



EUROPEAN COMMISSION

Directorate-General for Communications Networks, Content and Technology

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## Horizon Europe (HORIZON)

# D2.2 Software Release Beta Environment – Epics and User Stories

## COVER PAGE

<b>PROJECT</b>	
<i>Grant Preparation (General Information screen) — Enter the info.</i>	
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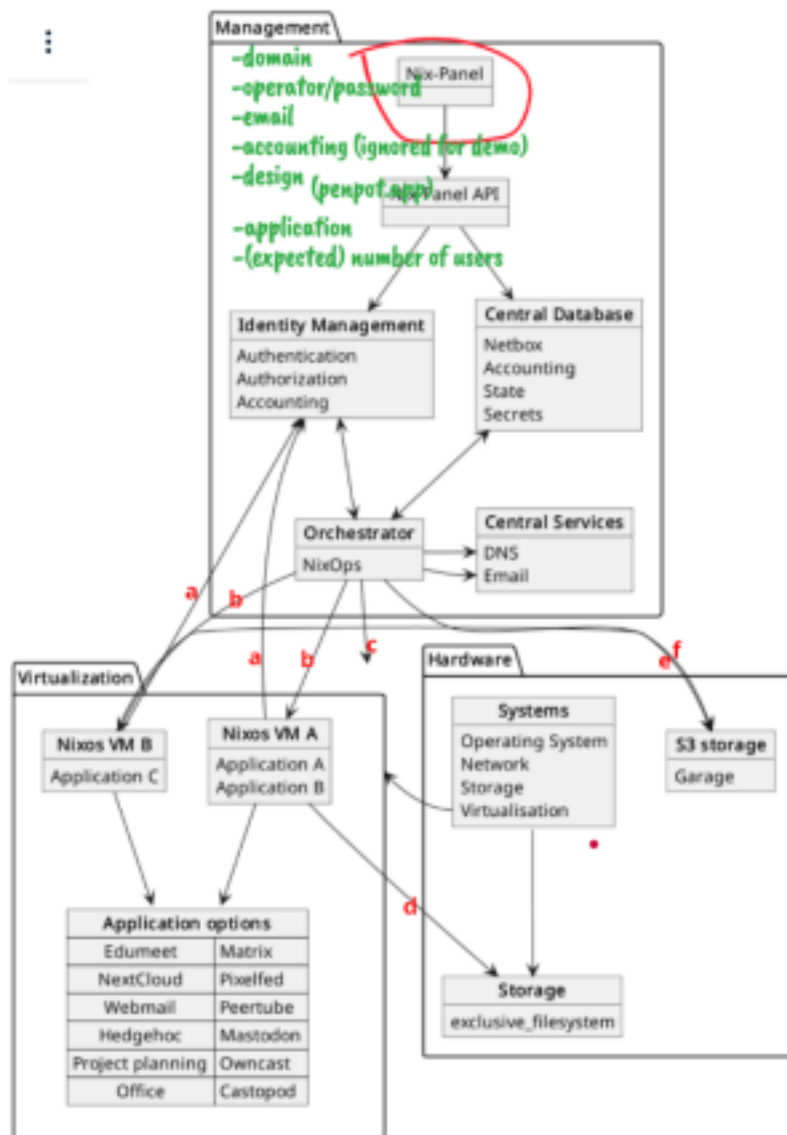


# Epics for the Fediversity April MVP - Tweag, a Modus Create Company

## Epics

1. Implement the collaboration between the Nixos VM and the Identity Management architectural components.
2. Implement the collaboration between the Orchestrator and the Nixos VM architectural components.
3. Implement the collaboration between the Orchestrator architectural component and the Virtualization architectural group of components.
4. Implement the collaboration between the Nixos VM and the Storage architectural components.
5. Implement the collaboration between the Virtualization and the S3 storage architectural components.
6. Implement the collaboration between the Orchestrator and the S3 storage architectural components.

HE MGA — Multi & Mono: v1.0 Project: 101136078



— Fediversity —  
 HORIZON-CL4-2023-HUMAN-01-CNECT Associated with document Ref. Ares (2023)8103541 - 28/11/2023

## Epics details

1. Implement the collaboration between the Nixos VM and the Identity Management architectural components.

I don't know what this arrow means. It means we can create an admin account for the services and that my configurations know how to get this information from the hosting provider's databases.

**It is not within the scope of the April MVP because the Identity**

**Management architectural component is not included.****2. Implement the collaboration between the Orchestrator and the NixOS VM architectural components.**

We can deploy NixOS configurations onto existing VMs.

This comprises several layers:

1. The deployment software must know how to do this. This is the perimeter of NixOps4 (Robert), which already works well in this situation.
2. We know how to inform NixOps4 about what it should be doing and what basic configurations to write for the provided VMs. In the past months (particularly with the demo in November), we have shown that we know how to do both.
3. We have well-working multi-machine configurations of Fediverse services. However, this point needs more work. We are only at the proof-of-concept level, and the multi-machine handling is still relatively poor (we are currently working on it).

**3. Implement the collaboration between the Orchestrator architectural component and the Virtualization architectural group of components.**

**This epic is not Tweag, a Modus Create company's responsibility, but of OID.**

We can provision VMs based on a configuration, but this is not possible now. NixOps4 does not have a Proxmox provider (Proxmox is the software provided by Procolix to manage VMs; a provider is NixOps4's way of interacting with the real world).

**Diversity refinement session deliverable 2," from Thursday, February 13, that we would not expect anything of this arrow by April and would just use pre-deployed VMs.**

**We have a workaround solution that can be deployed to cover the demo in April 2025.**

**4. Implement the collaboration between the NixOS VM and the Storage architectural components.**

**This epic is not the responsibility of Tweag, a Modus Create company, but of OID in collaboration with NixOps.**

It just means that whoever handles the hardware (Procolix, in our case) needs to provide shared storage for the VMs. Procolix already does that, and we think it's called "Linstor storage."



**We don't think there is much to do on our end.**

## 5. Implement the collaboration between the Virtualization and the S3 storage architectural components.

The Fediverse services rely on external S3 storage for large objects (e.g., pictures, videos, etc.)

**This is the case for the three services we have worked on.** It can sometimes be clunky, mainly because it currently relies on a Garage instance on the same machine as the service.

**We'll separate the service machines from the S3 machines and will have that done before April.**

## 6. Implement the collaboration between the Orchestrator and the S3 storage architectural components.

It is unclear to us what this is. It could be two things:

1. The orchestrator knows to inform the external S3 storage of new bucket creation
2. We can deploy resilient S3 storage from the orchestrator, and this is between the Orchestrator and the OID partner team members.

**In Case 1.:** Do we ask the hosting provider (e.g., Procolix) to provide one big S3 storage (e.g., Garage) that all the operators will share, or do we only ask the hosting provider to provide disk space, and we spin up an S3 cluster as part of all the VMs that we deploy?

**MVP since we can already deploy Garage as part of our experiments.**

This is closer to the second option specified above, and there are **two main limitations**:

- It is not **resilient and robust**, but we are discussing a prototype, not a final product.
- For now, it is **deployed on the same machine as the service**, which is quite a limitation. **This is a work in progress.**



# Epics and their associated User Stories

## Epic 1: Implement the collaboration between the Nixos VM and the Identity Management architectural components.

### 1. User Story 1.1:

- **Story:** As an admin, I want to create an admin account for the services so that my configurations can retrieve information from the hosting provider's databases.
- **Test:**
- Given I am an admin
- When I create an admin account for the services
- Then, the configurations should retrieve information from the hosting provider's databases

### 2. User Story 1.2:

- **Story:** As a developer, I want to integrate the Identity Management component with Nixos VM to streamline user authentication.
- **Test:**
- Given I am a developer
- When I integrate the Identity Management component with Nixos VM
- Then, user authentication should be streamlined.

## Epic 2: Implement the collaboration between the Orchestrator and the Nixos VM architectural components.

### 1. User Story 2.1:

- **Story:** As a DevOps engineer, I want the deployment software to deploy NixOS configurations onto existing VMs to automate the deployment process.
- **Test:**
- Given I am a DevOps engineer
- When the deployment software deploys NixOS configurations onto existing VMs
- Then, the deployment process should be automated

### 2. User Story 2.2:

- **Story:** As a system administrator, I want to inform NixOps4 about the configurations it should write for the provided VMs so that the VMs are configured correctly.
- **Test:**
- Given I am a system administrator
- When I inform NixOps4 about the configurations for the provided VMs
- Then, the VMs should be configured correctly

### 3. User Story 2.3:

- **Story:** As a developer, I want to improve the multi-machine handling of Fediverse services so that the system can handle multiple machines efficiently.
- **Test:**
- Given I am a developer
- When I improve the multi-machine handling of Fediverse services
- Then, the system should handle multiple machines efficiently

## Epic 3: Implement the collaboration between the Orchestrator architectural component and the Virtualization architectural group of components.

### 1. User Story 3.1:



- **Story:** As a system administrator, I want to provision VMs based on a configuration to set up the VMs according to the project requirements.
- **Test:**
- Given I am a system administrator
- When I provision VMs based on a configuration
- Then, the VMs should be set up according to the project requirements

## 2. User Story 3.2:

- **Story:** As a project coordinator, I want to use pre-deployed VMs for the demo in April 2025 so that the demo can proceed without delays.
- **Test:**
- Given I am a project coordinator
- When I use pre-deployed VMs for the demo in April 2025
- Then, the demo should proceed without delays

## Epic 4: Implement the collaboration between the Nixos VM and the Storage architectural components.

### 1. User Story 4.1:

- **Story:** As a hardware manager, I want to provide shared storage for the VMs so that the VMs can access the necessary storage resources.
- **Test:**
- Given I am a hardware manager
- When I provide shared storage for the VMs
- Then, the VMs should access the necessary storage resources

### 2. User Story 4.2:

- **Story:** As a developer, I want to ensure that the storage provided by Procolix (Linstor storage) is integrated with Nixos VM to make the storage system functional.
- **Test:**
- Given I am a developer
- When I ensure the storage provided by Procolix (Linstor storage) is integrated with Nixos VM
- Then, the storage system should be functional.

## Epic 5: Implement the collaboration between the Virtualization and the S3 storage architectural components.

### 1. User Story 5.1:

- **Story:** As a developer, I want to separate the service machines from the S3 machines so that the system can handle large objects like pictures and videos more efficiently.
- **Test:**
- Given I am a developer
- When I separate the service machines from the S3 machines
- Then, the system should handle large objects like pictures and videos more efficiently

### 2. User Story 5.2:

- **Story:** As a system administrator, I want to ensure that the S3 storage is reliable and accessible so that the services can store and retrieve large objects without issues.
- **Test:**
- Given I am a system administrator
- When I ensure the S3 storage is reliable and accessible
- Then, the services should store and retrieve large objects without issues



## Epic 6: Implement the collaboration between the Orchestrator and the S3 storage architectural components.

### 1. User Story 6.1:

- **Story:** As a developer, I want the orchestrator to inform the external S3 storage of new bucket creation so that new storage buckets are created automatically.
- **Test:**
- Given I am a developer
- When the orchestrator informs the external S3 storage of new bucket creation
- Then, new storage buckets should be created automatically

### 2. User Story 6.2:

- **Story:** As a DevOps engineer, I want to deploy resilient S3 storage from the orchestrator to make the storage system robust and reliable.
- **Test:**
- Given I am a DevOps engineer
- When I deploy resilient S3 storage from the orchestrator
- Then, the storage system should be robust and reliable

### 3. User Story 6.3:

- **Story:** As a project coordinator, I want to deploy Garage as part of our experiments to test the S3 storage system's functionality.
- **Test:**
- Given I am a project coordinator
- When I deploy Garage as part of our experiments
- Then, we should test the S3 storage system's functionality