

Clock Network Services: strategy and innovation for clock services over optical fibre networks

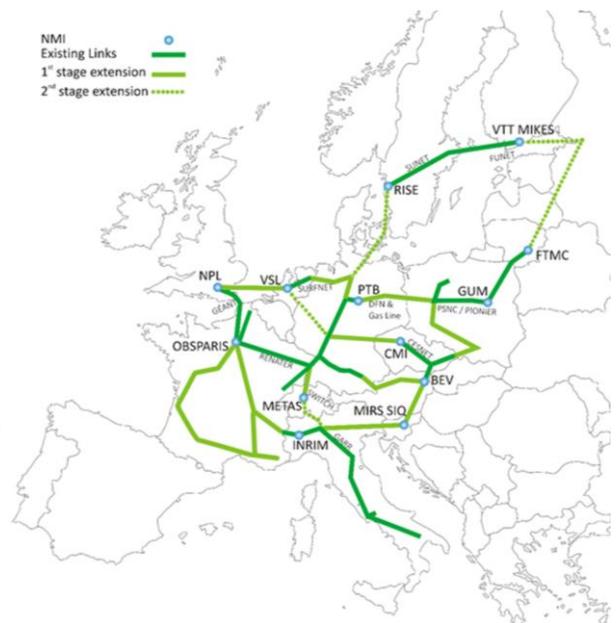
PROJECT SUMMARY

The CLONETS project during its duration has made important steps towards the creation of a sustainable, pan-European network providing high performance clock services via an optical fibre infrastructure. It has brought together key players in the field of time and frequency (TF) transfer over optical fibre networks, strengthening the interactions and collaborations between researchers and engineers of NRENs, NMIs, academic laboratories and industry. This coordination has been crucial and continues to be necessary for harmonizing research activities, developments in optical networking technologies and experimental link deployments throughout Europe. The aspects explored by the project include: scientific and industrial applications; status of and needs for telecommunications network equipment and equipment for time and frequency transmission over optical fibre; the general characteristics of a pan-European infrastructure and possible scenarios for its implementation. The corresponding reports can be found on the project’s website: <http://www.clonets.eu/clonets-summary.html>

OUTLOOK

With the end of CLONETS, the feasibility and remaining challenges of implementing a sustainable pan-European fibre-based TF infrastructure are better understood. The project partners intend to capitalize on the progress made and to continue working towards the realization of the envisioned TF infrastructure. While the project has addressed many important aspects, a more focused study is possibly needed in order to develop a preliminary design supporting the subsequent development phases of the detailed design of the infrastructure followed by its implementation. A call such as INFRADEV-01-2019-2020: Design Studies could be an appropriate context for this next phase of the CLONETS project.

The deployment of the envisioned TF network is expected to benefit a variety of research fields (including amongst others metrology, fundamental physics, geodesy, astronomy and high-resolution spectroscopy) through the provision of high-performance TF reference signals. Ultimately, the proposed TF service is therefore expected to contribute to the long-term competitiveness of European research infrastructures and to innovative technological developments.



TF Links in Europe and Planned Extensions



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