

Linux on the Desktop

An investigation into the viability of Linux as a Business Desktop Operating System

by Stephen Fellowes on behalf of SOCITM SOSS

Table of Contents

| | |
|--|----|
| Introduction..... | 2 |
| Background..... | 2 |
| Structure of the report, licence & acknowledgements..... | 3 |
| Summary of Results..... | 4 |
| The Windows XP Test..... | 7 |
| Conclusions..... | 7 |
| Recommendations..... | 9 |
| The Way Forward..... | 10 |
| Appendix 1 – Extract from original Project Brief..... | 11 |
| Appendix 2 – Test Plans..... | 16 |
| Appendix 3 – Extract from NCC Report..... | 25 |
| Appendix 4 – NCC Test Data..... | 32 |
| Appendix 5 – Windows XP Test Data..... | 39 |

Introduction

Open Source products for use at the Desktop, as an alternative to proprietary solutions, have been the subject of continuous debate for some years. Many Open Source applications such as Evolution, Gimp and OpenOffice have now matured to the extent that they can not only provide full functionality for a range of users, but also integrate well into a mixed economy marketplace along side their more established industry counterparts.

The Open Source operating system, Linux, has become well established for server use but its adoption as a Desktop solution has remained slow in the UK.

This year has seen the setting up of the Open Source Academy (OSA) as part of an ODPM e-Innovations project and, as part of this initiative, the National Computing Centre (NCC) have been running a 'sandpit' environment for users wishing to test Open Source solutions with safety. The Society of IT Managers Open Source Systems Group (SOCITM SOSS) established a project with the assistance of staff at the NCC with a view to determining whether the Linux operating system was now available 'out of the box' in a form that would allow for the creation of a fully functional desktop solution without any substantial user intervention other than loading the media and answering basic questions during the installation process.

Background

Most people that work extensively in the Open Source arena already have a view as to the functionality of Linux solutions. Such views are generally anecdotal with installations arrived at after a lot of 'tuning' and post-installation patching. SOSS was keen to establish some hard facts derived from a laboratory type test procedure with published test plans and results that could be replicated. In this way it is hoped that other interested parties might take this base data and apply it to their own favourite distributions.

With the main focus being on that of the professional IT manager within the public sector, an attempt has been made to draw conclusions from the base data that might assist our members should they wish to consider implementing similar solutions within their workplace.

SOCITM SOSS did not set out to undertake a head-to-head test between Open Source and other established operating systems, but rather to compare and contrast the results of a small number of the main OSS distributions available in the marketplace. However, during testing a pattern of results arose that suggested that the prime issue could be the dependency on hardware drivers suitable for the plethora of embedded technologies that form the modern PC products – particularly laptops. In order to qualify whether this assumption was correct, SOSS decided to run an installation test on the same hardware using the same test plans but utilising a 'generic' copy of Windows XP Pro as might

be purchased from a software supplier. The results are provided later in this report.

Structure of the report, licence & acknowledgements

The bulk of the main data for the report is contained in the Appendices. These cover the following areas:

Extract from the original Project Brief

Test Plans as agreed by SOCITM SOSS and used by the NCC

Extract from the NCC Report and Final Test Data

Results of Windows XP test undertaken by SOCITM SOSS

The full NCC test data and their report is also available via the OSA website on:

<http://opensourceacademy.gov.uk/>

This report, including all appendices, is released jointly through the OSA, NCC and SOCITM under a creative commons 'By Attribution' licence. Full details can be found at:

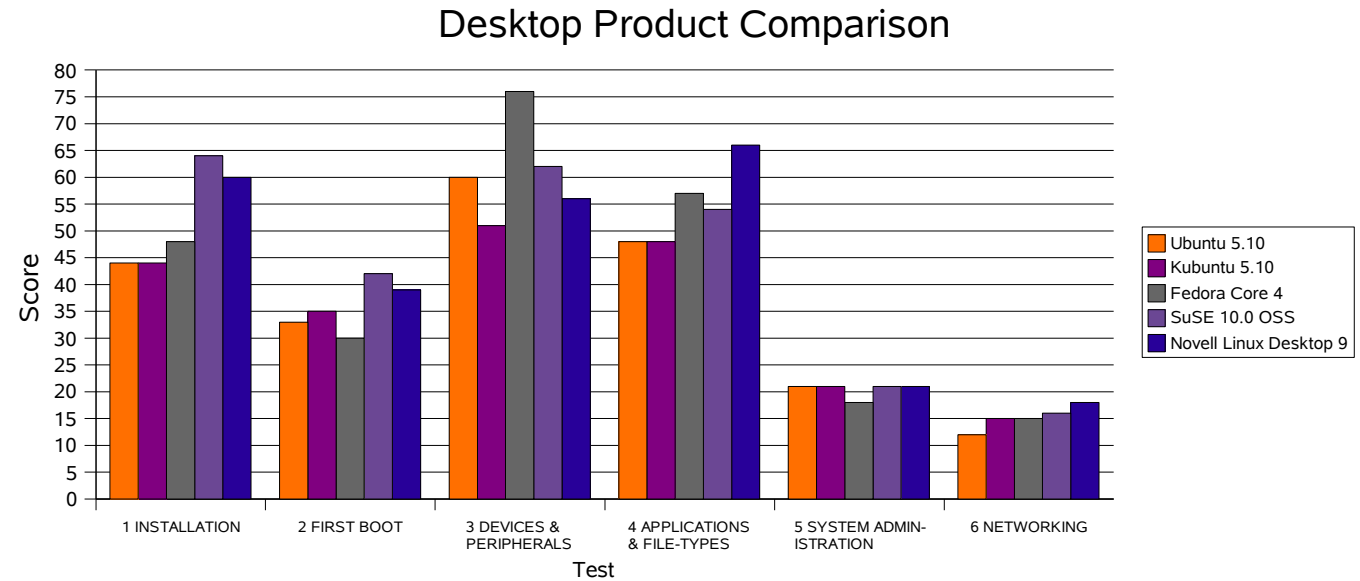
<http://creativecommons.org/licenses/by/2.5>

SOCITM SOSS gratefully acknowledges the assistance of staff at the National Computing Centre together with colleagues from SOSS and Open Forum Europe

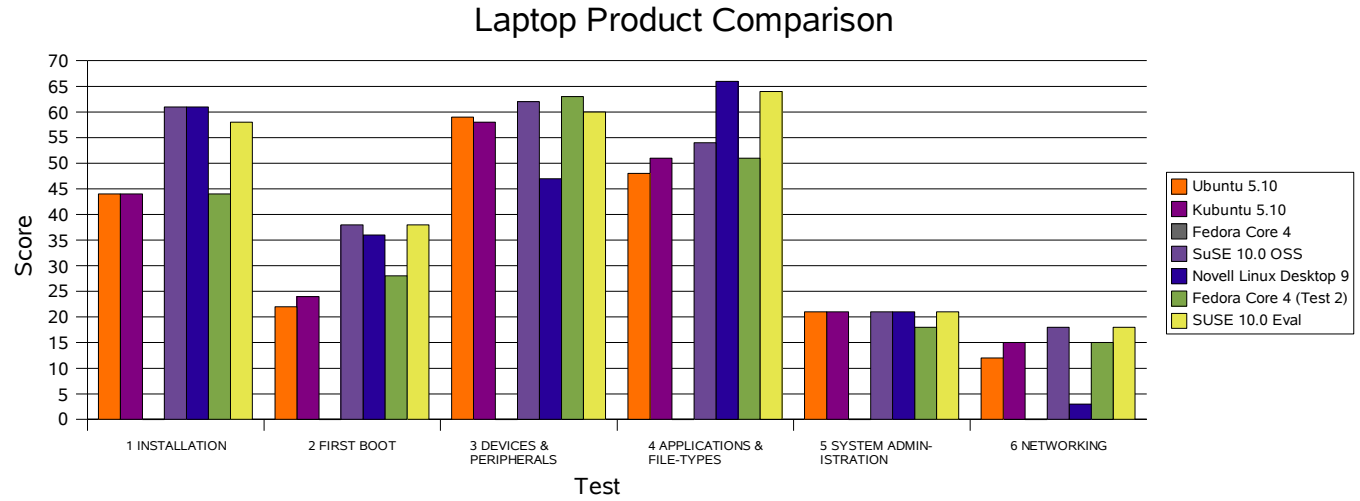
Summary of Results

Set out below are some of the results extracted from the NCC tests. The first set of graphs indicate the aggregated results for each tested distribution against the 6 test areas viz.

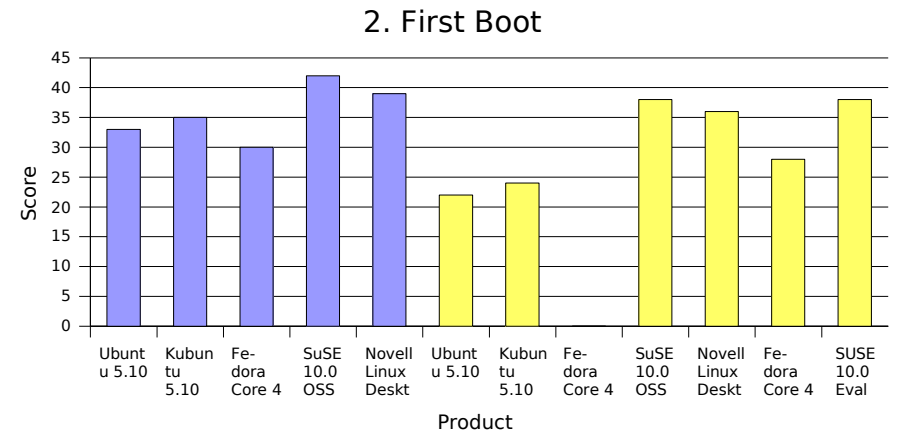
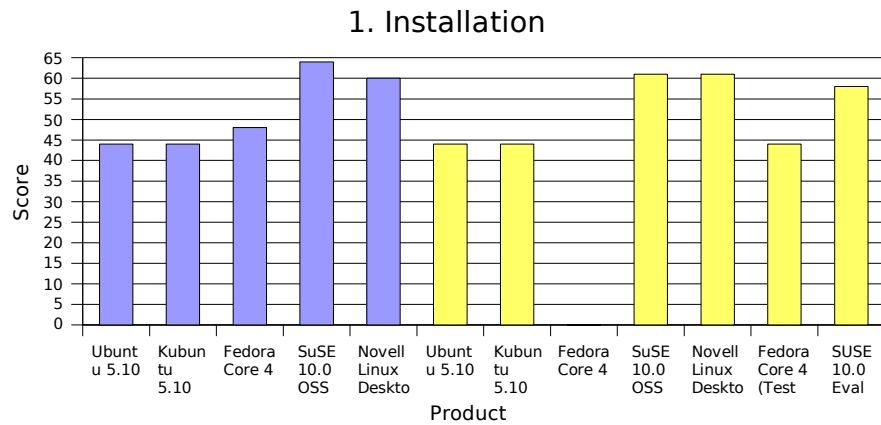
- Installation
- First Boot
- Devices & Peripherals
- Applications & File Types
- Systems Administration
- Networking



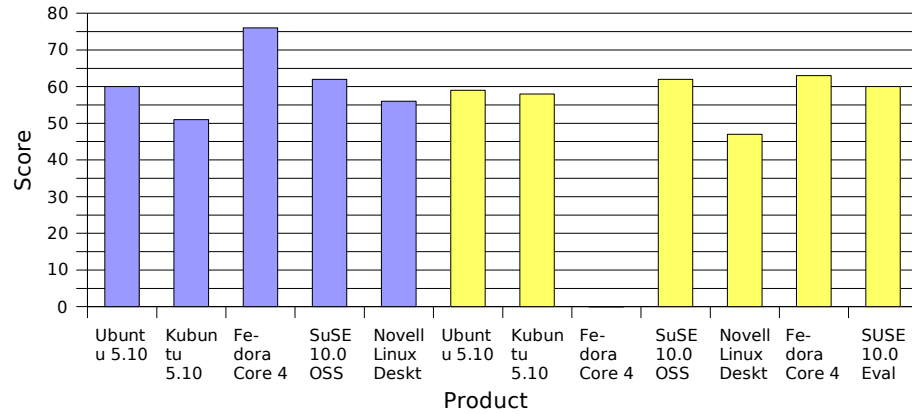
Novell SUSE Linux releases scored well across all areas.



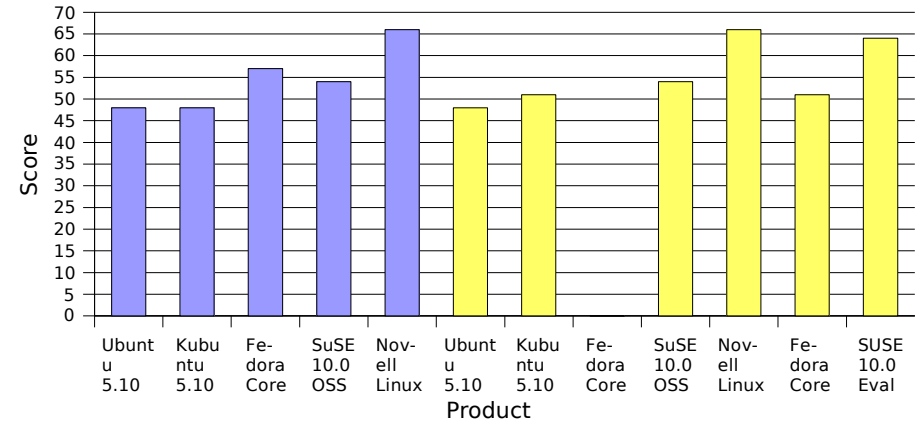
The next set of results show the relative scores for each distribution in each test. In each graph the yellow results are those from the laptop. Note that the blank data for Fedora Core 4 was due to complete failure under graphical install to identify the laptop disk. The Fedora Core 4 (Test 2) results were obtained under Text Install mode.



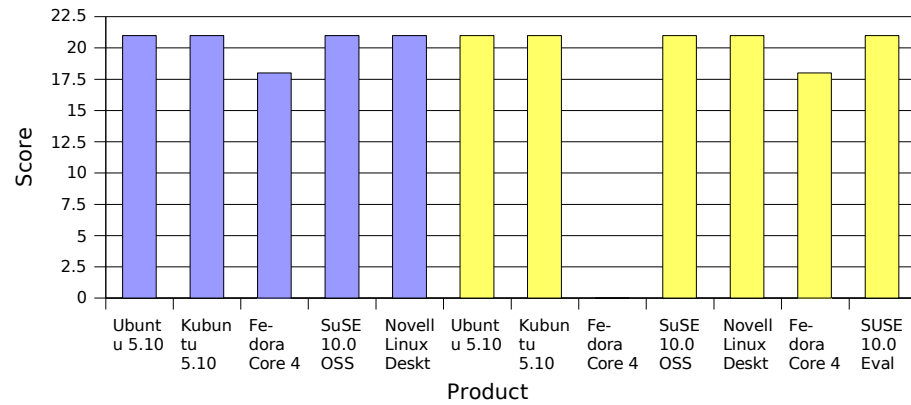
3. Devices & Peripherals



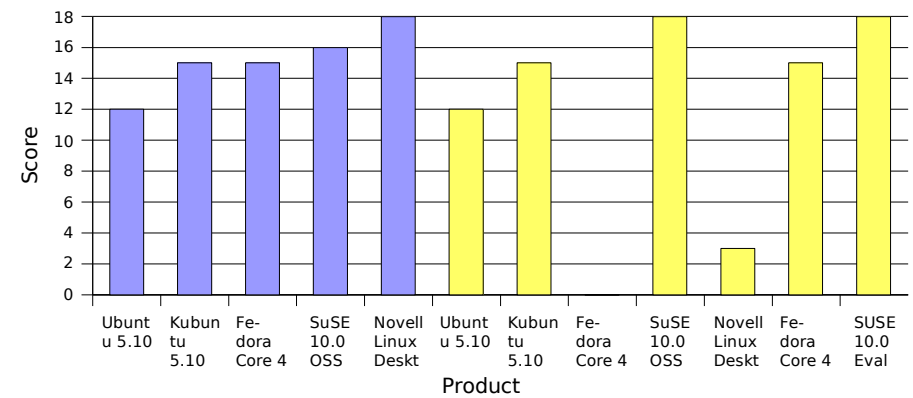
4. Applications & File types



5. System Administration



6. Networking



The Windows XP Test

Using the test plans, together with the same sandpit equipment, a visit was made to the NCC to install a generic copy of Windows XP Pro. i.e. not supplied under an OEM licence with the hardware (although these copies were supplied with the original hardware). The test plans were amended to remove some activities that would be meaningless in a Windows environment and adjustments made to the the calculations accordingly.

The results are shown in Appendix 5. What was significant was that the generic copy could not detect and install some of the key pieces of hardware, including the inbuilt network card for either of the platforms. This, of course, rendered much of the rest of the testing unworkable as without a functional build of the network software on the machine it was not possible to connect to the NCC network and the Internet to download drivers or updates. This is not to suggest that Windows could not provide a fully functional installation on both of the pieces of hardware, nor that it was worse than Linux. It does, however, serve to stress the importance of the hardware manufacturers' role in making installation painless.

Ironically, many of the tests relating to recognition of file types could also not be undertaken as these are supported only within additional licensed products such as Microsoft Office.

Conclusions

Most of the products tested produced a working system with the exception of Fedora Core 4 which, under graphical install mode, was unable to partition the hard disk. Later tests with a DVD copy and Text Install mode resulted in a successful installation, but this is a poor result compared with the rest of the field. The community produced solutions currently seem to be underdeveloped for large-scale use.

Overall it was evident that distributions with a clear link to a major development partner, such as SUSE and Novell, had the greater potential to provide a fully functional installation for our purposes. Some of these products perhaps fall into the category of 'substantially Open Source' rather than Open Source in the purest sense and in the case of Novell Linux Desktop (NLD) this also attracted some financial cost, albeit small. These products often included a number of free closed-source binaries, E.g. Adobe Acrobat Reader 7 or RealPlayer, although appropriate GPL products were also included.

With the current state of licensing and the general nervousness of suppliers to release full source code for their products, this seems to be a reasonable compromise and the recommended route for the corporate user. Any costs associated with these hybrid releases also serve to give some degree of support which, in the business marketplace, probably adds a bit to the comfort factor.

What became increasingly evident from the test results, particularly with laptop installations, was the significant role played by the support of hardware and peripheral manufacturers in the production of bundled distributions that allowed a fully functional result. To date, no OEM copies of Linux exist, least not by the major hardware providers, which adds to the complexity of getting a clean installation first time around. Such hardware vendor 'lock in' to a single proprietary OS provider is of concern as it serves to further dissuade users from trying alternatives. The situation is exacerbated still further by the fact that several of the main providers of essential chip sets, such as those for video cards, do not yet make their drivers available under GPL licensing. Appropriate binaries are generally available through their websites but the method of installation varies from supplier to supplier thus making installation confusing for novices. Some of these post installation procedures which may patch the operating system kernel are sometimes broken by the running of automatic on-line updates at a later date, requiring re-installation of the drivers.

Some OS distributors have a few of these proprietary drivers available through their distribution repositories in a form that can be installed through update utilities, but this is by no means the norm for all products. Generally this approach should identify whether a driver needs to be re-installed following a kernel upgrade and undertake this installation automatically.

Enquires of one of the leading hardware manufacturers revealed that OEM 'images' for Linux for any hardware platform can be made available but only where the installation base is around 100 units or more. Corporate accounts could benefit from this facility which, if used in conjunction with a major distribution, could provide a very stable installation route. Unfortunately, with the boundaries between home and business use becoming increasingly blurred, particularly with staff utilising flexible working, offering such facilities only to corporate customers could be counter-productive. Ultimately, pre-configured Open Source installations need to be made available across the board.

License restrictions have also stopped the development of some applications such as DVD player software. Again, such products are available for Linux at relatively low cost but finding and installing them can be problematic. It was noticed that there were considerable differences between the SUSE 10.0 OSS distribution and the SUSE 10.0 Evaluation, both available through the Novell website. The latter was recently supplied with several popular Linux magazines. The Evaluation copy contained several proprietary binaries that were missing, as might be expected, from the pure OSS copy. Perhaps more significant was that the Evaluation copy also included several GPL products that were also not in the OSS release. This just serves to confuse the casual user.

Recommendations

Based on the conclusions drawn from the test results, SOCITM SOSS can offer the following recommendations:

- Use commercially supported distributions such as available from Novell in preference to cutting edge community versions;
- Opt for hybrid, supported bundles as these are likely to include some useful proprietary products and drivers albeit that some of these will not be under GPL licenses. There is usually a small annual support cost for such distributions;
- Only download updates from stable repositories. Be aware that automatic updates from external repositories can break installations that have been patched after initial installation. Consider setting up a central repository within your organisation in order to control the integrity of updates;
- For corporate use it is recommended that either tested imaged versions of the release are deployed to the desktop or that these images are pre-loaded by the hardware vendor before delivery thereby shifting much of the responsibility for correct operation to the supplier. Many will offer this service if pushed. It is recommended that individual organisations continue to pressurise their suppliers to offer such services on a wider basis, ideally by offering a working Open Source alternative for all equipment in their range;
- Wherever possible, the corporate user is recommended to either opt for applications designed for the OS, such as OpenOffice, or native ports of existing application products. Many major suppliers offer their products on Linux and for many it is the platform of choice. Unfortunately, most of these are aimed at the server environment with very few offering ports of desktop tools. Emulators or Virtual Machine Environments can be used but the free products are generally unstable whilst commercial offerings can be expensive. All have an impact on performance; and
- Consider delivering any legacy applications that are only supported on proprietary operating systems through a server based deployment. Thin client computing, either to deliver centralised Linux or Microsoft Windows applications, runs well with Linux desktops but does require a strategic decision to centralise products to back-end servers and create the necessary farm infrastructure.

The Way Forward

Linux is clearly within a whisker of being able to hold its own as a serious non-proprietary desktop solution. Restrictions in an ever-changing hardware marketplace where new components seem to appear on a daily basis could be resolved by the manufacturers. Ideally, all code should be available under a GPL licence, but appreciating the commercial restrictions imposed by these OEMs then supplying all drivers as binaries through the main repositories would be the next best solution.

Support for the running of .exe applications designed for the Microsoft Windows platform is generally weak within the core distribution set. Wine, supplied with most distributions or downloadable from the Internet, will attempt to run some of the more tolerant applications but does not represent a solution for the corporate use.

Commercial adaptations such as Crossover Office (approx. £40) claim to run more complex applications such as the entire Microsoft Office suite. This also makes use of the Wine back end to intercept API calls and pass them directly to Linux, thus eliminating the need for the native Microsoft operating system.

Total virtual machine environments are also available by the use of products such as VMWare Workstation for Linux (approx. £114) which create a machine within a machine. These have the advantage of being able to run most applications seamlessly, albeit with some degradation in performance. Unfortunately, as these products only emulate the physical hardware, a complete licensed copy of the guest operating system has to be loaded which, for most users, somewhat defeats the object of choosing Open Source in the first place.

It is unlikely that Microsoft products such as Office will ever be ported to native Linux even though editions for Mac OSX (also a Unix derivative) are available. This may be less due to concerns over a loss of Desktop sales (the same could be applied to Apple Mac) but rather that there could be worries that the lack of a consistent distribution platform would make guaranteed operation, and therefore support, impossible.

The general move towards thinner computing and web based services should remove some of these barriers in the future, provided that all web based applications are supplied to run in non-proprietary browsers as there are no plans to port Internet Explorer to the Linux platform.

Appendix 1 – Extract from original Project Brief

The following is an extract of the full project brief approved by SOCITM SOSS and under which the tests were conducted by the NCC

Work Package Document History

1. Document Location

The location of the electronic master version of this document is on the Havering Server in the Fellowes account under TEC.Open Source

2. Revision History

| Version | Date | Summary of Changes | Changes marked |
|---------|----------|---|----------------|
| 1.0 | 11/10/05 | First Draft | |
| 1.2 | 14/11/05 | First Issue to SOSS for approval | |
| 1.3 | 24/11/05 | Licence details added. Item 16 – date amended to February 2006. Appendices combined | |

3. Approvals

This document requires the following approvals. Signed approval forms are filed in the Management section of the project files.

| Name | Title | Signature | Date | Version |
|--------------|--------------------------|-----------|----------|---------|
| Ed Downs | National Computer Centre | Approved | | 1.2 |
| Mark Brier | National Computer Centre | Approved | | 1.2 |
| Steve Durbin | Chair, SOCITM SOSS | Approved | 23/11/05 | 1.2 |

4. Distribution

This document has been distributed to:

| Name | Title | Date | Version |
|--------------|---------------------------|----------|---------|
| Ed Downs | National Computing Centre | 14/11/05 | 1.2 |
| Mark Brier | National Computing Centre | 14/11/05 | 1.2 |
| SOCITM SOSS | SOCITM Open Source Group | 14/11/05 | 1.2 |
| Nick Talbot | Powys District Council | 14/11/05 | 1.2 |
| Ed Downs | National Computing Centre | | 1.3 |
| Mark Brier | National Computing Centre | | 1.3 |
| Bob Griffith | SOCITM SOSS | | 1.3 |
| Seve Durbin | SOCITM SOCC - Chair | | |

Work Package

5. Purpose of Document

A Work Package is a set of information about one or more required products, created by the Project Manager to pass requirements and responsibility for the delivery of those requirements to a person or team. For example, if a project requires the configuration and installation of a number of PCs, the Project Manager creates the work package to identify what the configuration of the PCs should be, any time and cost constraints, etc. The Work Package is used to confirm agreement between the Project Manager and the person or team doing the work.

Where the work is being carried out by a Supplier under a contract and the Project Manager is part of the Customer organisation, there is a need for a formal written instruction in line with standards laid down in that contract.

Although the content may vary greatly according to the relationship between the Project Manager and the recipient of the Work Package, it should cover:

6. Work Package Description

This work package will Investigate the viability of Open Source Desktop solutions for use in Local Government by a series of test installs of a small selection of common Linux distributions onto a selection of desktop equipment most commonly used within the Local Government business environment. this will include both desktop and Laptop devices.

Within this context, possible follow-on work plans could also investigate the viability of a total firmware desktop with the complete operating system and major applications embedded in flash memory. Another such example of follow-on work would be to investigate the building of a bespoke operating system image using Gentoo or similar.

7. Product Description(s)

To undertake 'out of the box' installations of a range of available Linux releases onto a range of standard PC equipment.

8. Techniques/Processes/Procedures To Be Used

The Desktop build will be built on commercially available hardware from suppliers typically used by local government. This would include, for instance Dell and Hewlett Packard. Both a modern wide screen Centrino Laptop and a high specification desktop computer with TFT flat panel screen should form part of the test bed. A more detailed specification is available in Appendix 'A'

Linux operating systems for the test should be provided as boxed commercial bundles or downloaded from the Internet as appropriate. The suggested choice of test distributions is provided

in Appendix 'A'.

All builds should be targeted at 1 hour contact time and the test plan will be completed at this point. Scope for further investigation and bug fixing may be provided if time permits but this must be clearly documented.

9. Interfaces To Be Satisfied By The Work

None other than as identified in Appendix 'A'

10. Interfaces To Be Maintained During The Work

None other than as identified in Appendix 'A'

11. Quality Checking Method To Be Used

Installations will be quality checked against the test plan attached as Appendix 'A'

The quality process will be overseen by Stephen Fellowes and representatives from Bridgend Council to be nominated by Steve Durbin

12. Stage Plan Extract

N/A

13. Joint Agreements On Effort, Cost, Start And End Dates

The project will be funded as part of the NCC 'sandpit' under the Open Source Academy.

14. Sign-Off Requirements

The work will be signed off by Ed Downs of NCC; the nominated project manager if different from the above and the nominated agent(s) from the SOCITM SOSS Group.

A further copy of of the executive summary and all supporting papers will be offered to the ODPM in accordance with any outcome that they require for the OSA funding. All costs, expenses and time spent will be clearly documented in such paperwork.

15. Work Return Arrangements

Copies of all reports, lab books and test plans will be supplied, upon request, to the nominated agents of the SOCITM SOSS Group and the Programme Management for the Open Source Academy (OSA). The original reports will remain with the National Computing Centre (NCC).

16.How Completion Is To Be Advised

Completion will be deemed to have been satisfied when all reports and test plans for the agreed project brief have been approved by the independent QA team.

17.Any Constraints To Be Observed

The time spent on installation should be strictly observed up to the point of completing the test plan. This is intentional to draw a parallel with a similar time requirement for re-installation of the OEM copy of the propriety offering that was most likely supplied with the equipment.

All projects must be completed before end February 2006 or as required by the ODPM funding. In the first instance, NCC input to this work will be limited to ten working days.

18.Independent Quality Checking Arrangements

Independent quality assurance will be provided by agents to be nominated by the SOCITM SOSS group. They will check the results and documentation to ensure consistency.

19.Reporting Arrangements

Reporting to be via the nominated agents of the SOCITM SOSS group. Any reports or documentation produced will be made available under the Creative Commons Attribution Non-commercial Share Alike licence. Any software developed will be release under the GNU General Public Licence.

Appendix 2 – Test Plans

| 1 INSTALLATION | | | | | |
|----------------------------|---|--|---------|--|-------|
| Test | | Description | Score | Points for... | Notes |
| 1.1 Installation Media | E | 1.1.1 Was boot media recognised and successfully booted? | 0 3 | no / yes | |
| | Q | 1.1.2 What is the installation media? e.g. single CD + net install, Set of CD's (specify #), single DVD etc. | | | |
| 1.2 Boot-time control | D | 1.2.1 Is there any level of boot control? i.e. Disable devices, install 3 rd party modules etc. | 0 1 2 3 | none / minimal / reasonable / extensive | |
| 1.3 Language & Locale | E | 1.3.1 Is the interface language selectable during installation? | 0 3 | no / yes | |
| | E | 1.3.2 Are language changes activated immediately? | 0 3 | no / yes | |
| | D | 1.3.3 Is there keymap selection during installation? | 0 3 | no / yes | |
| | D | 1.3.4 Are keymap changes activated immediately? | 0 3 | no / yes | |
| 1.4 Graphical Installation | D | 1.4.1 Is there a GUI installer? | 0 3 | no / yes | |
| | D | 1.4.2 Is an acceptable resolution used for install? (applies to text / graphical, points scale relative to hardware) | 0 1 2 3 | 640x480 / 800x600 / 1024x768 / 1280x1024 | |
| 1.5 HD Recognition | E | 1.5.1 Was the hard disk recognised and initiated? | 0 3 | no / yes | |
| 1.6 Monitor Recognition | E | 1.6.1 Is the monitor recognised and initiated? | 0 3 | no / yes | |
| 1.8 Network Configuration | D | 1.8.1 To what extent is network configurable? Consider DSL / ISDN / Modem / WiFi etc. | 0 1 2 3 | none / minimal / reasonable / extensive | |
| 1.9 HD Partitioning | E | 1.9.1 Is a default partitioning scheme selectable e.g. for a new machine? | 0 3 | no / yes | |
| | E | 1.9.2 Is it possible to customise partitioning? To what extent? | 0 1 2 3 | none / minimal / reasonable / extensive | |
| 1.10 Package Selection | D | 1.10.1 Is there a choice of default installations? e.g. Desktop, Server, Laptop etc.? | 0 3 | no / yes | |
| | D | 1.10.2 Is manual package selection available? | 0 3 | no / yes | |
| | Q | 1.10.3 What package system does this distribution use? e.g. RPM, DEB, source, binary archive. | | | |
| | Q | 1.10.4 Which build was selected (if any) and why? | | | |

| | | | | | |
|--|---|---|----------------------------|--|--|
| 1.11 Desktop Environment Selection | D | 1.11.1 Is there an option to choose Desktop Environment / Window Manager? | 0 3 | no / yes | |
| | Q | 1.11.2 Which DE / WM was selected? KDE, GNOME, XFCE etc. | | | |
| 1.12 On-line Update | D | 1.12.1 Is it possible to update package list and / or patch system during install procedure? | 0 3 | no / yes | |
| | D | 1.12.2 Did this identify updates and install or identify lack of updates and continue? (Both score) | 0 3 | no / yes | |
| 1.13 User Configuration & Authentication | D | 1.13.1 Is the user able to configure authentication mechanisms (NIS / LDAP etc.) at install? | 0 3 | no / yes | |
| | D | 1.13.2 Is it possible to test these settings during the install? | 0 3 | no / yes | |
| | E | 1.13.3 Is it possible to configure users during the install? | 0 3 | no / yes | |
| 1.14 Boot-loader Configuration | D | 1.14.1 Is there a choice of boot-loader during installation? | 0 3 | no / yes | |
| | Q | 1.14.2 Which boot-loader (if any) was chosen? e.g. LILO, GRUB etc. | | | |
| | D | 1.14.3 Did the boot-loader identify and activate other operating systems? | 0 3 | no / yes | |
| | D | 1.14.4 To what extent can the boot-loader be configured? Consider kernel parameters, time-out, password protection etc. | 0 1 2 3 | none / minimal / reasonable / extensive | |
| 1.15 Time | Q | 1.15.1 How long did the installation take (approx.)? | | | |
| 1.16 Errors | Q | 1.16.1 Were there any errors and / or warnings during install? | $-\infty < x \leq 0$ x= | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

2 FIRST BOOT

| | | | | | |
|-----------------------------|---|--|----------------------------|--|--|
| 2.1 Initial Boot | E | 2.1.1 Did initial boot work? | 0 3 | no / yes | |
| 2.2 Splash Boot | D | 2.2.1 Upon booting, is there a splash screen displayed? Boot-loader splash not counted. | 0 3 | no / yes | |
| | D | 2.2.2 Can the splash be disabled and / or be made more verbose? | 0 3 | no /yes | |
| 2.3 Hardware Initialisation | Q | 2.3.1 Are all devices initialised automatically? Can be checked using lspci / lsusb / cat /proc/acpi etc. | $-\infty < x \leq 0$ x= | Deduct points for missing devices, -1 for each device, -2 if device is system critical (HD for example) | |
| | Q | 2.3.2 Which Device(s) failed to initialise automatically? | | | |
| 2.4 Display Manager | E | 2.4.1 Does the Display Manager (e.g. KDM / GDM etc.) start at boot? | 0 3 | no / yes | |
| | D | 2.4.2 Does the DM start in an acceptable resolution? (Points scale relative to hardware) | 0 1 2 3 | 640x480 / 800x600 / 1024x768 / 1280x1024 | |
| | Q | 2.4.3 Which Display Manager was loaded? | | | |
| 2.5 Desktop Environment | E | 2.5.1 Does the chosen DE / WM load correctly and without errors? | 0 3 | no / yes | |
| | E | 2.5.2 Are all aspects of the DE environment loaded correctly? Consider panel, WM, session manager, menu etc. (identify missing components) | 0 3 | no / yes | |
| | D | 2.5.3 Are useful menu features installed? Consider 'Recent Docs', 'Find' etc. | 0 3 | no / yes | |
| | E | 2.5.4 Are appropriate sound notifications associated with desktop functions and applications? | 0 3 | no / yes | |
| | E | 2.5.5 Does the desktop environment allow easy access to commonly used applications? | 0 3 | no / yes | |
| 2.6 Language & Locale | E | 2.6.1 Is the language selected during install successfully set upon first boot? | 0 3 | no / yes | |
| | E | 2.6.2 Is the keymap selected during install successfully set upon first boot? | 0 3 | no / yes | |
| | E | 2.6.3 Is the desktop environment available in native UK languages? Consider Welsh. | 0 3 | no / yes | |
| | E | 2.6.4 How easy is it to switch the default language? | 0 1 2 3 | very hard / hard / easy / very easy | |
| 2.7 Errors | Q | 2.7.1 Were there any errors and / or warnings during boot? Boot without splash to see this if necessary. | $-\infty < x \leq 0$ x= | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

3 DEVICES & PERIPHERALS

| | | | | | |
|--------------------------------------|---|--|---------|---|--|
| 3.1 Networking (Ethernet) | E | 3.1.1 Does the network auto configure when the machine was booted with Ethernet plugged in and with a DHCP server available on the local LAN? | 0 3 | no / yes | |
| | E | 3.1.2 Is it possible to configure Ethernet networking to use a static IP address? Check that changes are applied and work etc. | 0 3 | no / yes | |
| | E | 3.1.3 How easy is it to change the Ethernet configuration? Consider amount of dialogs, clutter, descriptive language used | 0 1 2 3 | very hard / hard / easy / very easy | |
| | Q | 3.1.4 What Ethernet card does the machine have? | | | |
| | Q | 3.1.5 What driver is being used for Ethernet? | | | |
| 3.2 Wireless Networking (WiFi) | D | 3.2.1 Does the WiFi auto configure when the machine was booted in range of a network and with a DHCP server available on the local LAN? | 0 3 | no / yes | |
| | E | 3.2.2 Is it possible to configure the WiFi network by selecting an AP and using both DHCP and Static IP addressing? | 0 3 | no / yes | |
| | E | 3.2.3 Does connecting to an AP using WEP encryption work? | 0 3 | no / yes | |
| | E | 3.2.4 Does connecting to an AP using WPA encryption work? | 0 3 | no /yes | |
| | D | 3.2.5 Is there a facility to browse for WiFi networks? | 0 3 | no / yes | |
| | E | 3.2.6 How easy is it to change the WiFi configuration? Consider amount of dialogs, clutter, descriptive language used, available options etc. | 0 1 2 3 | very hard / hard / easy / very easy | |
| | Q | 3.2.7 What WiFi card / chipset does the machine have? | | | |
| | Q | 3.2.8 What driver is being used for WiFi? | | | |
| 3.3 Sound & Video | D | 3.3.1 Is the sound-card previously detected / selected during install recognised and initiated? | 0 3 | no / yes | |
| | D | 3.3.2 Is there relevant GUI tools to configure the sound-card? e.g. mixer, record-source selection etc. To what extent is it configurable using the installed tools? | 0 1 2 3 | none / minimal / reasonable / extensive | |
| | D | 3.3.3 Is 3D acceleration enabled? | 0 3 | no / yes | |
| | Q | 3.3.4 What sound-card does the machine have? | | | |
| | Q | 3.3.5 What driver is being used for sound? | | | |
| | Q | 3.3.6 What video card does the machine have? | | | |
| | Q | 3.3.7 What driver is being used for video? | | | |

| | | | | | |
|----------------------|---|--|-----|----------|--|
| 3.4 USB | E | 3.4.1 Is hot-plug enabled for USB keyboards? i.e. Can a USB keyboard simply be plugged in and used? | 0 3 | no / yes | |
| | E | 3.4.2 Is hot-plug enabled for USB mice? i.e. Can a USB mouse simply be plugged in and used? | 0 3 | no / yes | |
| | E | 3.4.3 If you plug a USB key / stick in, does the OS recognise it and allow it to be used? | 0 3 | no / yes | |
| | D | 3.4.4 If this contain pictures, are you prompted to import / open the pictures? | 0 3 | no / yes | |
| | D | 3.4.5 When selecting yes to open / import pictures, is a default application successful in opening the pictures? | 0 3 | no / yes | |
| | Q | 3.4.6 Which application was used to open / import the pictures? | | | |
| | D | 3.4.7 If you plug in a digital camera (USB), is the device mounted and browseable? | 0 3 | no / yes | |
| | D | 3.4.8 Upon plugging a digital camera in, are you prompted to open / import the contents? | 0 3 | no / yes | |
| | D | 3.4.9 Upon choosing to open / import camera contents, is the application successful? | 0 3 | no / yes | |
| | Q | 3.4.10 Which application was used to open / import the pictures? | | | |
| 3.5 Removable Drives | E | 3.5.1 Upon inserting a data CD, was the CD automatically mounted and browseable? | 0 3 | no / yes | |
| | E | 3.5.2 Upon inserting a data DVD, was the DVD automatically mounted and browseable? | 0 3 | no / yes | |
| | E | 3.5.3 Was an audio CD recognised? | 0 3 | no / yes | |
| | D | 3.5.4 Upon inserting an audio CD, did software automatically play the CD? | 0 3 | no / yes | |
| | Q | 3.5.5 What software (if any) was used for audio-CD playback? | | | |
| | D | 3.5.6 Was a commercial DVD recognised? | 0 3 | no / yes | |
| | D | 3.5.7 Upon inserting a DVD, did software play the video automatically? | 0 3 | no / yes | |
| | Q | 3.5.8 What software (if any) was used for DVD playback? | | | |

| | | | | | |
|----------------------|----|---|----------------------------|--|--|
| 3.6 Local Printers | D | 3.6.1 Does the machine respond to a USB inkjet printer being plugged in? | 0 3 | no / yes | |
| | D | 3.6.2 In what way does the machine respond to a hot-plugged printer? | | | |
| | Q | 3.6.3 What USB inkjet printer was used? | | | |
| | D | 3.6.4 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | none / minimal / reasonable / extensive | |
| | D | 3.6.5 How easy is it to change printer configuration and settings? | 0 1 2 3 | very hard / hard / easy / very easy | |
| | D | 3.6.6 Are all printing functions available after plugging a USB printer in? | 0 3 | no / yes | |
| | E | 3.6.7 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | no / yes | |
| | D | 3.6.8 Does the machine respond to a consumer laser printer being plugged in? | 0 3 | no / yes | |
| | Q | 3.6.9 In what way does the machine respond to a hot-plugged printer? | | | |
| | Q | 3.6.10 What laser printer was used? | | | |
| | D | 3.6.11 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | none / minimal / reasonable / extensive | |
| | D | 3.6.12 How easy is it to change printer configuration and settings? | 0 1 2 3 | very hard / hard / easy / very easy | |
| | D | 3.6.13 Are all printing functions available after plugging a laser printer in? | 0 3 | no / yes | |
| | E | 3.6.14 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | no / yes | |
| 3.8 External Monitor | E? | 3.8.1 Does the machine respond to an external (DCC) monitor being plugged into it? | 0 3 | no / yes | |
| | Q | 3.8.2 Does the external monitor automatically display a new, or mirrored session? | | | |
| | D? | 3.8.3 Does the monitor start in the desired resolution? | 0 3 | no / yes | |
| | E? | 3.8.4 IF NO TO ANY OF THE ABOVE – was the external monitor configurable? | 0 3 | no / yes | |
| 3.9 Errors | Q | 3.9.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ x= | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

4 APPLICATIONS & FILE-TYPES

| | | | | | |
|------------------------------|---|---|----------------------------|--|--|
| 4.1 Office Applications | E | 4.1.1 Did all office applications install correctly? Check Ooo.org or koffice appropriately. | 0 3 | no / yes | |
| | Q | 4.1.2 Which office suite was used? | | | |
| | E | 4.1.3 Did a PDF reader install correctly? Check evince, gpdf, xpdf Adobe Acrobat etc. | 0 3 | no / yes | |
| | Q | 4.1.4 Which application was used to open PDF? | | | |
| | E | 4.1.6 Do office applications provide full support for dictionaries in the selected language? | 0 3 | no / yes | |
| | E | 4.1.7 Do the standard fonts support a full range of special characters and symbols required in the public sector? | 0 3 | no / yes | |
| | D | 4.1.8 Are VoIP applications installed by default? | 0 3 | no / yes | |
| | D | 4.1.9 Was other software such as games installed automatically? | 0 3 | no / yes | |
| 4.2 File Manager Integration | E | 4.2.1 Check the following (open from file manager, must be able to open and edit) Ms-Word (.doc) | 0 3 | no / yes | |
| | E | 4.2.2 Ms-Excel (.xls) | 0 3 | no / yes | |
| | D | 4.2.3 Ms-Powerpoint | 0 3 | no / yes | |
| | E | 4.2.4 HTML | 0 3 | no / yes | |
| | D | 4.2.5 EXE (wine) | 0 3 | no / yes | |
| | E | 4.2.6 JPEG | 0 3 | no / yes | |
| | E | 4.2.7 GIF | 0 3 | no / yes | |
| | E | 4.2.8 TXT | 0 3 | no / yes | |
| | E | 4.2.9 BMP | 0 3 | no / yes | |
| | D | 4.2.10 MPEG | 0 3 | no / yes | |
| | D | 4.2.11 MP3 | 0 3 | no / yes | |
| | D | 4.2.12 OGG | 0 3 | no / yes | |
| | E | 4.2.13 WAV | 0 3 | no / yes | |
| 4.3 Browser Integration | E | 4.3.1 Does the default browser provide the flash plug-in by default? | 0 3 | no / yes | |
| | E | 4.3.2 Does the default browser provide a PDF plug-in by default? | 0 3 | no / yes | |
| | E | 4.3.3 Does the default browser provide the RealPlayer plug-in by default? | 0 3 | no / yes | |
| | E | 4.3.4 Are missing browser plug-ins installed automatically? | 0 3 | no / yes | |
| 4.4 Errors | Q | 4.4.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ x= | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

5 SYSTEM ADMINISTRATION

| | | | | | |
|------------------|---|--|-------------------------------|---|--|
| 5.1 System Tools | D | 5.1.1 Is there a GUI tool to administer user / group accounts? | 0 3 | no / yes | |
| | D | 5.1.2 Is there a GUI tool to manage disk partitioning? | 0 3 | no / yes | |
| | D | 5.1.3 Is there a GUI tool to handle boot-up behaviour? (run-levels) | 0 3 | no / yes | |
| | D | 5.1.4 Is there a GUI tool to monitor system performance? (CPU / disk / memory usage) | 0 3 | no / yes | |
| | E | 5.1.5 Is there a tool to add / update software on the system? | 0 3 | no / yes | |
| | E | 5.1.6 How easy is it to use the software update tool? | 0 1 2 3 | very hard / hard / easy / very easy | |
| | E | 5.1.7 Is there an automatic update tool for software? | 0 3 | no / yes | |
| | D | 5.1.8 Does the upgrade mechanism support installing of software in formats other than the default? I.e. can you install RPM's on a DEB distro? | 0 3 | no / yes | |
| 5.2 Errors | Q | 5.2.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ $x =$ | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

6 NETWORKING

| | | | | | |
|-----------------------------|---|--|----------------------------|--|--|
| 6.1 Windows Networking | D | 6.1.1 Are you able to mount a remote SMB share from the CLI, using the mount command? | 0 3 | no / yes | |
| | E | 6.1.2 Can you browse Windows network shares? | 0 3 | no / yes | |
| | D | 6.1.3 Can you use Windows networked printers without configuration? | 0 3 | no / yes | |
| | D | 6.1.4 IF NO TO ABOVE, can this be configured? | 0 3 | no / yes | |
| | D | 6.1.5 Were you able to successfully share a folder out which could be accessed by Windows clients? | 0 3 | no / yes | |
| 6.2 Unix / Linux Networking | E | 6.2.2 Were you able to mount a remote SAMBA share from a Unix / Linux machine? | 0 3 | no / yes | |
| | D | 6.2.4 Were you able to create a SAMBA share and access it from a remote Unix / Linux machine? | 0 3 | no / yes | |
| 6.3 Novell Networking | D | 6.3.1 Were you able to browse Novell network resources? | 0 3 | no / yes | |
| 6.4 LDAP | D | 6.4.1 Do groupware applications support LDAP lookups? | 0 3 | no / yes | |
| 6.5 Errors | Q | 6.5.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ x= | If due to user fault, disregard, otherwise deduct points for errors. -1 for informative, -2 for critical, -3 for fatal | |

Appendix 3 – Extract from NCC Report

Hardware Specification

The agreed (minimum) hardware specification is as follows...

- **Desktop PC** – Intel Pentium 4 > 2 GHz, 512Mb RAM, 60Gb Hard disk
- **Laptop** – Wide Screen, Intel Centrino Laptop (with WiFi), Min 1.6GHz, 512Mb RAM, 60Gb Hard disk

Distributions Tested

The following distributions were tested...

- Ubuntu Linux 5.10 (Breezy Badger)
- Kubuntu Linux 5.10 (Breezy Badger)
- SuSe Linux 10.0 (Open Source release)
- Fedora Core 4
- Novell Linux Desktop 9

The following were also tested as an extension piece of work (see NOTE below)

- SuSe Linux 10.0 (Evaluation)
- Fedora Core 4 (DVD version)

The distributions were selected to represent the commonly available up to date distributions. Ubuntu and Kubuntu were selected to represent two different desktop environments, GNOME and KDE respectively. Fedora Core 4 (FC4) was selected as the main desktop offering from RedHat. SuSe and Novell Linux Desktop (NLD) are both from Novell. They were included as distributions focussing on the OS community and community power users (SUSE) and more corporate commercial users (NLD).

There are many other distributions we could have considered for this. Debian, it was felt, is a very stable distribution, however the package versions in Debian's stable branch are rather old in comparison to the selected offerings. While an argument can be made for testing Debian's "unstable" branch this was rejected as it is unlikely to be considered for local government use simply because of the tag "unstable". However, the Ubuntu & Kubuntu distributions are forks of the Debian core release. Gentoo as also not included due to the more complex nature of the install procedure, and the fact that being a source-based distribution requires lots of time and effort. That is not to say either of these distributions should not be considered for desktop use, rather they are outside the scope of this finite study.

NOTE: Upon completion of the testing phase, it was felt some quality assurance needed to be done as members of SOCITM SOSS had reported experiences contrary to the given results. This involved an extra timetabled day to be used to identify potential reasons for the difference in experiences. SuSE 10.0 was re-tested using alternative media from a magazine cover.

The two distributions of SuSE were in fact different. The original test was conducted on Novell's SuSE 10.0 (Open source edition), while the second (QA) test was conducted on an evaluation version of SuSE 10.0, which contained a number of extra packages the open source edition could

not include due to software licensing issues. The extra time was also used to identify and overcome a previous problem with Fedora Core 4, which had previously proved to be a “show-stopper”. This problem was down to Anaconda, RedHat's graphical installation engine, which is used in Fedora. The problem was later fixed by performing a text mode installation.

The additional tests were done on the laptop hardware only due to time and resource limitations and the assumption that this hardware would be the most challenging.

Results

Summary of Scores (% of maximum available points)

| <i>Distribution</i> | <i>Install Time (Desktop)</i> | <i>Weighted Score (Desktop)</i> | <i>Install Time (Laptop)</i> | <i>Weighted Score (Laptop)</i> |
|------------------------|-------------------------------|---------------------------------|------------------------------|--------------------------------|
| Ubuntu 5.10 | 1 hr 20 mins | 66.9% | 1 hr 10 mins | 59.83% |
| Kubuntu 5.10 | 1 hr 10 mins | 67.88% | 1 hr | 63.06% |
| SuSe 10.0 (OSS) | 2 hrs 45 mins | 79.87% | 1 hr 45 mins | 76.2% |
| Fedora Core 4 | 40 mins | 72.17% | n/a | n/a |
| Novell Linux Desktop | 50 mins | 80.82% | 1 hr | 66.91% |
| SuSe 10.0 (Eval) | | | 1hr 40 mins | 77.67% |
| Fedora Core 4 (test 2) | | | 45 mins | 63.94% |

Observations

Fedora Core 4

Desktop & General

- Very short installation time.
- Disk swapping means inability to do unattended installation. This may be possible using an FTP server however.
- During “post-install configuration” stage, the mouse became unmovable and progress bar was stuck at 50%. Eventually this was OK, however the user may feel something is wrong.
- Nice clean default interface.
- Good automatic update widget and schedule provided by default.
- Excellent support for automatic mounting of drives, USB keys etc.
- SELinux installed by default for increased security in the default install.
- Failed to identify other installed operating systems during boot-loader install. This had to be configured manually. First-time user could easily render their other OS un-bootable.

- Language support was not trivial to configure. Even after selecting “Welsh”, the interface was not updated. This could be either a bug or a lack of understanding on the part of the tester. Only US-English language was selectable for office applications.
- Lack of browser plug-ins (flash, RealPlayer) and file format (MPEG / MP3) capability due to licensing issues. Flash plug-in failed after being installed manually.

Laptop

- Distribution refused to install. GUI installer complained that insufficient space was available despite being allocated the full hard disk (80Gb) in a single ext3 partition. The installation was attempted three times and the same error was encountered. On a fourth attempt, the install appeared to be working until it came to installing the packages. Anaconda (Fedora's graphical installer engine) complained of an “unhandled exception” and rebooted the laptop. A second test was conducted as a QA exercise at the request of SOCITM SOSS. On this attempt, installing Fedora Core was successful but only using the text-mode installer. Unfortunately, we did not have the time to test everything however we completed the tests pertaining to hardware differences from the desktop tests, i.e. WiFi, video card, ethernet etc.
- WiFi failed to configure despite there being two main network configuration points, which could be confusing. Presumably this failure is down to the lack of firmware for the WiFi card, which is unavailable under a licence compatible with Fedora's distribution, and therefore not included on the CD.
- Sound card failed to configure, despite there being no requirement for external firmware.
- The external monitor worked with Fedora, however the aspect ratio of the mirrored image of the LCD screen was uncorrected and the resolution was not acceptable for use. It did not seem immediately apparent how to correct this without hand-editing configuration files, which a non-technical user is unlikely to do without feeling lost or possibly worse, breaking something.

SuSe 10.0 - OSS Version

Desktop & General

- Very long installation time however a great deal of configuration flexibility at install-time due the inclusion of the YaSt installer.
- Automatic updates at installation time, secures the machine for first boot. Lot's of updates were available to install, clearly marked as either functionality updates or security patches. Complete control over which updates are included. Included a kernel update.
- Clean default desktop, sensible branding.
- Attractive boot-splash screen, shields user from kernel / boot messages which may be confusing to non-technical users.
- YaSt configuration tool consolidates configuration options, both during and after install. Very flexible, easy to use and well integrated into desktop environment.
- Switching language required 3 CD's from original install-set.
- Xpdf installed as default PDF application. Very old with an ugly interface. Many more advanced PDF viewers are available and marked as stable in most distributions.
- Nautilus (Gnome file-manager) crashed when attempting to mount remote SAMBA shares. These could be mounted effectively via the command-line interface however a non-

experienced user could be put off by this.

Laptop

- Installation much shorter than that of the desktop machine (probably due to newer hardware), however just under two hours can be a long time if a number of machines need to be installed. It is possible however to create a DVD from the 5 CD's, which can then be used for installation, saving time in disk-swapping, and leaving the person installing to undertake other tasks.
- Needed to boot without ACPI support in order to run the installation program. Discovered by failing a second time and searching on the internet. Simple procedure of passing “noacpi” option to boot command-line. Non-technical user may not think to try this and ascertain that distribution does not work with hardware. After installation, ACPI was enabled and working as expected.
- Resolution after first boot was not the native resolution of the LCD display. It was however acceptable in comparison with the other distributions. Auto-configured the ATI Radeon card with the freely available open-source driver (where other distributions failed to). Installing the proprietary driver from ATI's website allowed the screen to operate at full native resolution and enabled 3D acceleration however this was not a trivial task and involved running shell scripts. Would have been much better had an RPM packaged version been available.
- Could not get WiFi to work. Installed proprietary drivers available from the internet, however the laptop would not connect to the configured wireless access point. The test was repeated three times.
- External monitor did work, however only showed a mirror image of the main desktop, and did not use the native resolution of the external monitor. Use of the external monitor also required a restart of the Xserver, something a non-technical user may not have the inclination to try. Further configuration of the monitor was only available through hand-editing the Xserver configuration file. This is far too technical for the average desktop end-user and they would expect a GUI configuration tool.

Novell Linux Desktop

Desktop & General

- Simple install, required minimal user interaction. Dialog boxes easy to understand for a first-time user.
- Due to NLD being a commercial distribution, MP3 / MPEG and DVD capability was installed by default.
- Flash and RealPlayer plug-ins installed by default.
- Attractive boot-splash screen, shields user from kernel / boot messages which may be confusing to non-technical users.
- Included Adobe Acrobat PDF viewer, unlike SuSe which provides ancient Xpdf.
- “Friendly” interface for non-technical users, clean default desktop with sensible branding.
- Boot-up could seem confusing. Does include a splash-screen however full verbosity is apparent.
- Automatic updates at installation time, secures the machine for first boot.

- YaSt configuration tool consolidates configuration options, both during and after install. Very flexible, easy to use and well integrated into desktop environment.

Laptop

- Auto-update procedure during installation did not work despite (seemingly) setting the network up. It was later discovered network was in fact not set-up.
- lspci (command to show what devices are available on the machine) showed lots of devices as “unknown device”. This is unacceptable as it only requires a small PCI-ID database to be compiled into the kernel.
- Display manager did not start in the native LCD resolution.
- Could not set-up ethernet card driver. Even after choosing the correct module (unlikely to be obvious to non-technical users), the device still failed to configure. The tests in this area were tried three times for clarification.
- Wireless adapter would not configure, despite manually installing proprietary drivers available from the internet.
- Sound card failed to configure. Probing for sound card failed.
- External monitor would not work for desktop use, however when left unattended, it was found the screensaver module was in fact using the external monitor as a second screen. Could not find a simple tool to configure the external monitor for desktop use.
- Due to non-configuration of either the ethernet or WiFi adapter, none of the networking tests could be completed.

Kubuntu 5.10

Desktop & General

- Lack of set-up at install-time for modems, ISDN and USB-ADSL adapters.
- Very simple install procedure, a single CD and minimal dialogs. Easy to install however a lack of flexibility in configuration.
- No manual package selection during install, packages must be tweaked after install.
- No graphical installer, positive in some respects as the distribution is likely to install on more systems, however could also be negative as the first-time or non-technical user may find this daunting.
- No Welsh language support included by default or easily selectable.
- Network configuration dialog refused to set default gateway, had to be hand-configured from command-line interface. A non-technical user is unlikely to know how to do this and may find they are unable to configure their network.
- Auto-mounting of USB keys was problematic. Error message was displayed to suggest USB key could not be mounted however some investigative work showed the key WAS mounted in a non-standard place.
- Would not use some file formats or play DVD's due to exclusion of packages for licensing reasons. Also a lack of browser plug-ins for Flash, RealPlayer etc.
- Default terminal font was difficult to read.

- KDE desktop fonts were very large and look ugly. Possible lack of fonts packages provided in default installation.
- OGG / WAV files did play, however sound was choppy and un-listenable.
- 3D graphics acceleration enabled by default.
- Installation of browser plug-ins via the browser did not work, however these plug-ins were available by adding extra package repositories and using Ubuntu's own package management system.

Laptop

- Display manager did not start due to lack of auto-configuration for ATI video card. Manually installing the drivers using Kubuntu's package management system (from the command-line) fixed the problem, however the Xserver configuration needed to be done by hand. This would most certainly put-off first time or non-technical users. Native resolution and 3D acceleration was available after installation of the drivers. On a positive note, it was handy to see that the drivers were available from the official Ubuntu repositories.
- Plugging of the external monitor produced no output or response from the operating system. It is possible this could have been configured manually, however this would be outside the realms of a non-technical users understanding, and they could assume it simply "doesn't work".

Ubuntu 5.10

Desktop & General

- Very nice clean default interface.
- Auto-mounting of devices very slick with import dialogs for drives containing pictures etc. (unlike counterpart Kubuntu).
- Lack of set-up at install-time for modems, ISDN and USB-ADSL adapters.
- Very simple install procedure, a single CD and minimal dialogs. Easy to install however a lack of flexibility in configuration.
- No manual package selection during install, packages must be tweaked after install.
- No graphical installer, positive in some respects as the distribution is likely to install on more systems, however could also be negative as the first-time or non-technical user may find this daunting.
- Would not use some file formats or play DVD's due to exclusion of packages for licensing reasons. Also a lack of browser plug-ins for Flash, RealPlayer etc.
- 3D graphics acceleration enabled by default.
- Installation of browser plug-ins via the browser did not work, however these plug-ins were available by adding extra package repositories and using Ubuntu's own package management system.

Laptop

- Display manager did not start due to lack of auto-configuration for ATI video card. Manually installing the drivers using Ubuntu's package management system (from the command-line) fixed the problem, however the Xserver configuration needed to be done by

hand. This would most certainly put-off first time or non-technical users. Native resolution and 3D acceleration was available after installation of the drivers. On a positive note, it was handy to see that the drivers were available from the official Ubuntu repositories.

- Plugging of the external monitor produced no output or response from the operating system. It is possible this could have been configured manually, however this would be outside the realms of a non-technical users understanding, and they could assume it simply “doesn't work”.

SuSe 10.0 – Evaluation Version

Laptop

- Included a number of extra packages not distributed with the OSS version due to licensing issues, specifically, Adobe Acrobat, Flash player, RealPlayer and ipw-firmware. The latter is required to make the wireless interface work correctly. Apart from these extra packages, the two versions of SuSe are identical.
- Installation was from a DVD copy that did remove the need for constant CD swaps.

Appendix 4 - NCC Test Data

| | | Desktop Results | | | | | | | | | Laptop Results | | | | | | |
|--|---|---|-----------------|---------|----------------|--------------|---------------|---------------|------------------------|--------------|----------------|--|-------------------------------|------------------------|---|-------------------------------|--------|
| Test | E / D / Q | Description | Scoring | MAX | 1 INSTALLATION | | | | | | | | | | | | |
| | | | | | Ubuntu 5.10 | Kubuntu 5.10 | Fedora Core 4 | SUSE 10.0 OSS | Novell Linux Desktop 9 | Ubuntu 5.10 | Kubuntu 5.10 | Fedora Core 4 | SUSE 10.0 OSS | Novell Linux Desktop 9 | Fedora Core 4 (Test 2) | SUSE 10.0 Eval | |
| 1.1 Installation Media | E | 1.1.1 Was boot media recognised and successfully booted? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | Q | 1.1.2 What is the installation media? e.g. single CD + net install, Set of CDs (specify #), single DVD etc. | n/a | 0 | 1xCD | 1xCD | 4xCD | 5xCD | 3xCD | 1xCD | 1xCD | | 5xCD | 3xCD | 1xDVD | 1xDVD | |
| 1.2 Boot-time control | D | 1.2.1 Is there any level of boot control? i.e. Disable devices, install 3 rd party modules etc. | 0 1 2 3 | 3 | 2 | 2 | 3 | 1 | 1 | 2 | 2 | | 1 | 1 | 3 | 1 | |
| 1.3 Language & Locale | E | 1.3.1 Is the interface language selectable during installation? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| | E | 1.3.2 Are language changes activated immediately? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| | D | 1.3.3 Is there keypad selection during installation? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| | D | 1.3.4 Are keypad changes activated immediately? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| 1.4 Graphical Installation | D | 1.4.1 Is there a GUI installer? | 0 3 | 3 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | | 3 | 3 | 3 | 3 | |
| | D | 1.4.2 Is an acceptable resolution used for install? (applies to text / graphical, points scale relative to hardware) | 0 1 2 3 | 3 | 1 | 1 | 0 | 3 | 2 | 1 | 1 | | 3 | 3 | 0 | 3 | |
| 1.5 HD Recognition | E | 1.5.1 Was the hard disk recognised and initiated? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | | |
| 1.6 Monitor Recognition | E | 1.6.1 Is the monitor recognised and initiated? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | | |
| 1.9 HD Partitioning | D | 1.8.1 To what extent is network configurable? Consider DSL / ISDN / Modem / WiFi etc. | 0 1 2 3 | 3 | 1 | 1 | 1 | 3 | 3 | 1 | 1 | | 3 | 3 | 1 | 3 | |
| | E | 1.9.1 Is a default partitioning scheme selectable e.g. for a new machine? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | | |
| | E | 1.9.2 Is it possible to customise partitioning? To what extent? | 0 1 2 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | | |
| 1.10 Package Selection | D | 1.10.1 Is there a choice of default installations? e.g. Desktop, Server, Laptop etc.? Not including DM choice. | 0 3 | 3 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | ABORTED DUE TO MAJOR INSTALLATION FAILURE ON THREE SUCCESSIVE ATTEMPTS. SEE CONCLUSION 5 | 0 | 0 | 3 | 0 | |
| | D | 1.10.2 Is manual package selection available? | 0 3 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | | | 3 | 3 | 3 | 3 | |
| | Q | 1.10.3 What package system does this distribution use? e.g. RPM, DEB, source, binary archive. | n/a | 0 | DEB | DEB | RPM | RPM | RPM | DEB | DEB | | | RPM | RPM | RPM | RPM |
| Q | 1.10.4 Which build was selected (if any) and why? | n/a | 0 | Default | Default | Workstation | KDE | KDE | Default | Default | | | Default | KDE | Workstation | BOTH | |
| 1.11 Desktop Environment Selection | D | 1.11.1 Is there an option to choose Desktop Environment / Window Manager? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | 3 | 3 | 3 | 3 | |
| | Q | 1.11.2 Which DE / WM was selected? KDE, GNOME, XFCE etc. | n/a | 0 | GNOME ONLY | KDE ONLY | GNOME | KDE | GNOME | GNOME ONLY | KDE ONLY | | | GNOME | KDE | BOTH | GNOME |
| 1.12 On-line Update | D | 1.12.1 Is it possible to update package list and / or patch system during install procedure? | 0 3 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | | | 3 | 3 | 0 | 3 |
| | D | 1.12.2 Did this identify updates and install or identify lack of updates and continue? (Both score) | 0 3 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | | | 3 | 0 | 0 | 3 |
| 1.13 User Configuration & Authentication | D | 1.13.1 Is the user able to configure authentication mechanisms (NIS / LDAP etc.) at install? | 0 3 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | | | 3 | 3 | 0 | 3 |
| | D | 1.13.2 Is it possible to test these settings during the install? | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 |
| | E | 1.13.3 Is it possible to configure users during the install? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| 1.14 Boot-loader Configuration | D | 1.14.1 Is there a choice of boot-loader during installation? | 0 3 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | | 3 | 3 | 0 | 3 | |
| | Q | 1.14.2 Which boot-loader (if any) was chosen? e.g. LILO, GRUB etc. | n/a | 0 | GRUB ONLY | GRUB ONLY | GRUB ONLY | GRUB | GRUB | GRUB ONLY | GRUB ONLY | | GRUB | GRUB | GRUB ONLY | GRUB | |
| | D | 1.14.3 Did the boot-loader identify and activate other operating systems? | 0 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | | 3 | 3 | Not Tested | Not Tested | |
| | D | 1.14.4 To what extent can the boot-loader be configured? Consider kernel parameters, time-out, password protection etc. | 0 1 2 3 | 3 | 1 | 1 | 2 | 3 | 3 | 1 | 1 | | 3 | 3 | 2 | 3 | |
| 1.15 Time | Q | 1.15.1 How long did the installation take (approx.)? | n/a | 0 | 1 hr 20 mins | 1 hr 10 mins | 40 mins | 2 hrs 45 mins | 50 mins | 1 hr 10 mins | 1 hr | | 1hr 45 mins | 1hr | 45 mins | 1hr 40 mins | |
| 1.16 Errors | Q | 1.16.1 Were there any errors and / or warnings during install? | -∞ < x <= 0 x = | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | -3 | 0 | -4 | -3 | |
| | Q | 1.16.2 What were these due to? | n/a | 0 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | | Needed to boot w/without ACPI | n/a | Needed to boot w/o FB + had to use text installer | Needed to boot w/without ACPI | |
| TOTALS | Points Scored | | | | 44 | 44 | 48 | 64 | 60 | 44 | 44 | | 0 | 61 | 61 | 44 | 58 |
| | As % Of Maximum Possible | | | | 58.67% | 58.67% | 64.00% | 85.33% | 80.00% | 58.67% | 58.67% | | 0.00% | 81.33% | 81.33% | 58.67% | 77.33% |
| | Weighting for section | | 16.67 | | 9.78 | 9.78 | 10.67 | 14.22 | 13.33 | 9.78 | 9.78 | | 0 | 13.56 | 13.56 | 9.78 | 12.89 |

2 FIRST BOOT

| | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------------|--|----------------|---|--------|--------|--------|---------|--------|-----------------------------------|-----------------------------------|-------|------------------------------------|--------|--------|--------|
| 2.1 Initial Boot | E | 2.1.1 Did initial boot work? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 2.2.1 Upon booting, is there a splash screen displayed? Boot-loader splash not counted. | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| 2.2 Splash Boot | D | 2.2.2 Can the splash be disabled and / or be made more verbose? | 0 3 | 3 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | | |
| | Q | 2.3.1 Are all devices initialised automatically? Can be checked using lspci / lsusb / cat /proc/acpi etc. | -∞ < x <= 0 x= | 0 | 0 | 0 | 0 | 0 | 0 | -2 | -2 | 0 | -5 | -1 | | |
| 2.3 Hardware Initialisation | Q | 2.3.2 Which Device(s) failed to initialise automatically? | n/a | 0 | none | none | none | none | none | Video(-2) (needed manual install) | Video(-2) (needed manual install) | none | Sound(-1), Ethernet(-2) & WiFi(-2) | WiFi | | |
| | E | 2.4.1 Does the Display Manager (e.g. KDM / GDM etc.) start at boot? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | | |
| 2.4 Display Manager | D | 2.4.2 Does the DM start in an acceptable resolution? (Points scale relative to hardware) | 0 1 2 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 2 | 2 | | |
| | Q | 2.4.3 Which Display Manager was loaded? | n/a | 0 | GDM | KDM | GDM | KDM | GDM | none (KDM) | none (GDM) | GDM | KDM | GDM | | |
| 2.5 Desktop Environment | E | 2.5.1 Does the chosen DE / WM load correctly and without errors? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 2.5.2 Are all aspects of the DE environment loaded correctly? Consider panel, WM, session manager, menu etc. (identify missing components) | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 2.5.3 Are useful menu features installed? Consider 'Recent Docs', 'Find' etc. | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 2.5.4 Are appropriate sound notifications associated with desktop functions and applications? | 0 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | | |
| | E | 2.5.5 Does the desktop environment allow easy access to commonly used applications? | 0 3 | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | | |
| 2.6 Language & Locale | E | 2.6.1 Is the language selected during install successfully set upon first boot? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 2.6.2 Is the keymap selected during install successfully set upon first boot? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 2.6.3 Is the desktop environment available in native UK languages? Consider Welsh. | 0 3 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 3 | 3 | 0 | | |
| | E | 2.6.4 How easy is it to switch the default language? | 0 1 2 3 | 3 | 3 | 2 | 0 | 3 | 3 | 3 | 2 | 3 | 3 | 0 | | |
| 2.7 Errors | Q | 2.7.1 Were there any errors and / or warnings during boot? Boot without splash to see this if necessary. | -∞ < x <= 0 x= | 0 | 0 | 0 | 0 | 0 | 0 | -3 | -3 | 0 | 0 | | | |
| TOTALS | Points Scored | | | | 33 | 35 | 30 | 42 | 39 | 22 | 24 | 0 | 38 | 36 | 28 | 38 |
| | As % Of Maximum Possible | | | | 78.57% | 83.33% | 71.43% | 100.00% | 92.86% | 52.38% | 57.14% | 0.00% | 90.48% | 85.71% | 66.67% | 90.48% |
| | Weighting for section | | 16.67 | | 13.1 | 13.89 | 11.9 | 16.67 | 15.48 | 8.73 | 9.52 | 0 | 15.08 | 14.29 | 11.11 | 15.08 |

3 DEVICES & PERIPHERALS

| | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|--|---------|---|---------------|---------------|---------------|---------------|---------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------|-------------|-------------|
| 3.1 Networking (Ethernet) | E | 3.1.1 Does the network auto configure when the machine was booted with Ethernet plugged in and with a DHCP server available on the local LAN? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | | | | |
| | E | 3.1.2 Is it possible to configure Ethernet networking to use a static IP address? Check that changes are applied and work etc. | 0 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | | | |
| | E | 3.1.3 How easy is it to change the Ethernet configuration? Consider amount of dialogs, clutter, descriptive language used | 0 1 2 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 2 | 3 | | | |
| | Q | 3.1.4 What Ethernet card does the machine have? | n/a | 0 | Intel 8254OEM | Intel 8254OEM | Intel 8254OEM | Intel 8254OEM | Intel 8254OEM | Intel PRO 2200BG | Intel PRO 2200BG | Intel PRO 2200BG | Intel PRO 2200BG | Intel PRO 2200BG | Intel PRO 2200BG | Intel PRO 2200BG | | | |
| | Q | 3.1.5 What driver is being used for Ethernet? | n/a | 0 | e1000 | e1000 | e1000 | e1000 | e1000 | tg3 | tg3 | tg3 | tg3 | none | tg3 | none | | | |
| 3.2 Wireless Networking (WiFi) | D | 3.2.1 Does the WiFi auto configure when the machine was booted in range of a network and with a DHCP server available on the local LAN? | 0 3 | 3 | Laptop Only | | | | | | 0 | 0 | 0 | 0 | 0 | 3 | | | |
| | E | 3.2.2 Is it possible to configure the WiFi network by selecting an AP and using both DHCP and Static IP addressing? | 0 3 | 3 | | | | | | | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 |
| | E | 3.2.3 Does connecting to an AP using WEP encryption work? | 0 3 | 3 | | | | | | | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 |
| | E | 3.2.4 Does connecting to an AP using WPA encryption work? | 0 3 | 3 | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | D | 3.2.5 Is there a facility to browse for WiFi networks? | 0 3 | 3 | | | | | | | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| | E | 3.2.6 How easy is it to change the WiFi configuration? Consider amount of dialogs, clutter, descriptive language used, available options etc. | 0 1 2 3 | 3 | | | | | | | 2 | 2 | 3 | 3 | 3 | 0 | 0 | 0 | 3 |
| | Q | 3.2.7 What WiFi card / chipset does the machine have? | n/a | 0 | | | | | | | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) | ipw (Intel) |
| | Q | 3.2.8 What driver is being used for WiFi? | n/a | 0 | | | | | | | none | none | none | none | none | none | none | none | ipw 2200 |
| 3.3 Sound & Video | D | 3.3.1 Is the sound-card previously detected / selected during install recognised and initiated? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | | | | |
| | D | 3.3.2 Is there relevant GUI tools to configure the sound-card? e.g. mixer, record-source selection etc. To what extent is it configurable using the installed tools? | 0 1 2 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | | | | |
| | D | 3.3.3 Is 3D acceleration enabled? | 0 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | | | | |
| | Q | 3.3.4 What sound-card does the machine have? | n/a | 0 | Intel ac'97 | Intel ac'97 | Intel ac'97 | Intel ac'97 | Intel ac'97 | Intel ICH6 | Intel ICH6 | Intel ICH6 | Unknown Intel | Intel ICH6 | Intel ICH6 | | | | |
| | Q | 3.3.5 What driver is being used for sound? | n/a | 0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | snd_intel8x0 | | | | |
| | Q | 3.3.6 What video card does the machine have? | n/a | 0 | Intel 82865G | Intel 82865G | Intel 82865G | Intel 82865G | Intel 82865G | ATI Radeon X600 | ATI Radeon X600 | ATI Radeon X600 | ATI Radeon X600 | ATI Radeon X600 | ATI Radeon X600 | | | | |
| | Q | 3.3.7 What driver is being used for video? | n/a | 0 | Intel i810 | Intel i810 | Intel i810 | Intel i810 | Intel i810 | ati / fglr | ati / fglr | radeon | fbdev | radeon | radeon | | | | |
| 3.4 USB | E | 3.4.1 Is hot-plug enabled for USB keyboards? i.e. Can a USB keyboard simply be plugged in and used? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | | |
| | E | 3.4.2 Is hot-plug enabled for USB mice? i.e. Can a USB mouse simply be plugged in and used? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | | |
| | E | 3.4.3 If you plug a USB key / stick in, does the OS recognise it and allow it to be used? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | | |
| | D | 3.4.4 If this contain pictures, are you prompted to import / open the pictures? | 0 3 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| | D | 3.4.5 When selecting yes to open / import pictures, is a default application successful in opening the pictures? | 0 3 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| | Q | 3.4.6 Which application was used to open / import the pictures? | n/a | 0 | none | none | none | none | none | none | none | none | none | none | none | | | | |
| | D | 3.4.7 If you plug in a digital camera (USB), is the device mounted and browseable? | 0 3 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | | | | |
| | D | 3.4.8 Upon plugging a digital camera in, are you prompted to open / import the contents? | 0 3 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | | | | |
| | D | 3.4.9 Upon choosing to open / import camera contents, is the application successful? | 0 3 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | | | | |
| | Q | 3.4.10 Which application was used to open / import the pictures? | n/a | 0 | none | none | gthumb | f-spot | none | none | none | none | none | f-spot | none | gthumb | f-spot | | |

| | | | | | | | | | | | | | | | | |
|----------------------|--|---|---------------|--------|--------------------|--------------------|--------------------|-----------------------|-----------------------|--------------------|--------------------|-----------------------|-----------------------|--------------------|-----------------------|--------------------|
| 3.5 Removable Drives | E | 3.5.1 Upon inserting a data CD, was the CD automatically mounted and browsable? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | E | 3.5.2 Upon inserting a data DVD, was the DVD automatically mounted and browsable? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | E | 3.5.3 Was an audio CD recognised? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | D | 3.5.4 Upon inserting an audio CD, did software automatically play the CD? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | Q | 3.5.5 What software (if any) was used for audio-CD playback? | n/a | 0 | GNOME CD-Player | KsCD | GNOME CD-Player | KsCD | KsCD | GNOME CD-Player | KsCD | banshee | KsCD | GNOME CD-Player | banshee | |
| | D | 3.5.6 Was a commercial DVD recognised? | 0 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 3 | 3 | 0 | |
| | D | 3.5.7 Upon inserting a DVD, did software play the video automatically? | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Q | 3.5.8 What software (if any) was used for DVD playback? | n/a | 0 | totem (attempted) | totem (attempted) | none | none | none | totem (attempted) | totem (attempted) | none | xine | none | none | |
| 3.6 Local Printers | D | 3.6.1 Does the machine respond to a USB inkjet printer being plugged in? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 3.6.2 In what way does the machine respond to a hot-plugged printer? | n/a | 0 | Add Printer Wizard | Add Printer Wizard | Add Printer Wizard | Printer Config Wizard | Printer Config Wizard | Add Printer Wizard | Add Printer Wizard | Printer Config Wizard | Printer Config Wizard | Add Printer Wizard | Printer Config Wizard | |
| | Q | 3.6.3 What USB inkjet printer was used? | n/a | 0 | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | Dell 720 Inkjet | |
| | D | 3.6.4 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | D | 3.6.5 How easy is it to change printer configuration and settings? | 0 1 2 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | |
| | D | 3.6.6 Are all printing functions available after plugging a USB printer in? | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | E | 3.6.7 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | D | 3.6.8 Does the machine respond to a consumer laser printer being plugged in? | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Q | 3.6.9 In what way does the machine respond to a hot-plugged printer? | n/a | 0 | none | none | none | none | none | none | none | none | none | none | none | |
| | Q | 3.6.10 What laser printer was used? | n/a | 0 | | | | | | | | | | | | |
| | D | 3.6.11 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | D | 3.6.12 How easy is it to change printer configuration and settings? | 0 1 2 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | |
| D | 3.6.13 Are all printing functions available after plugging a laser printer in? | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| E | 3.6.14 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| 3.8 External Monitor | E | 3.8.1 Does the machine respond to an external (DCC) monitor being plugged into it? | 0 3 | 3 | Laptop Only | | | | | | 0 | 0 | 3 | 0 | 3 | 3 |
| | Q | 3.8.2 Does the external monitor automatically display a new, or mirrored session? | n/a | 0 | | | | | | | none | none | mirrored (low res) | none | mirrored | mirrored (low res) |
| | D | 3.8.3 Does the monitor start in the desired resolution? | 0 3 | 3 | | | | | | | 0 | 0 | 0 | 0 | 3 | 0 |
| | E | 3.8.4 IF NO TO ANY OF THE ABOVE – was the external monitor configurable? | 0 3 | 3 | | | | | | | 0 | 0 | 3 | 0 | 0 | 3 |
| 3.9 Errors | Q | 3.9.1 Were there any errors and / or warnings during any of the tests in this section? | -∞ < x ≤ 0 x= | 0 | -4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | |
| TOTALS | Points Scored | | | 60 | 51 | 76 | 62 | 56 | 59 | 58 | 0 | 62 | 47 | 63 | 60 | |
| | As % Of Maximum Possible | | | 66.67% | 56.67% | 84.44% | 68.89% | 62.22% | 50.43% | 49.57% | 0.00% | 52.99% | 40.17% | 53.85% | 51.28% | |
| | Weighting for section | | 16.67 | 11.11 | 9.44 | 14.07 | 11.48 | 10.37 | 8.4 | 8.26 | 0 | 8.83 | 6.7 | 8.97 | 8.55 | |

4 APPLICATIONS & FILE-TYPES

| | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---------------|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|
| 4.1 Office Applications | E | 4.1.1 Did all office applications install correctly? Check Ooo.org or koffice appropriately. | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | Q | 4.1.2 Which office suite was used? | n/a | 0 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 1.1 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 2.0 | OpenOffice.org 1.1 | OpenOffice.org 2.0 | |
| | E | 4.1.3 Did a PDF reader install correctly? Check evince, gpdf, xpdf Adobe Acrobat etc. | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | Q | 4.1.4 Which application was used to open PDF? | n/a | 0 | evince | kpdf | evince | xpdf | Adobe Acrobat | evince | evince | xpdf | Adobe Acrobat | evince | Adobe Acrobat | |
| | E | 4.1.6 Do office applications provide full support for dictionaries in the selected language? | 0 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | |
| | E | 4.1.7 Do the standard fonts support a full range of special characters and symbols required in the public sector? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | D | 4.1.8 Are VoIP applications installed by default? | 0 3 | 3 | 0 | 0 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | |
| | D | 4.1.9 Was other software such as games installed automatically? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| 4.2 File Manager Integration | E | 4.2.1 Check the following (open from file manager, must be able to open and edit) Ms-Word (.doc) | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 4.2.2 Ms-Excel (.xls) | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 4.2.3 Ms-Powerpoint | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 4.2.4 HTML | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 4.2.5 EXE (wine) | 0 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | E | 4.2.6 JPEG | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 4.2.7 GIF | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 4.2.8 TXT | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | E | 4.2.9 BMP | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | D | 4.2.10 MPEG | 0 3 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 | |
| | D | 4.2.11 MP3 | 0 3 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 | |
| | D | 4.2.12 OGG | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | E | 4.2.13 WAV | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| 4.3 Browser Integration | E | 4.3.1 Does the default browser provide the flash plug-in by default? | 0 3 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 | |
| | E | 4.3.2 Does the default browser provide a PDF plug-in by default? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | E | 4.3.3 Does the default browser provide the RealPlayer plug-in by default? | 0 3 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 | |
| | E | 4.3.4 Are missing browser plug-ins installed automatically? | 0 3 | 3 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 | 3 | |
| 4.4 Errors | Q | 4.4.1 Were there any errors and / or warnings during any of the tests in this section? | -∞ < x ≤ 0 x= | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | |
| | | Maximum for section | | | 48 | 48 | 57 | 54 | 66 | 48 | 51 | 0 | 54 | 66 | 51 | 64 |
| TOTALS | | As % Of Maximum Possible | | | 69.57% | 69.57% | 82.61% | 78.26% | 95.65% | 69.57% | 73.91% | 0.00% | 78.26% | 95.65% | 73.91% | 92.75% |
| | | Weighting for section | 16.67 | | 11.59 | 11.59 | 13.77 | 13.04 | 15.94 | 11.59 | 12.32 | 0 | 13.04 | 15.94 | 12.32 | 15.46 |

5 SYSTEM ADMINISTRATION

| | | | | | | | | | | | | | | | | |
|------------------|---------------------------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|--------------|
| 5.1 System Tools | D | 5.1.1 Is there a GUI tool to administer user / group accounts? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | |
| | D | 5.1.2 Is there a GUI tool to manage disk partitioning? | 0 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 0 | 3 |
| | D | 5.1.3 Is there a GUI tool to handle boot-up behaviour? (run-levels) | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | 3 |
| | D | 5.1.4 Is there a GUI tool to monitor system performance? (CPU / disk / memory usage) | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | 3 |
| | E | 5.1.5 Is there a tool to add / update software on the system? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | 3 |
| | E | 5.1.6 How easy is it to use the software update tool? | 0 1 2 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | 3 |
| | E | 5.1.7 Is there an automatic update tool for software? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 3 | 3 | 3 |
| | D | 5.1.8 Does the upgrade mechanism support installing of software in formats other than the default? i.e. can you install RPMs on a DEB distro? | 0 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 5.2 Errors | Q | 5.2.1 Were there any errors and / or warnings during any of the tests in this section? | -∞ < x ≤ 0 x= | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| TOTALS | Maximum for section | | | 21 | 21 | 18 | 21 | 21 | 21 | 21 | 0 | 21 | 21 | 18 | 21 | |
| | As % Of Maximum Possible | | | 87.50% | 87.50% | 75.00% | 87.50% | 87.50% | 87.50% | 87.50% | 0.00% | 87.50% | 87.50% | 75.00% | 87.50% | |
| | Weighting for section | | | 16.67 | 14.58 | 14.58 | 12.5 | 14.58 | 14.58 | 14.58 | 14.58 | 0 | 14.58 | 14.58 | 12.5 | 14.58 |

6 NETWORKING

| | | | | | | | | | | | | | | | | |
|-----------------------------|---------------------------------|--|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|--------------|
| 6.1 Windows Networking | D | 6.1.1 Are you able to mount a remote SMB share from the CLI, using the mount command? | 0 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | | 3 | 0 | 0 | 3 | |
| | E | 6.1.2 Can you browse Windows network shares? | 0 3 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | |
| | D | 6.1.3 Can you use Windows networked printers without configuration? | 0 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| | D | 6.1.4 IF NO TO ABOVE, can this be configured? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 0 | 3 | 3 |
| | D | 6.1.5 Were you able to successfully share a folder out which could be accessed by Windows clients? | 0 3 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | | 0 | 3 | 0 | 3 | 3 |
| 6.2 Unix / Linux Networking | E | 6.2.2 Were you able to mount a remote SAMBA share from a Unix / Linux machine? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | | |
| | D | 6.2.4 Were you able to create a SAMBA share and access it from a remote Unix / Linux machine? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | | |
| 6.3 Novell Networking | D | 6.3.1 Were you able to browse Novell network resources? | 0 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 6.4 LDAP | D | 6.4.1 Do groupware applications support LDAP lookups? | 0 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| 6.5 Errors | Q | 6.5.1 Were there any errors and / or warnings during any of the tests in this section? | --∞ < x ≤ 0 x= | 0 | 0 | 0 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| TOTALS | Maximum for section | | | 12 | 15 | 15 | 16 | 18 | 12 | 15 | 0 | 18 | 3 | 15 | 18 | |
| | As % Of Maximum Possible | | | 44.44% | 55.56% | 55.56% | 59.26% | 66.67% | 44.44% | 55.56% | 0.00% | 66.67% | 11.11% | 55.56% | 66.67% | |
| | Weighting for section | | | 16.67 | 7.41 | 9.26 | 9.26 | 9.88 | 11.11 | 7.41 | 9.26 | 0 | 11.11 | 1.85 | 9.26 | 11.11 |

| | | Desktop Final Results | | | | | Laptop Final Results | | | | | | |
|-------------------------------------|--|-----------------------|---------|-------|-----------|-------|----------------------|---------|------|-----------|-------|--------------|-----------|
| Distribution | | Ubuntu | Kubuntu | FC4 | SuSe 10.0 | NLD | Ubuntu | Kubuntu | FC4 | SuSe 10.0 | NLD | FC4 (test 2) | SUSE Eval |
| RAW TOTAL | | 218 | 214 | 244 | 259 | 260 | 206 | 213 | 0 | 254 | 234 | 219 | 259 |
| WEIGHTED TOTAL | | 67.57 | 68.55 | 72.17 | 79.87 | 80.82 | 60.50 | 63.73 | 0.00 | 76.20 | 66.91 | 63.94 | 77.67 |
| WEIGHTED RANK WITHIN HARDWARE GROUP | | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 7 | 2 | 3 | 4 | 1 |

| | | Combined Final Results | | | | |
|----------------|--|------------------------|---------|-------|-----------|-------|
| Distribution | | Ubuntu | Kubuntu | FC4 | SuSe 10.0 | NLD |
| RAW TOTAL | | 424 | 427 | 244 | 513 | 494 |
| WEIGHTED TOTAL | | 64.03 | 66.14 | 36.09 | 78.04 | 73.87 |
| WEIGHTED RANK | | 4 | 3 | 5 | 1 | 2 |

Appendix 5 – Windows XP Test Data

| | | | | | Desktop Results | Laptop Results | | |
|----------------------------|-------|--|---------|-----|-----------------|--|--------|--|
| 1 INSTALLATION | | | | | | | | |
| Test | E/D/Q | Description | Scoring | MAX | Windows XP Pro | Windows XP Pro | | |
| 1.1 Installation Media | E | 1.1.1 Was boot media recognised and successfully booted? | 0 3 | 3 | 3 | | 3 | |
| | Q | 1.1.2 What is the installation media? e.g. single CD + net install, Set of CD's (specify #), single DVD etc. | n/a | 0 | 1 x CD | | 1 x CD | |
| 1.2 Boot-time control | D | 1.2.1 Is there any level of boot control? i.e. Disable devices, install 3 rd party modules etc. | 0 1 2 3 | 3 | 0 | | 0 | |
| 1.3 Language & Locale | E | 1.3.1 Is the interface language selectable during installation? | 0 3 | 3 | 3 | All install in English for the majority of the install process | 3 | All install in English for the majority of the install process |
| | E | 1.3.2 Are language changes activated immediately? | 0 3 | 3 | 3 | | 3 | |
| | D | 1.3.3 Is there keymap selection during installation? | 0 3 | 3 | 3 | | 3 | |
| | D | 1.3.4 Are keymap changes activated immediately? | 0 3 | 3 | 3 | | 3 | |
| 1.4 Graphical Installation | D | 1.4.1 Is there a GUI installer? | 0 3 | 3 | 3 | | 3 | |
| | D | 1.4.2 Is an acceptable resolution used for install? (applies to text / graphical, points scale relative to hardware) | 0 1 2 3 | 3 | 1 | 800 x 600 even after automatic optimisation | 1 | 800 x 600 even after automatic optimisation |
| 1.5 HD Recognition | E | 1.5.1 Was the hard disk recognised and initiated? | 0 3 | 3 | 3 | | 3 | |
| 1.6 Monitor Recognition | E | 1.6.1 Is the monitor recognised and initiated? | 0 3 | 3 | 3 | | 3 | |
| 1.8 Network Configuration | D | 1.8.1 To what extent is network configurable? Consider DSL / ISDN / Modem / WiFi etc. | 0 1 2 3 | 3 | 0 | Ethernet & Wifi cards not recognised | 0 | Ethernet & Wifi cards not recognised |
| 1.9 HD Partitioning | E | 1.9.1 Is a default partitioning scheme selectable e.g. for a new machine? | 0 3 | 3 | 3 | | 3 | |
| | E | 1.9.2 Is it possible to customise partitioning? To what extent? | 0 1 2 3 | 3 | 1 | Some small amount of control with existing partitions | 1 | Some small amount of control with existing partitions |

| | | | | | | | | | |
|--|---------------------------------|---|----------------------|-----------|----------------|--|---------------|-----------------|--|
| 1.10 Package Selection | D | 1.10.1 Is there a choice of default installations? e.g. Desktop, Server, Laptop etc.? Not including DM choice. | 0 3 | 3 | 0 | | 0 | | |
| | D | 1.10.2 Is manual package selection available? | 0 3 | 3 | 0 | | 0 | | |
| | Q | 1.10.3 What package system does this distribution use? e.g. RPM, DEB, source, binary archive. | n/a | | Not Applicable | | | | |
| | Q | 1.10.4 Which build was selected (if any) and why? | n/a | | | | | | |
| 1.11 Desktop Environment Selection | D | 1.11.1 Is there an option to choose Desktop Environment / Window Manager? | 0 3 | | Not Applicable | | | | |
| | Q | 1.11.2 Which DE / WM was selected? KDE, GNOME, XFCE etc. | n/a | | | | | | |
| 1.12 On-line Update | D | 1.12.1 Is it possible to update package list and / or patch system during install procedure? | 0 3 | | Not Applicable | | | | |
| | D | 1.12.2 Did this identify updates and install or identify lack of updates and continue? (Both score) | 0 3 | 3 | | | | | |
| 1.13 User Configuration & Authentication | D | 1.13.1 Is the user able to configure authentication mechanisms (NIS / LDAP etc.) at install? | 0 3 | 3 | 0 | | 0 | | |
| | D | 1.13.2 Is it possible to test these settings during the install? | 0 3 | 3 | 0 | | 0 | | |
| | E | 1.13.3 Is it possible to configure users during the install? | 0 3 | 3 | 3 | | 3 | | |
| 1.14 Boot-loader Configuration | D | 1.14.1 Is there a choice of boot-loader during installation? | 0 3 | 3 | 0 | No dual boot detection with default system | 0 | | |
| | Q | 1.14.2 Which boot-loader (if any) was chosen? e.g. LILO, GRUB etc. | n/a | | Not Applicable | | | | |
| | D | 1.14.3 Did the boot-loader identify and activate other operating systems? | 0 3 | | | | | | |
| | D | 1.14.4 To what extent can the boot-loader be configured? Consider kernel parameters, time-out, password protection etc. | 0 1 2 3 | | | | | | |
| 1.15 Time | Q | 1.15.1 How long did the installation take (approx.)? | n/a | 0 | 50 mins | | 35 mins | Faster Hardware | |
| 1.16 Errors | Q | 1.16.1 Were there any errors and / or warnings during install? | $-\infty < x \leq 0$ | 0 | 0 | | 0 | 0 | |
| | Q | 1.16.2 What were these due to? | n/a | 0 | n/a | | n/a | | |
| TOTALS | Points Scored | | | 60 | 32 | | 32 | | |
| | As % Of Maximum Possible | | | | 53.33% | | 53.33% | | |
| | Weighting for section | | 16.67 | | 8.89 | | 8.89 | | |

2 FIRST BOOT

| | | | | | | | | |
|-----------------------------|---------------------------------|--|----------------------|-----------|----------------|--|---------------|--|
| 2.1 Initial Boot | E | 2.1.1 Did initial boot work? | 0 3 | 3 | 3 | | 3 | |
| 2.2 Splash Boot | D | 2.2.1 Upon booting, is there a splash screen displayed? Boot-loader splash not counted. | 0 3 | 3 | 3 | | 3 | |
| | D | 2.2.2 Can the splash be disabled and / or be made more verbose? | 0 3 | 3 | 0 | | 0 | |
| 2.3 Hardware Initialisation | Q | 2.3.1 Are all devices initialised automatically? Can be checked using lspci / lsusb / cat /proc/acpi etc. | $-\infty < x \leq 0$ | 0 | -4 | Device Detection Failed | -7 | Device Detection Failed |
| | Q | 2.3.2 Which Device(s) failed to initialise automatically? | n/a | 0 | | Ethernet/Audio/USB2/Video not correctly detected | | Device Manager showed 7 major devices not correctly detected |
| 2.4 Display Manager | E | 2.4.1 Does the Display Manager (e.g. KDM / GDM etc.) start at boot? | 0 3 | | Not Applicable | | | |
| | D | 2.4.2 Does the DM start in an acceptable resolution? (Points scale relative to hardware) | 0 1 2 3 | 3 | 1 | 800 x 600 even after automatic optimisation | 1 | 800 x 600 even after automatic optimisation |
| | Q | 2.4.3 Which Display Manager was loaded? | n/a | | Not Applicable | | | |
| 2.5 Desktop Environment | E | 2.5.1 Does the chosen DE / WM load correctly and without errors? | 0 3 | 3 | 3 | | 3 | |
| | E | 2.5.2 Are all aspects of the DE environment loaded correctly? Consider panel, WM, session manager, menu etc. (identify missing components) | 0 3 | 3 | 3 | | 3 | |
| | D | 2.5.3 Are useful menu features installed? Consider 'Recent Docs', 'Find' etc. | 0 3 | 3 | 3 | | 3 | |
| | D | 2.5.4 Are appropriate sound notifications associated with desktop functions and applications? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| 2.6 Language & Locale | E | 2.6.1 Is the language selected during install successfully set upon first boot? | 0 3 | 3 | 3 | | 3 | |
| | E | 2.6.2 Is the keymap selected during install successfully set upon first boot? | 0 3 | 3 | 3 | | 3 | |
| | E | 2.6.3 Is the desktop environment available in native UK languages? Consider Welsh. | 0 3 | 3 | 0 | No UK Native Languages E.g. Welsh | 0 | No UK Native Languages E.g. Welsh |
| | E | 2.6.4 How easy is it to switch the default language? | 0 1 2 3 | 3 | 2 | | 2 | |
| 2.7 Errors | Q | 2.7.1 Were there any errors and / or warnings during boot? Boot without splash to see this if necessary. | $-\infty < x \leq 0$ | 0 | 0 | | 0 | |
| TOTALS | Points Scored | | | 36 | 20 | | 17 | |
| | As % Of Maximum Possible | | | | 55.56% | | 47.22% | |
| | Weighting for section | | 16.67 | | 9.26 | | 7.87 | |

3 DEVICES & PERIPHERALS

| | | | | | | | | |
|--------------------------------------|---|---|---------|---|------------|-------------------------|---|---------------------------------------|
| 3.1 Networking (Ethernet) | E | 3.1.1 Does the netw ork auto configure w hen the machine w as booted w ith Ethernet plugged in and w ith a DHCP server available on the local LAN? | 0 3 | 3 | 0 | | 0 | |
| | E | 3.1.2 Is it possible to configure Ethernet netw orking to use a static IP address? Check that changes are applied and w ork etc. | 0 3 | 3 | 0 | | 0 | |
| | E | 3.1.3 How easy is it to change the Ethernet configuration? Consider amount of dialogs, clutter, descriptive language used | 0 1 2 3 | 3 | 1 | | 1 | |
| | Q | 3.1.4 What Ethernet card does the machine have? | n/a | 0 | | Intel 82540EM | | Broadcom Net Extreme Gigabit Ethernet |
| | Q | 3.1.5 What driver is being used for Ethernet? | n/a | 0 | | None | | None |
| 3.2 Wireless Networking (WiFi) | D | 3.2.1 Does the WiFi auto configure w hen the machine w as booted in range of a netw ork and w ith a DHCP server available on the local LAN? | 0 3 | 3 | | Laptop Only | 0 | Device Detection Failed |
| | E | 3.2.2 Is it possible to configure the WiFi netw ork by selecting an AP and using both DHCP and Static IP addressing? | 0 3 | 3 | | | 0 | Device Detection Failed |
| | E | 3.2.3 Does connecting to an AP using WEP encryption w ork? | 0 3 | 3 | | | 0 | Device Detection Failed |
| | E | 3.2.4 Does connecting to an AP using WPA encryption w ork? | 0 3 | 3 | | | 0 | Device Detection Failed |
| | D | 3.2.5 Is there a facility to brow se for WiFi netw orks? | 0 3 | 3 | | | 0 | Device Detection Failed |
| | E | 3.2.6 How easy is it to change the WiFi configuration? Consider amount of dialogs, clutter, descriptive language used, available options etc. | 0 1 2 3 | 3 | | | 0 | Device Detection Failed |
| | Q | 3.2.7 What WiFi card / chipset does the machine have? | n/a | 0 | | | 0 | Intel PRO 2200BG |
| | Q | 3.2.8 What driver is being used for WiFi? | n/a | 0 | | | 0 | Device Detection Failed |
| 3.3 Sound & Video | D | 3.3.1 Is the sound-card previously detected / selected during install recognised and initiated? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| | D | 3.3.2 Is there relevant GUI tools to configure the sound-card? e.g. mixer, record-source selection etc. To w hat extent is it configurable using the installed tools? | 0 1 2 3 | 3 | 1 | | 1 | |
| | D | 3.3.3 Is 3D acceleration enabled? | 0 3 | | Not Tested | | | |
| | Q | 3.3.4 What sound-card does the machine have? | n/a | 0 | | Intel ac'97 | | Intel ICH6 |
| | Q | 3.3.5 What driver is being used for sound? | n/a | 0 | | Device Detection Failed | | Device Detection Failed |
| | Q | 3.3.6 What video card does the machine have? | n/a | 0 | | Intel 82865G | | ATI Radeon X600 |
| | Q | 3.3.7 What driver is being used for video? | n/a | 0 | | Device Detection Failed | | Device Detection Failed |

| | | | | | | | | |
|----------------------|---|--|-----|---|---|---|---|---|
| 3.4 USB | E | 3.4.1 Is hot-plug enabled for USB keyboards? i.e. Can a USB keyboard simply be plugged in and used? | 0 3 | 3 | 3 | | 3 | |
| | E | 3.4.2 Is hot-plug enabled for USB mice? i.e. Can a USB mouse simply be plugged in and used? | 0 3 | 3 | 3 | | 3 | |
| | E | 3.4.3 If you plug a USB key / stick in, does the OS recognise it and allow it to be used? | 0 3 | 3 | 3 | Available via Explorer – not on Desktop | 3 | Available via Explorer – not on Desktop |
| | D | 3.4.4 If this contain pictures, are you prompted to import / open the pictures? | 0 3 | 3 | 0 | | 3 | |
| | D | 3.4.5 When selecting yes to open / import pictures, is a default application successful in opening the pictures? | 0 3 | 3 | 3 | | 3 | |
| | Q | 3.4.6 Which application was used to open / import the pictures? | n/a | 0 | | Did not auto-import during test | 3 | Support worked on laptop |
| | D | 3.4.7 If you plug in a digital camera (USB), is the device mounted and browsable? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| | D | 3.4.8 Upon plugging a digital camera in, are you prompted to open / import the contents? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| | D | 3.4.9 Upon choosing to open / import camera contents, is the application successful? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| | Q | 3.4.10 Which application was used to open / import the pictures? | n/a | 0 | | Could not test | | Could not test |
| 3.5 Removable Drives | E | 3.5.1 Upon inserting a data CD, was the CD automatically mounted and browsable? | 0 3 | 3 | 3 | | 3 | |
| | E | 3.5.2 Upon inserting a data DVD, was the DVD automatically mounted and browsable? | 0 3 | 3 | 3 | | 3 | |
| | E | 3.5.3 Was an audio CD recognised? | 0 3 | 3 | 3 | | 3 | |
| | D | 3.5.4 Upon inserting an audio CD, did software automatically play the CD? | 0 3 | 3 | 0 | Device Detection Failed | 0 | Device Detection Failed |
| | Q | 3.5.5 What software are (if any) was used for audio-CD playback? | n/a | 0 | | Assume Media Player | | Assume Media Player |
| | D | 3.5.6 Was a commercial DVD recognised? | 0 3 | | | Not Tested | | |
| | D | 3.5.7 Upon inserting a DVD, did software play the video automatically? | 0 3 | | | | | |
| | Q | 3.5.8 What software are (if any) was used for DVD playback? | n/a | | | | | |

| | | | | | | | | |
|----------------------|--------------------------|---|----------------------------|-------|-------------|-----------------|--------|--|
| 3.6 Local Printers | D | 3.6.1 Does the machine respond to a USB inkjet printer being plugged in? | 0 3 | | Not Tested | | | |
| | D | 3.6.2 In what way does the machine respond to a hot-plugged printer? | n/a | | | | | |
| | Q | 3.6.3 What USB inkjet printer was used? | n/a | | | | | |
| | D | 3.6.4 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | | | | | |
| | D | 3.6.5 How easy is it to change printer configuration and settings? | 0 1 2 3 | | | | | |
| | D | 3.6.6 Are all printing functions available after plugging a USB printer in? | 0 3 | | | | | |
| | E | 3.6.7 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | | | | | |
| | D | 3.6.8 Does the machine respond to a consumer laser printer being plugged in? | 0 3 | | | | | |
| | Q | 3.6.9 In what way does the machine respond to a hot-plugged printer? | n/a | | | | | |
| | Q | 3.6.10 What laser printer was used? | n/a | | | | | |
| | D | 3.6.11 Can the printer be configured for different paper sizes, colours etc.? To what extent? | 0 1 2 3 | | | | | |
| | D | 3.6.12 How easy is it to change printer configuration and settings? | 0 1 2 3 | | | | | |
| | D | 3.6.13 Are all printing functions available after plugging a laser printer in? | 0 3 | | | | | |
| | E | 3.6.14 IF NO TO ABOVE – Were drivers available on the Internet? | 0 3 | | | | | |
| 3.8 External Monitor | E | 3.8.1 Does the machine respond to an external (DCC) monitor being plugged into it? | 0 3 | 3 | Laptop Only | | 2 | |
| | Q | 3.8.2 Does the external monitor automatically display a new, or mirrored session? | n/a | 0 | | | 2 | |
| | D | 3.8.3 Does the monitor start in the desired resolution? | 0 3 | 3 | | | 2 | |
| | E | 3.8.4 IF NO TO ANY OF THE ABOVE – was the external monitor configurable? | 0 3 | 3 | | | 3 | |
| 3.9 Errors | Q | 3.9.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0 \ x =$ | 0 | -2 | Missing Drivers | -2 | |
| TOTALS | Points Scored | | | 51 | 21 | | 27 | |
| | As % Of Maximum Possible | | | | 41.18% | | 52.94% | |
| | Weighting for section | | | 16.67 | 6.86 | | 8.82 | |

4 APPLICATIONS & FILE-TYPES

| | | | | | | | |
|------------------------------|---------------------------------|---|----------------------|-----------|---------------|---------------------------------------|---------------|
| 4.1 Office Applications | E | 4.1.1 Did all office applications install correctly? Check Ooo.org or koffice appropriately. | 0 3 | | Not Tested | | |
| | Q | 4.1.2 Which office suite was used? | n/a | | | | |
| | E | 4.1.3 Did a PDF reader install correctly? Check evince, gpdf, xpdf Adobe Acrobat etc. | 0 3 | | | | |
| | Q | 4.1.4 Which application was used to open PDF? | n/a | | | | |
| | E | 4.1.6 Do office applications provide full support for dictionaries in the selected language? | 0 3 | | | | |
| | E | 4.1.7 Do the standard fonts support a full range of special characters and symbols required in the public sector? | 0 3 | | | | |
| | D | 4.1.8 Are VoIP applications installed by default? | 0 3 | 3 | 0 | 0 | |
| | D | 4.1.9 Was other software such as games installed automatically? | 0 3 | | Not Tested | | |
| 4.2 File Manager Integration | E | 4.2.1 Check the following (open from file manager, must be able to open and edit) Ms-Word (.doc) | 0 3 | 3 | 0 | | 0 |
| | E | 4.2.2 Ms-Excel (.xls) | 0 3 | 3 | 0 | | 0 |
| | D | 4.2.3 Ms-Powerpoint | 0 3 | 3 | 0 | | 0 |
| | E | 4.2.4 HTML | 0 3 | 3 | 3 | | 3 |
| | D | 4.2.5 EXE (wine) | 0 3 | 3 | 3 | | 3 |
| | E | 4.2.6 JPEG | 0 3 | 3 | 3 | | 3 |
| | E | 4.2.7 GIF | 0 3 | 3 | 3 | | 3 |
| | E | 4.2.8 TXT | 0 3 | 3 | 3 | | 3 |
| | E | 4.2.9 BMP | 0 3 | 3 | 3 | | 3 |
| | D | 4.2.10 MPEG | 0 3 | 3 | 3 | | 3 |
| | D | 4.2.11 MP3 | 0 3 | 3 | 0 | Missing Audio Device | 0 |
| | D | 4.2.12 OGG | 0 3 | 3 | 0 | | 0 |
| | E | 4.2.13 WAV | 0 3 | 3 | 0 | Missing Audio Device | 0 |
| 4.3 Browser Integration | E | 4.3.1 Does the default browser provide the flash plug-in by default? | 0 3 | 3 | 0 | Could not test as no ethernet support | 0 |
| | E | 4.3.2 Does the default browser provide a PDF plug-in by default? | 0 3 | 3 | 0 | | 0 |
| | E | 4.3.3 Does the default browser provide the RealPlayer plug-in by default? | 0 3 | 3 | 0 | Could not test as no ethernet support | 0 |
| | D | 4.3.4 Are missing browser plug-ins installed automatically? | 0 3 | 3 | 0 | Could not test as no ethernet support | 0 |
| 4.4 Errors | Q | 4.4.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ | 0 | -2 | Missing Drivers | -2 |
| TOTALS | Maximum for section | | | 54 | 19 | | 19 |
| | As % Of Maximum Possible | | | | 35.19% | | 35.19% |
| | Weighting for section | | 16.67 | | 5.86 | | 5.86 |

5 SYSTEM ADMINISTRATION

| | | | | | | | | |
|------------------|---------------------------------|--|----------------------------|-----------|----------------|---------------------------------------|---------------|---------------------------------------|
| 5.1 System Tools | D | 5.1.1 Is there a GUI tool to administer user / group accounts? | 0 3 | 3 | 3 | | 3 | |
| | D | 5.1.2 Is there a GUI tool to manage disk partitioning? | 0 3 | 3 | 3 | | 3 | |
| | D | 5.1.3 Is there a GUI tool to handle boot-up behaviour? (run-levels) | 0 3 | | Not Applicable | | | |
| | D | 5.1.4 Is there a GUI tool to monitor system performance? (CPU / disk / memory usage) | 0 3 | 3 | 3 | | 3 | |
| | E | 5.1.5 Is there a tool to add / update software on the system? | 0 3 | 3 | 3 | | 3 | |
| | E | 5.1.6 How easy is it to use the software update tool? | 0 1 2 3 | 3 | 0 | Could not test as no ethernet support | 0 | Could not test as no ethernet support |
| | E | 5.1.7 Is there an automatic update tool for software? | 0 3 | 3 | 3 | | 3 | |
| | D | 5.1.8 Does the upgrade mechanism support installing of software in formats other than the default? i.e. can you install RPM's on a DEB distro? | 0 3 | | Not Applicable | | | |
| 5.2 Errors | Q | 5.2.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0 \ x =$ | 0 | 0 | | 0 | |
| TOTALS | Maximum for section | | | 18 | 15 | | 15 | |
| | As % Of Maximum Possible | | | | 83.33% | | 83.33% | |
| | Weighting for section | | 16.67 | | 13.89 | | 13.89 | |

6 NETWORKING

| | | | | | | | |
|-----------------------------|---------------------------------|--|----------------------|--------------|----------------|-----------------------------------|---------------|
| 6.1 Windows Networking | D | 6.1.1 Are you able to mount a remote SMB share from the CLI, using the mount command? | 0 | 3 | Not Applicable | | |
| | E | 6.1.2 Can you browse Windows network shares? | 0 | 3 | | | |
| | D | 6.1.3 Can you use Windows networked printers without configuration? | 0 | 3 | | | |
| | D | 6.1.4 IF NO TO ABOVE, can this be configured? | 0 | 3 | | | |
| | D | 6.1.5 Were you able to successfully share a folder out which could be accessed by Windows clients? | 0 | 3 | | | |
| 6.2 Unix / Linux Networking | E | 6.2.2 Were you able to mount a remote SAMBA share from a Unix / Linux machine? | 0 | 3 | Not Tested | | |
| | D | 6.2.4 Were you able to create a SAMBA share and access it from a remote Unix / Linux machine? | 0 | 3 | | | |
| 6.3 Novell Networking | D | 6.3.1 Were you able to browse Novell network resources? | 0 | 3 | | | |
| 6.4 LDAP | D | 6.4.1 Do groupware applications support LDAP lookups? | 0 | 3 | 3 | Documented in Help but not tested | 3 |
| 6.5 Errors | Q | 6.5.1 Were there any errors and / or warnings during any of the tests in this section? | $-\infty < x \leq 0$ | 0 | 0 | | 0 |
| TOTALS | Maximum for section | | | 12 | 3 | | 3 |
| | As % Of Maximum Possible | | | | 25.00% | | 25.00% |
| | Weighting for section | | | 16.67 | | 4.17 | |

| | | | | | |
|-----------------------|--|--|------------------|--|------------------|
| | | | D/T Final | | L/T Final |
| Distribution | | | Win XP | | Win XP |
| RAW TOTAL | | | 110 | | 113 |
| WEIGHTED TOTAL | | | 48.93 | | 49.50 |
| WEIGHTED RANK | | | 2 | | 1 |

| | | | | |
|-----------------------|--|--|-------------------|--|
| | | | Comb Final | |
| Distribution | | | Win XP | |
| RAW TOTAL | | | 223 | |
| WEIGHTED TOTAL | | | 49.22 | |