



OC ♥ FS

Expectations

Suiters

She

He

Sync

Communication

Sharing

Transparency

Happy End?

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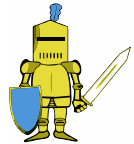
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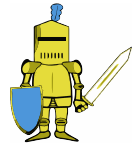
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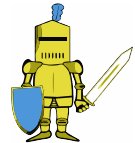
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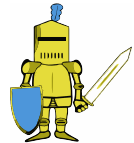
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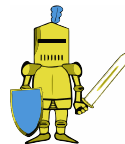
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What or other people expectations of the alliance?



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Data Virtualization (the grandchildren)?

Virtualization Loosen ties to physical entities.

Mobility Mobility as a service (MaaS)
Goal of the Automotive industry?

Data ■ People want to use their data.
■ They don't care about storage, transfer, ...

Caveat Don't care → pay.

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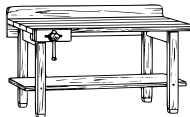
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Bonus (What does she have to recommend herself?):

- Usage pattern (bringing together):
 - Sync (other/mobile devices)
 - Share (other people)
- (Web)GUI/Client/Explorer integration

Is she ready yet?

- External storage interface
 - Primary storage** Her apartment (DB).
 - Secondary storage** His apartment (Inodes and stuff).



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Bonus (What has he to offer?):

- Old, reliable and capable connections
 - SMB (SMB2++ quite improved)
 - NFS (connecting machines and software)
- Content/data (collected for decades)
- Meet the family (AAI): MS/Samba AD, LDAP, Kerberos

Is he ready to give up his freedom?

Name Campus File System (CFS).

Description Central, scalable NAS.

Paradigms

- SMB2++ and NFSv4. EQUALLY.
- Unified, global namespace.

Interests: NFSv4 ACLs



Who makes first step?

Her first step: Impersonation

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- User_Backend intercepts login credentials
- Credentials are used to create kerberos ticket
- Use bindfs with kerberos ticket to remount NFS-Share
- Use new path to access as external storage of type local

First date looked promising ...

OC can sync user's FS data via NFSv4.

... later some communication problems emerged.

OC does not reliable pick up FS changes.

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Does he talk? Does she listen?



Staying in sync?

- Scanner relies on propagated mtime (Issue #11797)
- Regular full scans are slow
- ETAGS are not propagated correctly (OC 9.0.0)
- On error client stops sync and restarts

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Does he talk? Does she listen?



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Moving in together: How about some rules?

OC: CRUDS

Create, Read, Update, Delete, Share

"2015"	Permission	File	Directory	Remark
R	read			
S	can share			
CUD	can edit			meta perm.
C	create	–	add file/subdir	a.k.a. update
U	change	write	touch?	
D	delete	–	del file/subdir	

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Bit	file	directory	Remark
r	read	list contents	mostly w=a mostly w=a „delete child“
w	write/modify	add file	
a	append	add subdir	
D	–	del file/subdir	
d	delete	delete	
x	execute	traverse/search	
t	read basic attrs		stat + Win
T	change basic attrs		stat + Win
n	read named attrs		
N	write named attrs		
c	read ACL		
C	write ACL		
o	change owner		take ownership
y	sync primitive		stored only

Sharing: Rules and enforcing them

How about a compromise?

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Bit	file	directory	file	dir
r	read	list contents	R	R
w	write/modify	add file	U	C
a	append	add subdir	U	C
D	–	del file/subdir		D
d	delete	delete		
x	execute	traverse/search	„preserve“	R
t	read basic attrs		R	R
T	change basic attrs		U	
n	read named attrs		R	R
N	write named attrs		U	
c	read ACL		R	R
C	write ACL		S	S
o	change owner		S?	S?
y	sync primitive		R!	R!



Sharing: Rules and enforcing them

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POSIX mode Still there, limited.

POSIX ACLs Who is using them?

NTFS ACLs De facto standard.

NFSv4 ACLs Quite similar.

CRUDS Can be mapped on NTFS or NFSv4 ACLs.
Requires reasonable compromise.
Windows: Read, Change, Full Control.



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What else?

Transparency over OC, SMB, NFS for:

- browse
- access
- set share
- shared with me
- shared by me

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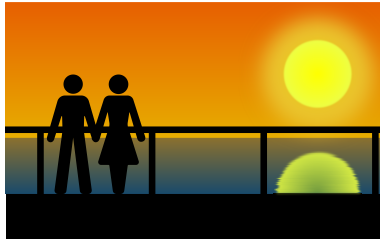
It depends on you:

- Explain scanning: design, known issues, ..., trigger?
- Explain sharing: API? Definition of CRUDS?
- Let OC focus on its core features: sync and share data.
- Keep OC open and connected: AAI, OpenCloudMesh.

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