Open-Xchange™ Whitepaper

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Open-Xchange Appliance Edition

Open-Xchange Server Edition
for Univention Corporate Server

v1.3

Topics

1.   Introduction

Open-Xchange newest generation of software, known from the Open-Xchange Server 6 code stream, is a messaging and collaboration software, built on a highly modular architecture. Open-Xchange is thus very flexible to be used in many different scenarios. The most famous is certainly the use of Open-Xchange software by Internet companies such as 1&1 Internet (Germany, USA, UK), Network Solutions (USA), or also Hostpoint AG (Switzerland). Based on their demands for scalability, performance and integration into their infrastructure, Open-Xchange meets these requirements like no other product.

This base technology also allows Open-Xchange to integrate with other infrastructure components, and consequently to develop and optimize new solutions for alternative usage scenarios. Products and solutions for companies that do not want to share their "system" with other users - as it is usual in a shared hosting environment - are thus derived.

Accordingly, Open-Xchange offers to small and medium-sized companies, educational institutions and public administrations solutions for the installation on a dedicated system, although this can also be virtualized. The customers may prefer to use this solution inside their company or through a service provider (often called the "hosting company").

This is in the foreground of the Open-Xchange philosophy: the different user groups are each offered the best Open-Xchange based solution for their usage scenario.

At first glance, the core requirements of Open-Xchange are often contradictory: The solution is very easy to test and to install, can be virtualized, can be managed without specific knowledge of Linux, but is still very flexible to integrate with existing IT services. We have met this challenge together with our Univention partner.

Univention GmbH, based in Bremen, is one of Germany's leading knowledgeable experts in the domain of Linux implementation, Windows-Linux migration and Windows-Linux integration. Univention has collected, in numerous projects for companies and federal and state authorities, extensive knowledge about the requirements of organizations in the best Linux solutions.

Through the combined expertise of Open-Xchange in the groupware market, as well as Univention's in the area of easy-to-manage Linux-based solutions (Univention Corporate Server), it was possible to develop **Open-Xchange Appliance Edition (OX AE)**.

Open-Xchange Appliance Edition is available as an installable ISO image, as well as a virtual, dedicated server. OX AE supports virtualization technologies such as

VMware and XEN. This gives users the freedom to run OX AE on a dedicated hardware or virtualized in their own businesses.

SaaS providers can provide OX AE as a fully functioning overall solution. This is particularly important, since more and more midsize companies decide to no longer run standard software in their own companies, but to purchase this service from professional Software-as-a-Service providers.

With OX AE, small and medium-sized customers are provided with a cost-effective and ready solution that offers an email, groupware and document server, as well as an operating system with a graphical, web-based management system for centralized user and group management. OXAE includes the Univention Corporate Server (UCS) operating system and the Open-Xchange groupware server, as well as important tools for management and maintenance of user accounts and of the solution itself. OX AE is especially suitable for customers who want a groupware solution that can be installed without additional components and is ready to be used immediately. As an integrated solution, it combines the benefits of Open-Xchange such as high scalability, easy integration capabilities with existing systems or an easy-to-use graphical user interface to common administration and processing of documents, appointments, tasks and emails, with the benefits of a standardized Linux enterprise solution with an integrated management system.

In addition, **Open-Xchange Server Edition for Univention Corporate Server (OX SE for UCS)** will be available for a UCS optimized and certified groupware solution. This groupware version is suitable for organizations that already use, or want to use, UCS as an operating system platform in their overall IT environment, and need in addition a suitable groupware solution from Open-Xchange.

1.1. The Univention Corporate Server (UCS) Operating System Platform

UCS is a standardized and easy-to-use Linux global solution, which contains, in addition to the actual operating system, an extensive LDAP-based management system. With this identity and infrastructure management system UCS delivers also, alongside all the classic server services, all the important functions for the operation of small to large and sophisticated IT infrastructures. The management system enables the central management of users, groups and permissions as well as the administration of servers, PCs, file, print and authentication services, including system and software monitoring as well as remote software deployment. Thanks to the intuitive Web interface management system, the administration is simple and cross-platform, and can also be done from any client.

UCS fully supports server and client-side use of non-Linux operating systems and all important standard interfaces. That's why it fits perfectly into existing systems and can be extended by a large number of certified applications (groupware, backup, fax, network monitoring, virtualization, etc.) from different vendors.

1.1.1. UCS Conceptual Structure

UCS consists of three core components: a Linux distribution as a base, a directory service-based management system and a variety of components that offer many built-in features.

The UCS-based system is one of Univention's quality tested compilation package of the field-proven Debian GNU / Linux distribution. The graphical web-based UCS management system is added on this base system. The management system includes all important functions for the central administration and maintenance of IT environments: an **Identity management system** for the secured administration of users, identities and their permissions, as well as an

Network Monitoring

Linux Desktop

Open-Xchange

Terminal Services

Services for Windows

Thin-Client-Infrastruktur

Printservice

UCS-Managementsystem

UCS-Basissystem

Univention Corporate Server (UCS)
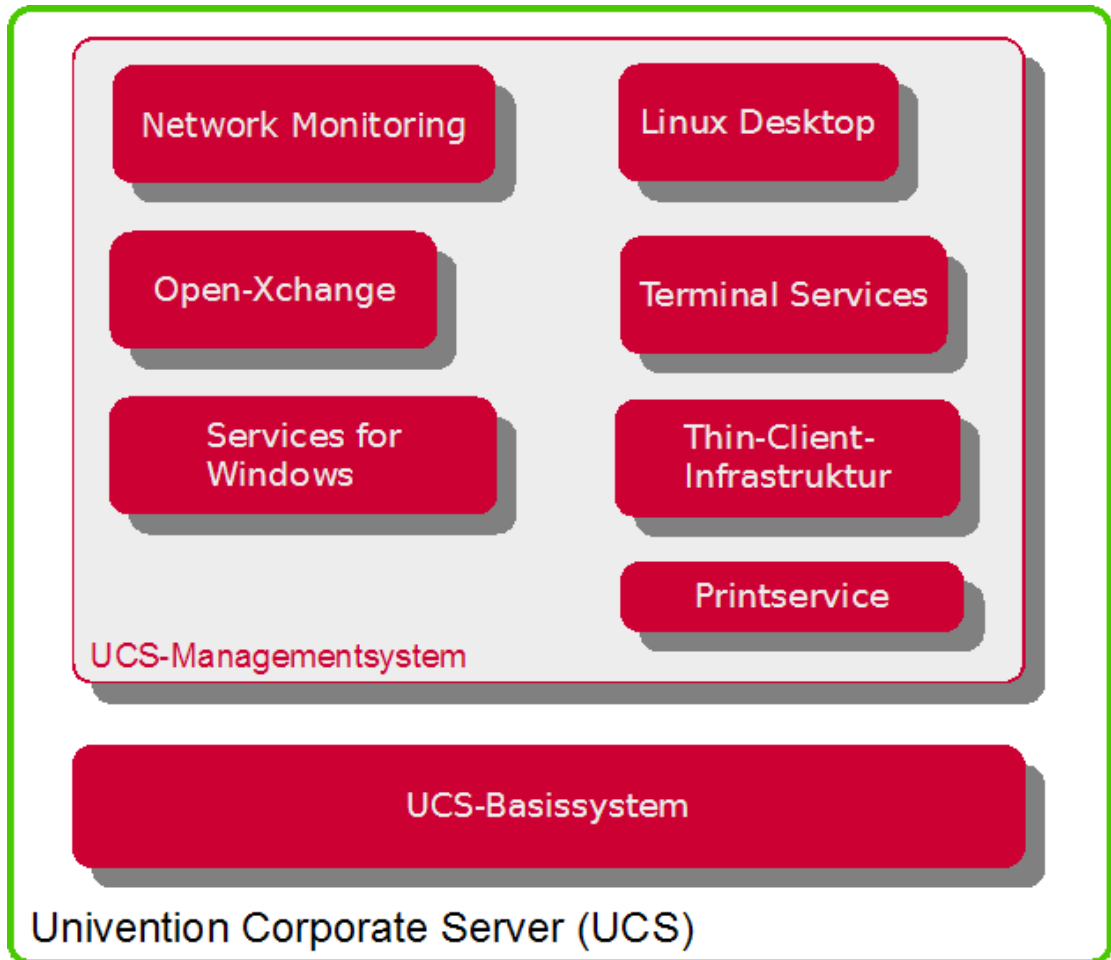
Infrastructure management system for the central administration of the servers, PCs and services of an IT environment. UCS is supplemented by other components, for example for network monitoring, printing and fax services, terminal services, thin-client infrastructure components or components that offer file, print and authentication services as well as installation management for Microsoft Windows-based computers.

The UCS management system implements, on the basis of the OpenLDAP directory service, a valid trust context for all users and systems, the UCS domain. This allows a safe management system of secure authentication and permissions for users, computers and other objects in the UCS-domain. The UCS management system offers, through the graphical web interface of the Univention Directory Manager, the interface to the central administration of UCS domains and of the users, servers, clients or services they contain. By storing all settings in the OpenLDAP directory service and with subsequent processing with

the notifier/listener mechanism, data from services and applications are available to all systems. In addition to the possibility of web-based administration, all functions can also be called from scripts.
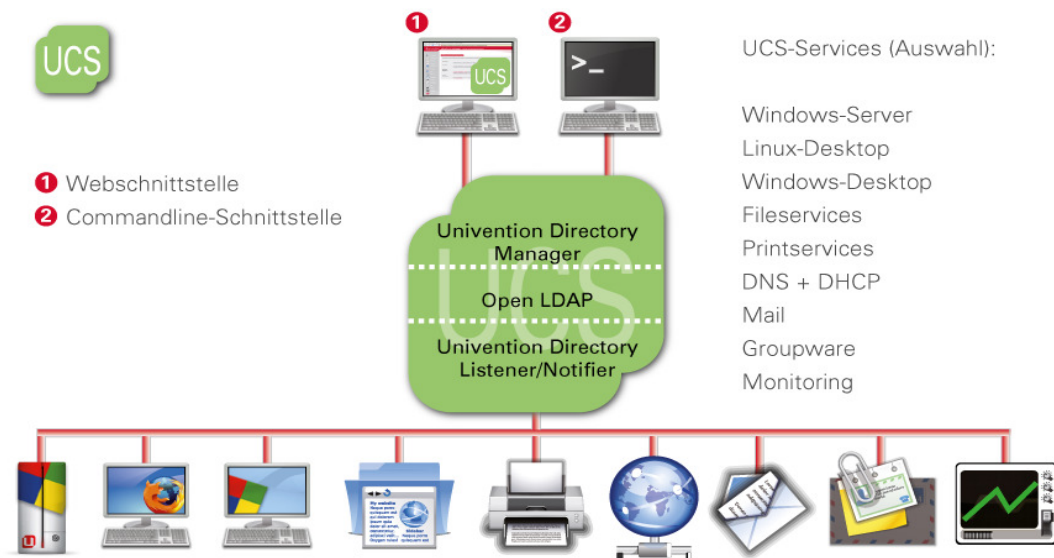
Univention Corporate Server: zentrales Managementsystem und Beispielkomponenten.

1.1.2. UCS Technical Core Components

- **Debian GNU / Linux-based UCS base system**
  The core of UCS is based on Debian GNU / Linux and Univention quality tested Linux distribution with broad hardware support.

- **Centralized Management System**
  The central management system, where all elements of the IT environment in a single trusted context, the UCS domain, are organized, is the "Single Point of Administration" with web and scripting interface for identity and infrastructure management:

  - **Centralized Identity Management** for the system and location-independent management of users, their permissions and groups, including application services (for instance Kerberos, Mac OS X, Linux / Unix, services) and services for Windows as well as the Active Directory Connector

- **Centralized Infrastructure Management** for the management of servers, PCs and services, including system and software monitoring as well as remote software deployment.

- **UCS Components (Selection):**

  - **IP Management and Network monitoring**
    "Out of the Box" usable and manageable services from UCS servers like DNS, DHCP, software deployment and monitoring, as well as system and service monitoring

  - **System Management**
    Administration and maintenance of UCS server systems, desktops and Windows / Linux client systems.

  - **Email and Groupware**
    Operation and management of integrated email and groupware services on the basis of standard email services (Cyrus, Postfix, and IMAP).

  - **Terminal Services**
    Consolidation on Linux and Windows terminal servers with UCS thin client infrastructure.

  - **Desktop Management**
    Management of Linux and Windows desktop environments.

The complete Univention Corporate Server distribution is available as open-source software. For further information, refer to http://www.univention.de/oss.html

1.1.3. Configuration of Samba

The Samba service can be selected during installation. After having made a choice a pre-configured Standard Windows PDC is available. With this service new Windows systems can easily be integrated in the Samba Domain to enable users to log in the the Windows system. the users have to be set up in the Univention Directory Manager. Shares can also be set up via the Univention Directory Manager. The shares will automatically written into the Samba configuration from the PDC. The Samba function can be administrated on the command line or within the UCR UMC module.

With OX SE for UCS you can install further UCS systems with Samba in a UCS domain. The systems are automatically integrated in the existing domain.

1.2. Open-Xchange Groupware Solution

Open-Xchange Server Edition (OXSE) provides the basis for efficient teamwork. It combines email, appointment, contact and task management with intelligent document management. OX SE reduces significantly the number of unnecessary emails and the quantity of locally stored data and documents - and thus ensures fast and smooth business operations.

OXSE is based on the proven code base of Open-Xchange Hosting Edition, which is used by more than 8 million users worldwide. OX SE is a modular design based on open standards and is ideal for integration into existing IT infrastructures, for instance continuing to use proven email and management services.

1.2.1. Open-Xchange Technical Core Components

Open-Xchange is software written purely in Java. The 3-layer design, front-end, application and back-end, is in the application and front-end layers modularized and can be adapted and integrated easily into existing environments.

- **MySQL Back-end**

    - For the storage of groupware data, the open-source MySQL database is used. Open-Xchange manages its own databases and supports MySQL replication cluster for a high scalability of the application.

- **Groupware Service**

    - The Java application server provides access to the groupware data on its HTTP interface (JSON, Webdav, Webdav.xml). The OSGI modular architecture offers a high degree of integration ability. The groupware service is equipped with various caches on an object basis and on pools to ensure efficient use of existing hardware resources as well as vertical and horizontal scalability.

- **Administration Service**

    - The Java Administration Service is in charge of provisioning. Through its RMI, SOAP and Command Line Tools (CLT) interface, it can manage clients, users, groups and resources. Again, this service is modular and extensible.

- **AJAX-based User Interface**

    - Open-Xchange offers a modern AJAX-based application, with which the end user processes and displays groupware data. A framework

offers the possibility of integrating external web applications through plug-ins. By "Theming", the appearance of the user interface can be adjusted to one's own wishes (branding).

2. Open-Xchange Appliance Edition (OXAE)

OX AE is developed with the aim that customers can use the complete groupware solution immediately after installation. It consists of the best groupware system of Open-Xchange and the enterprise UCS Linux operating system with its central, easy-to-use management system for the administration.

The already included operating system can be easily managed with menus, or even automated by installing answer files. From the graphical web-based management of UCS the administrator manages centrally and in a standard way all groupware functions, as well as users, their permissions and groups.

OX AE thus combines all the requirements of professional users in a complete groupware solution, including its management. OX AE is suitable for customers who only search a groupware solution.

2.1. Open-Xchange Appliance Edition Features

- OXAE consists of the UCS operating system platform, Open-Xchange groupware server, and an easy-to-manage administration system.

- With OXAE, an almost unlimited number of users can be managed on a server. The solution is a single-server solution.

- OXAE is preconfigured and is available immediately after the installation.

- OXAE is easy to install, and the installation can even be automated.

- OXAE offers, with the identity management of UCS, a central management of the groupware server.

- Through the use of standardized interfaces, OXAE integrates ideally into existing IT infrastructures.

- OXAE includes the UCS Active Directory Connector for smooth communication between the different worlds.

- OXAE also includes a backup and recovery solution, as well as viruses and spam protection.

2.2. Integration

OXAE supports on the server and client side the use of non-Linux operating systems and applications. Thanks to the included connectors, such as Microsoft

Active Directory, OXAE integrates perfectly into existing IT infrastructures, and can be integrated seamlessly with Microsoft's Active Directory.

Through this UCS Active Directory Connector (AD Connector) both directory services, OpenLDAP and Active Directory, can easily be used in parallel, making possible an easy integration of Active Directory-based services and applications in Linux environments. The AD connector allows an easy transfer of users, groups and other objects from Active Directory. It synchronizes these objects from the UCS LDAP-based directory service with Active Directory and vice versa.

User data need thus only be created and maintained from a single place. The technology also includes bidirectional password synchronization.

2.3. Scalability

Thanks to the scaling concepts of the Open-Xchange groupware server, it can manage, depending on the infrastructure and the deployment scenario, a very large number of users from a groupware server.

OX AE is designed to be used as a single-server solution and is thus suitable for up to 1,500 users. To increase the number of users, it is recommended to use a customized environment, e.g., on the basis of "OX SE for UCS".

2.4. Working Easily with an Intuitive User Interface

AJAX-based user interface, which you can use from anywhere and with almost any web browser. Clear, contextual graphics and commands provide clarity and speed your work drastically. In addition, a simple operation using familiar features such as "drag and drop" and "right-mouse-button menus" is possible.

2.5. More Security and Filtering Capabilities for Email

OX AE detects automatically dangerous phishing emails and allows blocking images in HTML emails. In addition, users can now define more easily server filtering rules for their daily work.

2.6. Integrated Document Management

Open-Xchange InfoStore provides a central repository for documents, bookmarks and knowledge entries. It combines the advantages of document management, such as version control and permissions, with the speed of email. With the WebDAV interface, the InfoStore can be conveniently integrated in the local file manager.

2.7. Comprehensive Browser Support

The AJAX-based User Interface supports the following browsers:
- Internet Explorer 7
- Firefox (2.++)
- SeaMonkey (1.++)
- Safari 3.1+

2.8. Universal Widget API (UWA) Support

This allows including applications such as salesforce.com and SAP Business One as well as different Internet sources (news feeds, podcasts, video channels) into the Open-Xchange start page.

2.9. Plug-in Concept for the User Interface

Enables the integration of solutions for SMS, fax and IM directly into the interface. A click on the appropriate icon or text box and the corresponding application starts.

2.10. Integration of Microsoft Outlook ®

With the OXtender for Microsoft Outlook® synchronize appointments, addresses, tasks and folders. Outlook® may remain on board, even though MS Exchange® will be replaced.

3. Open-Xchange Server Edition for Univention Corporate Server

OX SE for UCS is an optimized and certified Open-Xchange variant, which is integrated in the UCS management system. OX SE for UCS is ideal for customers who want to use UCS for centralized management of their entire IT infrastructure or have already deployed it. For customers who want to use Open-Xchange in a multi-server environment, it is recommended to use OX SE for UCS.

3.1. Usable UCS Features with OX SE for UCS

The full version of UCS supports the following functions in addition to the OX AE variant:

- Along with the comprehensive identity management infrastructure, UCS includes the complete management system for the centralized management of servers, PCs and services, including system and software monitoring as well as remote software deployment.

- UCS provides advanced infrastructure components such as IP management administration (DNS, DHCP), domain management and network installation.

- UCS is designed for the operation of multi-server environments.

- UCS is integrated with Nagios to monitor the services and hardware resources.

- UCS also contains components for monitoring software, components for printing services and a system-independent connection for terminal and thin client's access.

- OX SE for UCS offers all the groupware features of Open-Xchange for contact, appointment, task and document management as well as a simple and intuitive interface for users.

4. Product Comparison

4.1. Web client

Function	OX AE	OX SE for UCS
AJAX-based web client	Yes	Yes
Drag & Drop (e.g., Calendar: creating, lengthening and shortening appointments)	Yes	Yes
Context menus	Yes	Yes
Contextual user interface (Panel)	Yes	Yes
Portal	Yes	Yes
Email	Yes	Yes
Calendar	Yes	Yes
Contacts	Yes	Yes
Tasks	Yes	Yes
InfoStore (document storage, central knowledge base and bookmarks)	Yes	Yes
Custom teams	Yes	Yes
Map view of contacts	Yes	Yes
Objects linking	Yes	Yes
Internationalization: German	Yes	Yes
Internationalization: French	Yes	Yes
Internationalization: English	Yes	Yes

4.2. Back-end & Administration

Function	OX AE	OX SE for UCS
Graphical administration	Yes	Yes
Modularization	Yes	Yes
UDM Command Line Interface	Yes	Yes
Graphical installation	DVD installation	Yes
Univention Corporate Server 2.1 server operating system	Yes	Yes
Anti-virus	Yes	Yes
Anti-spam	Yes	Yes
LDAP support	Yes	Yes
IMAP server	Yes	Yes
Samba	limited	Yes
IMAP back-end support	Yes	Yes
IMAP and POP3 server	Yes	Yes
ADS integration	No	Yes

4.3. Univention Directory Manager (UDM)

Function	OX AE	OX SE for UCS
UDM – Navigation	Yes	Yes
UDM – Custom user view	Yes	Yes
UDM – User management	Yes	Yes
Tab – General	Yes	Yes
Tab – User account	Yes	Yes
Tab – Email	Yes	Yes
Tab – Contacts	Yes	Yes
Tab – Organization	Yes	Yes
Tab – Private contacts	Yes	Yes
Tab – Linux/UNIX	Yes	Yes
Tab – Windows	Yes	Yes

Tab – Groups	Yes	Yes
Tab – Windows extensions	No	Yes
Tab – Password policy	Yes	Yes
Tab – Email quota	Yes	Yes
Tab – Desktop preferences	No	Yes
Tab – UMC access	No	Yes
Tab – Options	Yes	Yes
UDM – Group management	Yes	Yes
Tab – General	Yes	Yes
Tab – Members	Yes	Yes
Tab – Included computers	No	Yes
Tab – Included groups	Yes	Yes
Tab – Member of	Yes	Yes
Tab – [UMC access]	No	Yes
UDM – Network	No	Yes
UDM – Computers	No	Yes
UDM – DNS	No	Yes
UDM – DHCP	No	Yes
UDM – Shares	Yes	Yes
UDM – Printers	No	Yes
UDM – Policies	No	Yes
UDM – Nagios	No	Yes
UDM – Logout	Yes	Yes

4.4. Univention Management Console (UMC)

Function	OX AE	OX SE for UCS
UMC - Usage statistics	Yes	Yes
UMC – Kernel module	Yes	Yes
UMC – Joined domains	No	Yes
UMC – Univention configuration registry	Yes	Yes
UMC – Online Updates	Yes	Yes
UMC – Software monitor	No	Yes
UMC – Process overview	Yes	Yes
UMC – File system quota	No	Yes
UMC – Restarting	Yes	Yes
UMC – Software management	Yes	Yes
UMC – System services	Yes	Yes
UMC – VNC	No	Yes
UMC – Printer administration	No	Yes
UMC – Wizard – Base	Yes	Yes
UMC – Wizard – Nagios	No	Yes
UMC – Wizard – Email	No	No

4.5. Installation package

Function	OX AE	OX SE for UCS
Services for Windows - Samba	Yes	Yes
Services for Windows – Windows installer	No	Yes
Services for Windows – Samba PDC on non-DC Master	No	Yes
Services for Windows – Winbind	No	No
Email/Groupware – Standard mail services	No	Yes
IP management – DNS	No	Yes

IP management – DHCP	No	Yes
Services – Terminal server	No	Yes
Services – Thin client environment	No	Yes
Services – Print server	No	Yes
Services – Quota	No	Yes
Services – Nagios server	No	Yes
Services – Nagios client	No	Yes
Services – Univention AD Connector	Yes	Yes
Services – Fax server	No	Yes
Services – Squid proxy server	No	Yes
Services – OpenSSH server	Yes	Yes
Services – FreeNX server	No	Yes
Services – VNC server	No	Yes
Services – Xen hypervisor	No	Yes
Services – Xen kernel images	Yes	Yes
Services – UCS net installer	No	Yes
Administration – Univention directory manager	Yes	Yes
Administration - Univention management console	Yes	Yes
Administration – Univention software monitor	No	Yes
Backup	Yes	Yes
Desktop environment – Graphical User Interface	Yes	Yes
Desktop environment – KDE desktop	Yes	Yes
Desktop environment – OpenOffice.org	No	Yes
Desktop environment – Mozilla Firefox	Yes	Yes
Java Plugin/Runtime	Yes	Yes
Flash Plugin	Yes	Yes
Mplayer Plugin	No	Yes

Desktop environment – Gimp	No	Yes
Desktop environment – Acrobat Reader	Yes	Yes
Desktop environment – Additional KDE applications	No	Yes
Desktop environment – Desktop search (kerry/beagle)	No	Yes
Desktop environment – Multimedia applications	No	Yes
Desktop environment – Fax client	No	Yes
Desktop environment – evolution	No	Yes
Desktop environment – VNC viewer	No	Yes
Desktop environment – Microsoft fonts	No	Yes
Tools – OpenSSH client	Yes	Yes
Tools – DHCP client	No	Yes
Tools – vim	Yes	Yes
Tools – emacs	Yes	Yes
Tools – less	Yes	Yes
Tools – elinks	Yes	Yes
Tools – wget	Yes	Yes
Tools – nmap	Yes	Yes
Tools – zip/unzip	Yes	Yes
Tools – eject	Yes	Yes
Tools – Java	Yes	No