Demonstration: Migration-by-Emulation Planets Web-Service

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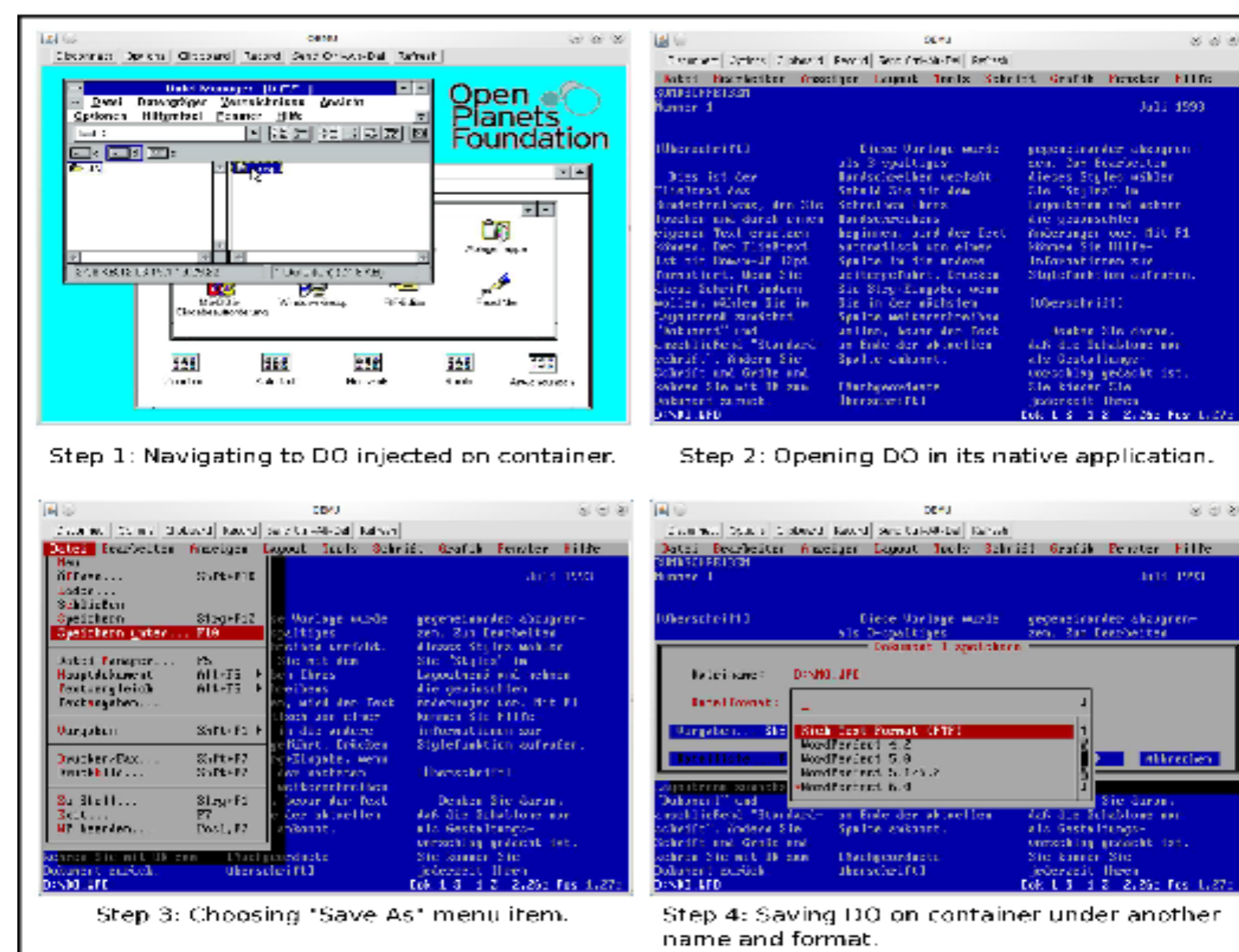Albert Ludwigs University of Freiburg, Germany

1. Idea & Components

The availability of migration tools for older formats is often limited. A more reasonable approach would be to deploy the original applications to access the object and migrate it into more spread out formats.

Step 1: Navigating to DO injected on container. Step 2: Opening DO in its native application.

Step 3: Choosing 'Save As' menu item. Step 4: Saving DO on container under another name and format.

The appropriate environment for the digital artefacts could be provided through emulation running in the actual (real) environment of the user. An appropriate emulator is needed for the original operating system.
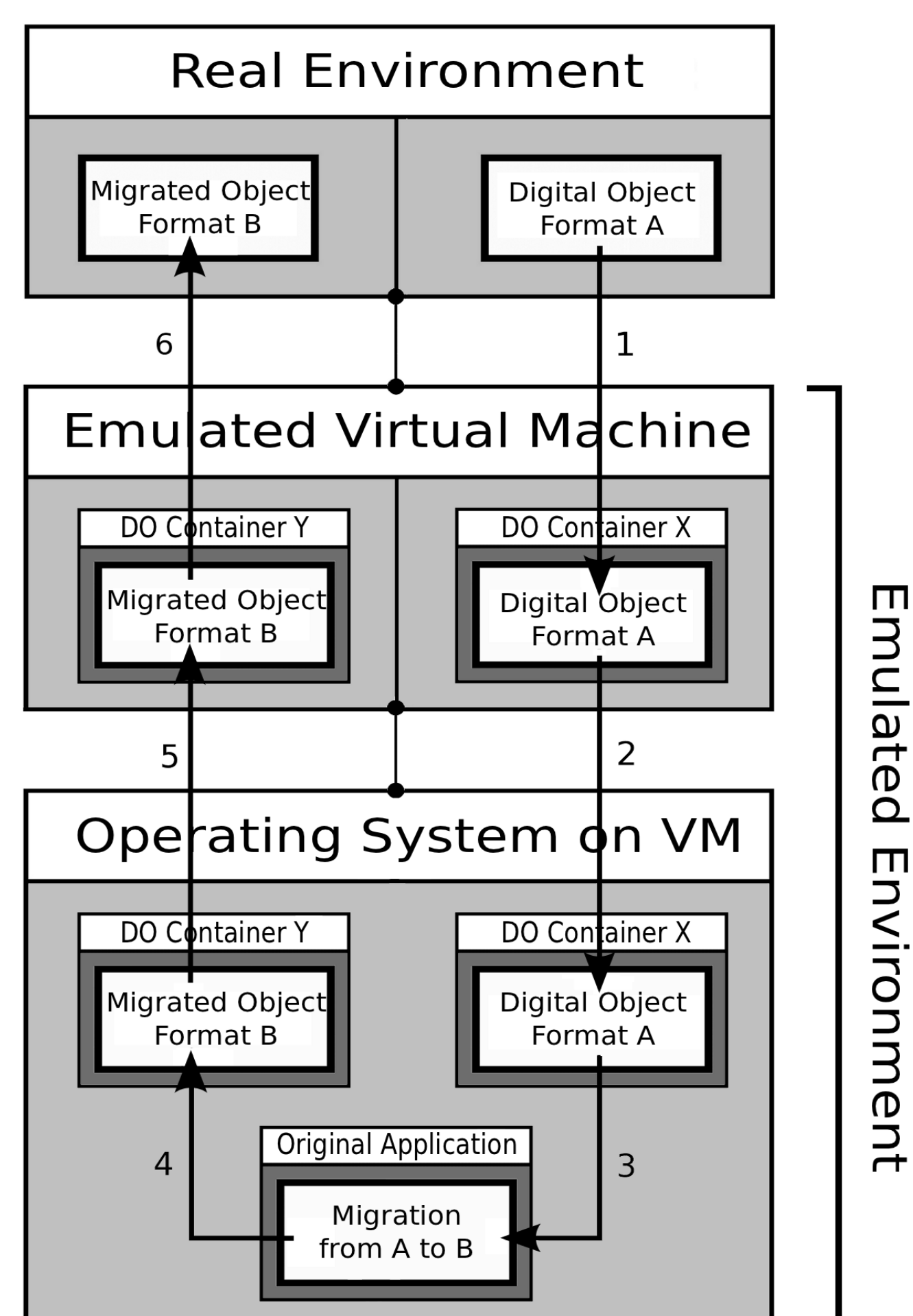

The presented idea suggests the creation of easy-to-use migration tools out of a combination of original en-vironments running in emulators and controlled by automated UI interaction. We implemented a PLANETS web service to deploy complex procedures for transforming digital objects into a selected output format. In contrast to simple commandline input-output migration tools, a migration-by-emulation service needs a more complex initial setup of *system emulation* like a x86 machine, *original system run-time environment* and an *abstract description of all interactive commands* like keystrokes or mouse movements to be carried out in order to perform a certain migration.

To record migrations original environments, remote control protocols, manual input events are used.
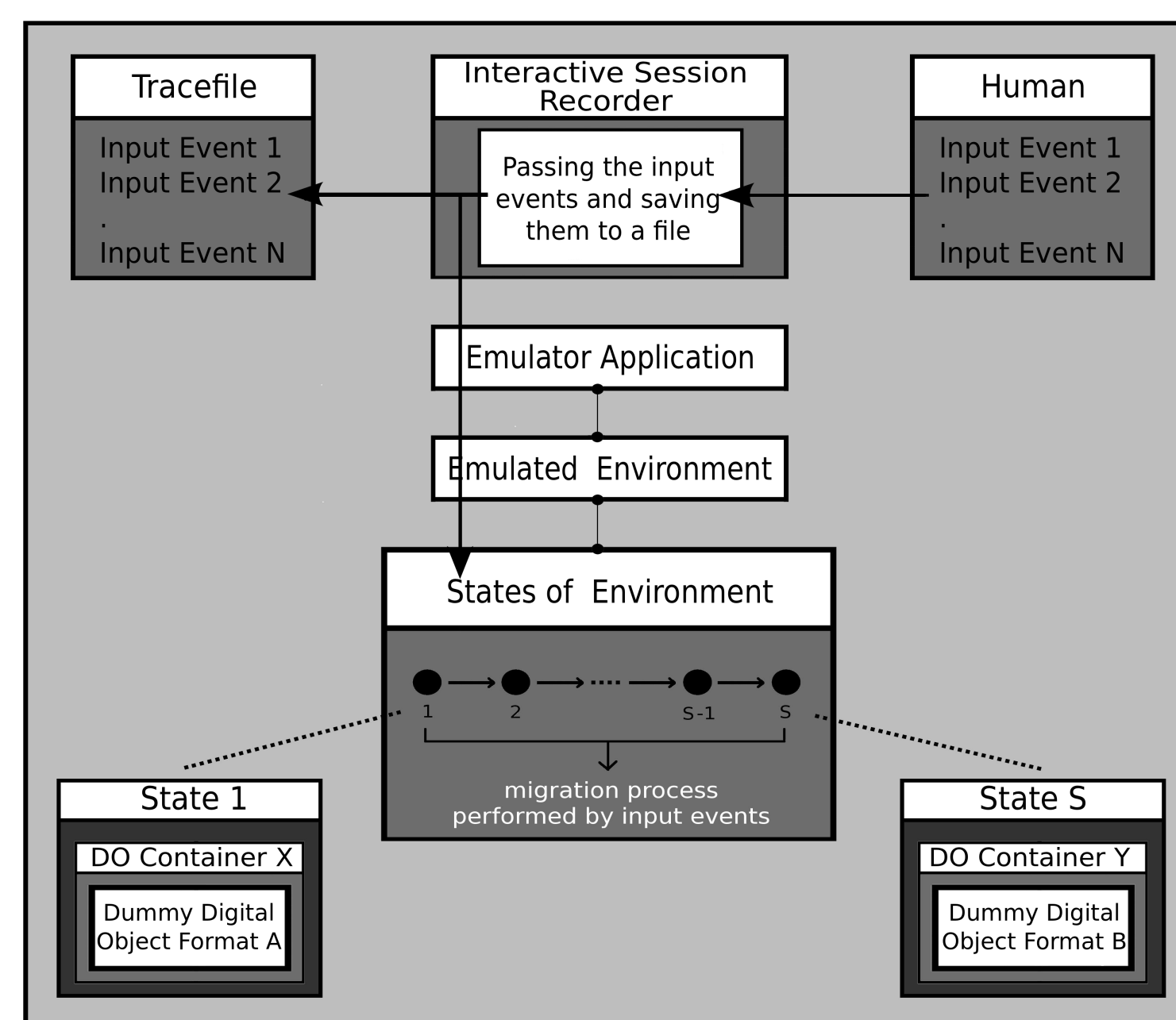

2. Recording Migrations

The created service is split into two parts. The scenario preparation unit, typically run once, interactively records the user interaction and creates the event list for future playback. The playback unit is used by the migration service and re-runs the previously recorded input events.
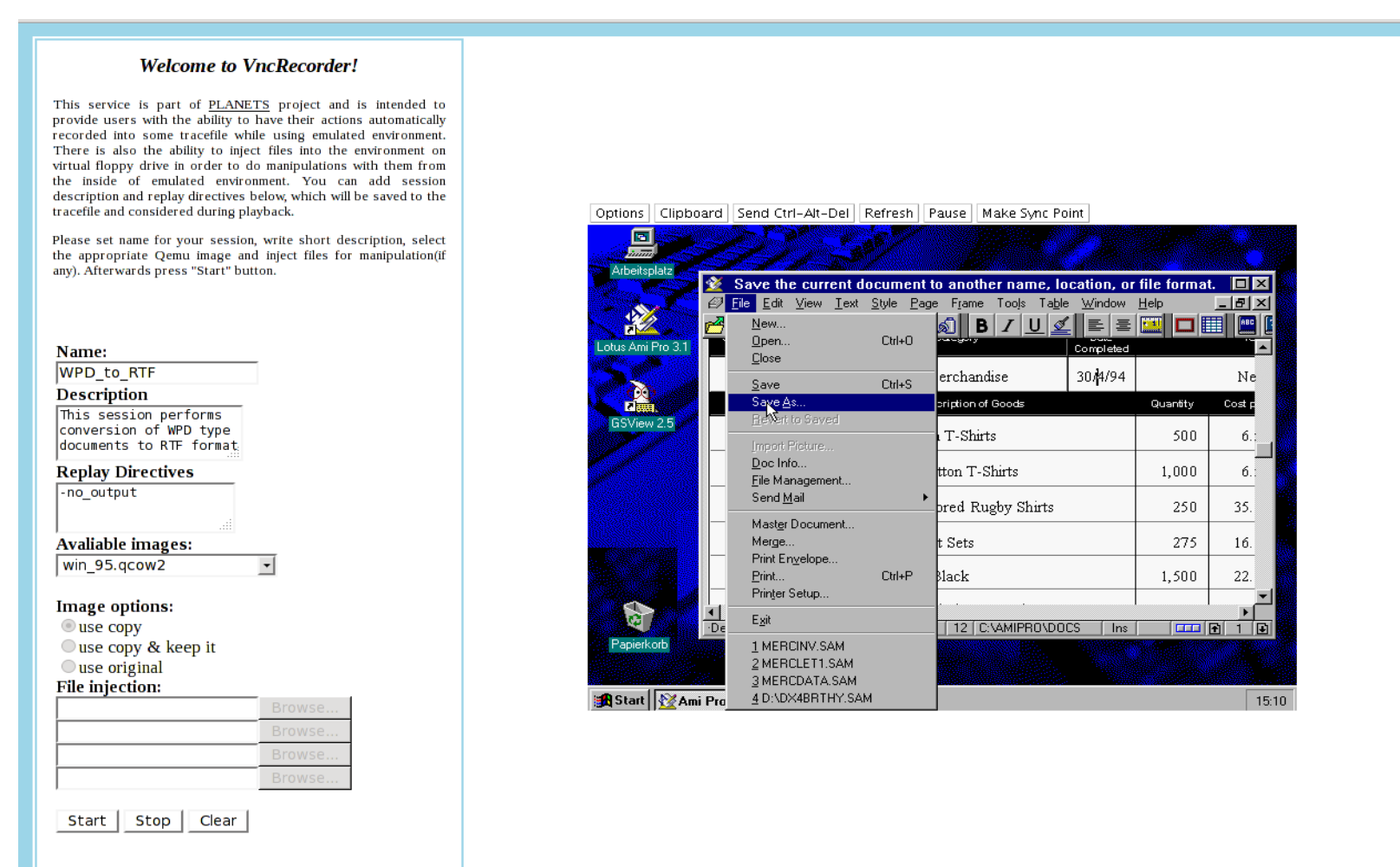

3. Planets Integration

As migration-by-emulation services should be accessible the same way as standard command line tools, they are registered and deployed using the same methods within the PLANETS testbed. The Java-programmed prototype for complex emulation-based migration workflows has all core components implemented. The services are called from within the testbed standard procedures. Pre-configured original environments are deployed and the Grate-R VNC record service is used to generate abstract workflow descriptions.
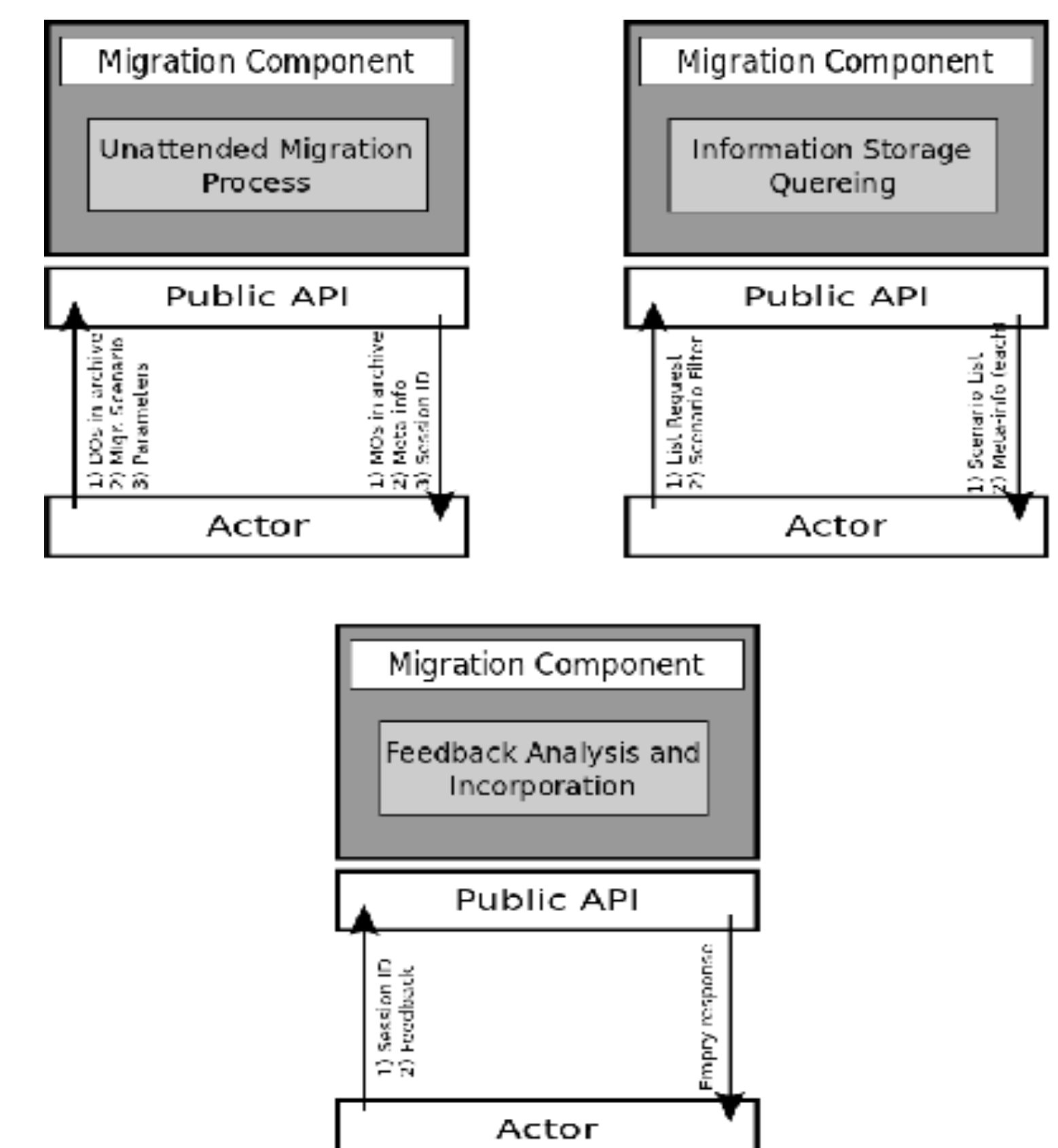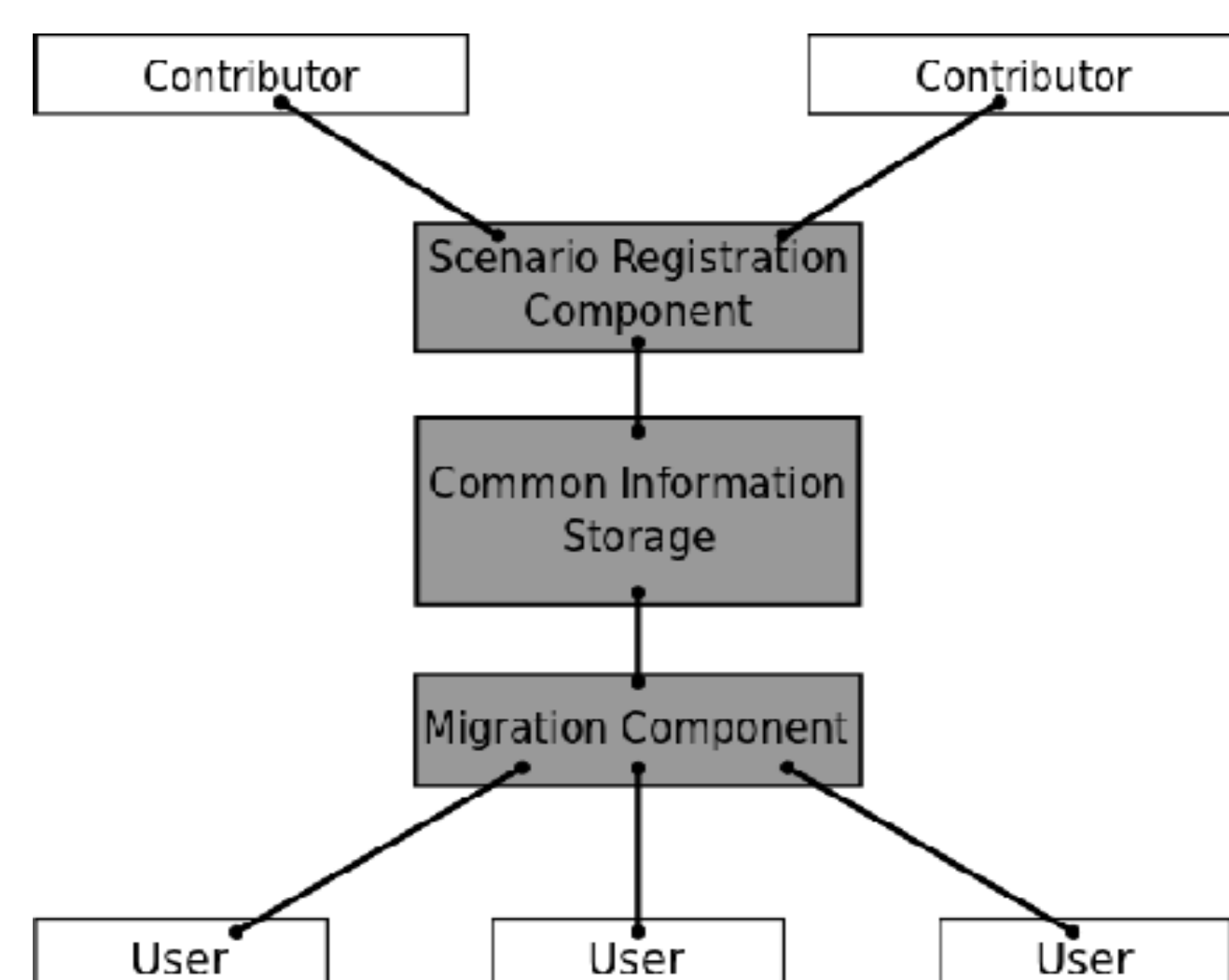

Several migration services are already registered within PLANETS and are accessible through its Testbed. One of them is an atomic migration accepting WPD as input and producing RTF as output. The resulting file is then directly delivered to the user after the procedure finishes. Another service is more complex as it takes an AMI Pro text document (SAM) as input and produces two different outputs, a TXT and a PDF.
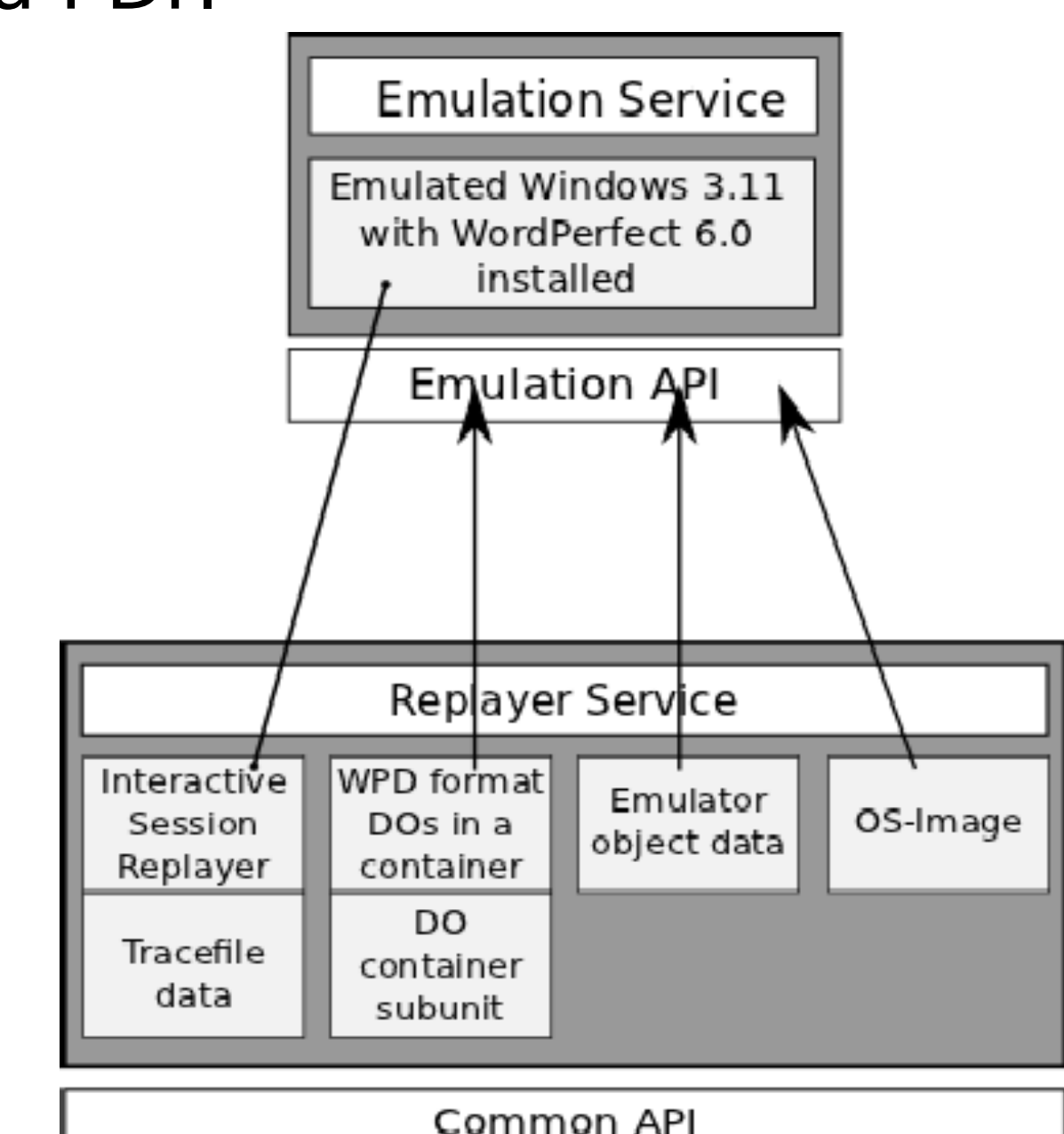
4. Results

Our implementation focused on the feasibility of the preservation framework integration. Future research is dedicated to the speeding up of workflows by looking into the VNC recording and playback.
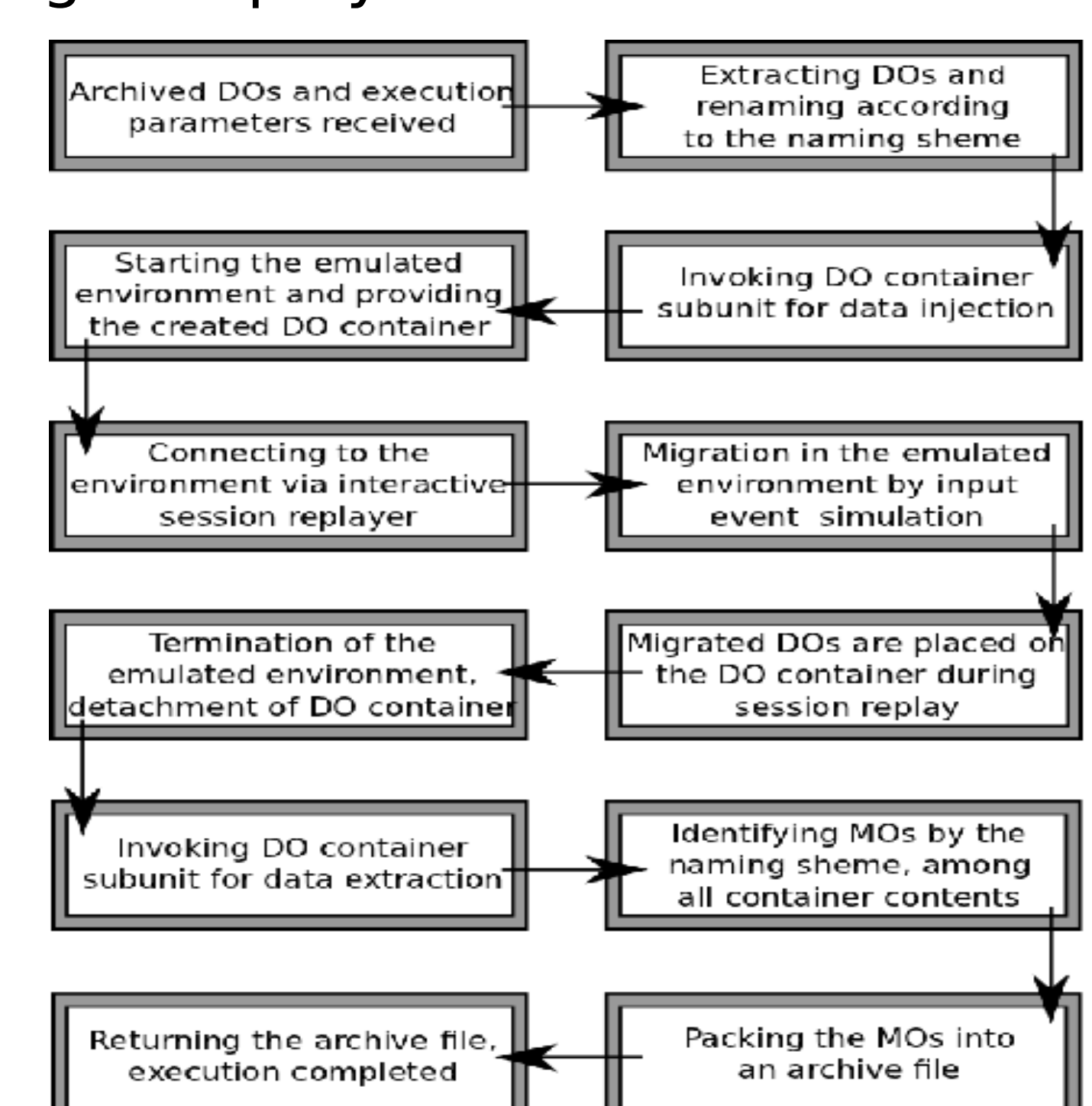
To simplify testing a commandline tool was programmed to interact with these PLANETS migration services.