I'm fully aware of the philosophies underlying open source and its growing importance. But the

Open Source movement now claims to match commercial products for robustness, functionality and reliability. It is therefore only right to judge both by the same standards. Users deserve to be made aware of the rough edges on some high visibility open source projects, and cannot be blamed if they feel the problems do not justify adoption at this stage.

Linux proves itself daily in many organisations to be an excellent choice of OS for low to mid end Internet, Intranet and departmental servers. As the large database vendors such as Oracle announce their support, it reaches for a place in the enterprise world. I hope and believe it will achieve this aim, but it isn't going to happen without a few new failures along the way. As a friend at Sun maintains, enterprise applications will subject Linux to technical and political stresses it has not yet had to face and it will be found wanting at first. There is a world of difference between running a high activity but low complexity application such as a web server, and humouring the intricacies of a large database management engine.

Here, Linux's own past may work against it. Flame me for saying this, but the greater mass of Linux developers can be in little better position to understand the enterprise than Microsoft. Both are coming up from a desktop-centric, low end world. Neither has much general experience of enterprise needs. I could point to the apparently low interest in providing high availability solutions for Linux as an example (whilst the Linux-HA list has held some stimulating discussions, the group currently lacks the impetus and organisation to produce much in the way of actual code). Meanwhile, Unix vendors are scrambling to integrate availability and resilience features into their

core offerings, in a bid to match mainframe standards. (The Linux zealot is free to dismiss this as the rantings of a biased, commercially-tainted traitor. :-)

In mitigation, the Linux folks don't have a desktop monopoly to protect and they're probably more talented than the stock-motivated drones that MS must employ in many groups. One would therefore expect them to release a better product and get there quicker. Certainly, Linux is ahead of NT on a purely technical level.

11 Conclusions

Returning to my experiment and summarising the results: am I going to stick with Linux?

I'd say that's a definite maybe.

For home use on my Classic, or in the field on a laptop, the alternatives really aren't an option (indeed, Windows doesn't bear thinking about). At work, I find S/Linux occasionally frustrating and exasperating. Only for the most minor reasons, but they add up. Each day, I experience the temptation to drop back to the PROM and boot up Solaris from the other disk to return to the safe, familiar world of OpenWindows and an architecture that is not only complete but fully engages with the office network. I don't have time to bend Linux to be the same.

Your mileage may vary. Right now, I can't point to a significant advantage of Linux over what I used previously that makes me more productive or otherwise improves my life. It is a tribute to the competitive featureset of Linux that it does not feel like a backwards step, but neither does the balance tip strongly in its favour yet.

I'd still like to use it as a development

environment and test lab for web maintenance, but haven't got round to installing the necessary bits and copying the tools over (nor do I have the inclination to continue hacking at home after work).

I think my worst problems stem from the unfamiliar windowing environment. If I can find (or find time to compile) XView binaries, I may give OLVWM under Linux a try. (Tantalising news reaches me that one of the GNOME developers uses OLVWM and is prepared to release patches that enable it to integrate with GNOME. This may make the switch worthwhile.) Without that, I'm inclined to think that I'll give up before I give in.

Acknowledgements

Thanks to my employers, RSi Solutions, for providing the necessary hardware and buying the PowerTools CDs. They didn't know I was doing this, but it wouldn't have bothered them either.

A note of gratitude to my colleagues, Linux devotees to a man (though not necessarily Red Hat fans), for putting up with my occasional outbursts and exasperated rants directed mainly at the monitor.

Thanks also to Clive King for curry and miscellaneous views from the other side of the fence (or from 'under the fence' as he prefers).

Cheers to Slashdot, for making the working day worthwhile by keeping me informed of life in the outside world (speaks a complete addict).

Lastly, thanks and applause for obvious reasons to the S/Linux developers for their efforts. I hope they won't feel offended by some of my comments, as they have produced an OS port to feel deservedly proud of.

About the author

Ade Rixon is a senior consultant with R-Si Solutions Ltd, an independent UK software vendor specialising in high availability solutions from the server to the desktop. He reads *way* too many web pages, which has reduced his attention span to that of a SCSI drive head and left him with an insatiable thirst to know more about too many things. The one thing that would improve his lot is a) rock stardom; or b) a T1 link in a dark room. He can be emailed as `ar@rsi.co.uk`.

If you've enjoyed reading this piece, please visit my web site for more: Big Bubbles (No Troubles)[10].

This article was written entirely under S/Linux. It is available from my company home page at `http://www.rsi.co.uk/~ar/` in HTML and PostScript. Although it remains the copyright of the author, it may be freely redistributed if unaltered and quoted where attribution is given. It may *not* be referenced by M$ employees writing love letters to Bill. ;-)

Updates

12th Nov 1998

I've found sources and RPMs for a few SPARC audio things on Dementia[11] (along with Xview RPMs). Unfortunately, the hacked version of mpg123 supplied doesn't compile and the binaries are all for libc5. Another dead end?

Further reading of the Red Hat S/Linux mailing list archives and FAQ uncovered some obscure, illogical X

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[10]`http://www.btinternet.com/~big.bubbles/`
[11]`ftp://ftp.dementia.org`

resource settings to force the Xlock background to black. They also cause all the animations to go monochrome. Ah well.

22nd Nov 1998

The problems with Navigator have been remarked upon on the Red Hat SPARC mailing list, but no solution is forthcoming. The bug in dialogue box handling has become increasingly irritating; even entering requests into search engines has become fraught.

26th Nov 1998

Revision 1.2 of this article has been publicised on the Red Hat SPARC mailing list (`sparc-list@redhat.com`), as a result of which I've had some appreciative and informative emails. In particular, Derrick Brashear at Dementia pointed me towards some compatible OpenLook RPMs announced earlier on the list by Vincent Cojot. As a result, today finally saw OLVWM running on my SS5 under S/Linux. Bye bye, colour problems. Bye bye, smartarse window managers. Hello, usability. Don't say I lack staying power. (Red Hat, if you're listening: bundle this with your distribution to aid migrating Solaris users.)

Furthermore, the include file from Derrick's most recent audio snapshot fixed the compilation problems with his mpg123 port. The office went wild (to the strains of 'Money for Nothing' actually). And using his handy reference to the comp.sys.sun.admin FAQ, I was able to confirm that it was easy to pull the relevant SunOS4 libs off the install CD. Tomorrow, I'll try SunOS Netscape. *Re*spect to Derrick.

Others offered an OpenLook theme for KDE (which I may try, although it ap-

pears to address the look more than the feel), PDF viewing alternatives and a port of Sun's JDK. However, after further discussion we agreed that Java would still run like a dog.

The feeling persists that this system has been glued together with sticky tape ...

History

```
$Log: slinux-eval.tex,v $
Revision 1.5  1998/11/26 22:56:54  ar
Added 26th Nov update (com-
ments from redhat sparc list).
Added note about OSS provi-
sion for home machine.
Additional notes about U-
nix fixes.
Updated to use scrartcl class.

Revision 1.4  1998/11/25 23:10:40  ar
Added note about vold.

Revision 1.3  1998/11/25 22:47:16  ar
Improved hyphenations
Fixed URL typesetting
Minor typos
LaTeX2HTML fixes
Copyright warning added

Revision 1.2  1998/11/22 13:22:25  ar
Added remaining URLs

Revision 1.1  1998/11/22 12:34:01  ar
Initial revision
```