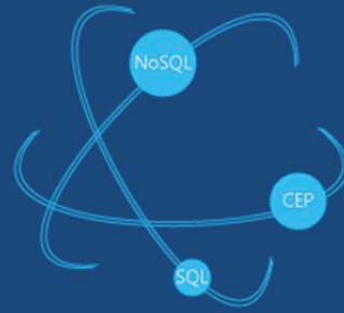


ICT FP7-611068



# CoherentPaaS

Coherent and Rich PaaS with a  
Common Programming Model

### Document Information

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### Dissemination Level

PU Public  
PP Restricted to other programme participants (including the Commission)  
RE Restricted to a group specified by the consortium (including the Commission)  
CO Confidential, only for members of the consortium (including the Commission)

### Revision History

Date	Editor	Status	Version	Changes
19-sep-2014	A. Bilas	Draft	V0.1	Table of contents
03-oct-2014	P. Kranas S. Stamokostas	Draft	V0.1.1	MongoDB first content
03-oct-2014	D. Domínguez	Draft	V0.1.1	DEX first content
03-oct-2014	G. Saloustros	Draft	V0.1.1	Key-value store first content
06-oct-2014	A. Bilas	Draft	V0.2	Editing and first full version
10-oct-2014	P. Kranas	Draft	V0.2.1	MongoDB content finalized
13-oct-2014	G. Saloustros	Draft	V0.3	New integrated version
13-Oct-2014	A. Bilas	Draft	V0.4	Commends and edits
17-Oct-2014	F. Coelho	Draft		Review
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24-Oct-2014	A. Bilas	Final	V1.0	Edits

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### More information

Additional information and public deliverables of CoherentPaaS can be found at: <http://coherentpaas.eu>

# 1 Executive Summary

During Period 1 the implementation of the NoSQL stores has progressed as planned and at the level appropriate for each store. More specifically:

**MongoDB:** During the first year of the project, a significant effort was spent:

- To handle multiple versions of the same data item. This is a pre-requisite to integrate with the holistic Transaction Manager of CoherentPaaS.
- To integrate with the conflict resolution mechanism of CoherentPaaS.
- To provide durability by maintaining the full write-set of all pending changes.
- To handle queries written in the common CloudMdsQL, although the integration with CoherentPaaS' CQE is still missing, as it was planned for the next Period.

**Eutropia key-value store:** During the first half of Period 1, the main work in the Eutropia key-value store has been to design the base version and prioritize the implementation in different phases. During the rest of the period there has been significant progress in providing the implementation of the base version, designing extensions to this base version, and planning for a number of optimizations. Besides the design and implementation of the key-value store, during this period we have designed the steps required for integrating with the overall system, which will allow integration to proceed during the second period of the project. Next we discuss in detail the implementation of the base version of Eutropia.

**Sparksee:** Sparksee graph database 5.0, which was the latest version available in the beginning of the project, lacked several features that were necessary to implement the holistic transactional management and the cloud deployment. During this year, Sparsity has worked on improving Sparksee technology and has included some of the technology into the newest commercial product release: Sparksee 5.1. This includes a brand new log system that is able to recover the database from failures as well as to rollback transactions that need to be undone, and fully fledged Python interface.

With an implementation of each store available by the end of Period 1, we expect that during Period 2 we will proceed as planned with integration with the CoherentPaaS platform and with store-specific optimizations and evaluation.