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Summary

This report is a summary of all coordination, design and development activities carried out during all phases of project design and development from December 2007 to September 2008.

1 Introduction

The DRIVER-II project technical management, to be carried on at CNR, has to ensure the accomplishment of the two activities of service consolidation and service enhancements. In particular, consolidation activities deal with the improvement of the services released by the DRIVER Testbed infrastructure so as to deliver and maintain the D-NET 1.0 production release (May 2008), while enhancement activities were concerned with the addition of a number of services, including Content Services (Complex Object management) and Enhanced Publication User Interface Services, so as to deliver the D-Net 2.0 production release (November 2009).

The design and development plan of new services as well the refinement and improvement of extant ones (D6.1 Software Release Plan, delivered at M2), was overall followed and in some aspects changed. In this report we shall describe the specific decisions and steps that followed the current production infrastructure D-Net 1.0 so as to lead to the next production releases. In particular, D-Net 1.1 release will be deployed and replace the current production infrastructure, while the next release, D-Net 2.0, will be delivered in Beta release by June 2009 and in production by November 2009, according to the original project plan.

2 Service consolidation

The deliverable D6.1 defined the path to the delivery of the first milestone, i.e. D-Net 1.0 production system (May 2008), and envisaged a number of steps toward the subsequent releases. Such steps established the actions to be carried out at the different Service Layers: Enabling, Data and Functionality. In the following we report about the activities at the individual services and layers, whose course was supervised by CNR, commenting mainly on the individual features to be consolidated or improved and, where affected, on the main status with respect to the migration to Java of all services, the design and development of the new Aggregation Framework, and the integration of a Repository Workflow system.

The release currently schedules three main milestones:

- January 2009: new production release D-Net 1.1;
- June 2009: Beta release D-Net 2.0;
- November 2009: production release D-Net 2.0.

2.1 Enabling layer

2.1.1 Expected results

The re-implementation of the Services in Java had to be performed keeping in mind the modifications required to enhance resource management in the Infrastructure. In particular, the delicate aspect of secure Service-to-Service communication had to be faced by avoiding the usage of heavy SOAP embedded security protocols and still preserving as much as possible the non-proprietary nature of the DRIVER architecture.

2.1.2 Steps to realization

At the current stage, the Enabling Layer services (CNR) have been re-developed in Java, have been tested locally and are waiting for test validation by ICM so as to be released in the next production release D-Net 1.1. Finally, Service-to-Service secure communication, provided through Authentication and Authorization Services, will be available for the Beta release of D-NET 2.0.

2.1.3 Related meetings and phone conferences

- Phone conference CNR-UNIBI-NKUA (4/02/2008): first repository workflow definition and possible impact on the service development.
- Technical meeting (@ICM, 21/03/2008): proposal for new Repository representation and profiles (moving from Repository Services to Repository Data Structures).
- Technical meeting, joint with WP4 (@SURF, 23/06/2008): common libraries, sub-service interfaces and API contracts for testing.
- Technical meeting, joint with WP4 (@UNIBI 29/09/2008): plan for integration of repository workflow and enabling services into new production infrastructure.

2.2 Data layer

2.2.1 Expected results

The main developments in this service layer regarded the redesign and Java development of the Aggregation Framework (MStore, Store, Transformator, Validator, Full-text Index Services) and the integration of the Repository Workflow (status-aware Repository profiles, integrated with Validator Service and User Interfaces).

2.2.2 Steps to realization

The realization steps in this direction are the following:

- New Aggregation Framework (were not specified: design CNR, development UNIBI)
 1. MDStore Service: developed in Java by UNIBI, to be released in D-Net 1.1);
 2. Store Service: to be released in Beta release of D-Net 2.0;
 3. Harvester Service and Harvesting Management Service, to be released in Beta release of D-Net 2.0;
 4. Transformator Service and Feature Extraction Service, to be released in Beta release of D-Net 2.0;
 5. Full-text Index: to be designed and developed at ICM and UNIBI, to be released in Beta D-Net 2.0.
- Repository Workflow integration
 1. Migrating to Repository Data Structures: new profile structure and integration of new profiles within the IS and into the logic of the Validator Service and the User Interfaces (designed by all partners, to be released in D-Net 1.1);
 2. Validation repository ranking: proposals on how to integrate repository ranking into DMF as part of the searchable information.

2.2.3 Related meetings and phone conferences

- Phone conference CNR-UNIBI-NKUA (4/02/2008): possible impact of the repository workflow into the data layer.
- Technical meeting (@ICM, 21/03/2008): first proposal of the new aggregation framework.
- Meeting CNR-NKUA (5-14/05/2008) "Complex Object model": principle of complex objects in DRIVER and their impact on the other services.
- Phone conference CNR-UNIBI (3-4/07/2008) "Aggregation framework": designing of Harvester Services and Transformation Services.
- Meeting CNR-UNIBI (19-23/05/2008) "Aggregation framework services design": full detailed design of the aggregation framework, expect from the Validator Service designed by NKUA.
- Technical meeting, joint with WP4 (@SURF, 23/06/2008): debating Complex Object integration into the system, possible impacts on other services.
- Phone conference CNR-UNIBI-NKUA (3-4/07/2008) "Data and functionality layer": integration plan of the repository workflow between the services in the data layer and its impact on the Functionality layer.

- Technical meeting, joint with WP4 (@UNIBI 29/09/2008): data layer services delivery plan for D-Net 1.1 and D-Net 2.0.

2.3 Functionality layer

2.3.1 Expected results

Full priority was given to the User Interface, which should be fully operative and generic for D-NET 1.1. Besides, the Repository workflow had be fully supported by the relative User Interface.

2.3.1 Steps to realization

Both goals have been achieved and will be released as part of D-Net 1.1.

2.3.2 Related meetings and phone conferences

- Phone conference CNR-UNIBI-NKUA (4/02/2008) "Repository workflow definition": possible impact of the repository workflow into the functionality layer.
- Technical meeting (@ICM, 21/03/2008): first proposal of the generic User Interface Service.
- Phone conference CNR-UNIBI-NKUA-ICM (19/05/2008) "Browse Service": browsing methodologies and possible development in DRIVER.
- Technical meeting, joint with WP4 (@SURF, 23/06/2008): design of the generic user interface services.
- Phone conference CNR-UNIBI-NKUA (3-4/07/2008) "Data and functionality layer": integration plan of the repository workflow between the services in the data layer and its impact on the Functionality layer.
- Technical meeting, joint with WP4 (@UNIBI 29/09/2008): functionality layer services delivery plan for D-Net 1.1 and D-Net 2.0.

3 Supervision and support of the activities

All activities above, especially diversions from the original plan, were centrally supervised by CNR, with the cooperation of all partners. This process regarded not only the design and development of the expected services, but also a number of common and parallel threads, aiming at easing application development in DRIVER. In particular:

- Defining the notions of sub-service (interface fragmentation) and API contract (testing purposes): both defined, to be adopted in Beta release of D-Net 2.0;
- Common libraries for DRIVER Service development: under development between NKUA and CNR, with the aim of releasing the first usable components next January 2009, as part of the D-NET 1.1 release. The libraries include classes for blackboard message definition, Subscription & Notification management, Information Service clients, and so on (see [1] for details).
- Build system: designed and defined by ICM and CNR, with the aim of easing the process of testing Services behavior at the local level, with respect to the different infrastructure releases.

All such aspects will be introduced in a step-by-step, non-invasive way, in order not to block Service refinement and development at the different partner sites and favor the shortest possible change-integration period.

3.1.1 Related meetings and phone conferences

- Technical meeting, joint with WP4 (@SURF, 23/06/2008): definition common libraries, sub-service interfaces and API contracts for testing.
- Technical meeting, joint with WP4 (@UNIBI 29/09/2008): design and integration plan common libraries, sub-service interfaces and API contracts for testing. Description and integration plan of the new DRIVER build system.

4 References

- [1] *ScrewDRIVER* Wiki, <http://technical.wiki.driver.research-infrastructures.eu>