Building Large Filestores

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The filestore problem

Filestores grow to fill all available space

Disks are cheap(ish) so ‘there should be no problem’

One full filesystem = 10..100 angry users

Shuffling data from disk to disk is expensive

Backups obey Parkinson’s Law too...

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Ways of building filestores

Lots of 2GB disks and an automounter

Lots of 2GB disks and disk-spanning filesystems

Optical Jukebox and drivers

Optical jukebox and multi-level filestore software

Serious money (Storagetek silo...)

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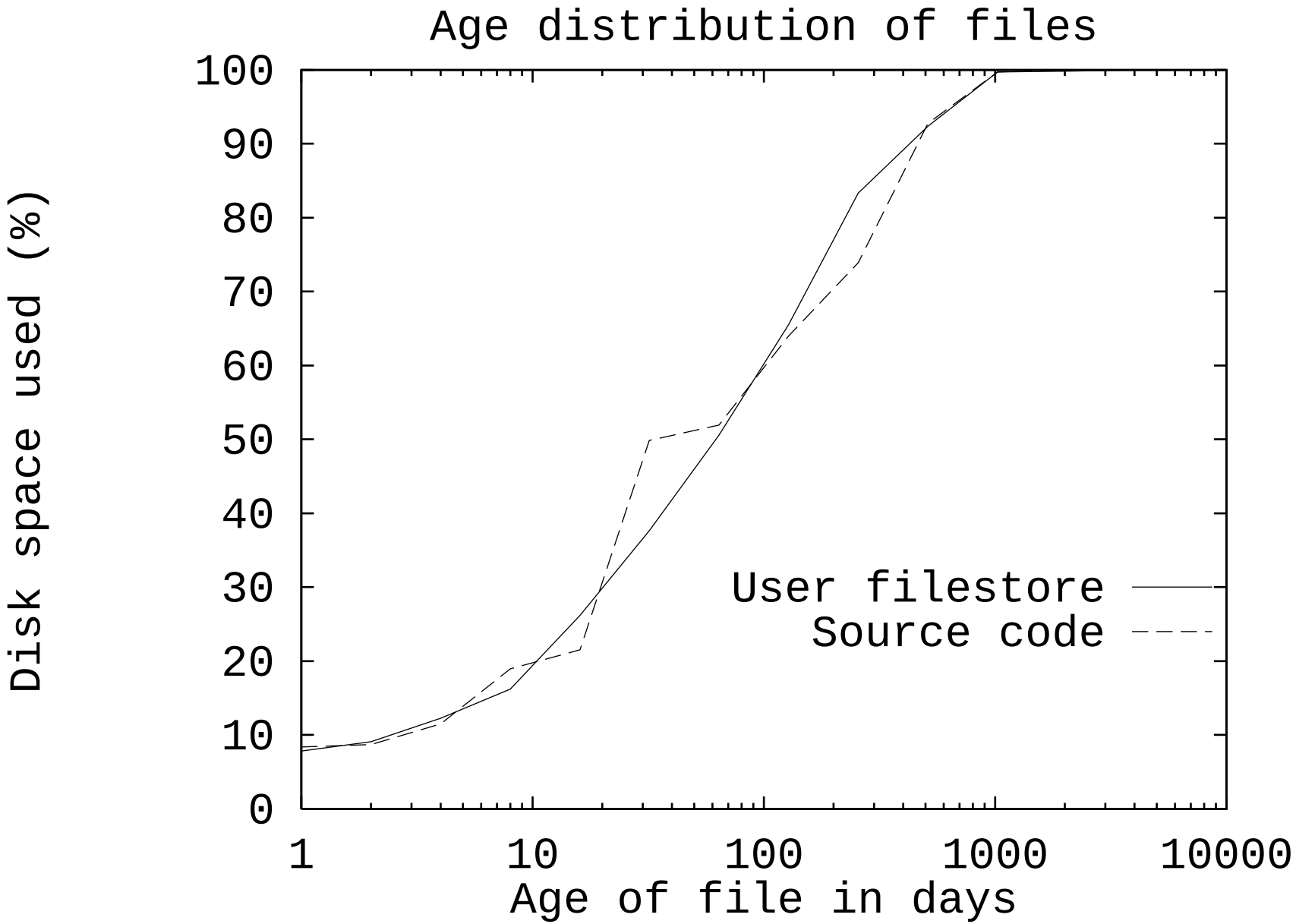
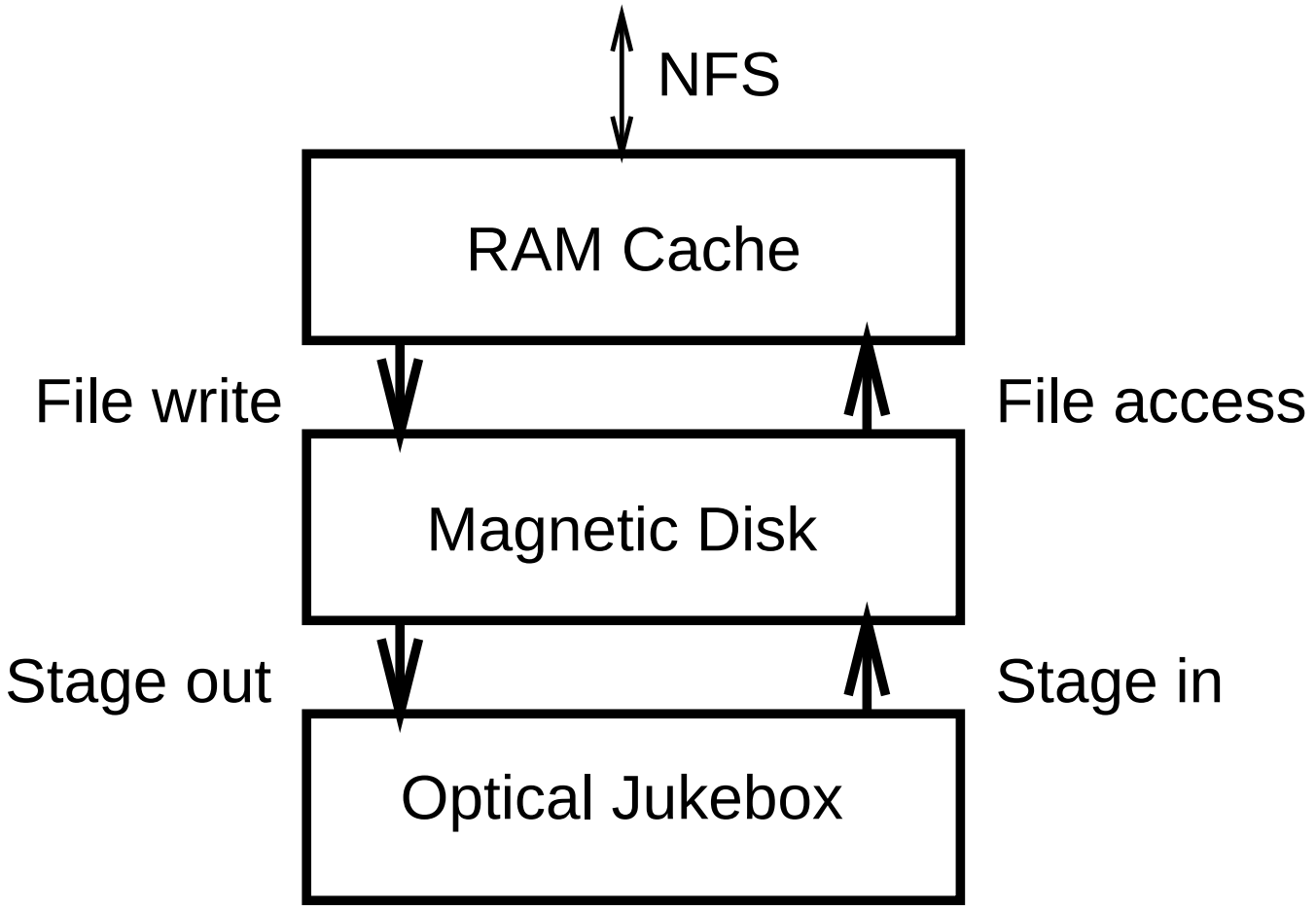

Age distribution of files
Disk space used (%)
100
90
80
70
60
50
40
30
20
10
0
1
10
100
1000
10000
Age of file in days
User filestore
Source code

The Epoch multi-level filestore



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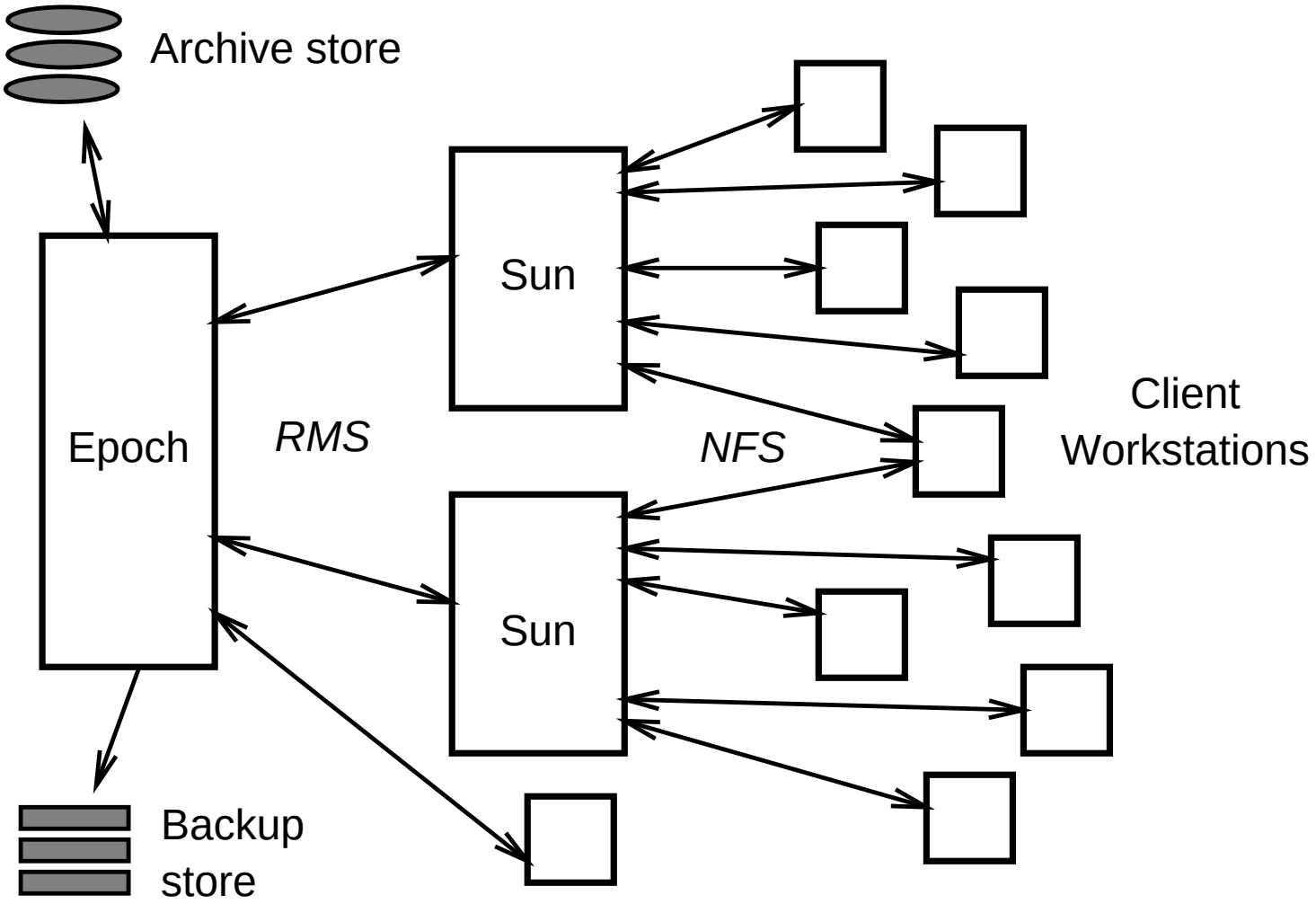
Migrating files - the best of both worlds?



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Costing assumptions

List prices ☺

Sun ELC, 5GB Exabyte, 1..4 2GB SCSI disks

Epoch EP-2 with minimum jukebox needed

Auspex NE3000 or NE5000 with minimum config

Full weekly backups kept one year, inc’s 14 days

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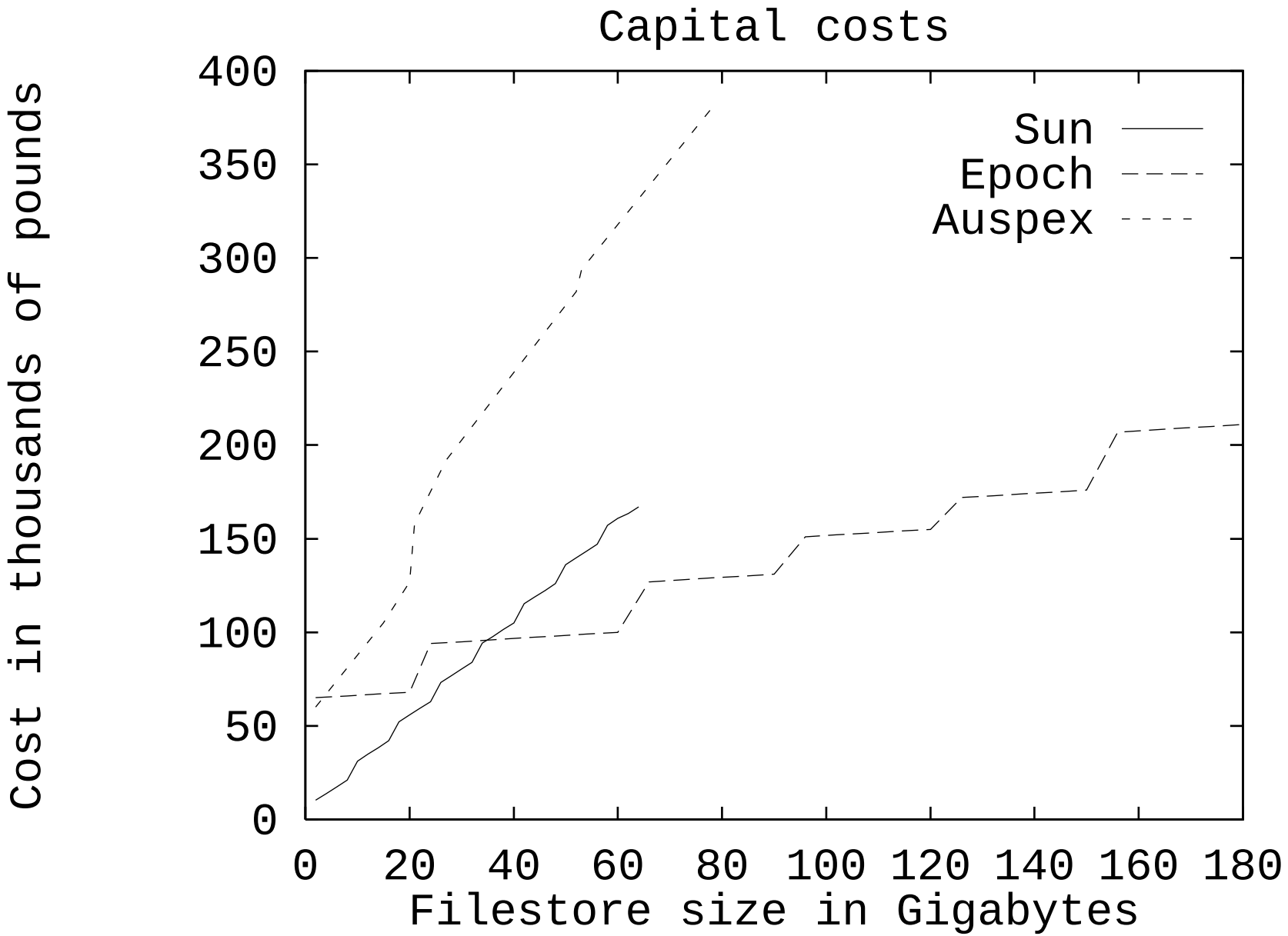
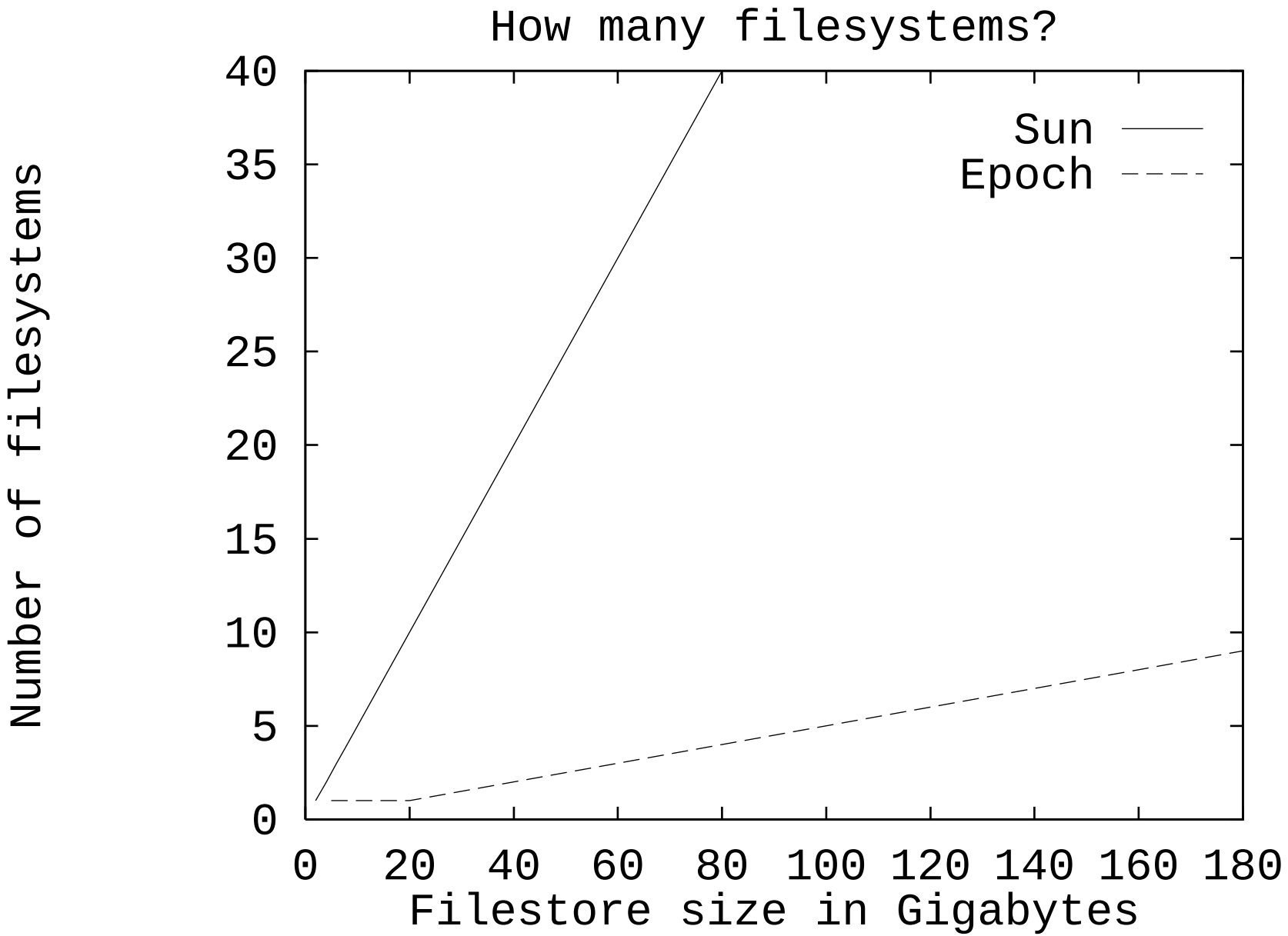
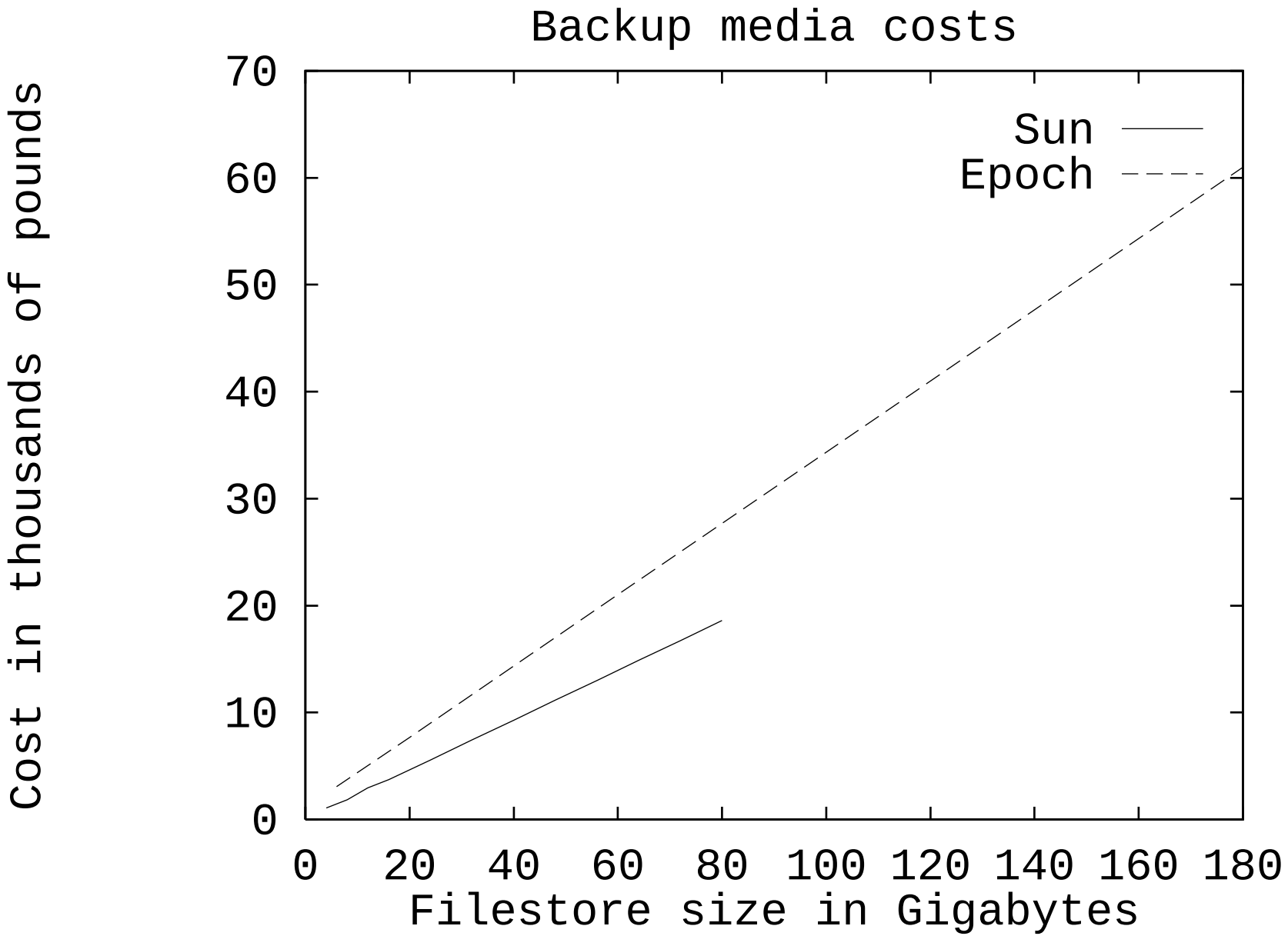
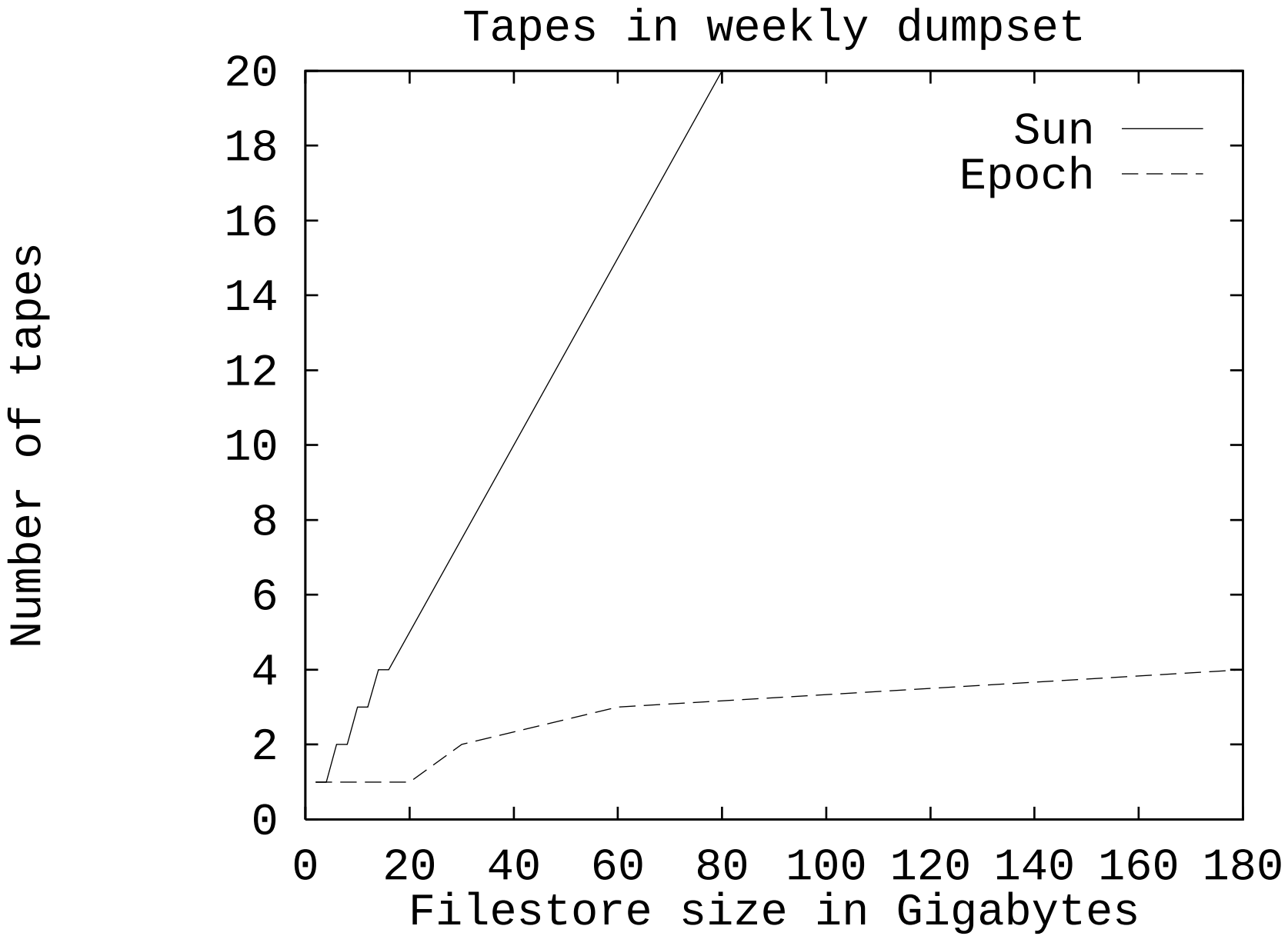
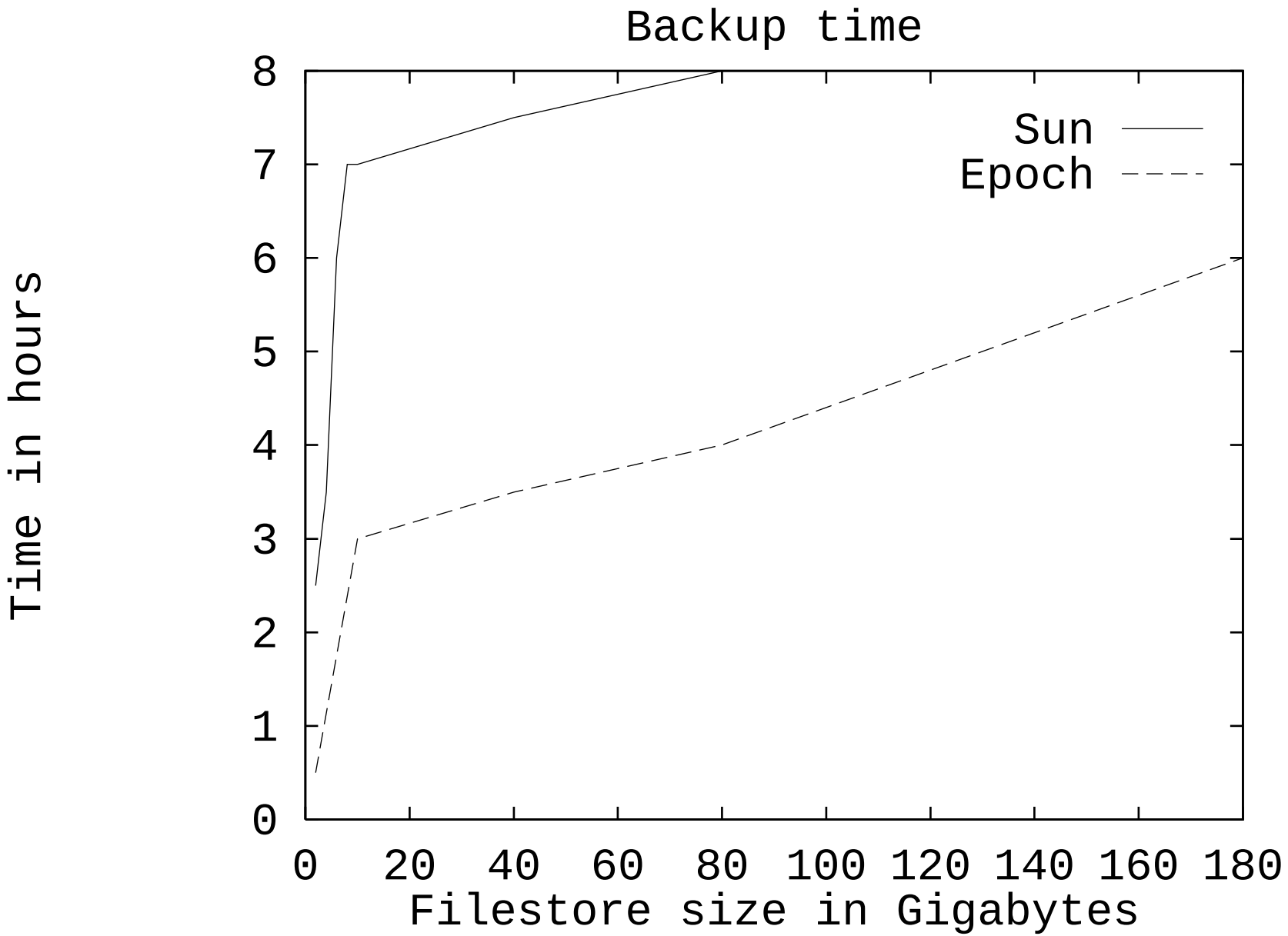

Capital costs
Cost in thousands of pounds
Filestore size in Gigabytes
Sun
Epoch
Auspex
0
50
100
150
200
250
300
350
400
0
20
40
60
80
100
120
140
160
180


How many filesystems?
Number of filesystems
Filestore size in Gigabytes
Sun
Epoch
0
5
10
15
20
25
30
35
40
0
20
40
60
80
100
120
140
160
180


Backup media costs
Cost in thousands of pounds
Filestore size in Gigabytes
Sun
Epoch
0
10
20
30
40
50
60
70
0
20
40
60
80
100
120
140
160
180


Tapes in weekly dumpset
Number of tapes
Filestore size in Gigabytes
Sun
Epoch
0
2
4
6
8
10
12
14
16
18
20
0
20
40
60
80
100
120
140
160
180


Backup time
Time in hours
Filestore size in Gigabytes
Sun
Epoch
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
120
140
160
180

Conclusions

There are many choices

Magnetic disk is only part of the answer

You need to know why you are building the filestore!

The answer will be different next year

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