

# Last Mile Transfer and Ready2go Supporting the long tail of science

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The "**File Transfer Service**" (FTS) has been proven capable of satisfying the requirements of three major LHC experiments: ATLAS, CMS and LHCb.

Small experiments, or individual scientists, can also benefit from FTS advantages, effectively outsourcing transfer complexities thanks to the support for local file transfers added to **WebFTS** via **Last Mile Transfer** and the easy setup of data servers offered by **Ready2go**

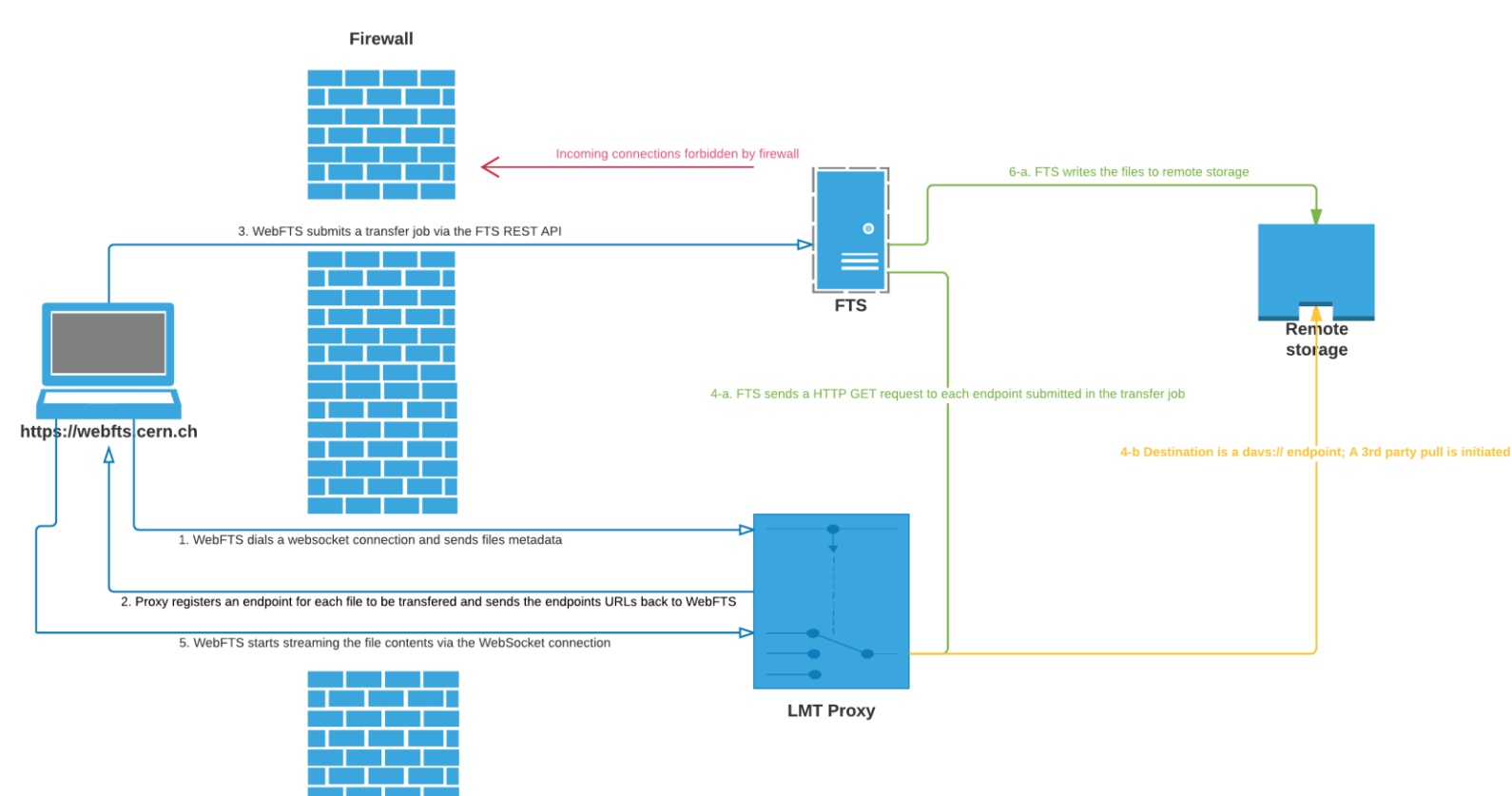
## WebFTS and LMT

**WebFTS** is the user interface for the File Transfer Service. It has been designed to allow transferring files between 2 remote storages, and given the users' interest it has been recently extended to support transfers from a user local PC/Laptop.

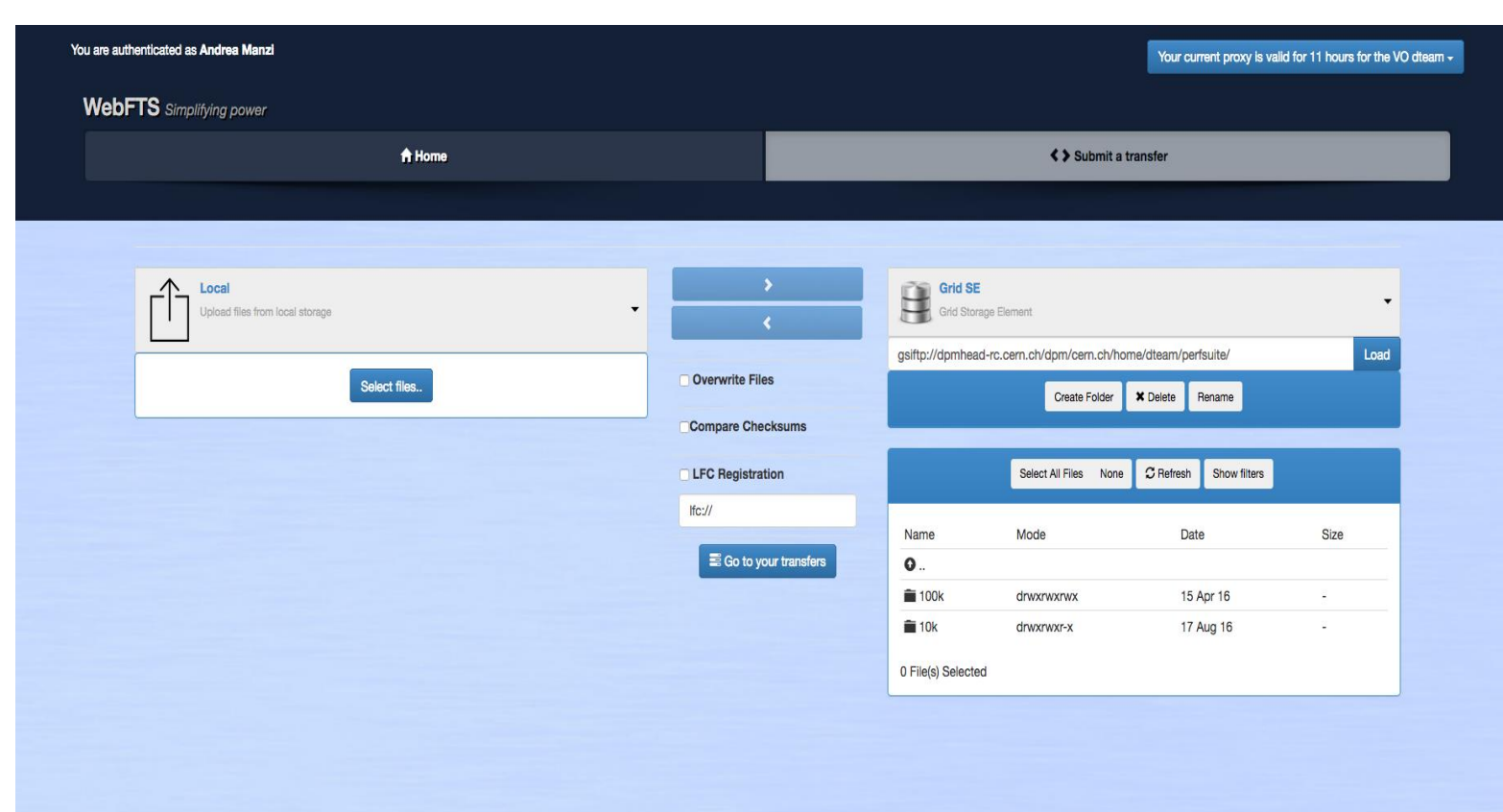
This is now possible thanks to **Last Mile Transfer (LMT)**, a proxy service written in GO which enables local data transfers to a remote storage without the need of installing any software on the users' PC/Laptop.

On one end, **WebFTS** connects the clients to **LMT** via a WebSocket connection and on the other, **LMT** listens to incoming connections from FTS. When FTS is ready to begin a transfer, it starts forwarding the data from the client accordingly. This allows to overcome firewall limitations and to implement 3rdparty copy to HTTP/DAV servers which support it (*DPM*, *dCache*), otherwise data are streamed via FTS.

LAST MILE TRANSFER



WebFTS has been also simply extended in order to select the files available on the user PC/laptop. The new version will be soon available in production at CERN.

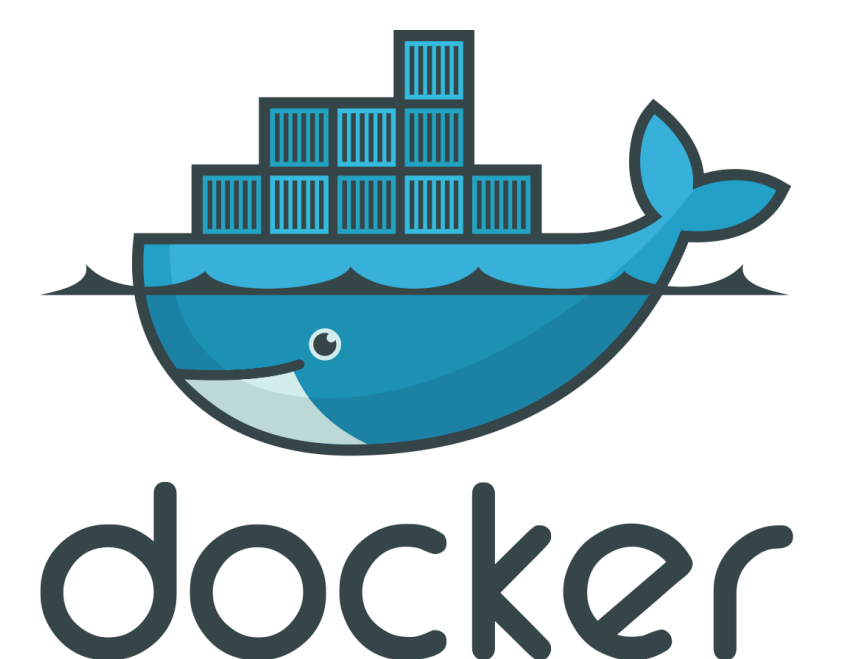


## Ready2go

While FTS is mainly used to transfer data within the WLCG infrastructure, it can also be used to transfer data from an experiment facility towards a data center.

However, while the FTS service is run by the IT department and using it is relatively easy, the experiment does need to run some server software so FTS can access the files. The default choice tends to be GridFTP, since it is well known and supported on the Grid.

**Ready2go** is a set of **Docker** images developed with the idea to ease the setup a server for file transfer purposes via FTS



2 types of images are available:

- GridFTP
- FTP with FXP ( File Exchange protocol) enabled

To work, GridFTP requires a X509 certificate to be installed on the storage. For experiments within CERN, it isn't hard to obtain one, but for other external experiments this may not be that trivial.

To make things easier, we provide also a GridFTP image bundled with a **Let's Encrypt** certbot client.



In this manner, on boot time the container will automatically obtain a certificate and start the GridFTP server, ready to be used by an existing FTS instance.

At the moment **Ready2go** images have been already setup at CERN by the **NA62** and **CLOUD** experiments and externally by the **ArDM** experiment and **ELIXIR** infrastructure.

## LINKS

<https://github.com/cern-fts/lmt>

<https://github.com/cern-fts/ready2go>

<https://webfts.cern.ch>



**FTS**  
File Transfer Service



<https://fts.cern.ch>