

Server administration

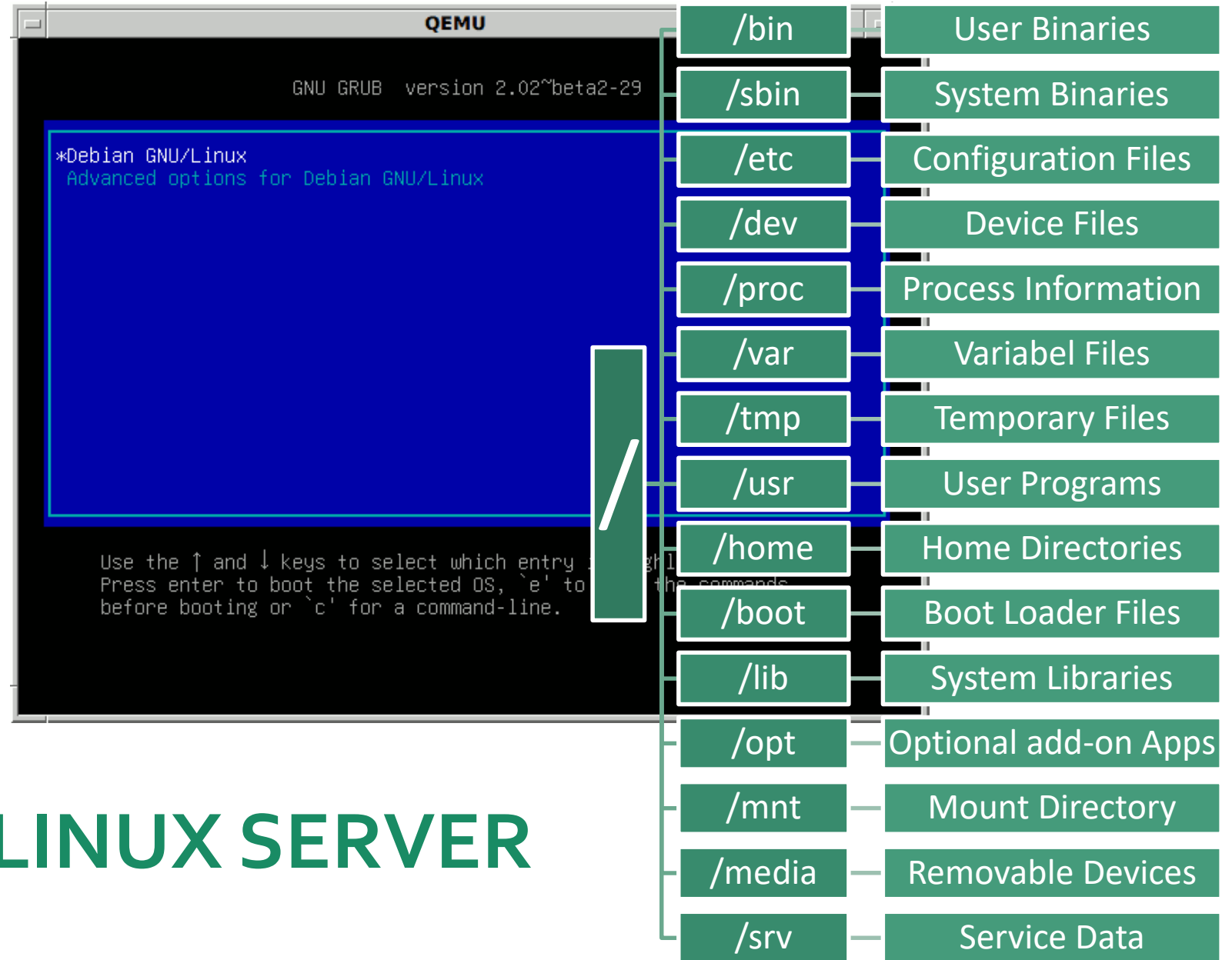
Overzicht



FAIL2BAN

Les 1

INLEIDING INLEIDING LINUX SERVER



Bronnen

- Linux boot process: <http://www.thegeekstuff.com/2011/02/linux-boot-process/>
- GRUB2: <https://help.ubuntu.com/community/Grub2>
- File System structure: <http://www.thegeekstuff.com/2010/09/linux-file-system-structure/>
- fstab: <https://wiki.archlinux.org/index.php/fstab>
- Key based authentication:
<https://wiki.centos.org/HowTos/Network/SecuringSSH#head-9c5717fe7f9bb26332c9d67571200f8c1e4324bc>
- fail2ban: http://www.fail2ban.org/wiki/index.php/MANUAL_o_8



NetBIOS



LDAP
Lightweight Directory
Access Protocol

Les 2

INLEIDING DNS EN ACTIVE DIRECTORY

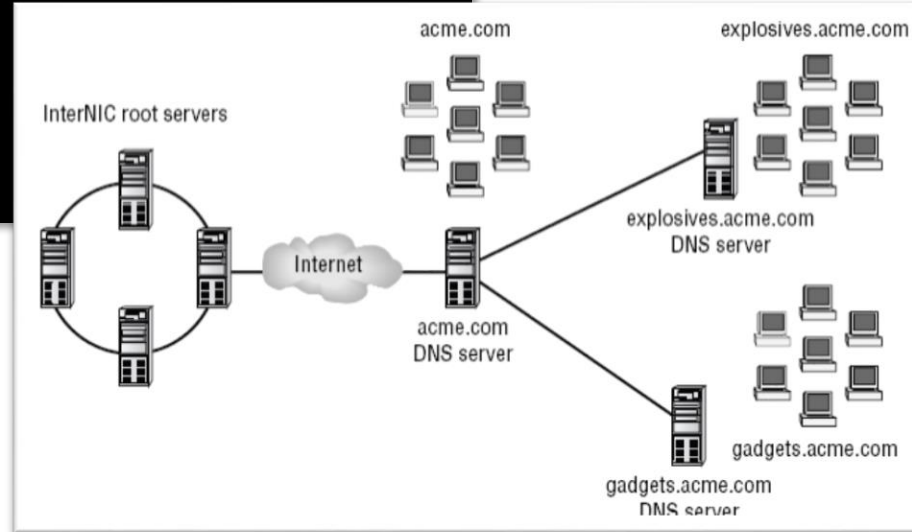
Bronnen

- Name resolution in Linux: <https://debian-handbook.info/browse/stable/sect.hostname-name-service.html>
- Name resolving volgorde in Windows: <https://support.microsoft.com/en-us/kb/172218>
- NetBIOS in Linux: <https://www.zulius.com/how-to/resolve-windows-netbios-names-from-linux/>
- Voor de andere onderwerpen is meestal een voldoende uitleg te vinden op de engelstalige versie van Wikipedia
- Op DNS en Active Directory komen we volgende weken nog terug
- **+ CURSUS OP TOLEDO**

```
H:\>nslookup
Default Server: google-public-dns-a.google.com
Address: 8.8.8.8
```

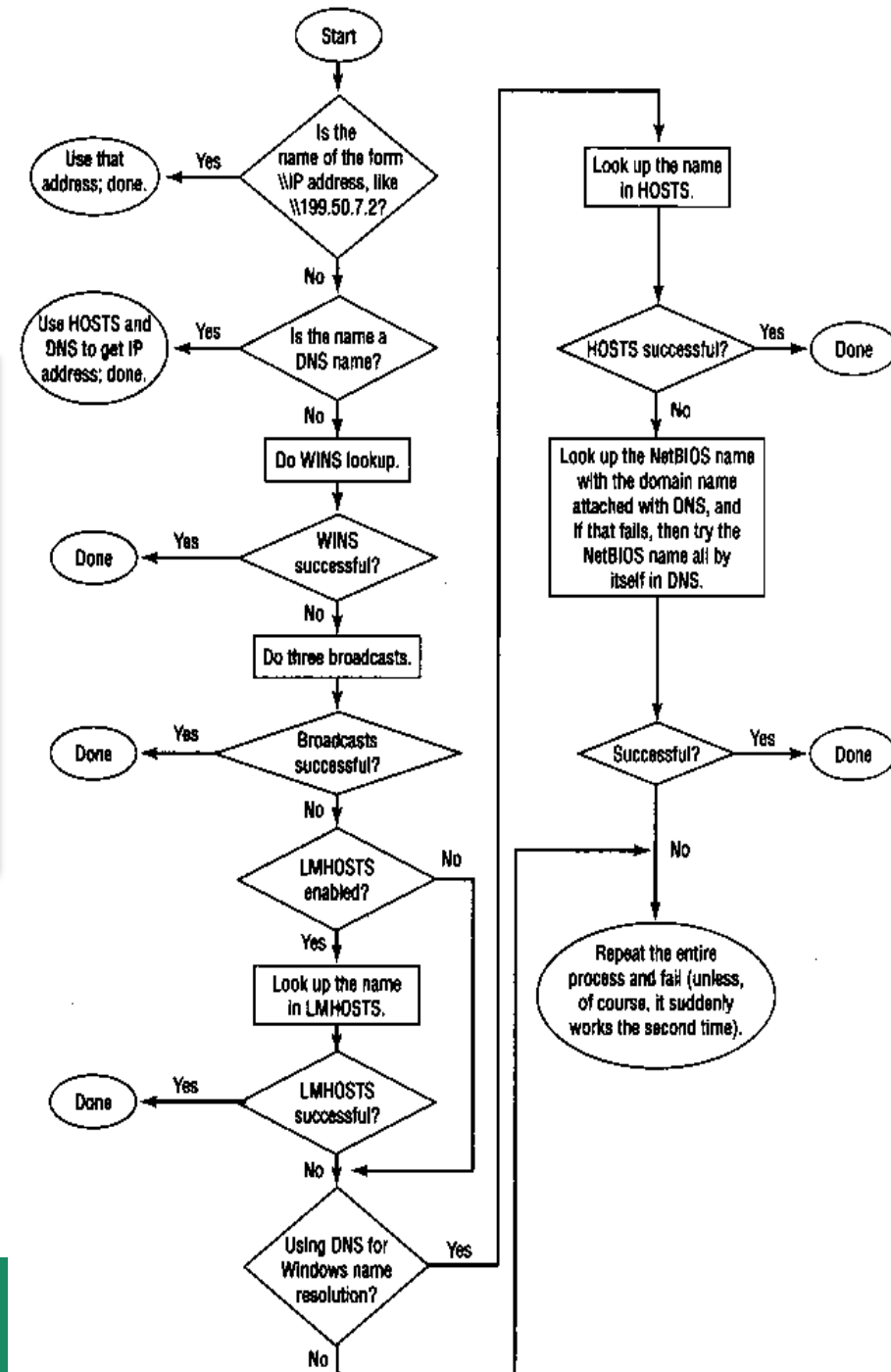
```
> odisee.be
Server: google-public-dns-a.google.com
Address: 8.8.8.8
```

```
Non-authoritative answer:
Name: odisee.be
Address: 193.190.225.193
```

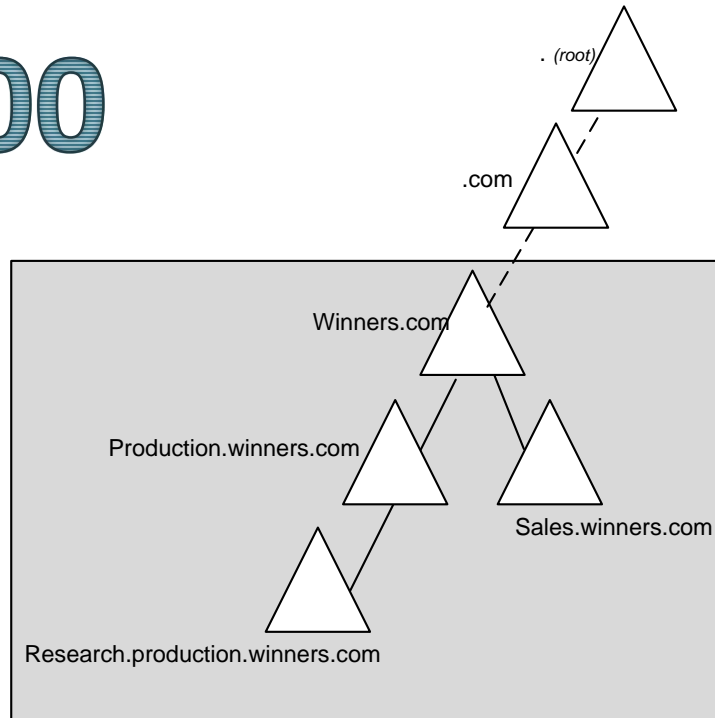


Les 3

NAME RESOLVING



X.500



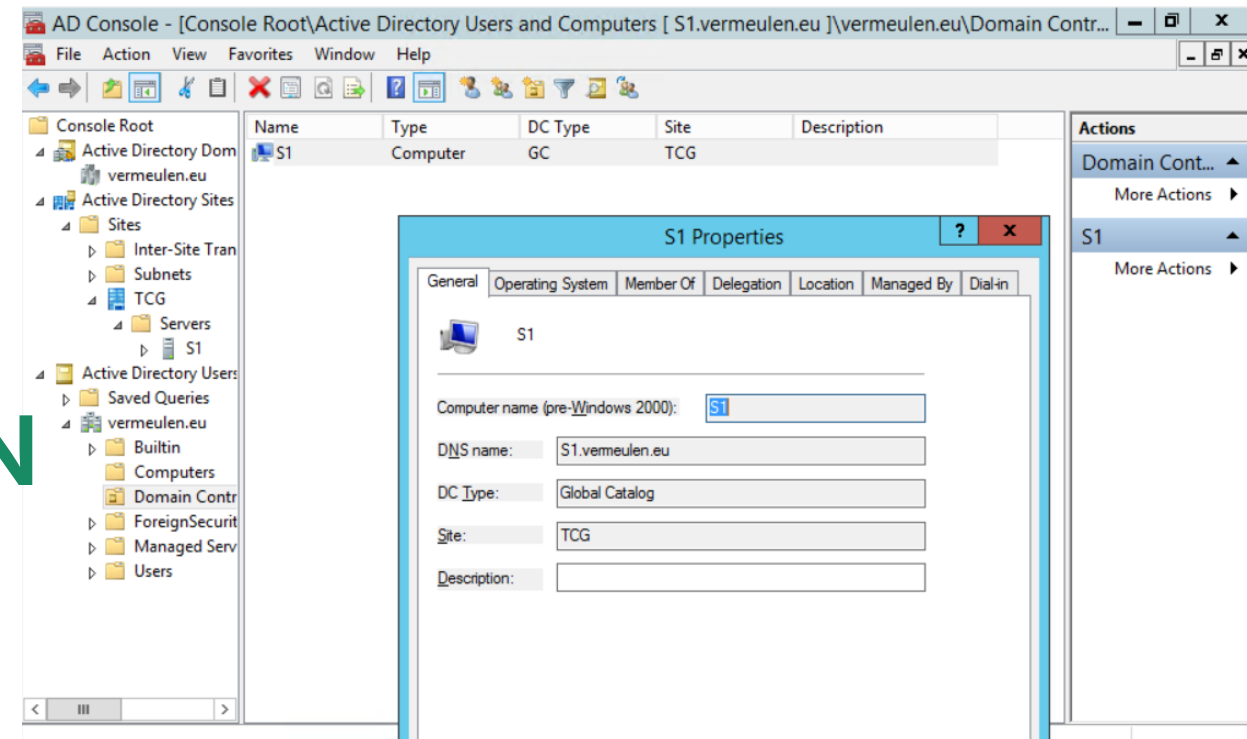
Microsoft
Active Directory

LDAP

Lightweight Directory
Access Protocol

Les 4

DIRECTORY SYSTEMEN



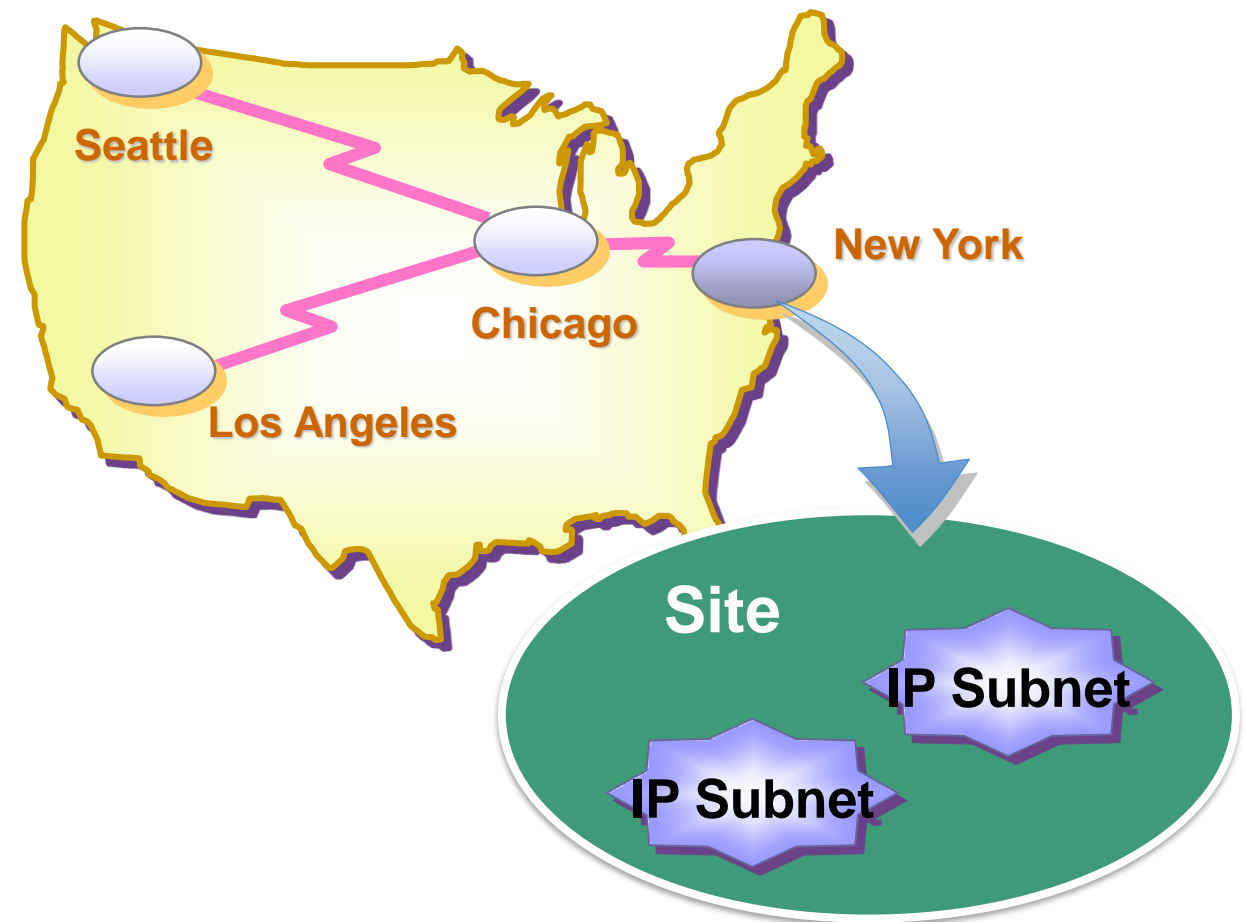
Bronnen

- LDAP - <https://tools.ietf.org/rfc/rfc4511.txt> (Inleiding)
- Global Catalog - [https://technet.microsoft.com/en-us/library/cc728188\(Ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc728188(Ws.10).aspx)
- Active Directory - https://en.wikipedia.org/wiki/Active_Directory
- DACL - <https://msdn.microsoft.com/en-us/library/cc246052.aspx>
- Functional Levels - [https://technet.microsoft.com/en-us/library/understanding-active-directory-functional-levels\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/understanding-active-directory-functional-levels(v=ws.10).aspx)
- Active Directory Schema Terminologie - [https://msdn.microsoft.com/en-us/library/windows/desktop/ms675087\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/ms675087(v=vs.85).aspx)



Active Directory

- Schema
- Fysische opbouw
 - Sites
 - Subnetten
 - Replicatie
- Objecten
 - Computer accounts
 - User accounts
 - Groepen
 - Shares



Les 5

DIRECTORY SYSTEMEN

OPENLDAP



Bronnen

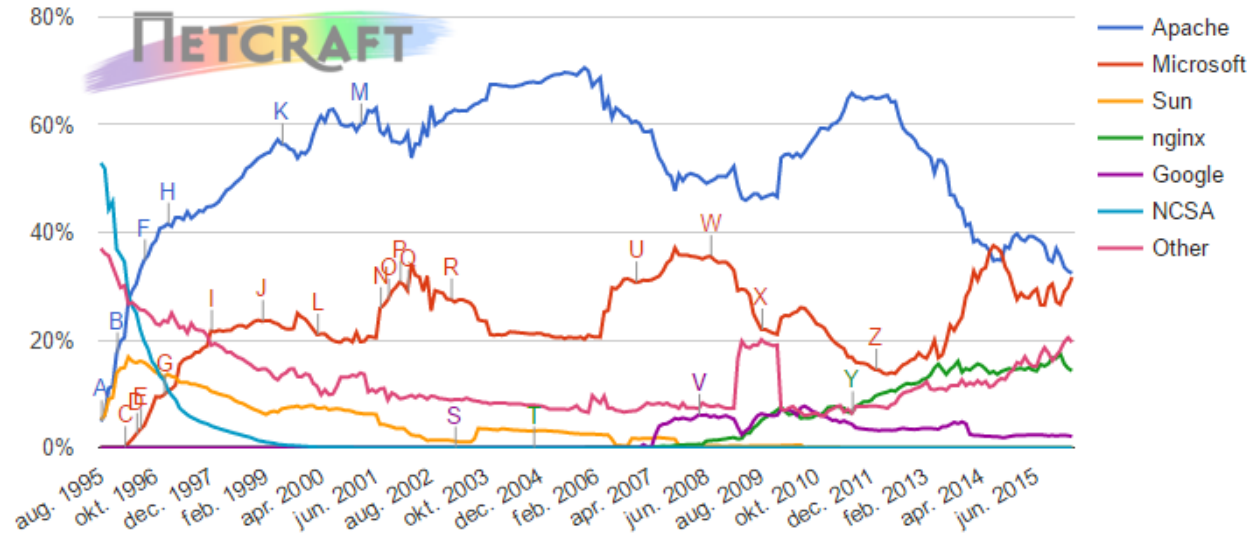
- Active Directory Schema - [https://msdn.microsoft.com/en-us/library/windows/desktop/ms675087\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/ms675087(v=vs.85).aspx)
- Active Directory Groepen - [https://technet.microsoft.com/en-us/library/cc739393\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc739393(v=ws.10).aspx)
- LDAP - <http://www.openldap.org/doc/admin24/intro.html#What%20is%20LDAP>
- OpenLDAP - <http://www.openldap.org/doc/admin24/intro.html>
- OpenLDAP - <https://en.wikipedia.org/wiki/OpenLDAP>
- OpenLDAP replication - <http://www.openldap.org/doc/admin24/replication.html>

vhosts

```
Listen 80
<VirtualHost *:80>
    DocumentRoot "/www/example1"
    ServerName www.example.com
    ServerAlias example.com *.example.com
    # Other directives here
</VirtualHost>

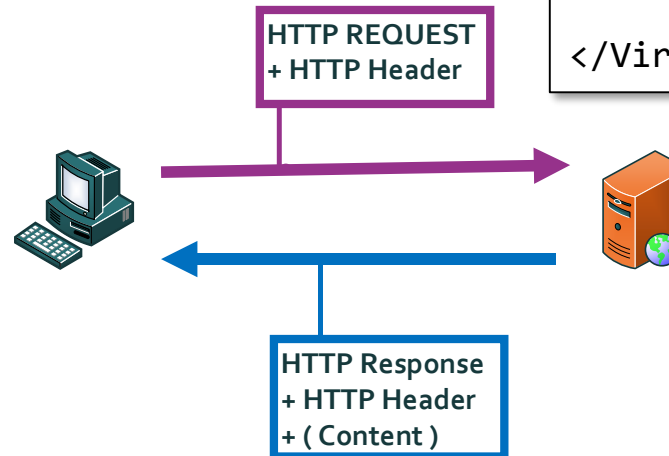
<VirtualHost *:80>
    DocumentRoot "/www/example2"
    ServerName www.example.org
    # Other directives here
</VirtualHost>
```

Web server developers: Market share of all sites



Les 6

WEBSERVERS



Bronnen

- vhosts - <https://httpd.apache.org/docs/2.4/vhosts/>
- IIS applications pools, bindings, ... -
<https://blogs.technet.microsoft.com/chrad/2010/01/24/understanding-iis-bindings-websites-virtual-directories-and-lastly-application-pools/>
- Apache URL rewriting -
<http://httpd.apache.org/docs/2.0/misc/rewriteguide.html>

FAT

EXT 1,2,3,4

NTFS

XFS



SMB

Les 7

FILESYSTEMEN

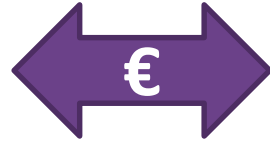
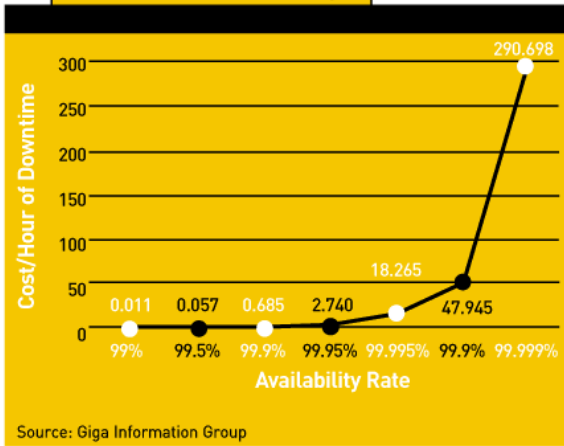
Bronnen

- FAT - https://en.wikipedia.org/wiki/File_Allocation_Table
- NTFS - [https://technet.microsoft.com/en-us/library/cc781134\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc781134(v=ws.10).aspx)
- Journaling filesystem - https://en.wikipedia.org/wiki/Journaling_file_system
- Quota's - [https://technet.microsoft.com/en-us/library/cc786969\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc786969(v=ws.10).aspx)

Bronnen

- Ext4 - https://ext4.wiki.kernel.org/index.php/Ext4_Disk_Layout
- ReFS - <https://technet.microsoft.com/en-us/library/hh831724.aspx>,
<https://en.wikipedia.org/wiki/ReFS>
- Red Hat Disk Quotas - https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/3/html/System_Administration_Guide/ch-disk-quotas.html
- XFS - <https://en.wikipedia.org/wiki/XFS>
- Linux Virtual File System - <https://www.win.tue.nl/~aeb/linux/lk/lk-8.html>

Figure 2: Cost of Availability



THE COST OF DOWNTIME

INDUSTRY SECTOR	REVENUE/HOUR	REVENUE/EMPLOYEE-HOUR
Energy	\$2,817,846	\$569.20
Telecommunications	2,066,245	186.98
Manufacturing	1,610,654	134.24
Financial institutions	1,495,134	1,079.89
Information technology	1,344,461	184.03
Insurance	1,202,444	370.92
Retail	1,107,274	244.37
Pharmaceuticals	1,082,252	167.53
Banking	996,802	130.52
Food/beverage processing	804,192	153.10
Consumer products	785,719	127.98
Chemicals	704,101	194.53
Transportation	668,586	107.78
Utilities	643,250	380.94
Health care	636,030	142.58
Metals/natural resources	580,588	153.11
Professional services	532,510	99.59
Electronics	477,366	74.48
Construction and engineering	389,601	216.18
Media	340,432	119.74
Hospitality and travel	330,654	38.62
Average	\$1,010,536	\$205.55

Source: IT Performance Engineering & Measurement Strategies: Quantifying Performance Loss, Meta Group, October 2000.

Availability

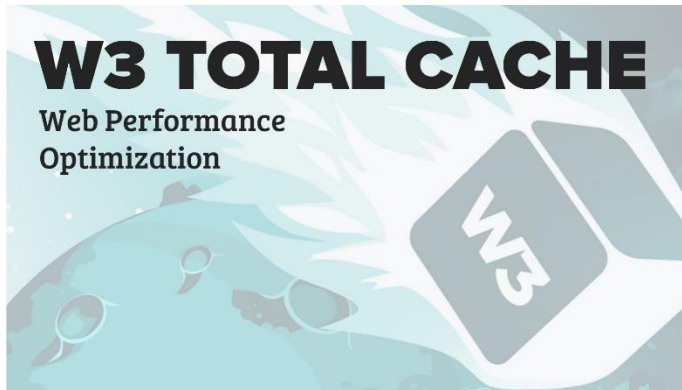
- UPS
- Clusters
- Mirroring
- Duplexing
- RAID

Recovery

- Volume Shadow Copy
- Backups
- rsync

Les 8

BACKUP EN RECOVERY STRATEGIE



Les 10

CACHING BIJ WEBSERVERS SELINUX

Bronnen

- Memcached - <https://memcached.org>
- SELinux - <https://wiki.centos.org/HowTos/SELinux> en https://en.wikipedia.org/wiki/Security-Enhanced_Linux



Les 10

VIRTUALISATIE