

Slide 1 – What's all this About Then?

You're probably sitting there thinking "What's all this about then?", "What's OSS anyway, and what's it got to do with me, this club or radio", and "Is this going to be any good?".

Well, dealing with the last item first, yes of course its going to be good. It will be interesting and informative. What has it got to do with you? Well that depends, it depends on whether you use computers, what you use them for and whether you are open to alternatives experimenting and learning. As for what is it all about? Well it's a about a lot of things: it's about a different approach to computers, it's about breathing life into equipment that is perfectly serviceable but which can't cope with the latest greatest all singing all dancing operating system, thereby avoiding increasing the landfill. It's about a learning process for me as I hope by explaining things to you I will learn. But its also about a philosophy, it's about a different approach, it's about freedom. Freedom to share programs and information. Freedom to change the applications you use without being locked in to a proprietary file format.

Slide 2 – Why Computers? After all we're a Radio Club

Computers are all pervasive and are inextricably linked with all aspects of life. Like it or not the future of Amateur Radio will require some adoption of computer techniques. Some modes: Packet, Pactor, PSK31, APRS require computers. Rig Control, remote operations rely on computers. Echo Link (whether you like it or not) is a combination of radio with voice over IP internet technology. Satellite tracking without a PC is a very hit & miss affair. And, even if you don't use any of those things the Internet (like it or loathe it) remains a great resource for information on products, components, call signs and the hobby in general - even a synopsis of these presentations can be viewed on line (www.g7kna.ukfsn.org and follow the 'Project OSS' link in the 'Navigation' section).

Steve and I decided to embark upon this project because we have watched the gradual influx of laptops into the club evenings, and we have sat in on discussions with people struggling to validate Windows or complaining of poor performance on modern machines. The recent survey we undertook illustrated quite clearly that the applications most of us put our computers to are not that demanding. Do we therefore need to run the latest all singing all dancing PC. Do we for that matter need to spend not only hundreds of pounds on our PCs but then spend additional money on the OS and software?

For most of us, probably the computer is a family machine and it is not convenient to locate it in the shack, or to bring the shack to the PC and do you really want to be making that all important QSO on 20m whilst the kids are playing World of Warcraft on line in your left ear? However the solution, a second or even third machine, is not really defensible to the shack manager on top of the high cost of the radio kit, and our hobby is about radio, so we don't want to divert hard saved funds from the primary equipment to another computer.

Slide 3 - Squaring the Circle

Go into PC World or any other High Street retailer and about the lowest you can spend on a new PC is £270 for a basic desktop machine or £380 for a basic laptop. These machines come with Windows XP or if you're very unfortunate Windows Vista pre-installed. In addition to the OS there is usually a bunch of other stuff you didn't know you couldn't live without but not much in the way of useful software. And when you start these machines up, thanks to the bloated software they are woefully slow. So what do you do - upgrade to a model that can run the OS efficiently? This is a big step if we're talking Vista.

So for more than the cost of a dual band mobile, in fact in the case of the laptop for more than the cost of a Yaesu FT-817 you've got a machine that you don't like to use because it's so slow, or you're looking at an even bigger budget, Yaesu FT-857 anyone, to get something that can run XP and the associated software.

It doesn't have to be this way and Steve and I want to show you that there is a very real and efficient way of achieving a perfectly good machine that is fast and stable without costing the earth or being difficult to use.

We know what the machines in the club are being used for, we know this because we conducted a survey. Our machines are used as Word Processors, Spreadsheets, Photo Editors, and Internet access (browsing, e-mail, messaging). There are some other bits and pieces but this sums it up reasonably well. The £270 above would buy you a Celeron 3.2GHz CPU, 256Mb RAM, 80Gb hard drive, integrated graphics, basic sound and a 15" TFT monitor. You don't need this spec to run a word processor. You don't need this spec to run a spreadsheet. Truth is for most of the tasks we use a PC for you don't need this spec at all other than to make the OS run reasonably smoothly.

Slide 4 – Just how many Mhz do you need Anyway?

The simple truth is that modern machines have long passed the point at which specification should be an issue for day to day applications. The only reason why modern machines don't seem that fast is that the programs have become increasingly complex and feature rich and that the Operating Systems have become increasingly automated.

We're not advocating a return to the dark ages of 286's, we like GUIs and menus. But this can still be found in good quality software that runs on machinery with a lot less horsepower than the basic machines described before.

This machine is a PIII-600MHz CPU, 256Mb RAM, 10Gb hard drive, DVD ROM, and a 4Mb ATi graphics card. The screen is 12" running 1024*768. Unusually for me I actually paid money for this second hand off E-Bay: £120 including the bag, wireless card and postage. If you wanted this spec in a desktop you could probably pick it up for next to nothing, companies are throwing out stuff of this spec and better.

5 minutes on the web and I found a Dell GX150 Pro in Carbon Black PIII-1GHz, 256MB Memory 20Gb Hard Drive, CD/FDD, 10-100 Network, USB x 3, Keyboard & Mouse. Standard Desktop/Reversible Tower. Ex Demo with full 3 months RTB hardware warranty for £92.83.

On E-Bay I found an AMD Duron 800, Integrated 3D Graphics, Integrated AC97 Audio, Integrated 10/100 Ethernet, 56k modem, 256MB RAM, 10Gb hard drive with about 3 hours remaining and a highest bid of £0.99. This would need a keyboard, mouse and monitor to make it complete but it wasn't going to be an expensive machine.

The next machine in the list was a Compaq Deskpro Pentium III-733MHz desktop pc, 512Mb RAM, 10Gb hard drive, CD re-writer, floppy drive, keyboard, mouse and including a 16" Dell CRT monitor. This had about 4 hours to run but was currently priced at £0.99.

Slide 5 - The Software Solution

The hardware is only part of the equation. As we all know legitimate software costs money and having elected to step down to a lower specification much of the modern software will be too bloated to run well.

Open Source Software, the focus of this and following presentations, offers a legitimate, cost effective solution. It was clear from the survey that many simply accept the software supplied with their new machine. The second hand or reconditioned machine that you obtained may not even have an operating system let alone an office suite.

How to solve this? Well you could go and install a copy of your main machine OS on the second machine, but better not try to register it even if it will run smoothly. Assuming you've got an OS with your second hand machine what about a Word Processor. Even if WORD XP will run smoothly on your second hand machine it isn't licenced.

Open Source Software is a free (as in speech) alternative. Open Source Software is generally available for the cost of the download, but doesn't have to be free (as in beer). Conversely free (as in beer) software may not be free (as in speech). Richard Stallman of the Free Software Foundation (www.fsf.org) summed it up best:

"Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech", not as in "free beer".

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

- *The freedom to run the program, for any purpose (freedom 0).*
- *The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.*
- *The freedom to redistribute copies so you can help your neighbour (freedom 2).*
- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.*

Slide 6 – The OSS Philosophy

Open Source Software has a number of advantages over closed source alternatives:

- It is supported by a massive community of developers and testers resulting in mature stable applications
- Access to Source Code allows you to write or commission changes to a program so that it does what you want in a way you want it to
- You can redistribute the changed program
- You can install the software on as many machines as you want to
- Bugs are often resolved more rapidly than in the closed source arena, thanks to the developer community
- Often there are more than one mature Open Source project for a given application. You can install and remove as many different programs as you wish before settling on one you like best
- There are no requirements forcing registration or activation of your software
- You can change, alter or adapt the host machine as you wish and retain or re-install the original software without restriction
- If you find something that you like you can give a copy to your friends or colleagues without being called a pirate
- Most Open Source applications support open file formats allowing you to change application without losing access to existing data files

In this and the upcoming presentations (assuming there is the interest) Steve and I intend to build on this elderly machine an entirely Open Source machine that will undertake most if not all of the tasks that we currently use PCs for. We will select software based on application and the machine performance, we will install it and tell you genuinely warts and all what the problems were and how we solved them.

Slide 7 - Starting from the Ground up

We need to start with the Operating System (OS). The OS is the program that allows other applications to run. The OS allows multiple tasks to be run alongside each other, controls access to system resources such as sound cards, video cards, disk read and write activities, printing and so forth. MS Windows 95, 98, 2000, NT XP & Vista are OSs. Apples OS X is an OS, UNIX & MS DOS for those who remember them are OSs. Free BSD is a perhaps less well known OS. GNU/Linux is another which you may have heard of but considered too technical to look at closely.

It is important to differentiate between the OS and the applications which run upon it. Install just Windows on a machine and the number of applications is limited to a basic text editor (Notepad), the worlds most crippled Word Processor (Wordpad), a childs painting program (Paint), an email client (Outlook Express), a web browser (Internet Explorer) and a media player (Media Player) that wont playback DVDs in it's standard form.

GNU/Linux is a collective name for a raft of OSs based around the LINUX kernel developed by Linus Torvaldis and the GNU tools developed by the Free Software Foundation in their aim to have a totally Open Source Unix-like OS. GNU/Linux comes in a variety of flavours or types called distributions which are often packaged with different supporting software or are tailored to a specific task.

Mainstream distributions include: Red Hat, Fedora Core, SUSE, Mandrake, Debian, Ubuntu, Slackware. More focused distributions include Scientific Linux, Clarke Connect and SME Server or specialisms such as Damn Small Linux designed to run from a floppy disk. We have chosen to use UBUNTU for the purposes of this and future presentations. UBUNTU is a relatively modern distro based around Debian, but focussed on desktop use rather than server functions. It is a general purpose OS with a good selection of every day packages included. It has a reputation for being easy to install and friendly to operate.

Slide 8 – The Installation

So down to the nitty-gritty, the installation process was incredibly straight forward. Steve very kindly downloaded a copy of the OS from the UBUNTU website. Ours is version 6.10 often referred to as “Edgy”.

From the download we created a bootable CD. This machine will boot from CD before it's hard drive so it was just a case of popping the CD in the drive and starting the machine. Unlike a Windows install this system boots completely from the CD in a live setup allowing you to play with the OS in a “preview” mode to determine if you really like it. We did and went ahead with the install process completely wiping the hard disk and installing UBUNTU in place of the illegal copy of Windows XP put on by the vendor.

The installation process went through 6 screens to fine tune the installation these questions were incredibly straight forward dealing with the location, time zone, language, user name and password. And that was it. Having answered the questions just leave it to get on by itself. The whole process took about 45 minutes, and at the end of it we had a completely ready to use machine.

As you will see in a moment when we take a tour of the laptop the setup does not replicate what you may be used to from Windows. However it is straight forward. The big bonus, though, is the range of pre-installed applications. Completely standard with the OS are the following Open Source applications:

Firefox Web Browser

Evolution Email Client

GAIM Instant Messenger and Internet Relay Chat

GNU Imp Graphic Manipulation and Editing Program

Open Office – A MS Office compatible Office Suite comprising a full featured Word Processor, Spreadsheet, Database and Presentation program which we've used to produce this presentation.

There are a variety of lesser accessory applications including a decent text editor, a calculator, photo

organiser/album, a range of pass the time lightweight card games. Nautilus, the file browser, includes an FTP facility making it unnecessary to hunt down a separate application unless you need some advanced features.

Of course none of these applications are totally hardwired into the OS. You can remove any of them without doing untold nasty things to your OS and install replacement or alternative applications.

Were there any snags? Yes, there were. Out of the box there was no support for either DVD playback or MP3 files. Both of these are a function of legal restrictions and Digital Rights Management and the Open nature of UBUNTU does not include these functions as standard. I overcame this by installing XMMS as an audio player and XINE as a video player although the separate library for decoding commercially encrypted DVDs is not fully functional right now.

All the hardware was correctly detected and configured except the internal modem. With older hardware LINUX has very few problems which makes it a very good option where older hardware is being operated.

The lack of a modem is for me is a bit of a setback as I still operate dial up at home and the lack of a reliable modem is preventing me transferring all functions from my similar specification desktop to this machine. This modem like many provided with laptops and cheap desktop systems is a software modem or Winmodem. These offload much of the processing onto the CPU and only do it properly under Windows. Let me state at the outset that I wasn't expecting the modem to work straight away. My own internet research into this model of laptop and others with the same model of Modem already prepared me for the problems. It is also true that LINUX systems are totally compatible with proper modems such as the external US Robotics modems but these are less convenient in a laptop than a desktop.

I have tried to apply the usual fixes that make the software modem work under Linux and this has been

partially successful. The modem is now detected and responds to commands but is unreliable when dialling, a problem that others have reported even when they have successfully used the device. My basic conclusion is that Winmodems are fundamentally a pile of crap installed by cheap manufacturers in cheap systems. I have a USB modem which I might try but before I do that I would like to try to find a PCMCIA modem as I haven't yet had a chance to test the PCMCIA section, and these are more practical in a portable system.

In addition to the multimedia applications I am in the process of testing a range of Open Source Amateur Radio related applications and we will over the next few months take a look at all of these in more detail.

So I guess the best thing we can do is take a practical look at the desktop and take a brief tour.