

# CLONETS-DS

## Clock NETWORK Services - Design Study



Web page: <http://clonets-ds.eu>

## CLONETS-DS INTRODUCTION

The CLONETS-DS (Clock Network Services Design Study) project aims to establish a pan-European time and frequency reference system as a European Research Infrastructure to serve the European science community. It is based on transmitting ultra precise time and frequency information via optical fiber. The proposed project builds on several joint European projects and its direct precursor project CLONETS. We now go far beyond previous efforts by designing a sustainable, pan-European, ultra-precise time-and-frequency reference-system available to the European research community. This Research Infrastructure considers user needs, designs the required architecture, engineering models and roadmaps, and develops a sustainability model for the future service, thus strengthening the European research area.

## CLONETS-DS OBJECTIVES

The CLONETS-DS specific objectives of this project are as follows:

- Elaborating the needs of the scientific community for ultraprecise timing and frequencies in various fields of research leading to the definition of user requirements the envisaged system has to address in its service at selected points of presence.
- Defining an architecture that supports this service at the highest, most advanced level of stability and accuracy.
- Designing an engineering model and strategies to implement a sustainable research infrastructure including the creation of a common data platform.
- Defining roadmaps and a deployment strategy that assure interoperability of already existing implementations in Europe and possible future extensions.
- Strengthening the European research area by elaborating plans for the integrations of the necessary environment into the European landscape.

In a parallel effort we are planning to list this project in upcoming revisions of the ESFRI roadmap of the EU.

This research infrastructure will enable first class research previously not even conceivable, foster the collaboration between time and frequency stakeholders across Europe and will thereby put Europe's research community into a leading position.

## THE CONSORTIUM

18 partners from 8 countries have joined the CLONETS-DS project. The leader of the consortium is GÉANT VERENIGING. There are 3 National Measurement Institutes (NMIs), 4 National Research and Education Networks (NRENs), 7 academic laboratories and 4 industrial partners. The consortium partners complement each other with knowledge and experience and form a unique group capable of building a time and frequency distribution network in Europe.

- 1 NETHERLANDS**
  - GEANT VERENIGING
- 2 FRANCE**
  - CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS
  - RENATER
  - UNIVERSITÉ SORBONNE PARIS NORD
  - IXBLUE
- 3 ITALY**
  - ISTITUTO NAZIONALE DI RICERCA METROLOGICA
- 4 GERMANY**
  - PHYSIKALISCH-TECHNISCHE BUNDESANSTALT
  - MENLO SYSTEMS GmbH
  - TECHNISCHE UNIVERSITÄT MÜNCHEN
  - RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITÄT BONN
- 5 UNITED KINGDOM**
  - UNIVERSITY COLLEGE LONDON
- 6 CZECH REPUBLIC**
  - CESNET, z.s.p.o.
  - USTAV PŘÍSTROJOVÉ TECHNIKY AV ČR, v.v.i.
- 7 POLAND**
  - POZNANSKIE CENTRUM SUPERKOMPUTEROWO-SIECIOWE
  - PIKTIME SYSTEMS sp. z o. o.
  - AKADEMIA GÓRNICZO-HUTNICZA IM. STANISŁAWA STASZICA W KRAKOWIE
- 8 SPAIN**
  - OROLIA
  - UNIVERSIDAD DE GRANADA



Coordinator — Participants



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