CS³ MESH⁴ EOSC

FINAL EVENT

HYBRID EVENT

22 June 2023

11:00 - 17:45 CEST

Location: Poznan (Poland),
co-located with EGI Conference

Science Mesh - Unlocking Open Science & Collaborative Research Landscape

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The Science Mesh Technical Foundation on OCM, for an effective scientific collaboration - live demonstrations

Room Paris | 15:00-16:00 CEST

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Connecting European Data

Science Mesh: Invitation Workflow with OC10 and NC

Miroslav Bauer, David Antoš, Jan Horníček, Milan Daneček

Science Mesh, Poznan, 2023

CS3MESH4EOSC has received funding from the European Union's Horizon 2020 Research and Innovation programme under **Grant Agreement No. 863353**.

Dark Times before the Science Mesh

* Open Cloud Mesh (OCM) used for federated sharing between EFSS
  * Protocol already established before the project
  * Federated sharing enabled users to share their data with known users
  * Originator of sharing must know the target user system and identity in that system
* Invitation workflow provides a user discovery mechanism
  * Establishes trust relationship between users
  * Invitation is send via “any textual communication” such as mail/chat/...
  * Once target user accepts invitation, trust is established between the users
    * Mapping a “human readable” user identification to their identity in the target system
    * Bidirectional sharing

Invitation Workflow Demo—OC10 vs. NC

* Mirosław (PSNC) want to share data with Milan (CESNET)
  * But has no idea which EFSS Milan uses
  * He sends and invitation to Milan via email
  * Milan reveals his system and identity in it during the process
  * Mirosław can now share data to Milan
* Accepting of the Invitation establishes trust relationship between users
  * The trust relationship is then used to share resources
    * Access to files demonstrated here
    * The relationship may be kept for future use
* The Demo is performed between ownCloud (v10) @CESNET and Nextcloud @PSNC
  * Marked in the video who we are looking at

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Thank you!

Discover more on...

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CS3org

CS3MESH4EOSC Project

https://www.youtube.com/channel/UCHKcZEkMqXjCvc3MLFjFxbw

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ScienceMesh Technical Foundation on OCM

Elizaveta Ragozina, Giuseppe Lo Presti, Gianmaria Del Monte

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Connecting European Data

Contents

- The Open Cloud Mesh standard
- Browsing OCM resources locally vs accessing remote resources
- Local vs Remote Applications
- Licensing issues and outlook

The OCM Standard

- Open Cloud Mesh: a vendor-neutral protocol specification
  - Enables users from different institutions **share resources** across **multiple cloud storages**
  - Preliminary implementations exist and are used in the wild for several years!

OPENCLOUDMESH

ScienceMesh and OCM

- The Open Cloud Mesh has been adopted by the **CS3Org** GitHub organization
  - Two official versions released during the project: v1.0 (June 2020) and v1.1 (May 2023)
- Most important features
  - Multi-protocol federated sharing
  - An *invitation workflow* to establish a curated network of trusted users
  - Remote capabilities discovery

OCM REST Endpoints

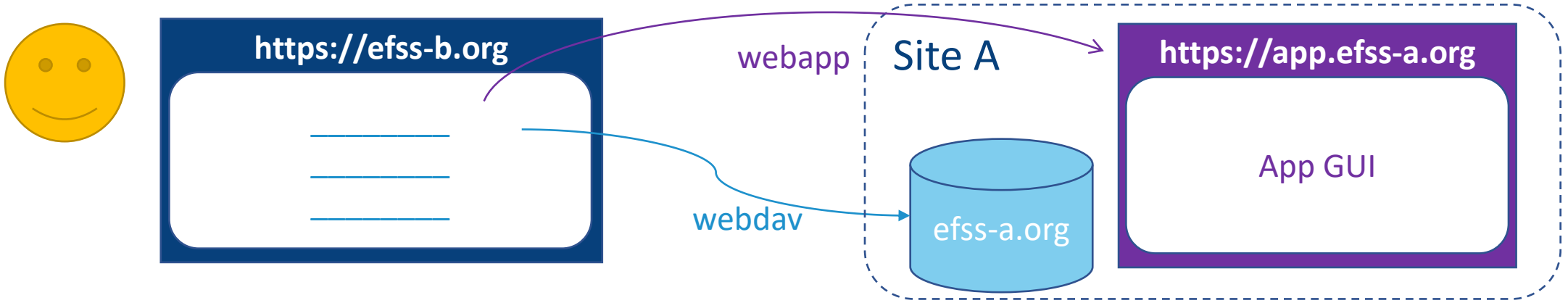
- **`/ocm-provider`**
  - A discovery endpoint to learn about the remote end's capabilities (cf. `/.well-known`)
- **`/ocm/share`**
  - A sender wants to share something to a target
  - Multiple protocols/access method supported (**webdav**, **webapp**, **datatx**)
- **`/ocm/invite-accepted`**
  - A receiver EFSS informs the sender EFSS that an invitation to collaborate was *accepted*
  - The sender returns the user's details, to establish mutual trust
- **`/ocm/notifications`**
  - To inform the other end about changes on previously shared resources

This enables apps for remote users in collaborative mode

This enables data transfers across sites

Applications over OCM shares

- Model: a user at site EFSS-A shares
  - A resource, accessible via WebDAV
  - An application to manipulate that resource, accessible via a Web App URL
- Consequence: remote users are enabled to
  - Browse the remote storage from their **local EFSS**
  - Access the application(s) available at the **remote EFSS**, via “public” link
    - **Local** applications might be enabled in read-only mode, to prevent conflicts with remote ones



What about licensing?

- Remote users access apps over a “public link on steroid”
  - Authenticated via OCM, users are not anonymous
- Applications are already typically accessible over public links
  - And EFSS sites already expose apps to totally random users out there
- Exposing apps over federated EFSSs can only *increase* their usage
  - App providers will eventually benefit from an increased adoption of their solutions

Conclusions and Outlook

- ScienceMesh builds on top of OCM
  - Sustainability is key, EFSS vendors already provide OCM-based sharing that ScienceMesh boosts with added-value services
- The OCM API keeps evolving
  - Renewed interest fostered by ScienceMesh to add further capabilities
  - Further evolution expected once those ScienceMesh services are deployed at more and more sites and exploited by more user communities

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