

# Network Operating System Recommendations

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Prepared by Conglomerated Incorporated for LIS-4482  
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Mr. Christopher Abney  
Mr. Dadrian Campbell  
Mr. Michael Lucas  
Mr. Corey Swanson  
Mr. Albert Wyatt



## Introduction

The choice of which Network Operating System (NOS) to implement is a defining step in developing an IT Environment. The choice will determine what kind of servers and software will be used, what training and skills support staff will need to have and how much money should be set aside for the IT support budget.

We have reviewed five NOS vendors and have condensed their offerings into three recommendations for which NOS should be implemented in your IT Environment. In order, the three that we recommend are:

1. Redhat Enterprise Linux Advanced Platform
2. Novell SUSE Linux Enterprise Server with Open Enterprise Server
3. Microsoft Windows Server 2008 Enterprise Edition

## Redhat

Redhat Enterprise Linux Advanced Platform is our top choice because of the additional features that Redhat has added to the Linux platform. Besides the legendary stability of Redhat Linux, features such as advanced cluster disk management, kernel supported virtualization technology and on call 24/7 support make Redhat a great choice. Redhat does not rely on expensive custom hardware, and is capable of scaling from small business servers all the way to enterprise class servers.

## Novell

Novell SUSE Linux Enterprise Server with Open Enterprise Server (SLES) is a very good choice for a NOS. It is low cost, beginning at \$799 for a single year support license, it is scalable from low end hardware to very large machines, and supports virtualization. SLES is also very easy to manage on the network, having many graphical tools to configure the network and the clients upon it. It also allows for compatibility with existing NetWare networks and clients.

## Microsoft

Microsoft Windows Server 2008 Enterprise Edition offers advantages primarily in Windows based networks. Two of the killer applications are in Active Directory, allowing for group policy and administration and in Microsoft Exchange Server for email and contact management. Windows Server has support for Linux and Mac clients as well, but the support is limited. The cost of Windows server is high, and has a limited number of clients per license. Additional licenses may be purchased for future expandability.

## NOS Comparison Matrix

Feature	RedHat	Novell	Microsoft
Number of Supported Clients	Unlimited to the limitations of hardware	Unlimited to the limitations of hardware	32 Base
Number of Supported Processors (x86)	32	32	256
Minimum Hardware Specifications	1.5GHZ P4 or Higher, 768MB RAM, 10 GB free disk space	1.5GHZ P4 or Higher, 768MB RAM, 10 GB free disk space	1.4 GHz, 512MB RAM, 10GB Disk Space
Suggested Hardware Specifications	Server Class Multicore processor and 2GB RAM	Server Class Multicore processor and 2GB RAM	2GHZ Multicore x64 processor 32GB RAM
SMTP Support	Included	Included	Included, but must be configured
HTTP Support	Included	Included	Included through IIS
DNS Support	Included	Included	Included
File and print Support	Included	Included	Included
Remote Administration	Included	Included	Included
Windows Client Support	Included	Included	Included
Linux Client Support	Included	Included	Included
Macintosh Client Support	Included	Included	Included
Backup Capabilities	Included	Included	Included
Security Features	Kerberos and Open Directory	Kerberos and Open Directory	Kerberos and Active Directory
Licensing Cost	Starts at \$1499 per year	Starts at \$799 per year	\$3,999, includes 25 CALs
Support Services	12x5 phone support, web support, unlimited incidents	12x5 phone support, Unlimited technical support, First Look Training, 4 hour incident response time.	By Contract, though there is a very large available knowledge base available and 3 <sup>rd</sup> party support vendors.

# Appendix

## Sun Microsystems Solaris

### · **Number of Clients Supported**

o I was unable to find a maximum number of clients supported by Solaris.

### · **Number of Processors Supported**

o Choosing Solaris 10 allows customers to deploy and manage a single operating system across an enterprise—on the desktop leveraging the Sun Java Desktop System and SunRay clients, up through one-processor to eight-processor x86/x64-based systems, and on up to large SPARC systems with 100 processors or more. Solaris 10 scales application loads up and down as needed.

o Source

§ [http://www.sun.com/software/solaris/platform\\_choice.jsp](http://www.sun.com/software/solaris/platform_choice.jsp)

### · **Minimum and Suggested Hardware Specifications**

o Disk space

§ 2 GB minimum for the smallest set of packages

§ 6 GB for the most popular Solaris packages

o Memory

§ 512 MB minimum (1 GB recommended)

o Platforms

§ Sun UltraSPARC-based systems,

§ Fujitsu SPARC64 platform-based systems,

§ 32 and 64 bit systems based on AMD, Intel and VIA x86 CPUs.

o Source

§ <http://www.sun.com/software/solaris/specs.jsp>

o Hardware Compatibility List

§ <http://www.sun.com/bigadmin/hcl/>

§ <http://www.fujitsu.com/global/services/computing/server/unix/os/cert/>

### · **Support for SMTP, HTTP, DNS, File & Print and Remote Administration**

o Includes Perl, PHP, Python and other widely used scripting languages

o Includes Apache, Samba, sendmail, IP Filter, BIND, and other popular open source software

o Source

§ <http://www.sun.com/software/solaris/interoperability.jsp>

### · **Support for Windows, Linux, Unix & Mac clients**

o Provides source and binary compatibility for Linux applications

o Interoperability with Microsoft Windows services

o To my understanding, Mac clients could also access Solaris through virtualization.

o Source

§ <http://www.sun.com/software/solaris/interoperability.jsp>

§ <http://www.sun.com/software/solaris/virtualization.jsp>

### · **Back up capabilities**

- o You can perform backups in individual non-global zones, or you can back up non-global zones from the global zone.

- o Source

§ [http://www.sun.com/bigadmin/features/articles/backup\\_zones.jsp](http://www.sun.com/bigadmin/features/articles/backup_zones.jsp)

- **Security Features**

- o Enable the strong mandatory access controls required by governments and financial institutions using Solaris Trusted Extensions

- o Verify the integrity of your system using Solaris Secure Execution and file verification features

- o Reduce risk by granting only the privileges needed with User and Process Rights Management

- o Simplify administration by using the open standards-based Solaris Cryptographic and Key Management Frameworks for file and network encryption

- o Protect your system against attack using the Secure By Default networking profile, IP Filter firewall, TCP Wrappers and IPsec/IKE encryption.

- o Source

§ <http://www.sun.com/software/solaris/security.jsp>

- **Licensing**

- o Please note that because the license granted by Sun is non-transferable, end users may not give the Solaris software to any third party.

- o Full License Policies

§ <http://www.sun.com/software/solaris/licensing/policies.xml>

- **Support & Service**

- o Get Solaris 10 software support, independent of your hardware, with a Solaris Subscription

- o Get expert technical help for programming and application development questions with Sun Developer Expert Assistance

- o Get integrated support for Sun software and hardware with a SunSpectrum Service Plan

- o Leverage Sun Services expertise to help migrate to the Solaris 10 OS

- o Maximize the extensive benefits of Solaris 10 through Sun training and certification

- o Source

§ [http://www.sun.com/software/solaris/support\\_services.jsp](http://www.sun.com/software/solaris/support_services.jsp)

Mac OSX Server

Latest stable release: 10.6.1

UNIX foundation, Mac OS X architecture (closed source however Darwin foundation is open source)

x86, x86-64 platforms

Commonly found in small business, education, and large enterprise organizations

Based on open source Darwin, uses open industry standards and protocols

## **Server Admin Tools**

Mac OS X Server comes with a variety of configuration tools that can be installed on non-server Macs as well:

- [Server Admin](#)
- Server Preferences (application)
- [Server Assistant](#)
- [Server Monitor](#)
- [System Image Utility](#)
- [Workgroup Manager](#)
- [Xgrid Admin](#)

### System Requirements

	Requirements
<b>Processor</b>	Intel processor
<b>Memory</b>	2GB of physical RAM
<b>Hard Drive</b>	10GB of available disk space

### Technical Specifications

## File and Print Services

- Mac ([AFP](#), AppleTalk PAP, [IPP](#))
- [Windows](#) ([SMB/CIFS](#), IPP)
- [Unix-like](#) systems ([NFS](#), [LPR/LPD](#), IPP)
- Internet ([FTP](#), [WebDAV](#))

## Directory Services and Authentication

- [Open Directory](#) ([OpenLDAP](#), [Kerberos](#), [SASL](#))
- NT Domain Services ([Samba](#) 3)
- [Backup Domain Controller](#) (BDC)
- [LDAP](#) directory connector
- [Active Directory](#) connector
- BSD configuration files (/etc)
- [RADIUS](#)

## Mail Services

- [SMTP](#) ([Postfix](#))
- [POP](#) and [IMAP](#) ([Cyrus](#))
- [SSL/TLS](#) encryption ([OpenSSL](#))
- [Mailing lists](#) ([Mailman](#))
- [Webmail](#) ([SquirrelMail](#))
- [Junk mail](#) filtering ([SpamAssassin](#))
- [Virus](#) detection ([ClamAV](#))

## Calendaring

- [iCal Server](#) ([CalDAV](#), iTIP, iMIP)

## Web Hosting

- [Apache](#) web server (2.2 and 1.3)
- [SSL/TLS](#) ([OpenSSL](#))
- [WebDAV](#)
- [Perl](#) (5.8.8), [PHP](#) (5.2), [Ruby](#) (1.8.6), [Rails](#) (1.2.3)
- [MySQL](#) 5
- Capistrano, Mongrel

## Collaboration Services

- [Wiki Server](#) ([RSS](#))
- [iChat Server 2](#) ([XMPP](#))

## Application Servers

- [Apache Tomcat](#) (6)
- [Java](#) virtual machine ([J2SE](#))
- [WebObjects](#) Deployment (5.4)
- [Apache Axis](#) ([SOAP](#))

## Media Streaming

- [QuickTime Streaming Server](#) 6
- QuickTime Broadcaster 1.5

## Client Management

- Managed Preferences
- [NetBoot](#)
- [NetInstall](#)
- [Software Update](#) Server
- Portable home directories

## Networking and VPN

- [DNS](#) server ([BIND](#) 9)
- [DHCP](#) server
- [NAT](#) server
- [VPN](#) server ([L2TP/IPSec](#), [PPTP](#))
- [Firewall](#) ([IPFW2](#))
- [NTP](#)

## Distributed Computing

- [Xgrid 2](#)

## High-Availability Features

- Automatic recovery
- [File system journaling](#)
- IP [failover](#)
- Software [RAID](#)
- Disk space monitor

## File Systems

- [HFS+](#) ( journaled, [case sensitive and case insensitive](#))
- [FAT](#)
- Read-only [NTFS](#), [UFS](#) and [ZFS](#)

## Management Features

- Server Assistant
- Server Admin
- Server Preferences
- Server Status widget
- Workgroup Manager
- System Image Utility
- [Secure Shell](#) (SSH2)
- Server Monitor
- RAID Utility
- [SNMPv3](#) ([Net-SNMP](#))

Snow Leopard Server sells for a retail price of \$499 and includes unlimited client licenses.

## New Features:

- Full [64-bit](#) operating system. On appropriate systems with 4GB of RAM or more, Snow Leopard Server uses a 64-bit kernel to address up to a theoretical 16TB of RAM.[2]
- [iCal Server 2](#) with improved [CalDAV](#) support, a new web calendaring application, push notifications and the ability to send email invitations to non-iCal users.
- [Address Book Server](#) provides a central location for users to store and access personal contacts across multiple Macs and synchronized iPhones. Based on the [CardDAV](#) protocol standard.
- [Wiki Server 2](#), with server side [Quick Look](#) and the ability to view wiki content on iPhone.
- A new [Mail Server](#) engine that supports push email so users receive immediate access to new messages.
- [Podcast Producer 2](#) with dual-source video support. Also includes a new [Podcast Composer](#) application to automate the production process, making it simple to create podcasts with a customized, consistent look and feel. Podcast Composer creates a workflow to add titles, transitions and effects, save to a desired format and share to wikis, blogs, [iTunes](#), [iTunes U](#), [Final Cut Server](#) or [Podcast Library](#).
- [Mobile Access Server](#) enables iPhone and Mac users to access secured network services, including corporate websites, online business applications, email, calendars and contacts. Without requiring additional software, Mobile Access Server acts as a reverse proxy server and provides SSL encryption and authentication between the user's iPhone or Mac and a private network.

	10.5	10.5.1	10.5.2	10.5.3	10.5.4	10.5.5	10.5.6
<b>PHP</b>	5.2.4	5.2.?	5.2.?	5.2.?	5.2.5	?	5.2.6
<b>MySQL</b>	5.0.45	5.0.45	5.0.45	5.0.45	5.0.45	?	5.0.67
<b>Apache</b>	2.2.6	2.2.?	2.2.?	2.2.?	2.2.8	?	2.2.9

### Languages

Mac OS X Server is available in the following languages:

- [English](#)
- [Japanese](#)
- [French](#)
- [German](#)

### My own commentary:

OS X server seems to be advertised as being powerful yet simple, attracting small businesses and clients with the ability to easily share calendars, contacts, set up servers for podcasts/media, as well as project collaboration and remote access. Sharing, back-up, security, and web hosting for small studios, shops and home-based businesses seems to be the focus. Benefits: ease of use, \$499 for unlimited clients, can run on practically all hardware that can run OS X Server. Can run key services such as mail servers, system update servers, etc.

### Questions:

Clients supported: Unlimited

Processors supported: Any Intel Mac

Minimum and suggested hardware: Can run on any Intel Mac. Mac mini is the least powerful, Xserve is the best for OS X Server.

Support for:

SMTP - Yes

HTTP - Yes

DNS - Yes

File & Print - Yes

Remote Administration - Yes

Windows clients - Yes

Linux clients - Unknown

Unix clients - Yes

Mac clients - Yes

Back up compatibilities - Yes

Security features - SSH, SSL/TLS, CSDA, ACLs, Unix file permissions model (POSIX), SACLs, Firewall through FreeBSD

Licensing - \$499 for OS X Server with unlimited clients

Support Services - AppleCare: Select (Basic) \$5995.00, Preferred \$19995.00, Alliance \$49995.00

Select: 10 enterprise-level support incidents, 4 hour response

Preferred: unlimited incidents for 2 technical contracts, 2 hour response, technical account manager assigned to your organization

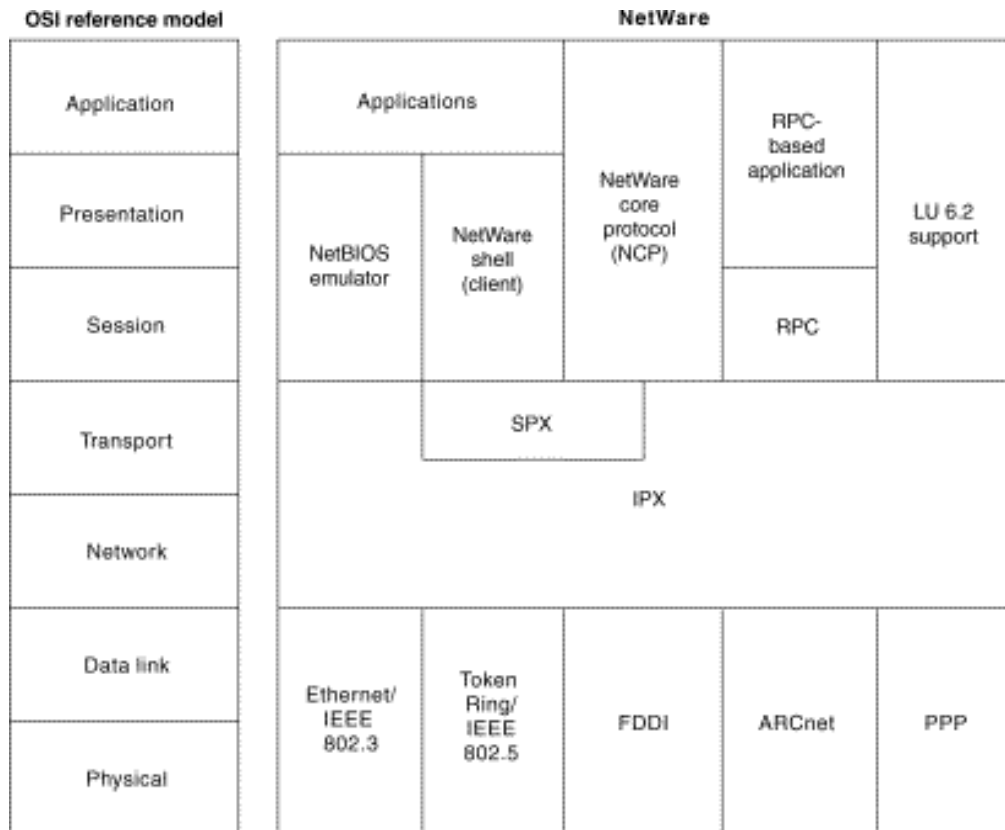
Alliance: unlimited incidents for 4 technical contracts, 1 hour response, onsite review by Apple engineer, technical account manager assigned to your organization

Novell

Novell Network Operating System

- Netware – name of the Novell NOS
  - provides transparent remote file access and numerous other distributed network services, including printer sharing and support for various applications such as electronic mail transfer and database access
  - Various application support
    - Electronic mail transfers
    - Database access
  - NetWare specifies the upper five layers of the OSI reference model
  - Runs on any media-access protocol (Layer 2)
    - Runs on virtually any kind of computer system, from PCs to mainframes
  - Supporting protocols often coexist on the same physical channel with many other popular protocols, including TCP/IP, DECnet, and AppleTalk
  - Client –Server architecture
    - Clients (workstations) request services, such as file and printer access, from servers
    - Supports remote access that is transparent to users through remote procedure calls
      - A remote procedure call begins when the local computer program running on the client sends a procedure call to the remote server
      - The server then executes the remote procedure call and returns the requested information to the local client

- The most popular protocols in the Novell NetWare suite are:
  - IPX
    - Internetwork Packet Exchange protocol- Routing and networking protocol at layer 3.
    - When a device to be communicated with is located on a different network, IPX routes the information to the destination through any intermediate networks.
    - IPX is similar to IP (Internet Protocol) in the TCP/IP suite.
  - SPX
    - Sequenced Packet Exchange protocol - Control protocol at the transport layer (layer 3) for reliable, connection-oriented datagram transmission.
    - SPX is similar to TCP in the TCP/IP suite.
  - NCP
    - Network Core Protocol is a series of server routines designed to satisfy application requests coming from, for example, the NetWare shell.
    - Services provided by NCP include file access, printer access, name management, accounting, security, and file synchronization.
  - NetBIOS
    - Network Basic Input/Output System(NetBIOS) session-layer interface specification from IBM and Microsoft.
    - NetWare's NetBIOS emulation software allows programs written to the industry-standard NetBIOS interface to run within the NetWare system .
  - NetWareapplication-layer services:
    - NetWareMessage Handling Service(NetWare MHS), Btrieve, NetWare Loadable Modules (NLMs), and various IBM connectivity features.
    - NetWare MHS is a message delivery system that provides electronic mail transport.
    - Btrieve is Novell's implementation of the binary tree (btree) database access mechanism.
    - NLMs are implemented as add-on modules that attach into the NetWare system.
    - NLMs for alternate protocolstacks, communication services, database services, and many other services are currently available from Novell and third parties.
- Protocol Structure - NetWare: Novell Network Operating System Protocol Suite
  - The following figure illustrates the NetWare protocol suite, the media-access protocols on which NetWare runs, and the relationship between the NetWare protocols and the OSI reference model.



Number of processors supported: 128 on certified systems

### Minimum Reqs

Prior to installing Novell Open Enterprise Server 2 on Linux, ensure that your system meets the following requirements:

- Server-class computer
- Pentium 4 or AMD Athlon processor (1.5 GHz or higher is recommended)
- 768 MB RAM minimum (1 GB is recommended)
- 10 GB free disk space
- At least 1 network interface card

**Note:** The RAM and disk space amounts shown here are for system components only. The service components you install might require additional RAM and disk space.

Prior to installing Novell Open Enterprise Server for NetWare, ensure that your system meets the following requirements:

- A server-class PC with a Pentium II or AMD K7 processor (A server-class PC with two-way Pentium III, Pentium III Xeon, Pentium 4, or Intel Xeon 700 MHz or higher processors is recommended)
- 512 MB of RAM (1 GB of RAM is recommended)
- A Super VGA display adapter (a VESA 1.2-compliant, high resolution display adapter is recommended)
- A DOS partition of at least 200 MB and 200 MB available space (A boot partition with 1 GB of available space is recommended)
- 1 GB of available, unpartitioned disk space outside the DOS partition for volume sys: (4 GB is recommended)
- At least one network board
- A bootable CD drive that supports the El Torito specification
- A USB or PS/2 mouse (recommended)

Number of processors supported: 128 on certified systems

<http://www.novell.com/products/clients/windows/xp2000/overview.html>

SLES Linux Enterprise Server 11

#### Supported processor platforms

- x86
- x86\_64 (AMD64 and Intel EM64T)
- IA64 (Itanium 2)
- IBM POWER
- IBM System z (64-bit)

<b>x86 (IA-32)</b>	<b>x86_64 (AMD64 and EM64T)</b>	<b>ia64 (Itanium)</b>	<b>ppc64 (POWER)</b>	<b>s390x (IBM System z)</b>
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CPU bits	32	64	64	64	64
max. # logical CPUs	32	512	4096	1024	64
max. RAM (theoretical / certified)	64 GiB / 16 GiB	64 TiB / 512 GiB	1 PiB / 4 TiB	1 PiB / 512 GiB	4 TiB / 256 GiB
max. userspace / kernelspace	3 GiB / 1 GiB	128 TiB / 128 TiB	2 EiB / $\varphi$	2 TiB / 2 EiB	$\varphi$ / $\varphi$
max. swap space	up to 32 * 64 GB				
max. #processes	1048576				
max. #threads per process	tested with more than 120000; maximum limit depends on memory and other parameters				

max. size  
per block device

up to 16 TiB

up to 8 EiB

- Network interface (Ethernet, wireless or modem)
- For Xen virtual host server – At least 512 MB RAM for each virtual host server
- For Xen virtual machines – At least an additional 256 MB RAM for each virtual machine
- For print servers – A relatively faster processor or additional processors to improve server-based printing
- For web servers – Additional RAM to improve caching, and additional processors to improve Web application performance
- For database servers – Additional RAM to improve caching, and using multiple disks for parallel I/O
- For file servers – Additional memory and disks, or a Redundant Array of Inexpensive Disks (RAID) system to improve I/O throughput

- **File System Support and Sizes**

Feature	ext3	ReiserFS v3	XFS	OCFS2
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Data Journaling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Metadata Journaling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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Journal Internal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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Journal External	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Offline Extend	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Offline Shrink	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Online Extend	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Online Shrink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extended Attributes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Access Control Lists	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quotas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dump and Restore	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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Default Blocksize	4 KiB	4 KiB	4 KiB	4 KiB
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Maximum File System Size	16 TiB	16 TiB	8 EiB	16 TiB
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Maximum File Size	2 TiB	1 EiB	8 EiB	1 EiB
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### Comparison of SUSE Linux Enterprise Server and openSUSE

Here's a look at the different features and benefits you'll find in the two versions.

	SUSE Linux Enterprise Server	openSUSE
<b>Products</b>	SUSE Linux Enterprise Server 11	openSUSE
<b>Target Users</b>	IT professionals looking for a <u>hardened</u> , supported Linux platform	Linux technical enthus or community develo
<b>Release Strategy</b>	Major release every 18-24 months; service	Eight months

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pack release every 9-12 months

<b>Technical Support</b>	60-day installation support, plus comprehensive optional support offerings, available in flexible configurations	60 days of installation support for boxed version
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<b>Printed Manuals</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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<b>Security Patches</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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<b>Software and Driver Updates</b>	Automatically distributed	Self-service
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<b>Update Protection</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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<b>Service Pack Availability</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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**ISV Certifications**



**IHV Certifications**



**Indemnification**



**Lifecycle Guarantee**



Seven years\*



Two years

**Training**



**Consulting**



Netware is a good multiplatform OS that is good for both Microsoft and Unix. It is one of the best cost efficient software packages for multiplatform set ups. It is compatible with very good network server programs such as SUSE Linux Enterprise Server which also built by Novell. It has very new upgrades which continuously upgrade the efficiency of the networking allowing faster cache and less risk preventing large costly downtimes. It has a very good support website with problem solutions, tools, patches and files, and forums for discussion. It would work for the network set up we are going to be implementing.

Microsoft

## Microsoft Windows Server 2008 Enterprise Edition

New virtualization tools, Web resources, management enhancements, and exciting Windows 7 integration help save time, reduce costs, and provide a platform for a dynamic and efficiently managed data center. Powerful tools such as Internet Information Services (IIS) version 7.5, updated Server Manager and Hyper-V platforms and Windows PowerShell version 2.0 combine to give customers greater control, increased efficiency, and the ability to react to front-line business needs faster than ever before.

### - Number of Clients Supported

### - Number of Processors Supported

R2 now supports up to 256 logical processor cores

### - Minimum and Suggested Hardware Specifications

Component	Requirement
Processor	Minimum: 1.4 GHz (x64 processor)  Note: An Intel Itanium 2 processor is required for Windows Server 2008 for Itanium-Based Systems
Memory	Minimum: 512 MB RAM  Maximum: 8 GB (Foundation) or 32 GB (Standard) or 2 TB (Enterprise, Datacenter, and Itanium-Based Systems)  Minimum: 32 GB or greater
Disk Space Requirements	Foundation: 10 GB or greater  Note: Computers with more than 16 GB of RAM will require more disk space for paging, hibernation, and dump files
Display	Super VGA (800 × 600) or higher resolution monitor
Other	DVD Drive, Keyboard and Microsoft Mouse (or compatible pointing device), Internet access (fees may apply)

## **- Support for SMTP, HTTP, DNS, File & Print and Remote Administration**

Under client load, it has access to the same improved networking stack that the full Server 2008 OS has, but the lack of a GUI doesn't have much of an impact on speed. For basic network functions, though, like providing DHCP, DNS, a domain controller, file and print services, or even a basic (read: no ASP.NET) Internet Information Server (IIS), the Server Core role is made to order

Windows Server 2008 R2 Enterprise provides high availability for mission-critical applications such as databases, messaging systems, and file and print services through such features as failover clustering, Server Core, fault-tolerant memory synchronization, and cross-file replication (DFS-R).

**Manage remote machines more effectively.** Flexibility gives IT the opportunity to service remote machines on a regular basis and ensure that mobile users stay up to date with company policies. With DirectAccess, IT administrators can manage mobile computers by updating Group Policy settings and distributing software updates any time the mobile computer has Internet connectivity, even if the user is not logged on.

## **- Support for Windows, Linux, Unix & Mac clients**

### **- Back up capabilities**

With R2, you can back up individual files and folders.

R2's backup feature is now as robust as many expensive third-party solutions, and Microsoft is giving it away free in R2. After running a number of small backup jobs, I found the R2 backup utility to be faster than the one in the older version of the OS. The combination of granularity, low cost, and integration into the server OS make the new R2 version of backup a dream come true for administrators, even if the UI isn't perfect yet.

### **- Security Features**

**Enhance security and access control.** To keep data safer as it travels public networks, DirectAccess uses IPv6-over-IPsec to encrypt communications transmitted across the Internet. DirectAccess is designed to reduce unnecessary traffic on the corporate network by sending only traffic destined for the corporate network through the DirectAccess server (running Windows Server 2008 R2), or the administrator can choose to send all traffic through the corporate network. In addition to authenticating the computer, DirectAccess can also authenticate the user and supports multifactor authentication, such as a smart card. IT administrators can configure which intranet resources specific users can access using DirectAccess.

## - Licensing

Windows Server 2008 Enterprise is \$3,999, which includes 25 CALs (client access licenses)

- Support Services

Random Notes:

- Supports up to 256 logical processor cores for a single operating system instance.
- Supports up to 2 terabytes of RAM
- Operating system support for Hot-Add Memory and Hot Add/Replace Processors for Windows Server 2008 R2 Datacenter and Windows Server 2008 R2 for Itanium-Based Systems, and Hot-Add Memory for Windows Server 2008 R2 Enterprise.
- Unlimited virtual private network (VPN) connections.
- Unlimited Network Policy connections.
- Unlimited Terminal Services connections.
- Failover clusters scale up to 16 nodes (8 nodes with Itanium).
- Windows Server Hyper-V-based virtualization (see [Windows Server 2008 Virtualization with Hyper-V](#)).
- Hyper-V virtual machines are able to address up to 64 logical processors in the host processor pool.

Links:

<http://blogs.zdnet.com/perlow/?p=9973>

Windows Server 2008

<http://www.pcmag.com/article2/0,2817,2347050,00.asp>

Windows Server Enterprise

<http://www.pcmag.com/article2/0,2817,2285951,00.asp>

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## Red Hat Enterprise Linux Advanced Platform

Pasted from <<http://www.redhat.com/rhel/server/advanced/>>

No information on the number of supported clients

It supports an unlimited amount of processors in the advanced platform.

However, The system has a maximum number of cores that it can support.

### Technology capabilities and limits (certified[/theoretical]) [3]

	Version 3	Version 4	Version 5
<b>Maximum logical CPUs [4]</b>			
x86	16	32	32
Itanium2	8	256/512	256/1024
AMD64/Intel64	8	64/64	64/255
Power	8	64/128	128/128
System z	32 (z900)	64 (z10 EC)	64 (z10 EC)
<b>Maximum memory</b>			
X86	64GB [5]	64GB [5]	16GB [6]
Itanium2	128GB	2TB	2TB
AMD64/Intel64	128GB	256GB/1TB	256GB/1TB
Power	64GB	128GB/1TB	512GB/1TB
System z	256GB (z900)	1.5TB (z10 EC)	1.5TB (z10 EC)

Up to two processors in the base server.

Maximum filesize (Ext3)	2TB	2TB	2TB
Maximum filesystem size (Ext3)	2TB	8TB	8TB/16TB (16TB in 5.1)
Maximum filesize (GFS)	2TB	16TB/8EB	16TB/8EB <a href="#">[7]</a>
Maximum filesystem size (GFS)	2TB	16TB/8EB	16TB/8EB <a href="#">[7]</a>
Maximum x86 per-process virtual address space	Approx 4GB	Approx 4GB	Approx 3GB <a href="#">[6]</a>

Maximum number of virtual CPUs in Guest (x86)	--	--	32 <a href="#">[8]</a>
Maximum memory in paravirtualized guest (x86)	--	--	16GB
Maximum memory in fully virtualized x86 guest on x86 dom0	--	--	7.9GB
Maximum memory in fully virtualized x86 guest on x86_64 dom0	--	--	16GB
Maximum number of virtual CPUs in Guest (x86_64)	--	--	32 <a href="#">[8]</a>
Maximum memory in paravirtualized guest (x86_64)	--	--	80GB/unlimited
Maximum memory in fully virtualized guest (x86_64)	--	--	80GB/unlimited

### Required minimums

X86	256MB	256MB	512MB
AMD64/Intel64	256MB	256MB	512MB
Itanium2	512MB	512MB	512MB
Power	512MB	512MB	1GB minimum/ 2GB recommended
Minimum diskspace	800MB	800MB	1GB

### Kernel and OS features

Kernel foundation	Linux 2.4.21	Linux 2.6.9	Linux 2.6.18
Compiler/toolchain	GCC 3.2	GCC 3.4	GCC 4.1
Languages supported	10	15	19
NIAP/CC certified	Yes - 3+	Yes - 4+	Yes - 4+
Compatibility libraries	V2.1	V2.1 and V3	V3 and V4
Common Operating Environment (COE) compliant	Yes	Yes	N/A
LSB compliant	Yes - 1.3	Yes -3	Yes -3.1
GB18030	No	Yes	Yes

The minimum system requirements:

512MB of RAM, and the system requires at least a 1GHZ processor. The system also requires a minimum of 1GB of disk space.

The machines have built in support for SMTP through sendmail and postfix, HTTP through Apache, DNS server support is built in, File sharing is done through NFS and SAMBA and print sharing is done through CuPS. Remote administration can be done through various methods, including text based administration in SSH, Remote Desktop and