Active Circle :feedback for Paris Virtual Observatory

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Observatoire de Paris
VO Paris Data Centre

Context

Context

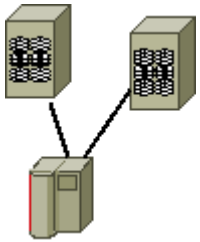
“A virtual observatory (VO) is a collection of interoperating data archives and software tools which utilize the internet to form a scientific research environment in which astronomical research programs can be conducted” from wikipedia.

So, we provide [some big collections of astronomical data We need:

- a stable storage system, easily scalable in volume
- a backup solution having low cost in manpower
- a multi-site replication
- hardware independent
- be easily integrable in the storage solution of the IT department.

Context

- **We started with DAS (Direct attached storage)**



Then we decided to discusse the prospectives and to find the best compromised in :

Price / security / scalability / globalisation

We checked several major storage manufacturers.

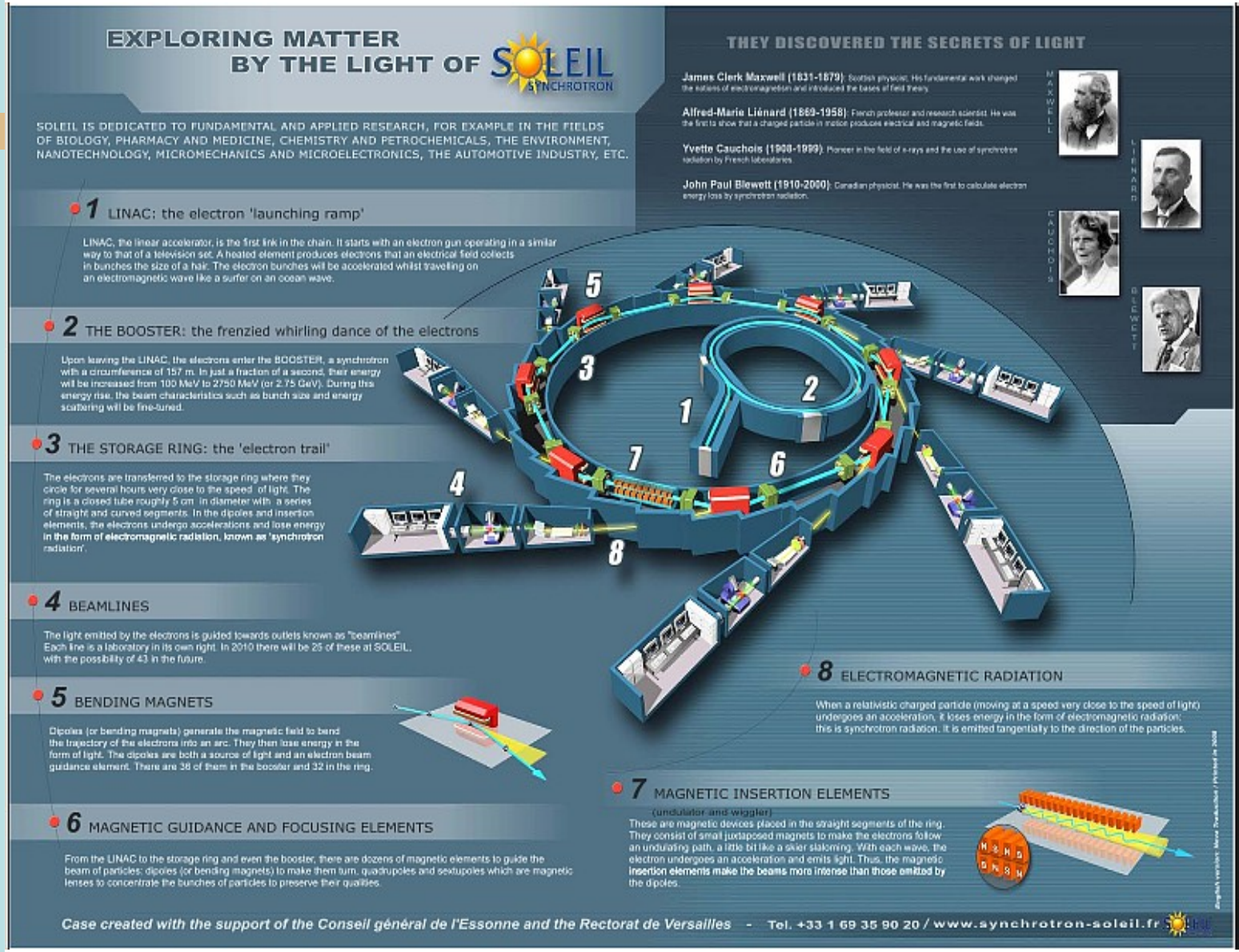
We checked different distribution storage solutions.

We made made a visit to colleague running Active Circle at “Soleil Synchrotron”

Virtual Observatory
Paris Data Centre

Context

- Context & Goal
- Active Circle
- How
- How it works



Context

Observatoire de Paris – Meudon
6 departments on 2 sites with 1000 people

Paris

Around 10 km

Meudon

All departments want to be independent; scientific teams want to have their data stored as close as pissible (i.e. Inside the depar
Level of reliability are very different; storage elements are very heterogeneous
Different policy privacy
Mainly linux, but not always
We have decided to deal only with the archive file storage and not with the transactional database. We did not put any constraints on the access time.

We need a scalable solution with multi-site replication and tape storage management.

Active Circle

– Virtualisation solution

(from AC web site)

Features of Active Circle's Active Archive solution:

- Scalable file system from 1 TB to 4 PB
- Data accessible via CIFS and NFS network file protocols
- Automated Data Lifecycle Management (DLM) over multiple storage tiers
- Data integrity guaranteed by WORM mode
- Reduction in storage TCO by selecting standard hardware (disk or tape)
- Automated management of technology changes and data migration
- Exports in TAR format for data vaulting

Why Active Circle ?

- to reuse existing storage elements
- “Class Of Service” to define the number of units in disk and/or tapes
- storage synchronisation to be done in background
- self recovery in case of crash
- to be able to manage data lifecycle
- Multi cite replication (100 Mbps at the beginning
- NFS access to data collection, no special client and/or protocol.
- We don't have manpower for tape storage software, we need simple and open format tape storage solution.

Active Circle why ?

- At that time we didn't find any free solution at this level
- The choice was made at the time when the lack of storage was critical.

How

- **After a Public Tender**

- We have buy 3 AC cells and 50 Tb storage

- 2 sun Storage Element X4500 (38 TO raw)

- 1 robotic + dedicated server

How it works

- **Trouble with Solaris system updates**

- **AC were not dedicated to small files.**

Long instability period in case of high load (NFS not responding) but no data loss

- **We are still in the test period, due to lack of manpower to work on it. AC developers are very responsable and spent a lot of time on debugging.**

- **The tape storage functionality is now our major interest in this solution.**

Context &

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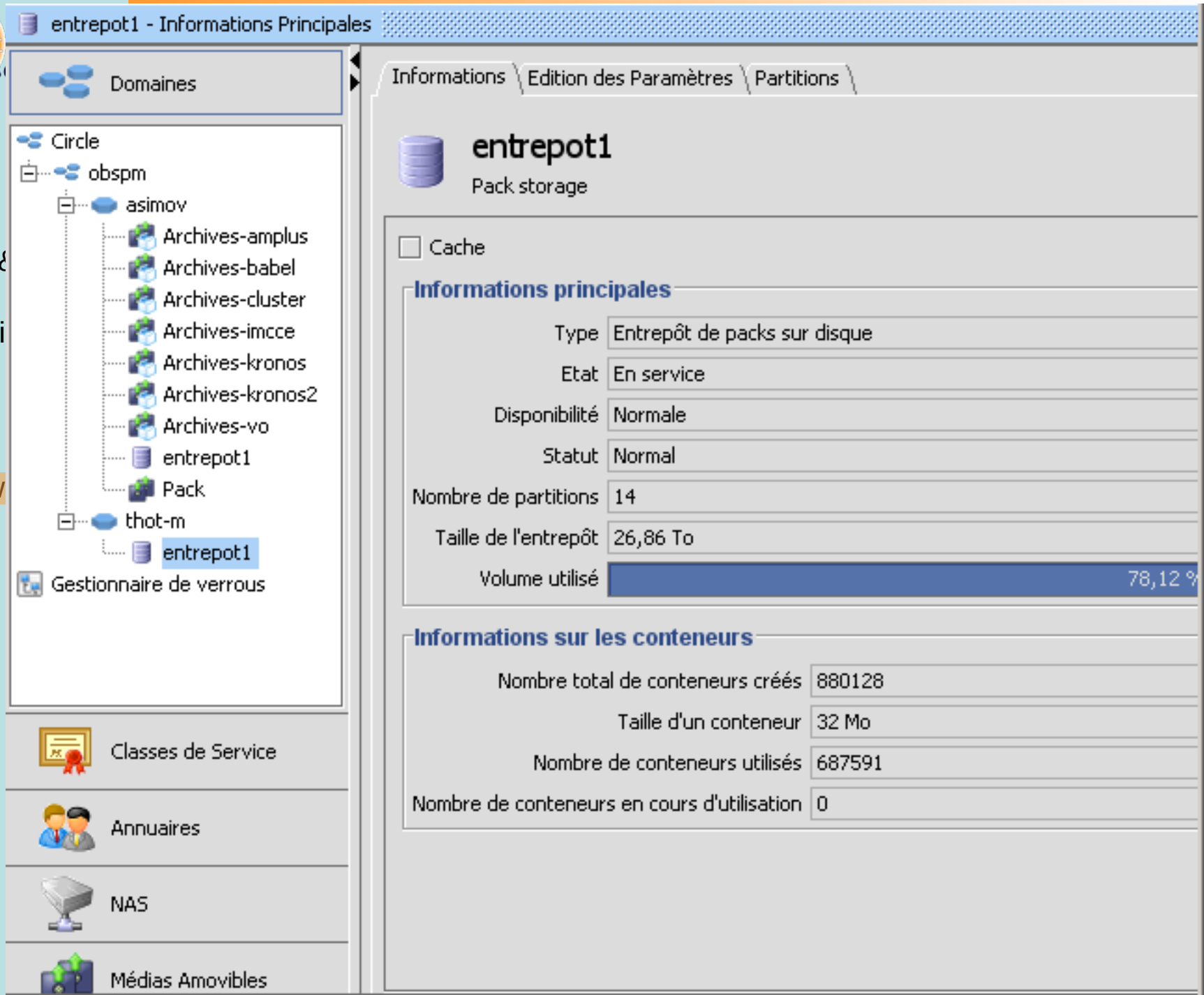
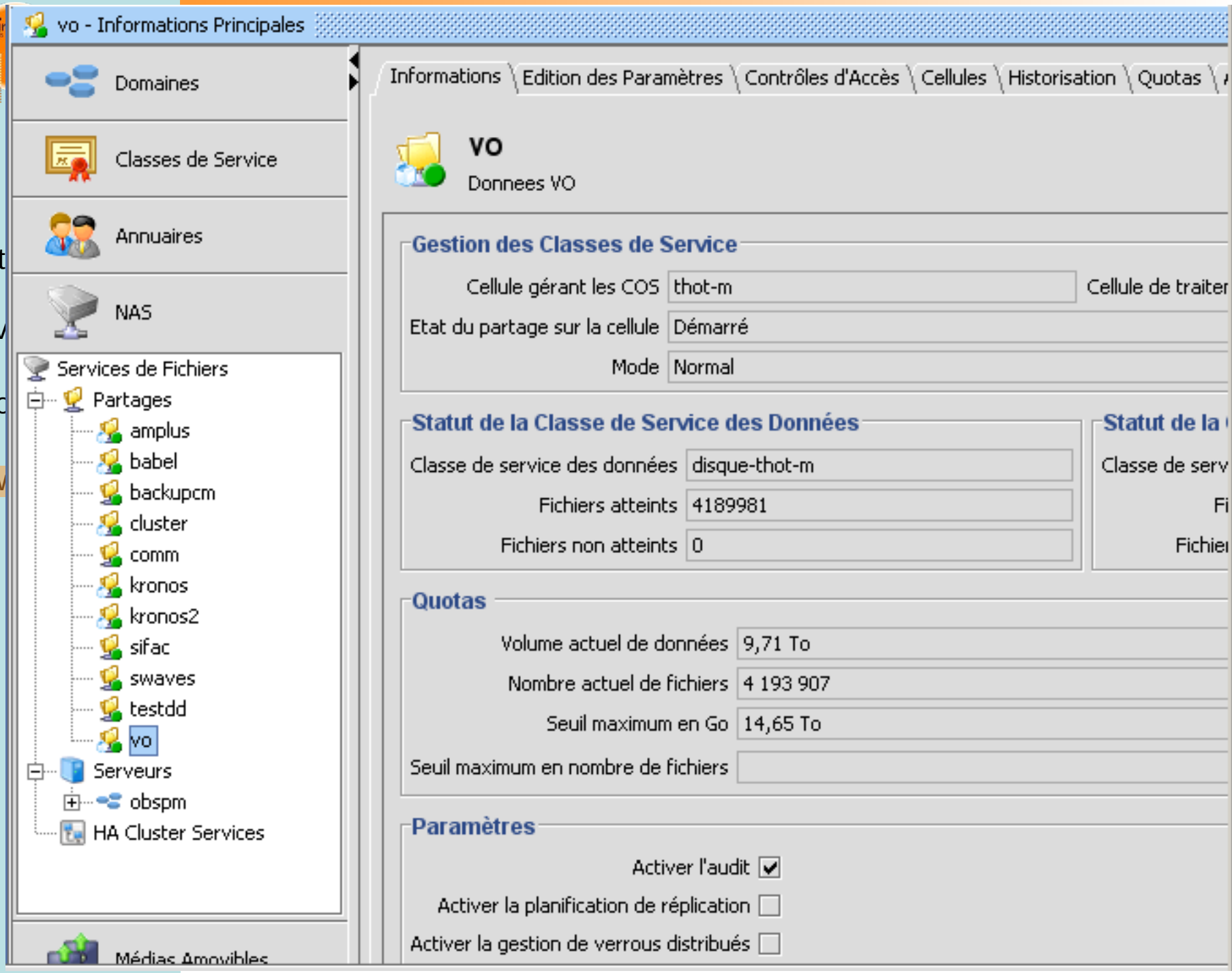
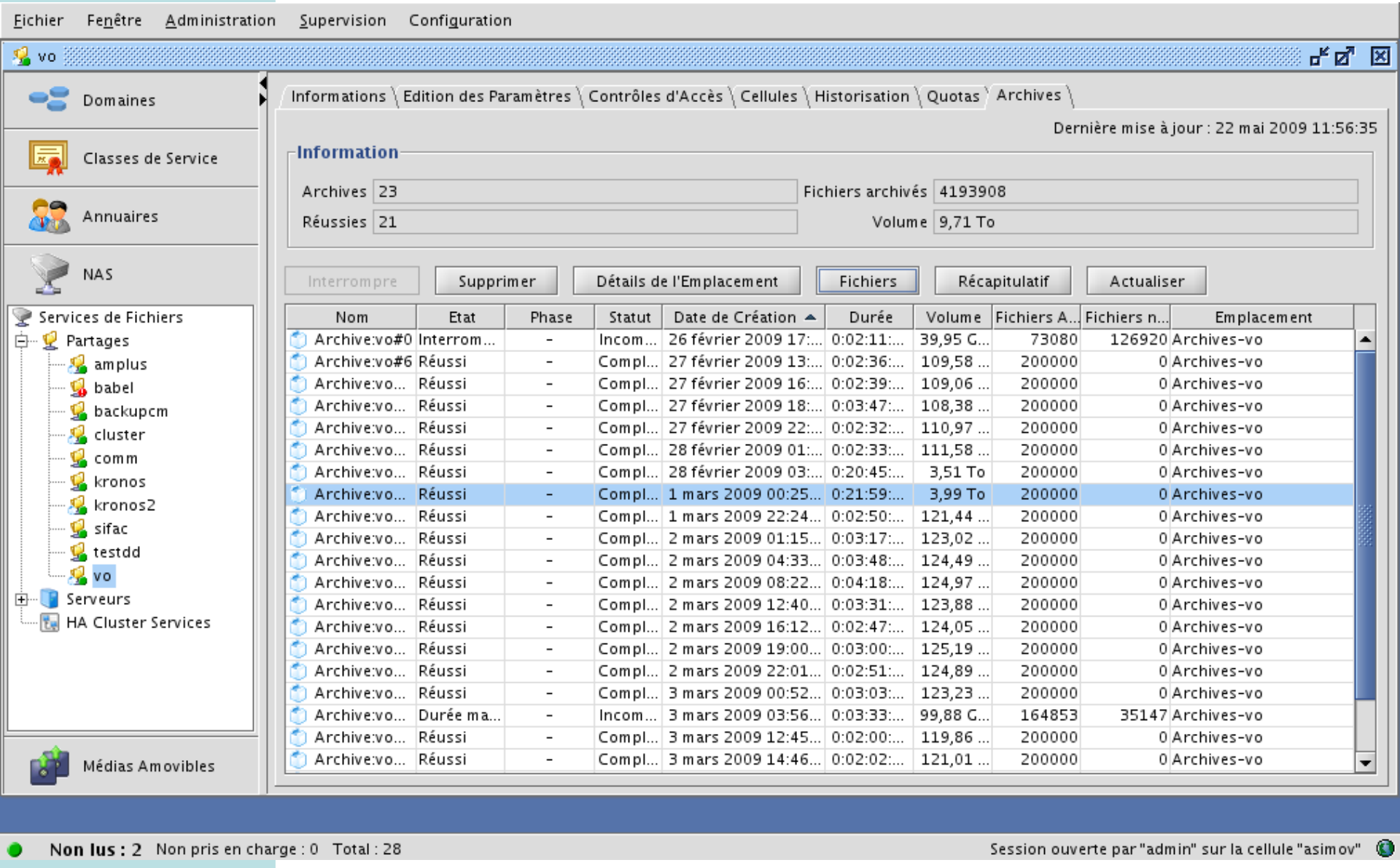
How

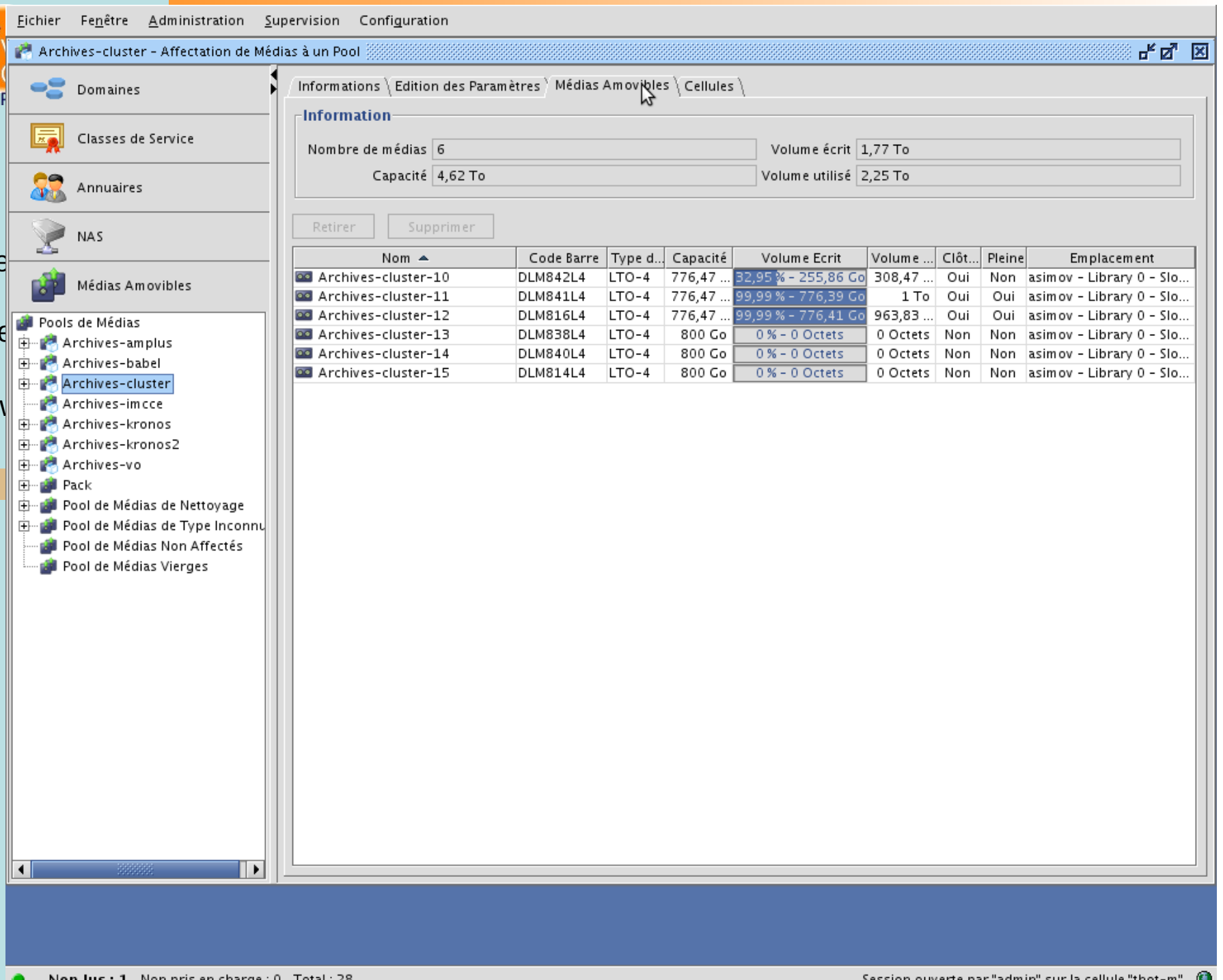
How it w

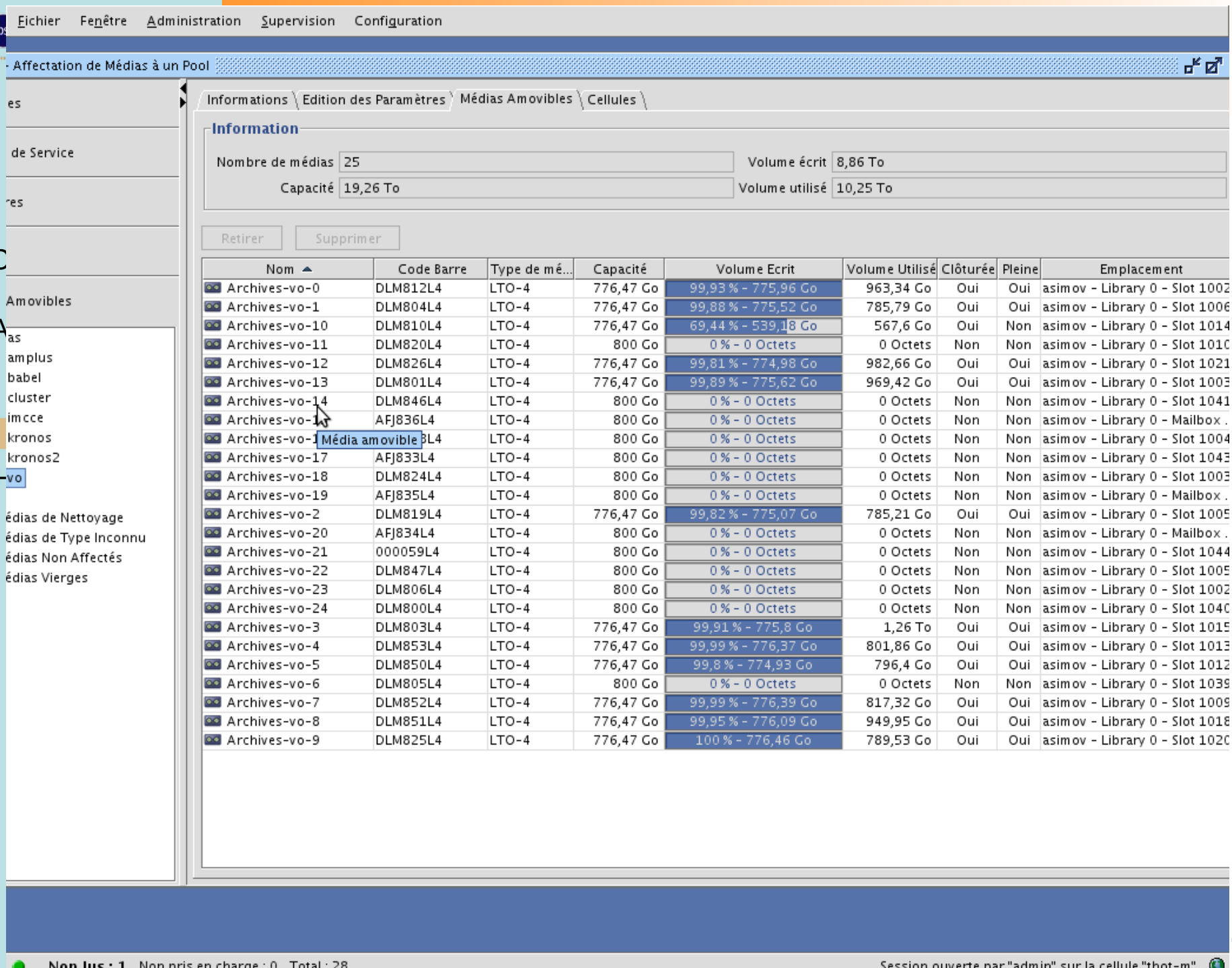



vo - Informations Principales
Domaines
Classes de Service
Annuaires
NAS
Services de Fichiers
Partages
amplus
babel
backupcm
cluster
comm
kronos
kronos2
sifac
swaves
testdd
vo
Serveurs
obspm
HA Cluster Services
Médias Amovibles
Informations
Edition des Paramètres
Contrôles d'Accès
Cellules
Historisation
Quotas
VO
Donnees VO
Gestion des Classes de Service
Cellule gérant les COS
thot-m
Cellule de traiter
Etat du partage sur la cellule
Démarré
Mode
Normal
Statut de la Classe de Service des Données
Classe de service des données
disque-thot-m
Fichiers atteints
4189981
Fichiers non atteints
0
Statut de la
Classe de serv
Fi
Fichier
Quotas
Volume actuel de données
9,71 To
Nombre actuel de fichiers
4 193 907
Seuil maximum en Go
14,65 To
Seuil maximum en nombre de fichiers
Paramètres
Activer l'audit
Activer la planification de réplication
Activer la gestion de verrous distribués

Admin interface




Fichier
Fenêtre
Administration
Supervision
Configuration
Archives-cluster - Affectation de Médias à un Pool
Domaines
Classes de Service
Annuaires
NAS
Médias Amovibles
Pools de Médias
Archives-amplus
Archives-babel
Archives-cluster
Archives-imcce
Archives-kronos
Archives-kronos2
Archives-vo
Pack
Pool de Médias de Nettoyage
Pool de Médias de Type Inconnu
Pool de Médias Non Affectés
Pool de Médias Vierges
Informations
Edition des Paramètres
Médias Amovibles
Cellules
Information
Nombre de médias 6
Volume écrit 1,77 To
Capacité 4,62 To
Volume utilisé 2,25 To
Retirer
Supprimer
Nom
Code Barre
Type d...
Capacité
Volume Ecrit
Volume ...
Clôt...
Pleine
Emplacement
Archives-cluster-10 DLM842L4 LTO-4 776,47 ... 32,95 % - 255,86 Go 308,47 ... Oui Non asimov - Library 0 - Slo...
Archives-cluster-11 DLM841L4 LTO-4 776,47 ... 99,99 % - 776,39 Go 1 To Oui Oui asimov - Library 0 - Slo...
Archives-cluster-12 DLM816L4 LTO-4 776,47 ... 99,99 % - 776,41 Go 963,83 ... Oui Oui asimov - Library 0 - Slo...
Archives-cluster-13 DLM838L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slo...
Archives-cluster-14 DLM840L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slo...
Archives-cluster-15 DLM814L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slo...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Médias Amovibles
Cellules
Information
Nombre de médias 25
Capacité 19,26 To
Volume écrit 8,86 To
Volume utilisé 10,25 To
Retirer
Supprimer
Nom
Code Barre
Type de mé...
Capacité
Volume Ecrit
Volume Utilisé
Clôturée
Pleine
Emplacement
Archives-vo-0 DLM812L4 LTO-4 776,47 Go 99,93 % - 775,96 Go 963,34 Go Oui Oui asimov - Library 0 - Slot 1002
Archives-vo-1 DLM804L4 LTO-4 776,47 Go 99,88 % - 775,52 Go 785,79 Go Oui Oui asimov - Library 0 - Slot 1006
Archives-vo-10 DLM810L4 LTO-4 776,47 Go 69,44 % - 539,18 Go 567,6 Go Oui Non asimov - Library 0 - Slot 1014
Archives-vo-11 DLM820L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1010
Archives-vo-12 DLM826L4 LTO-4 776,47 Go 99,81 % - 774,98 Go 982,66 Go Oui Oui asimov - Library 0 - Slot 1021
Archives-vo-13 DLM801L4 LTO-4 776,47 Go 99,89 % - 775,62 Go 969,42 Go Oui Oui asimov - Library 0 - Slot 1003
Archives-vo-14 DLM846L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1041
Archives-vo-1 AFJ836L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Mailbox .
Archives-vo-1 Média amovible LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1004
Archives-vo-17 AFJ833L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1043
Archives-vo-18 DLM824L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1003
Archives-vo-19 AFJ835L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Mailbox .
Archives-vo-2 DLM819L4 LTO-4 776,47 Go 99,82 % - 775,07 Go 785,21 Go Oui Oui asimov - Library 0 - Slot 1005
Archives-vo-20 AFJ834L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Mailbox .
Archives-vo-21 000059L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1044
Archives-vo-22 DLM847L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1005
Archives-vo-23 DLM806L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1002
Archives-vo-24 DLM800L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1040
Archives-vo-3 DLM803L4 LTO-4 776,47 Go 99,91 % - 775,8 Go 1,26 To Oui Oui asimov - Library 0 - Slot 1015
Archives-vo-4 DLM853L4 LTO-4 776,47 Go 99,99 % - 776,37 Go 801,86 Go Oui Oui asimov - Library 0 - Slot 1013
Archives-vo-5 DLM850L4 LTO-4 776,47 Go 99,8 % - 774,93 Go 796,4 Go Oui Oui asimov - Library 0 - Slot 1012
Archives-vo-6 DLM805L4 LTO-4 800 Go 0 % - 0 Octets 0 Octets Non Non asimov - Library 0 - Slot 1039
Archives-vo-7 DLM852L4 LTO-4 776,47 Go 99,99 % - 776,39 Go 817,32 Go Oui Oui asimov - Library 0 - Slot 1009
Archives-vo-8 DLM851L4 LTO-4 776,47 Go 99,95 % - 776,09 Go 949,95 Go Oui Oui asimov - Library 0 - Slot 1018
Archives-vo-9 DLM825L4 LTO-4 776,47 Go 100 % - 776,46 Go 789,53 Go Oui Oui asimov - Library 0 - Slot 1020
Amovibles
as
amplus
babel
cluster
imcce
kronos
kronos2
vo
édias de Nettoyage
édias de Type Inconnu
édias Non Affectés
édias Vierges
Non lus : 1
Non pris en charge : 0
Total : 28
Session ouverte par "admin" sur la cellule "thot-m"