

Amanda, a networked server based backup system

Kris Boulez (krbou@pgsgent.be)

Overview

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Introduction (1)

- You do have a **Backup Policy**, do you?
- You have it written down, do you?
- Your Boss/Management approved it, yes?
- Your Users know this policy?

(accounting records need to be stored for multiple years (tax control) → tape lifetime !!!)

Introduction (2)

- Client - server
- (nearly) all flavors of Unix / filesystems
- Windows NT|95 via smbclient
- Easy to use / very powerfull
- Works via unprivileged user (security !!)
- Protects against 'operator error'
- Effective use of tape

Introduction (3)

- Based on dump/restore (ev. gnutar)
- Dumps via holding disk(s)
- Different types of tapes (DAT, DLT, exabyte, QIC, ...)
- Tape changers supported
- Supports Kerberos (ssh in future)
- Actively developed
- Free

Introduction (4)

- Dump levels
 - level 0: everything
 - level 1: files that changed since last level 0
 - level 2: files that changed since last level 1
 - ...
 - level n: n-1
- Restore (tape jockey)
- Towers of Hanoi

Introduction (5)

- More info
 - <http://www.amanda.org/>
 - amanda-users@amanda.org (via majordomo)
(also -announce, -hackers)
 - archives of mailing lists
(<http://www.egroups.com/list/amanda-users/>)

Introduction (6)

No information in the following section(s) is related in any way to the setup used at the site of my employer (PGS).

Setup & Config

- Current version is 2.4.1p1 (early June 1999)
- Next version to expect 2.4.2
- Major enhancements 2.5.0

- read 'docs/INSTALL' (and the other docs)
- setup server ↔ client

Setup & Config (server)

`./configure`

`--with-user=amanda`

`--with-group=amanda`

`--with-fqdn`

`--with-smbclient=/path/to/smb/client`

`--with-amandahosts`

`--with-gnutar=/path/to/gnu/tar`

`--without-amrecover`

`...`

Setup & Config (server)

```
% make
```

```
# make install
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/amanda.conf (1)
```

```
org "OTADaily"  
mailto "backup-operator"  
dumpuser "amanda"
```

```
inparallel 4  
netusage 600 Kbps
```

```
dumpcycle 4 weeks  
runspercycle 20  
tapecycle 25 tapes
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/amanda.conf (2)
```

```
bumpsize 20 Mb
```

```
bumpdays 1
```

```
bumpmult 4
```

```
etimeout 300
```

```
tape type HP-DAT
```

```
labelstr "^OTADaily[0-9][0-9]*$"
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/amanda.conf (3)
```

```
holdingdisk hd1 {  
    comment "main holding disk"  
    directory "/dumps/amanda"  
    use -290 Mb  
    chunksize -1  
}
```

```
reserve 30 # percent
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/amanda.conf (4)
```

```
infofile "/usr/adm/amanda/OTADaily/curinfo"  
logdir "/usr/adm/amanda/OTADAILY"  
indexdir "/usr/adm/amanda/OTADaily/index"
```

```
define tapetype HP-DAT {  
    comment "DAT tape drives"  
    length 1930 mbytes  
    filemark 111 kbytes  
    speed 468 kbytes  
    lbl-templ "/usr/local/etc/amanda/ota/HP-DAT.ps"  
}
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/amanda.conf (5)
```

```
define dumptype global {  
}  
define dumptype comp-user {  
    global  
    comment "Non-root partitions "  
    compress client fast  
    priority medium  
}  
printer "name_of_printer"  
#includefile "/usr/local/amanda/conf.main"
```

Setup & Config (server)

```
/usr/local/etc/amanda/ota/disklist
```

```
orval sd0a comp-root
```

```
orval sd0g comp-user
```

```
orval sd1g comp-user
```

```
duvel hda6 comp-root
```

```
duvel hda3 comp-root
```

```
duvel hda5 comp-user
```

```
master sd1c holding-disk -1 local
```

Setup & Config (server)

- user 'amanda'
 - rw /etc/dumpdates
 - rw /dev/holdingdisk
 - rw /dev/tape
 - ? amanda in group 'bin'

!!! This user 'sees' all your data !!!

Setup & Config (server)

- label your tapes (also physically)

```
amlabel ota OTADaily01  
...      ...      ...      02
```

Setup & Config (client)

```
./configure --without-server  
            --with-amandahosts
```

```
make && make install  
~amanda/.amandahosts
```

user 'amanda'

```
rw /etc/dumpdates  
r /dev/rdisk/partitie
```

Setup & Config (client)

- Add disk(s) to disklist on server

- `/etc/services`

```
amanda    10080/udp
```

- `/etc/inetd.conf`

```
amanda dgram udp wait amanda
```

```
  /usr/local/libexec/amandad amandad
```

Normal operation

- amanda crontab
 - 5 0 * * 2-6 /usr/local/bin/amdump ota
- amdump
 - planner
 - driver
 - dumper
 - taper
- amandad (on client)

Normal operation

From amanda@master.ota.be
Fri Jun 4 04:03:34 1999
Date: Fri, 4 Jun 1999 04:04:48 +0200 (MET DST)
From: Amanda backup user <amanda@master.ota.be>
To: backup-operator@ota.be
Subject: OTADaily AMANDA MAIL REPORT FOR June 3, 1999

These dumps were to tape OTADaily01.

Tonight's dumps should go onto 1 tape: OTADaily02.

STATISTICS:

	Total	Full	Daily	
	-----	-----	-----	
Dump Time (hrs:min)	0:30	0:06	0:12	
Output Size (meg)	4909.8	1558.4	3351.3	
Original Size (meg)	9684.7	3072.1	6612.6	
Avg Compressed Size (%)	50.7	50.7	50.7	
Tape Used (%)	24.9	7.9	17.0	(level:#disks)
Filesystems Dumped	7	3	4	(1:3 2:1)
Avg Dump Rate (k/s)	106.8	257.4	84.0	
Avg Tp Write Rate (k/s)	4663.7	4832.8	4589.0	

Normal operation

NOTES:

planner: Full dump of duvel:hda5 promoted from 5 days ahead.

DUMP SUMMARY:

HOSTNAME	DISK	L	ORIG-KB	DUMPER STATS			TAPER STATS		
				OUT-KB	COMP%	MMM:SS	KB/s	MMM:SS	KB/s
orval	sd0a	0	93983	31040	33.0	0:37	827.9	0:08	3778.4
orval	sd0g	1	1599	96	6.0	0:13	7.1	0:02	53.2
orval	sd1g	1	259973	92480	35.6	1:47	865.0	0:20	4734.8
duvel	hda6	0	505205	132320	26.2	2:48	786.2	0:27	4849.1
duvel	hda3	2	406943	148640	36.5	2:52	866.3	0:31	4852.2
duvel	hda5	0	89535	25888	28.9	0:37	701.1	0:07	3788.8
master	sd1c	1	7455	2016	27.0	0:28	72.3	0:03	800.0

(brought to you by Amanda version 2.4.1p1)

Usefull commands

- amadmin (force, find,...)
- amcheck (config, tape label,...)
- amlabel
- amrrmtape
- amoverview
- amtoc
- amverify
- amplot (requires gnuplot)
- amdump
- amrestore
- amstatus
- amrecover
- amreport
- amflush
- amcleanup
- amcheckdb

Something goes wrong

- client cannot communicate with server
 - check logs in `/usr/local/amanda/OTADaily`
 - if compiled with (`--with-debugging`)
`/tmp/amanda` (client and server)

Something goes wrong

- Wrong tape in drive
 - amcheck (crontab amanda)
`0 16 * * 1-5 /usr/local/bin/amcheck -m ota`
 - does incremental to holding disk
 - amflush (even multiple days)

Something goes wrong

- File(system) needs to be restored
 - amadmin ota find orval sd0g
 - amrestore ota -p orval sd0g |
restore -ivbf 2 - (ls, add, extract)(amrecover)
 - !! different types of dump/restore
 - !! try this before the need arises
 - !! document this procedure

Future

- security-api (ssh)
- support for firewalls (--with-portrange=low, high)
- windows machines via smbwrapper
- dumper-api (new backup progs, pre/post commands → DB's)
- ...

Competitors

- home written dump - script
- Arkeia (Knox-Software)
- (Legato) Networker (RH 5.2 client)
 - parrallel writes, no holding disk
 - nice GUI / CLI exists
- ArcServe (Cheyenne, C.A.) (no Linux client)
 - comes from windows world
 - only GUI

Questions ???