

AEOFORGE

Final version

SP6 Review Meeting

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Stefano Caliano

Daniele Paiella



AEOFORGE V1

- A demo application on the Overlay Computing Platform
- A prototype of a “peer-to-peer distributed source forge”
- Command line interface
- Proof-of-concept of the AEOLUS project contributions



AEOFORGE V1

- Extension of the AEOLUS shell
 - Comes as a jar file like any other AEOLUS shell contribution
- Its business logic orchestrates other shell contributions
- First prototype
 - Basic storage functionalities
 - Secure file timestamping



AEOFORGE V1 Demo

- Project upload/download
- File add
- File check-in/check-out



Contributions included

- FS
 - Coordinator
 - Storage

- STA
 - Generation of a secure timestamp bound to each file
 - Issued by an authority running on a peer
 - Verifiable
 - Used to avoid concurrent file modifications issues

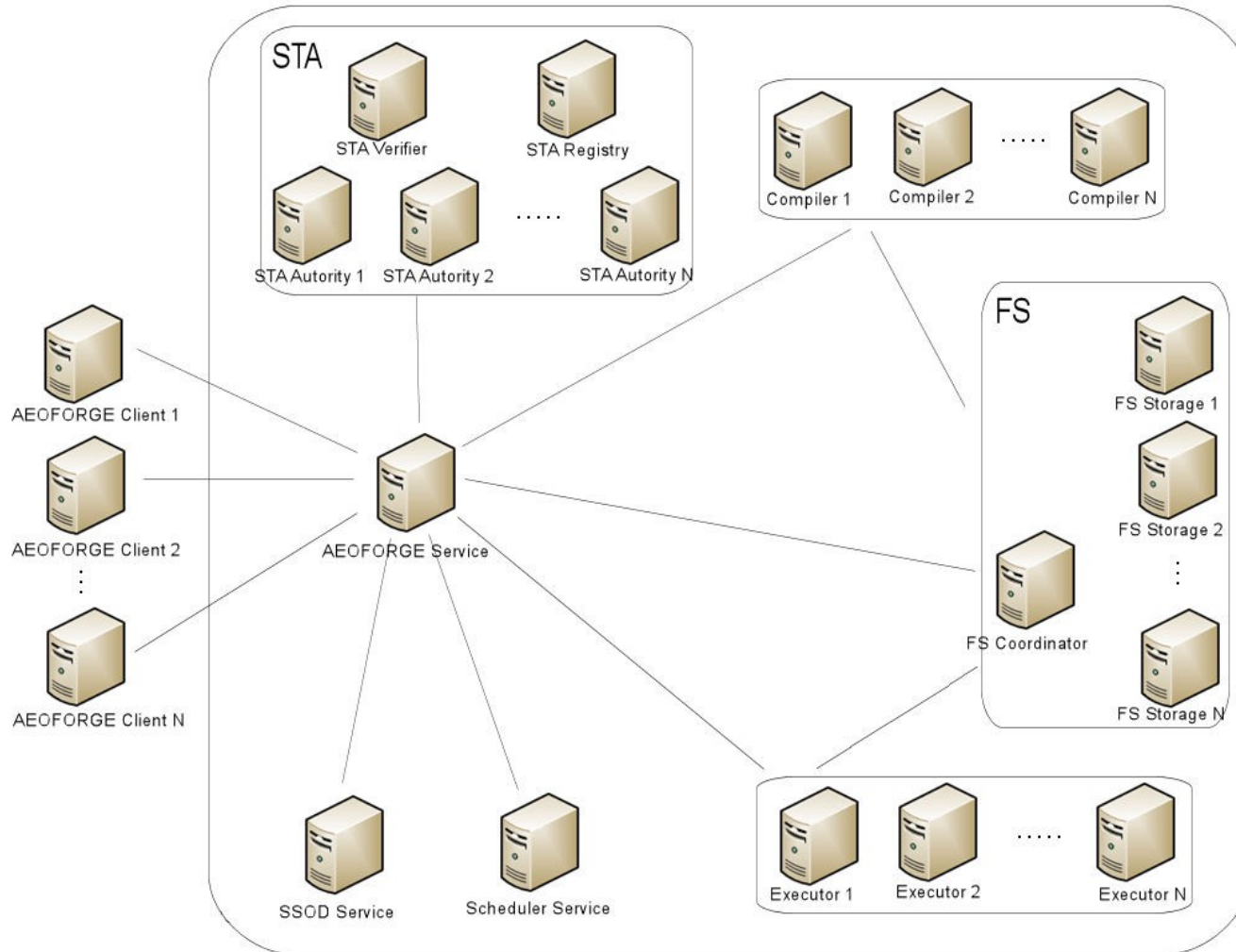


AEOFORGE V2

- Full integration with the AEOLUS Testbed
 - Transparently inherits AEOLUS contributions integrated with the testbed (JXTACH)
- New set of APIs
- Major code updates
 - Communication issues addressed
 - Communication among components is stable
 - No blocking delays closing sockets



Deployment



Contributions included 1/2

- FS
 - Same as V1
 - Storage functionalities
- STA
 - Same as V1
 - File timestamping
 - Avoid concurrent modifications
- SSOD
 - users query the AEOFORGE projects database to search for a given project



Contributions included 2/2

- Scheduler
 - manage compilation and execution tasks of java projects stored on AEOFORGE
- JXTACh
 - completely transparent to the end user
 - replaces the JXTA rendezvous protocol implementation DHT --> Chord algorithm



Demo

- Store a project
 - Raw image files storage service
 - Raw to Jpeg file conversion
 - jrawio lib
 - Web server to serve user requests
- Compilation
- Execution
 - User downloads a jpeg file



Testbed setup for demo

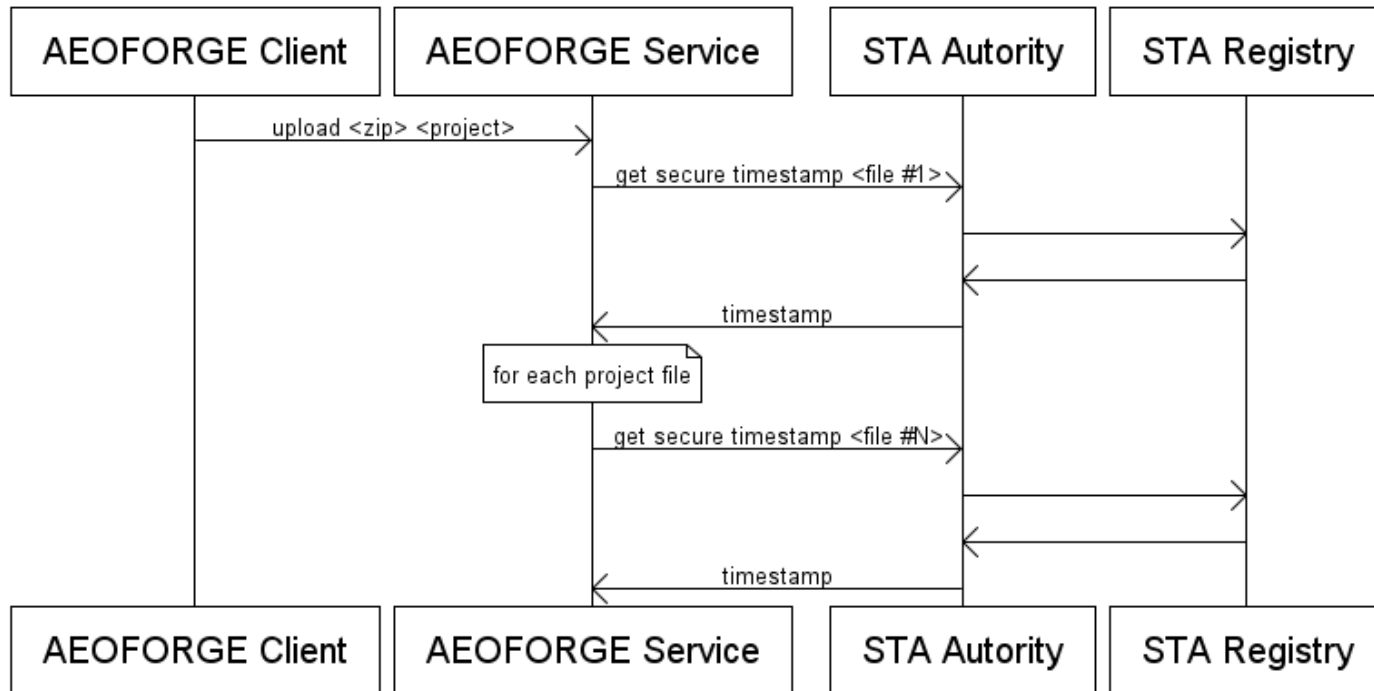
- AEOFORGE Service (1)
- STA Authority (1), Verifier (1), Registry (1)
- FS Coordinator (1), Storage (4)
- SSOD Service (1)
- Scheduler Service (1)
- Compiler Service (4)
- Executor Service (4)
- Rendezvous Service (1)

Tot. 20 distributed nodes



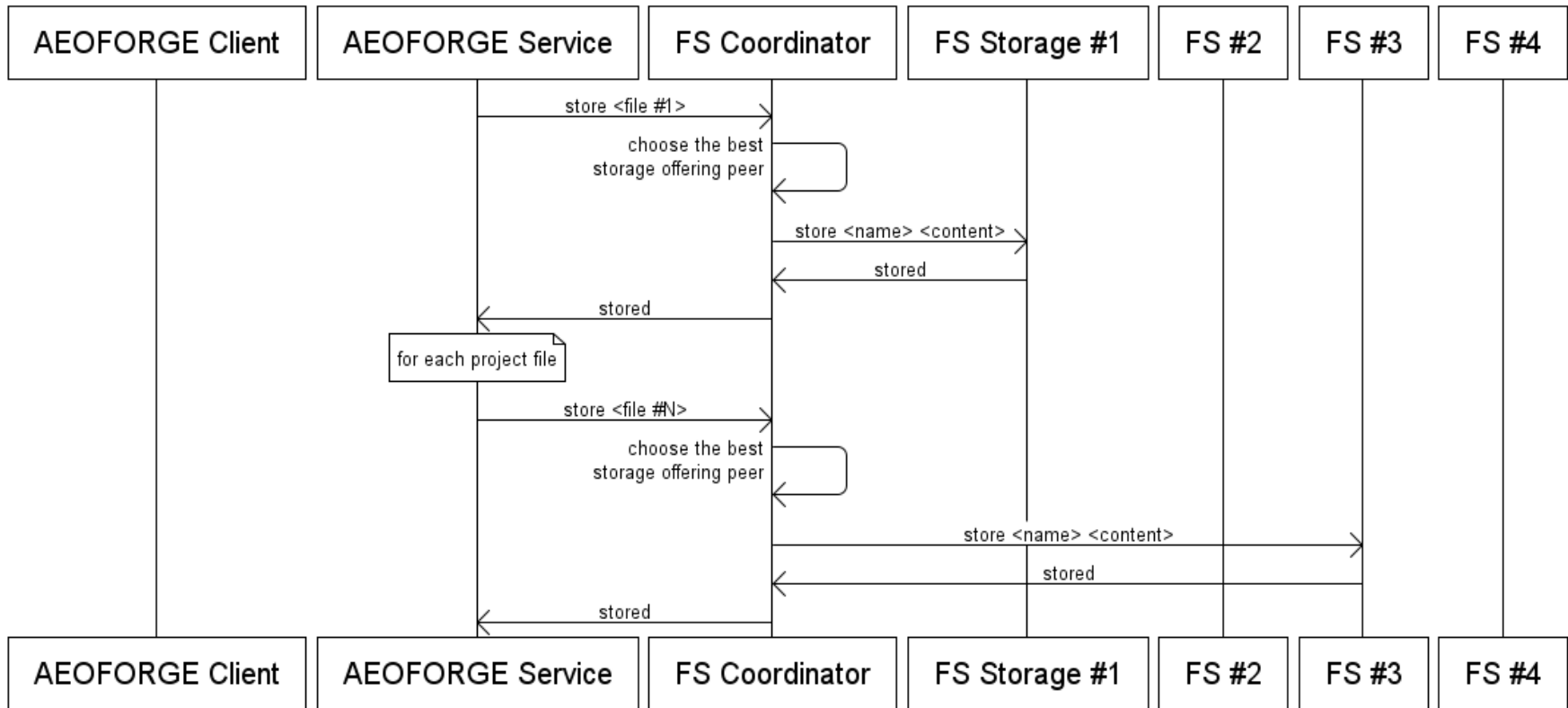
Upload a project 1/8

When an user uploads a new project, every included file is certified via STA...



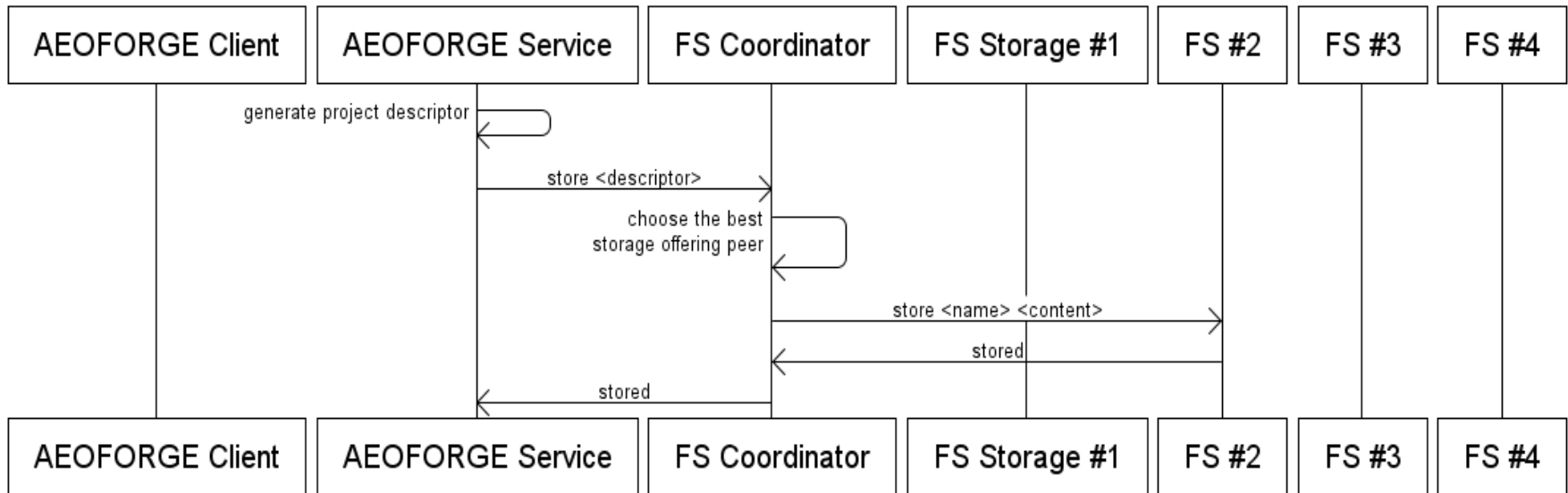
Upload a project 2/8

...and stored on distributed FS.



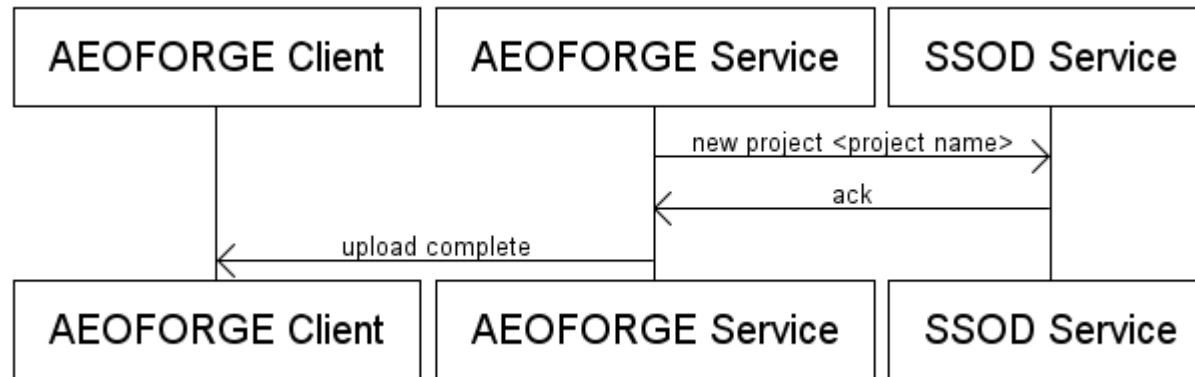
Upload a project 3/8

Then AEOFORGE Service builds and stores on the FS a project descriptor, ...



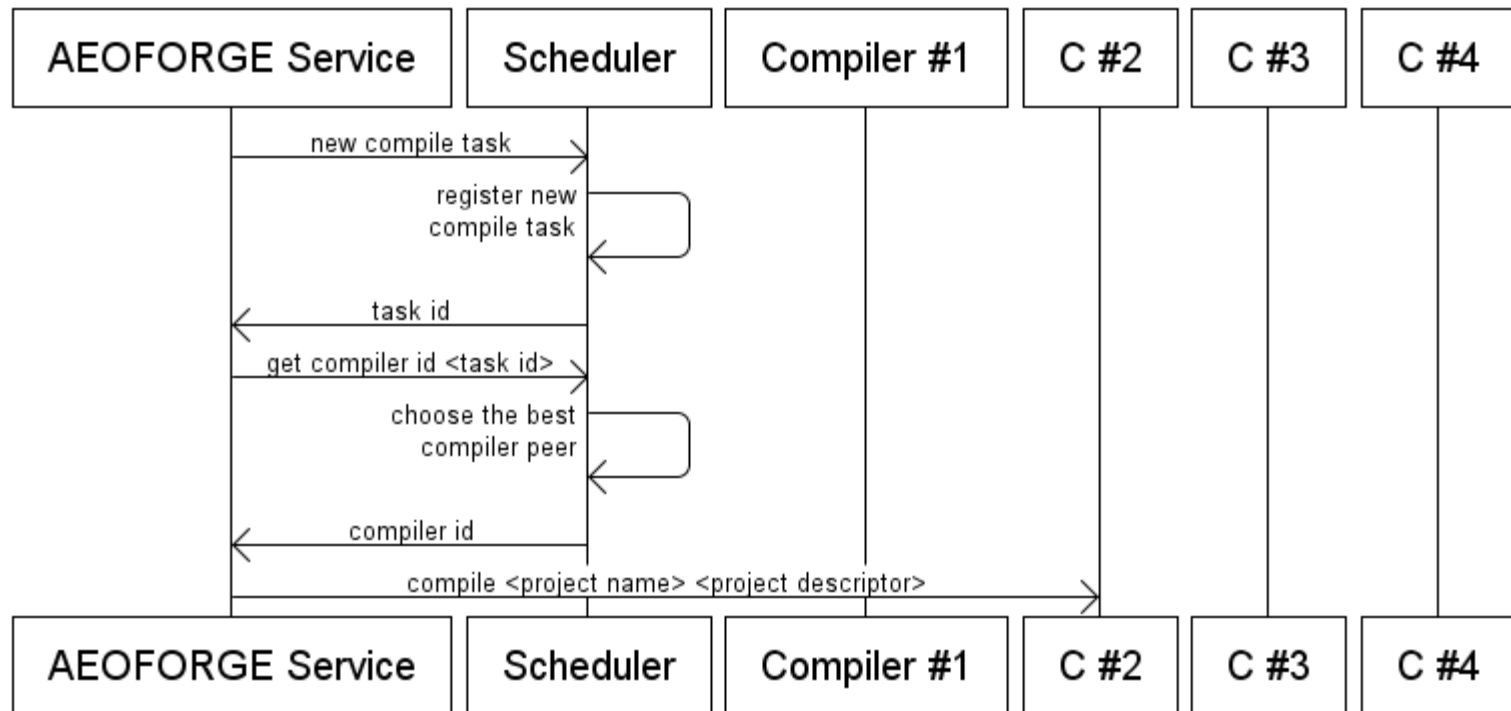
Upload a project 4/8

...registers the project with the SSOD and sends back a message to the Client.



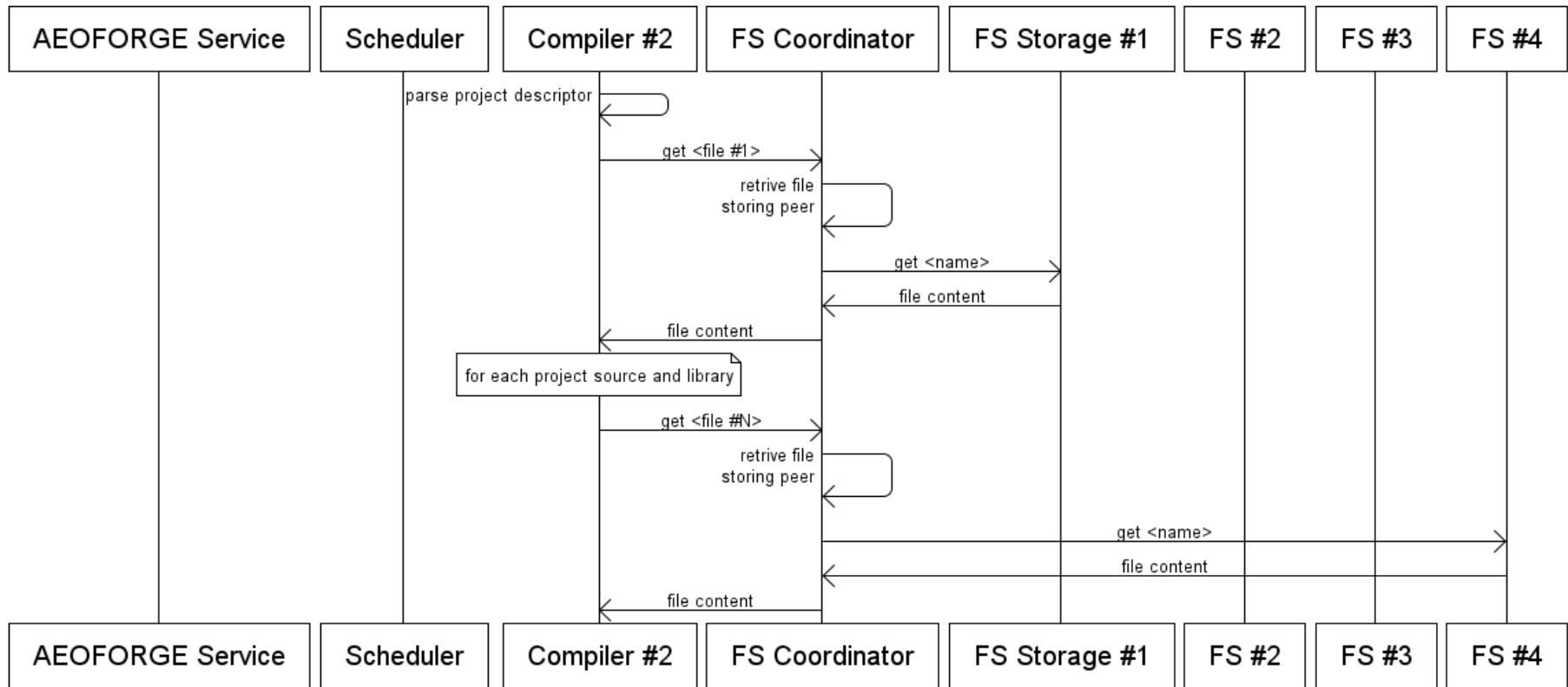
Upload a project 5/8

In addition, AEOFORGE Service asks the Scheduler to assign a compilation task to a Compiler node.



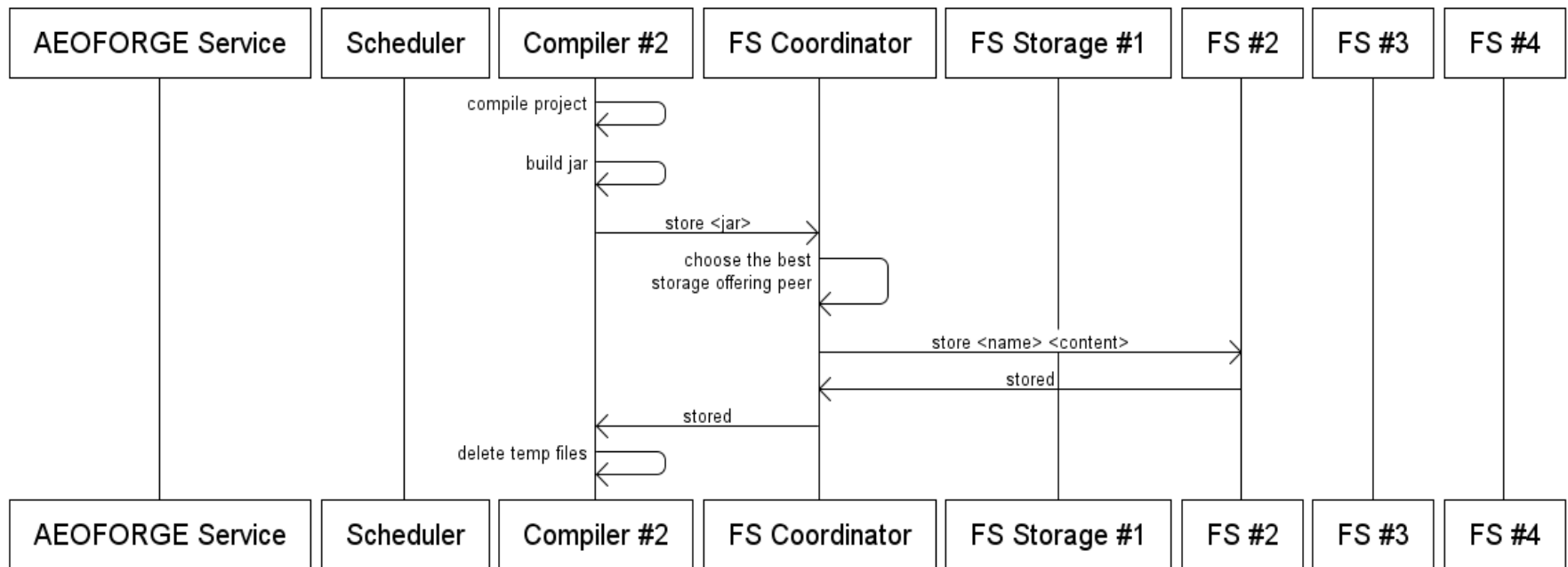
Upload a project 6/8

The Compiler downloads all sources and libraries from the FS, ...



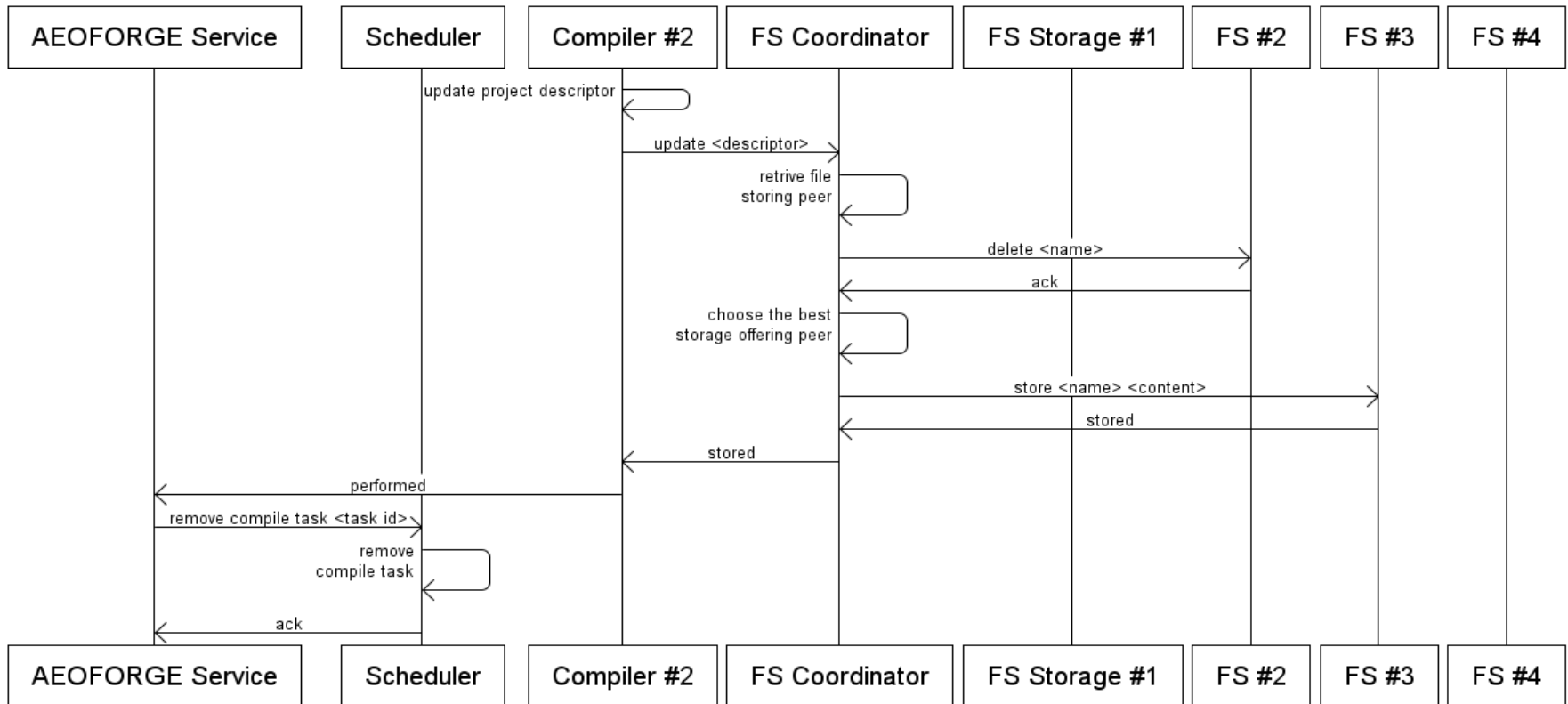
Upload a project 7/8

...compiles the project, stores the JAR on the FS, ...



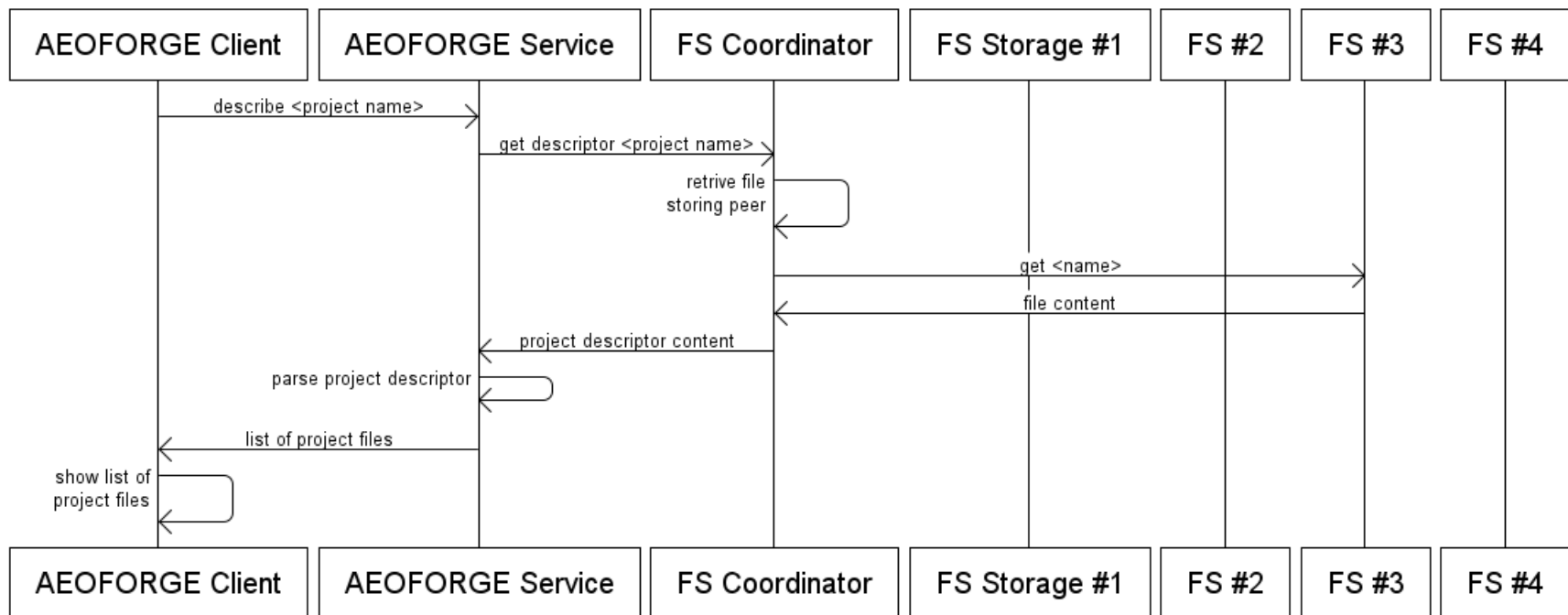
Upload a project 8/8

...updates the project descriptor on the FS and notifies the Scheduler of the end of the task.



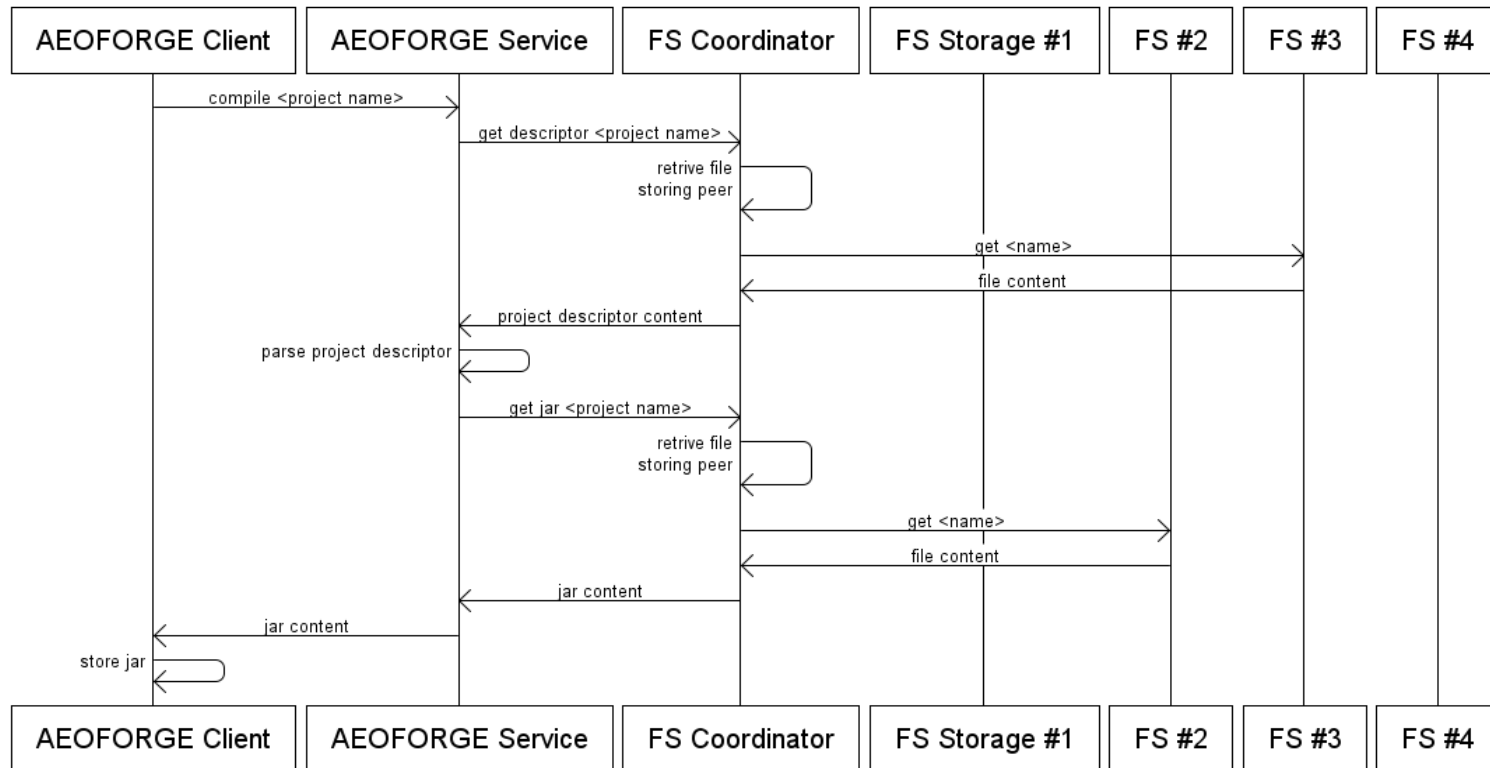
Describe a project

Using the command describe an user can see the list of the project files stored on the FS.



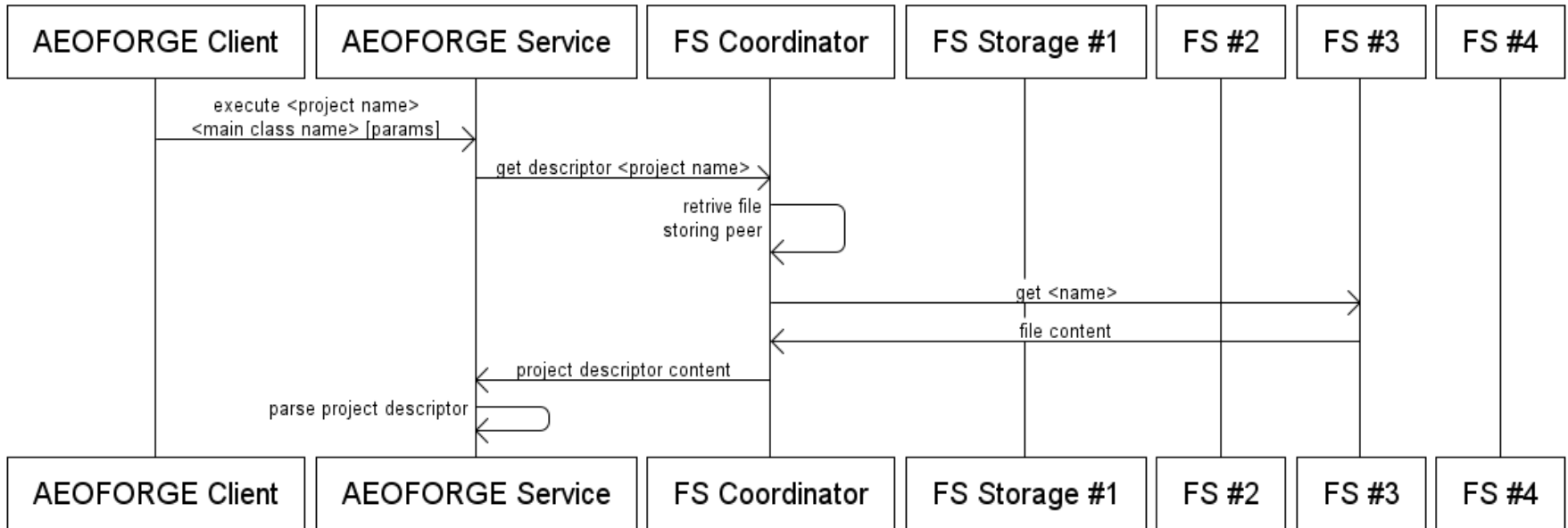
Compile a project

Using the command compile an user can download from the FS a JAR containing all the classes.



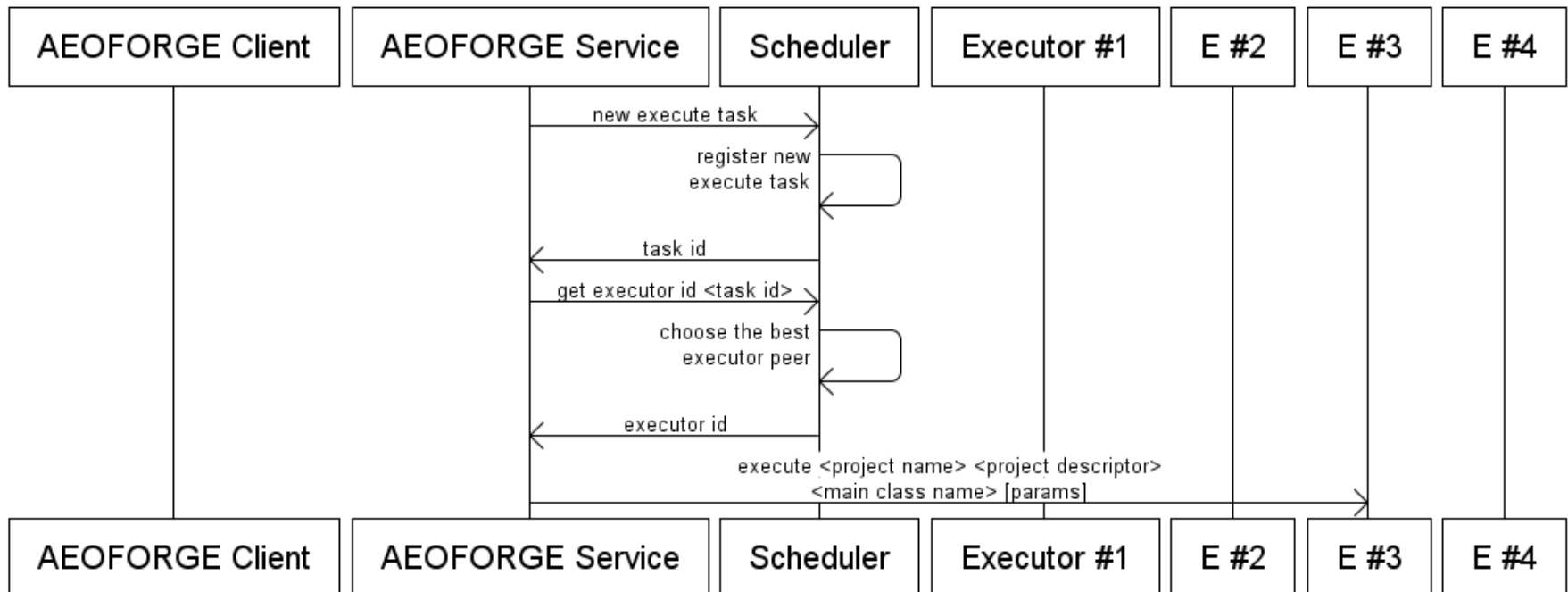
Execute a project 1/4

AEOFORGE Service retrieves the project descriptor from the FS...



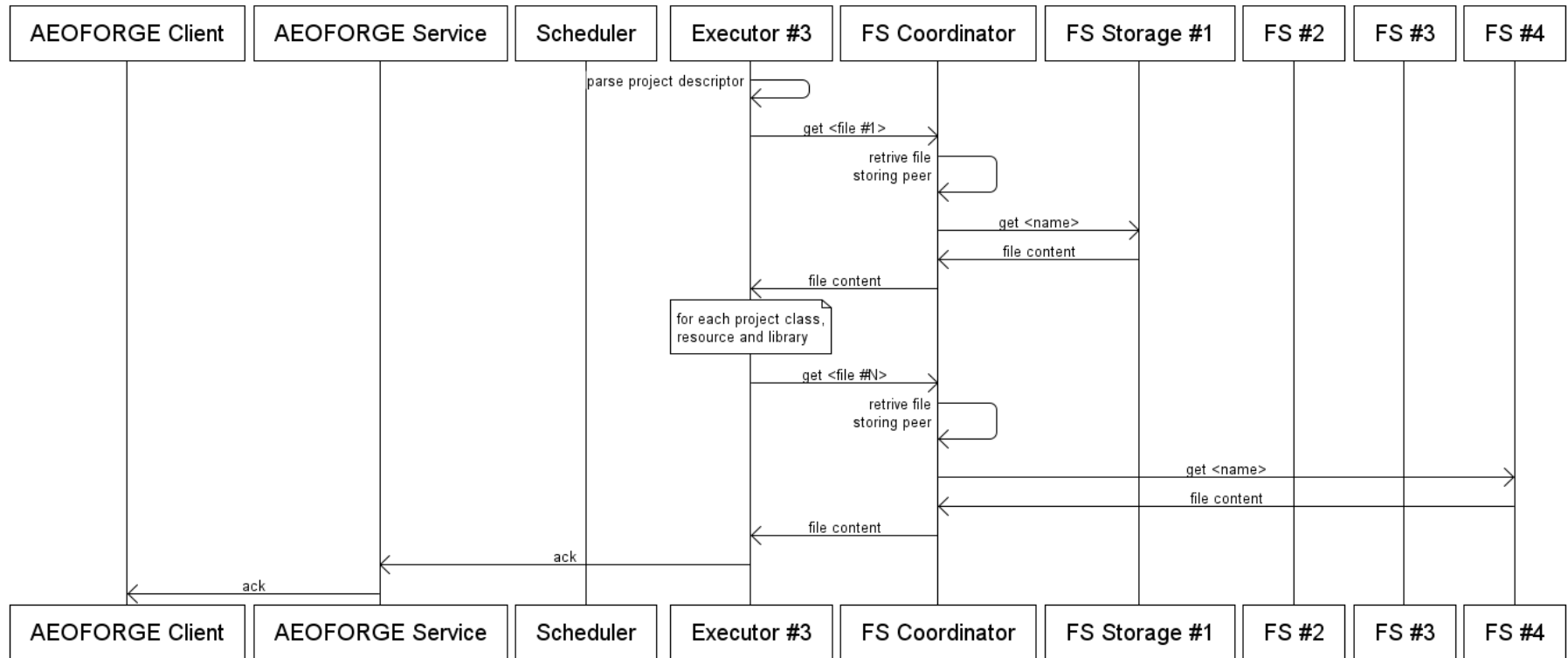
Execute a project 2/4

...and asks the Scheduler to assign an execution task to an Executor node.



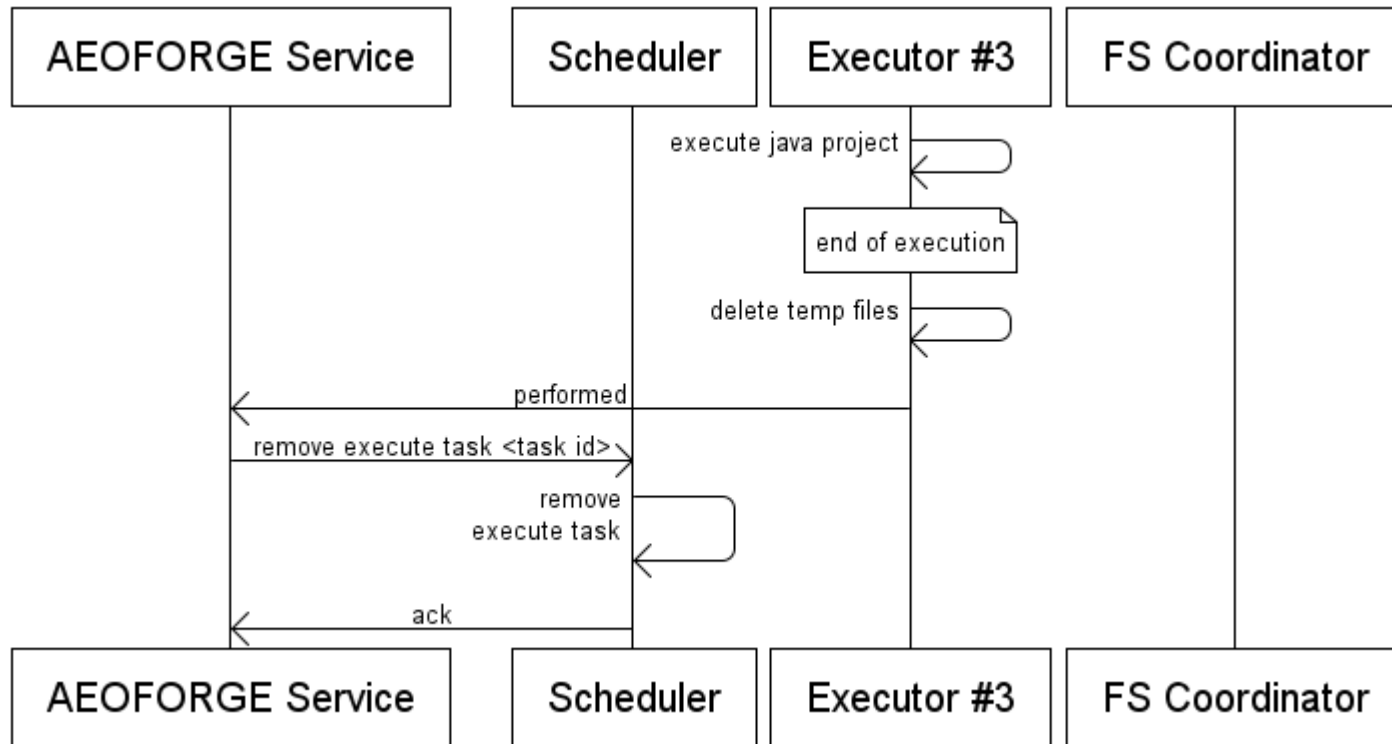
Execute a project 3/4

The Executor downloads all classes, libraries and resources from the FS, ...



Execute a project 4/4

...executes the project and notifies the Scheduler of the end of execute task.



Other commands 1/2

The other implemented commands that are not shown in this demo are:

- "add" to add a new file to a project;
- "ci" to commit local changes of a project file;
- "co" to update the local copy of a project file;
- "del" to delete a file from a project;



Other commands 2/2

The other implemented commands that are not shown in this demo are:

- "download" to get all the project files as a zip;
- "find" to request the list of projects in the forge;
- "noop" to check if AEOFORGE is running;
- "quit" to request AEOFORGE shutdown.

