

Uniform Distributed Storage View for the UNICORE Rich Client

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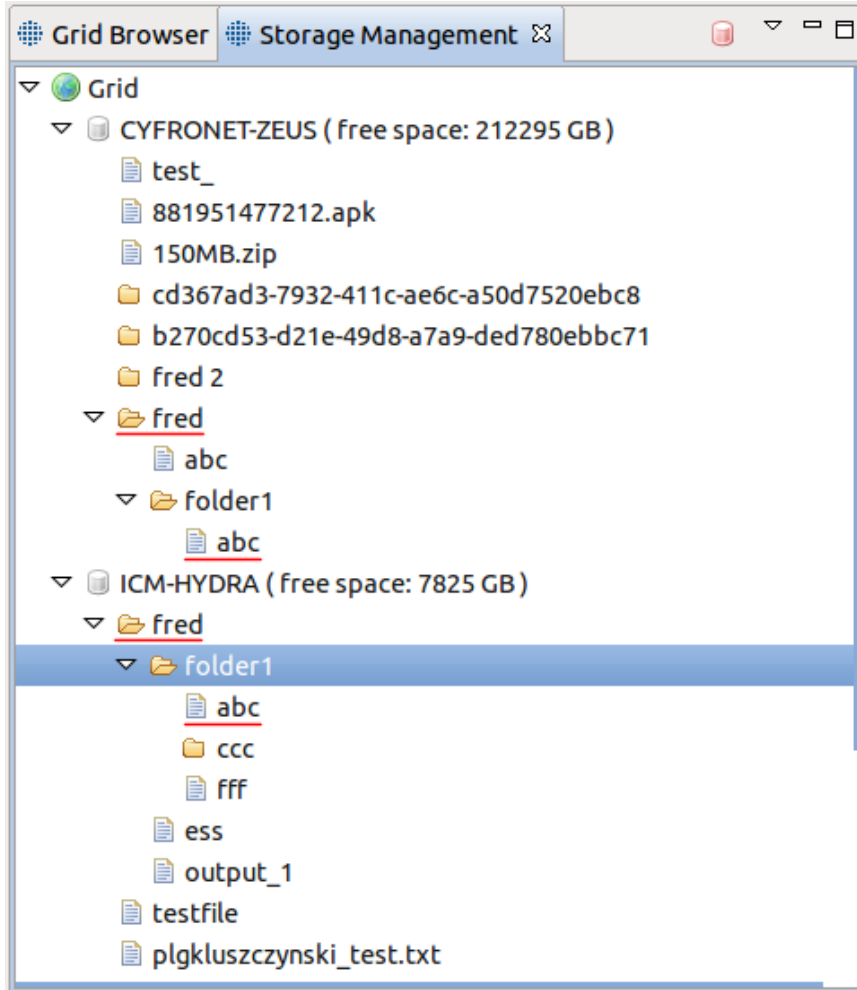
Rafał Kluszczyński - consultations

Plugin to the graphical client URC has been implemented in the establishment of the master's thesis.

Requirements for the plugin

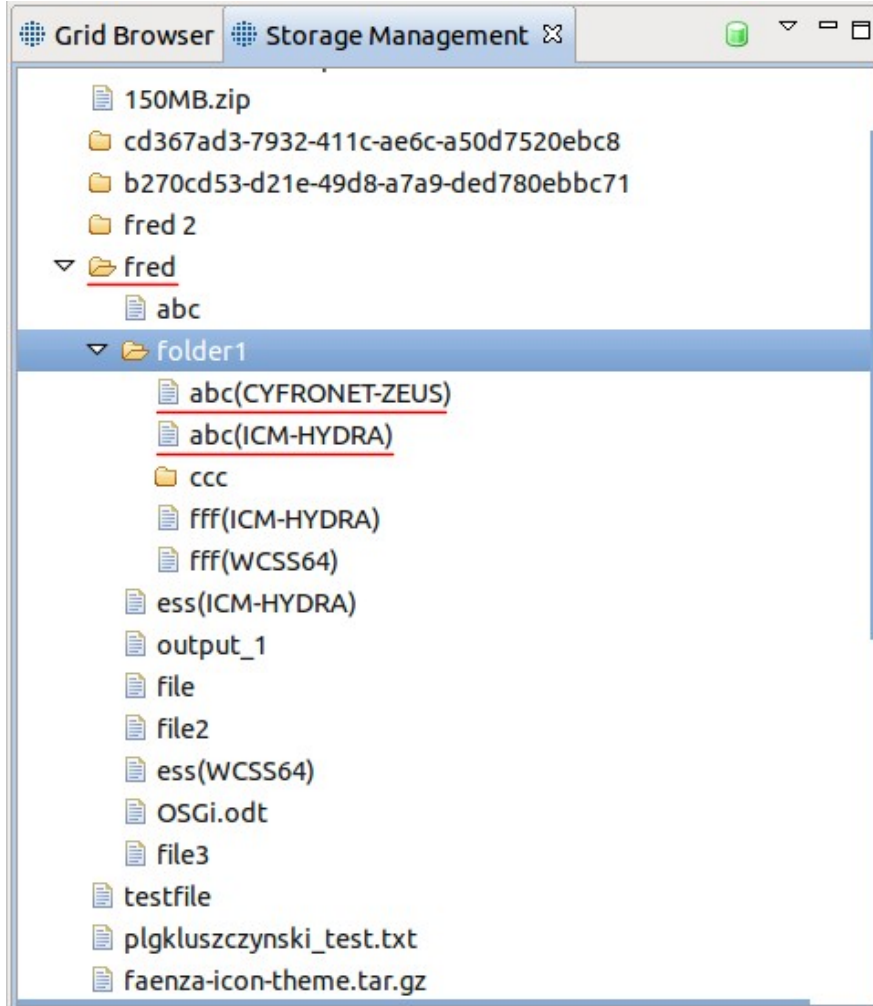
- Creation of Uniform Distributed Storage View
- Implementation of currently available functionality
- Providing information needed to identify the preferred storages
- Monitoring status of the Internet connection between storages

Standard View



- The ability to sort by name or by last modification date
- The ability to filter other people's files
- What to do if files have identical paths in their storages?

Uniform View



- Storages are invisible
- If many folders have the same path, only one is displayed, and their contents are merged
- If many files have the same path then suffix is added with name of storage
- If you have to random storage, then are used user preferences

Storages Priority

The screenshot shows a configuration window titled "Storage priority" with a left-hand navigation pane. The navigation pane includes categories like General, Help, Install/Update, Run/Debug, Team, UNICORE (with sub-items Grid Browser, Jobs, Security, Storage Management, Terminal, Workflows), and Storage Priority (highlighted). The main area contains a list of storage names with corresponding priority values in input fields. A note states: "If you set 0 value then a storage will not be used." At the bottom, there are buttons for "Restore Defaults", "Apply", "Cancel", and "OK".

Storage Name	Priority Value
CYFRONET-ZEUS	100
ICM-HYDRA	10
PCSS	10
TASK-GALERAPLUS	50
WCSS64	10
PLG-ICM-TEST	10
PLG-NCU-TEST	10
PLG-ICM-TEST	0

- The priority of the storage, values between 0 - 100
- 0 value means that the storage is not used
- Storages randomized from a uniform distribution

Selecting files to run job

The screenshot shows the UNICORE Rich Client interface. A file selection dialog is open, displaying a tree view of the file system. The selected file is 'input_fred' in the 'Fred' directory. The background shows the Grid Browser and Storage Management panels.

Grid Browser:

- Grid
 - CYFRONET-ZEUS (free space: 212180 GB)
 - ICM-HYDRA (free space: 7798 GB)
 - PCSS (free space: 13187 GB)
 - TASK-GALERAPLUS (free space: 1600 GB)
 - WCSS64 (free space: 3803 GB)
 - PLG-ICM-TEST (free space: 8 GB)
 - PLG-NCU-TEST (free space: 260 GB)
 - PLG-ICM-TEST (free space: -1 B)

Storage Management Table:

from \ to	localhos	CYFRON	ICM-HYDRA	PCSS
localhost		147 KB/s	153 KB/s	159 KB
CYFRONET-ZEU	189 KB/s		342 KB/s	317 KB
ICM-HYDRA	189 KB/s	235 KB/s		375 KB
PCSS	192 KB/s	363 KB/s	329 KB/s	
TASK-GALERAP	196 KB/s	215 KB/s	380 KB/s	388 KB
WCSS64	201 KB/s	358 KB/s	317 KB/s	412 KB
PLG-ICM-TEST	102 KB/s	191 KB/s	215 KB/s	191 KB
PLG-NCU-TEST	165 KB/s		294 KB/s	
PLG-ICM-TEST				

File Selection Dialog:

- Grid
 - .dsms-plgfred
 - sss
 - unicore_storage_test_1332841245409
 - unicore_storage_test_1336064419709
 - 31aba566-7ddf-4364-bfbf-3d1ebae994f2
 - 4a9e7ace-4739-41db-8aca-9d7e0530ceeb
 - 9817f985-33fa-485f-8fe2-75c96a804aa0
 - C_PL_O_GRID_O_PSNC_CN_Bartosz_Palak
 - b270cd53-d21e-49d8-a7a9-ded780ebbc71
 - cd367ad3-7932-411c-ae6c-a50d7520ebc8
 - fred
 - fred 2

File(s) in Job Directory:

- input_fred

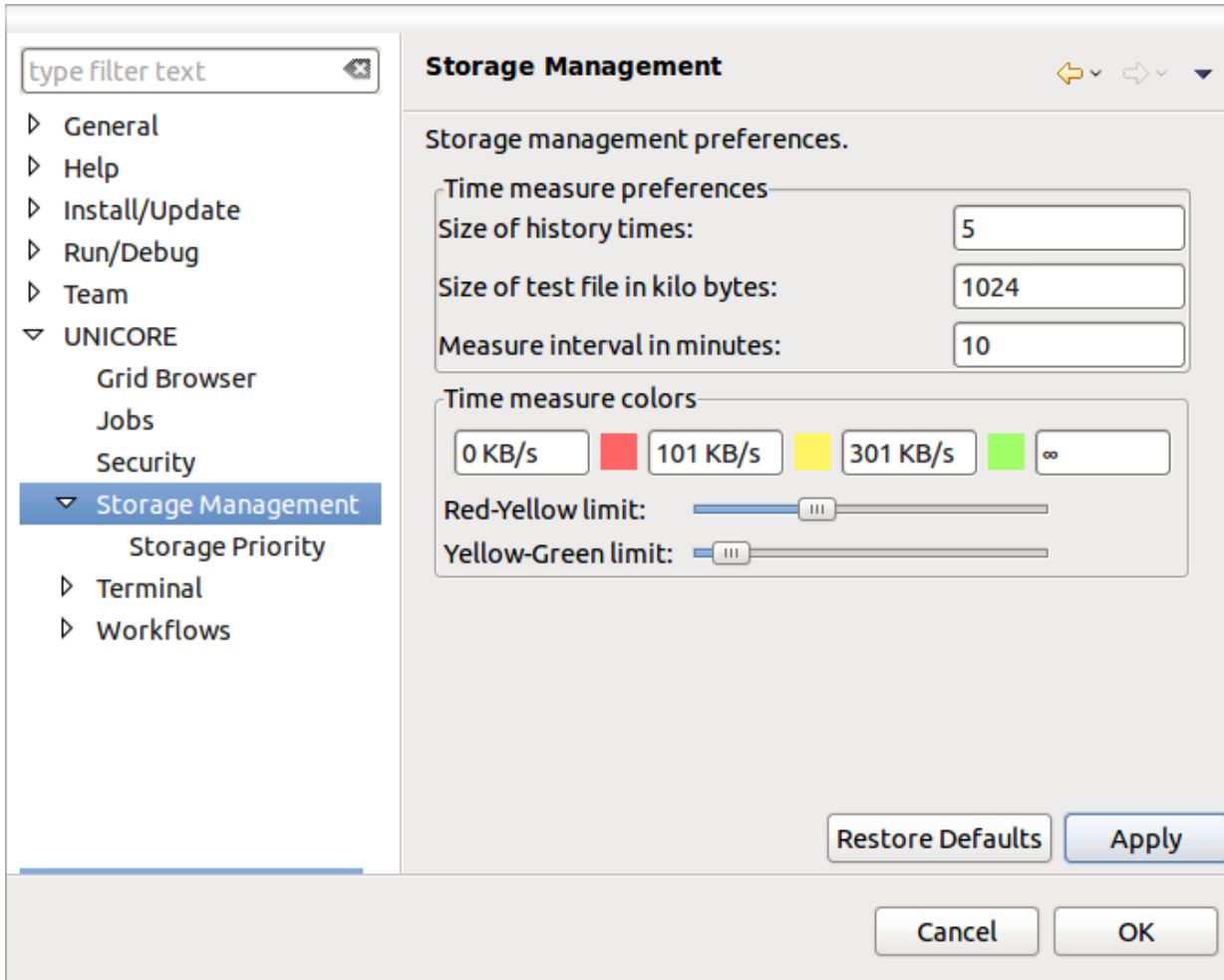
File(s) at Destination / File ID:

Type	File(s) at Destination / File ID

Measurement the speed of transfer - algorithm

1. Creating a byte array of given size
2. Transmission of the file from localhost to Storage1 and backward
3. Transmission from Storage1 to other Grid nodes and backward (for transmission Storage - Storage there isn't any good timing)
4. Removing test file from Storage1
5. Repeat points 2-4 for all Storages

Preferences of the speed measurement



- Memory size for the obtained measurements
- Size of the transferred file
- Frequency of starting measuring thread
- coloring preferences for results

Presented plugin vs. dSMS

URC plugin

- Requires one-time installation
- Allows you to set preferences, how to choice storage
- The additional possibility of measuring the transfer rate

dSMS

- Client-side installation is not required
- Round robin algorithm used
- None of transfer measure functionality

How the plugin can be extended?

- Move frequently used files for faster / preferred Storages
- Proposing a file transfer using many intermediate nodes where it can reduce the time of the transfer

Thank you for your attention.