

Windows drive for EOS-wnc

EOS Client for Windows

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Topics

Windows drive for EOS-wnc



Comtrade: Development of EOS-wnc

Windows drive for EOS-wnc

Background about EOS-wnc development 1/2

Comtrade: Development of EOS-wnc

Comtrade: CERN openlab associate

- Storage solutions since 1990
- Actively involved in EU research
- EOS productisation since 2015
- More than 2500 software developers in 2020

Issues with porting from Linux

- Networking issue
- Security issue

Development direction

- EOS client for Linux built within WSL
- Porting XRootD to Windows
- Completely new Windows EOS client

Background about EOS-wnc development 2/2

Comtrade: Development of EOS-wnc

EOS-wnc communication design

- Protocol Buffers
- gRPC
- cURL
- EOS-wnc access points

EOS-wnc: Productisation project

- MS Visual Studio environment
- Optimal Implementation Phase (OIP)

Presented at CS3 2021

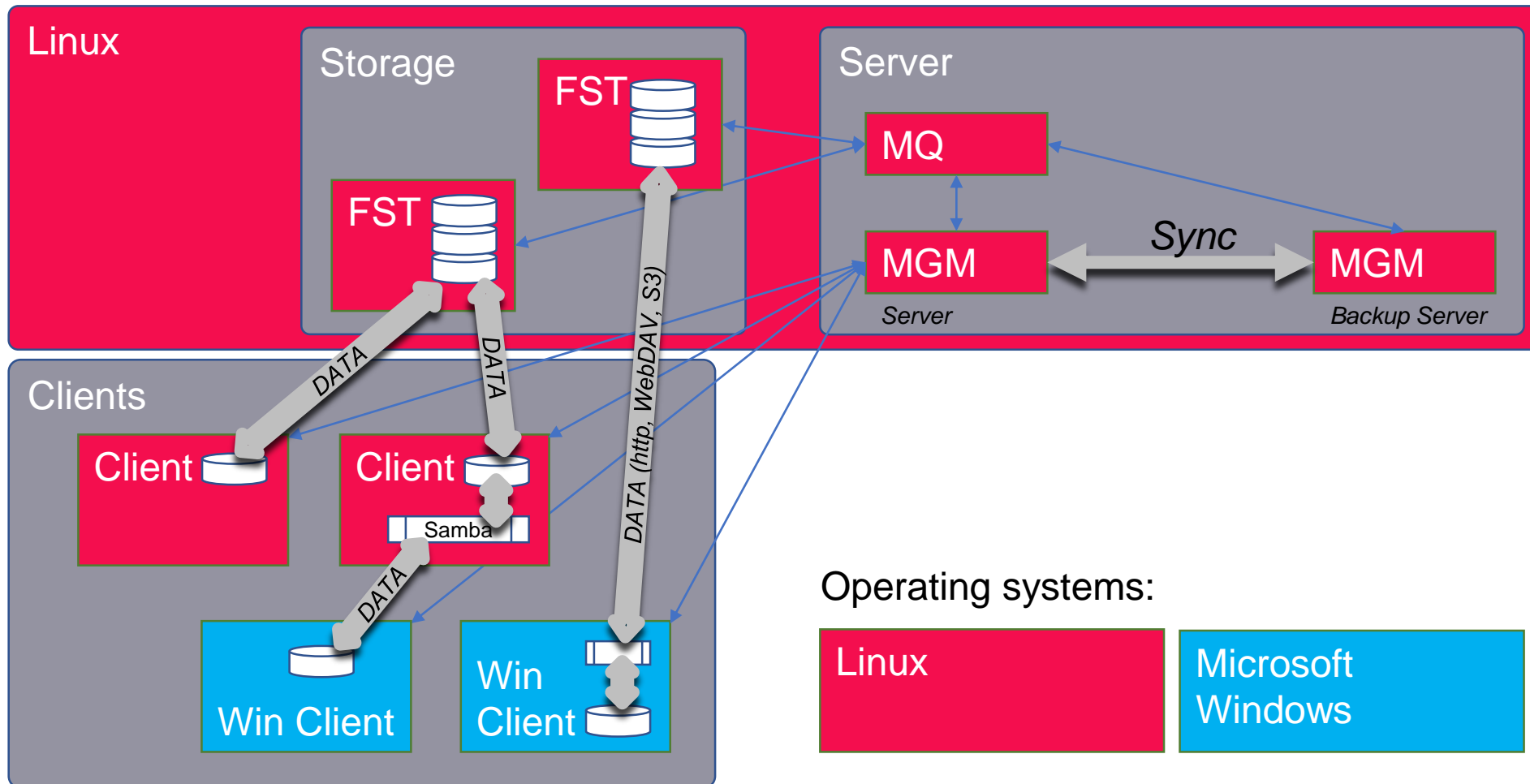
- EOS-wnc: EOS Client for Windows
- <https://indico.cern.ch/event/970232/contributions/4158376/>

EOS cluster communication design

Windows drive for EOS-wnc

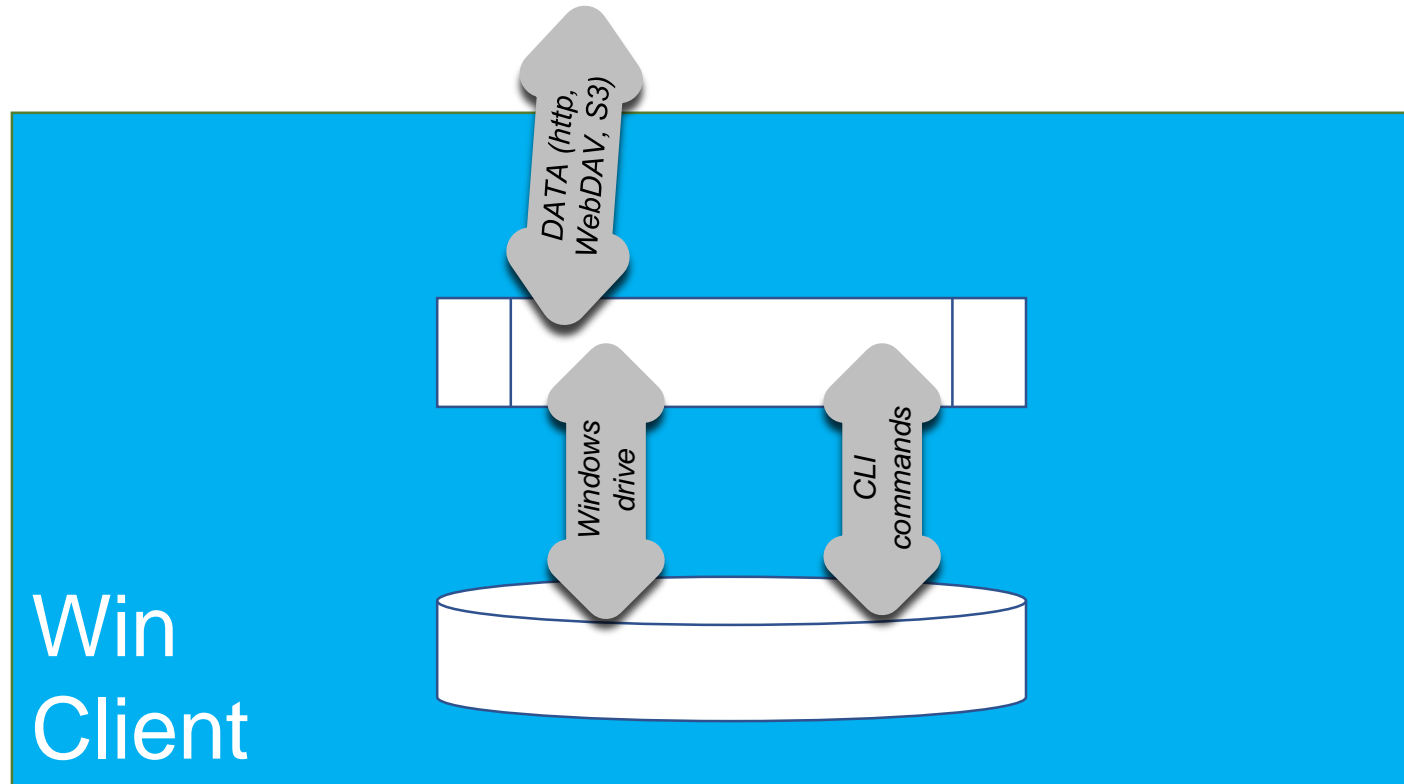
EOS-wnc communication design

EOS cluster communication design



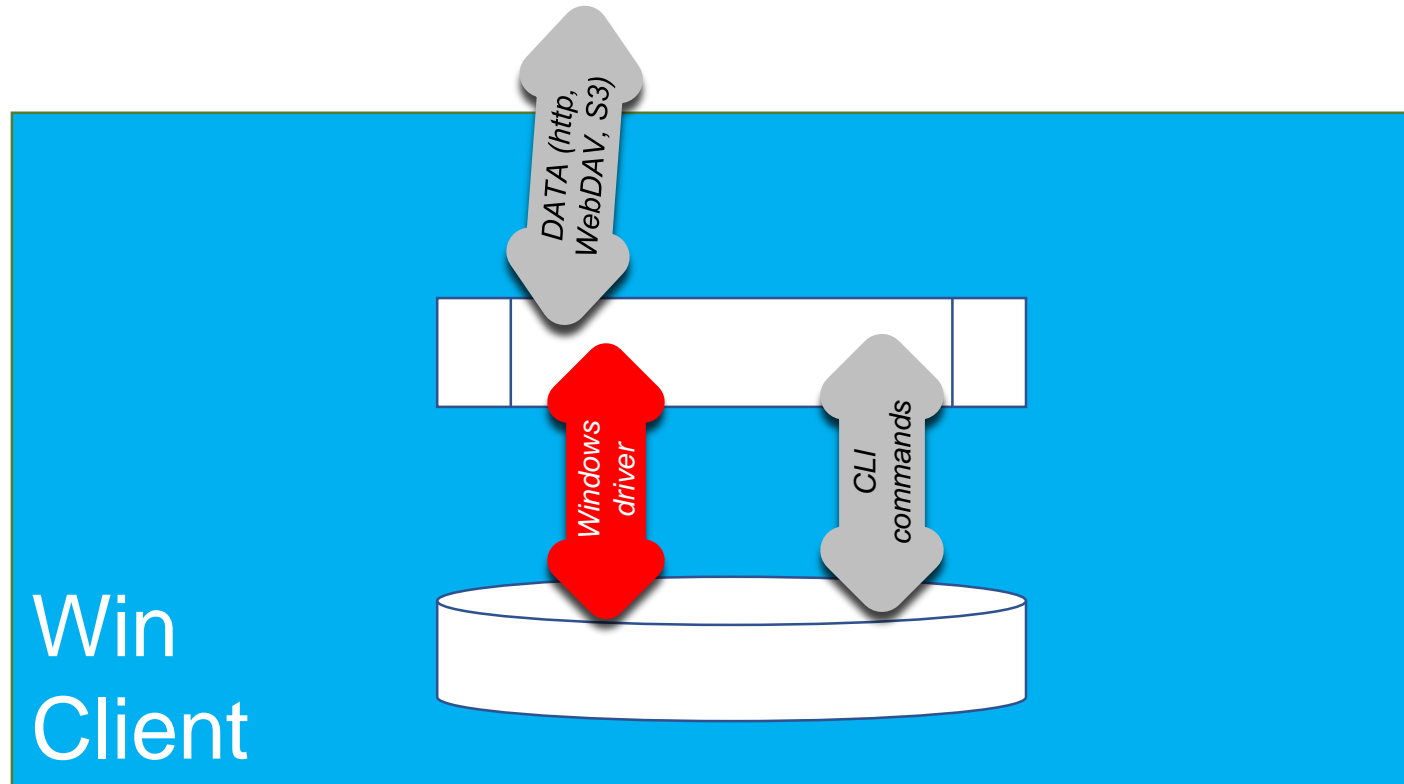
EOS-wnc connection to Windows disk

EOS cluster communication design



EOS-wnc connection to Windows disk

EOS cluster communication design



EOS-wnc: Windows Driver for EOS

Windows drive for EOS-wnc

Windows Driver for EOS design

EOS-wnc: Windows Driver for EOS

Windows Driver Frameworks (WDF)

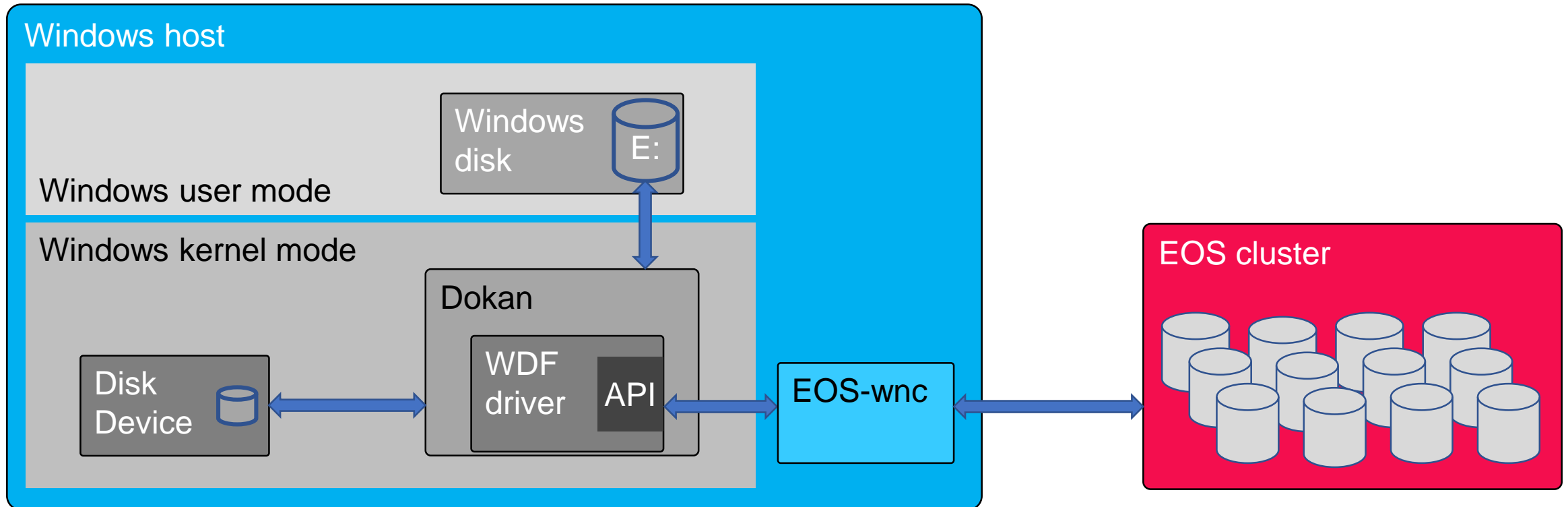
- › UMDF: User-Mode Driver Framework
- › KMDF: Kernel-Mode Driver Framework

Thin driver for EOS-wnc

- › Transfers commands
- › Prevents complex bugs
- › Device driver bugs are extremely expensive

EOS Windows Driver architecture

EOS-wnc: Windows Driver for EOS



EOS-wnc drive: Demo

Windows drive for EOS-wnc

Prerequisite: Installed EOS-wnc

PS> dir

Directory: C:\eos\wnc

Mode		LastWriteTime	Length	Name
----		-----	-----	----
-a----	15. 01. 2021	12:28	203776	curlpp.dll
-a----	15. 01. 2021	13:33	104960	dokan1.dll
-a----	25. 02. 2021	21:02	5006336	eos-drive.exe
-a----	24. 02. 2021	17:13	98238	EOS-Drive.ico
-a----	24. 02. 2021	17:13	2578432	libcrypto-1_1.dll
-a----	24. 02. 2021	17:13	472576	libcurl.dll
-a----	24. 02. 2021	17:13	535040	libssl-1_1.dll
-a----	15. 01. 2021	12:28	138240	readline.dll
-a----	15. 01. 2021	12:28	74752	zlib1.dll

PS>

Demo

C:\Users\gregor.CT\source\repos\eos-wnc\out\install\x86-Clang-Release\bin

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

```
PS> eos-drive.exe --token comtrade --endpoint donny.eos.comtrade.com
# -----
# EOS Windows Native Client (EOS-wnc) Copyright (c) 2021, Comtrade
#
# Licence: BSD-3-Clause (GPL compatible)
# All rights reserved. For more details type "license".
# -----
EOS_INSTANCE=data
EOS_SERVER_VERSION=4.8.39 EOS_SERVER_RELEASE=EOSwnc
EOS_WNC_VERSION=0.1 EOS_WNC_RELEASE=20210225210124
Virtual Identity: uid=0 (0,99) gid=0 (0,99) [authz:grpc] host=10.195.1.10
[EosDrive] Failed to add security privilege to process
=> GetFileSecurity/SetFileSecurity may not work properly
=> Please restart EosDrive sample with administrator rights
ERROR: The system was unable to find the specified registry key or value.
The operation completed successfully.
info: created directory '/MSIfd4ea.tmp'
info: deleted directory '/MSIfd4ea.tmp'
success: touched '/eos/data/gregor/molan/15_02_2021.jex'
```

File Explorer window showing the directory structure of 'molan' on 'EOS-DRIVE (E:)'.

Name	Date modified	Type	Size
2005.0.01.Tree.emf	26.02.2021 16:37	EMF File	14'336 KB
2005.0.01.Tree.emf:Zone.Identif...	26.02.2021 16:36	IDENTIFIER...	1 KB
invisible.txt	26.02.2021 15:11	TXT File	1 KB
15_02_2021.jex	28.02.2021 21:22	JEX File	13'438 KB

EOS-wnc: Future work

Windows drive for EOS-wnc

Planned actions for 2021

EOS-wnc: Future work

Installation

- › Windows Installer
- › Setup.exe
- › EOS-wnc.msi
- › The Windows Store

Documentation

- › EOS-wnc guidelines
- › EOS-wnc how to guide
- › EOS-wnc complete docs

Productisation

- › Appropriate quality
- › Professional development process

Windows drive for EOS-wnc

Gratitude

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- 1) Alberto Di Meglio

Thanks to Comtrade:

- 1) Veselin Jevrosimović
- 2) Alexis Lope-Bello

EOS-wnc team

- 1) Gregor Molan
- 2) Branko Blagojević
- 3) Ivan Arizanović
- 4) Svetlana Milenković

EOS-wnc console: Demo slides

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