



SLICES



SLICES Scientific Large-scale Infrastructure for Computing/Communication Experimental Studies

Website

<https://www.slices-ri.eu/>

Headquarters

INRIA
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Legal Status

In preparation (specify status: i.e. step 1, 2 etc.)

Type

distributed

Access

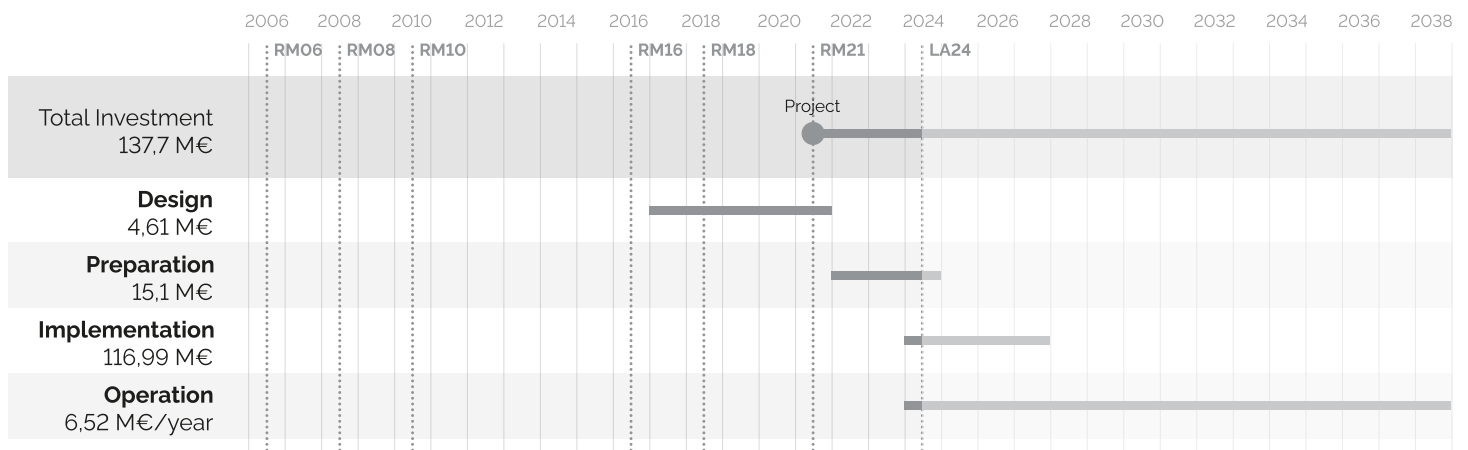
remote

DESCRIPTION

Digital transformation is at the heart of our society. This evolution is made possible by the deployment of a network and service infrastructure that is highly sophisticated both in terms of size, diversity of its components, and range of usages it allows. The aim of SLICES-RI (Super Infrastructure for Large-Scale Experimental Computer Science) is to design and build a large infrastructure for experimental research on various aspects of distributed computing and networking, from small wireless objects to large data centers of tomorrow. This infrastructure will enable end-to-end experimentation with software and applications at all levels of the software layers, from event capture to data processing and storage, going through radio management and dynamic deployment of edge services, enabling reproducible research on all-point programmable networks. Understanding the behaviour of these large-scale systems at all levels requires the use of specialized and realistic instruments with modern hardware and services to measure various characteristics such as performance or resource consumption. In this context of perpetual change and evolution, it is becoming strategic to acquire large-scale scientific tools to extrapolate, build, prototype, and validate the models, algorithms and methodologies of these multi-scale networks and systems. In order

not to suffer but, on the contrary, to fully leverage the digital revolution, SLICES-RI is aimed for academics, industrials, or students willing to assess a new solution for or relying on computing and networking system. It is crucial to provide European research and industry with a panoply of scientific and experimental tools, including an instrument to: 1) have a wide variety of advanced computing and network resources of varying sizes, connected by various programmable and versatile networks for testing, qualifying and analyzing models and algorithms; 2) provide tools for measurement, benchmarking to enable reproducible experimental research on the entire data chain and to support an open data approach; 3) mobilize and federate the communities of researchers working on these subjects, from computer and communication architects to experts of transverse application domains; 4) combine the effort of the National Research Strategy with the European and International space. SLICES-RI is led by France and gathers today 26 partners from 16 European countries (Belgium, Cyprus, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherland, Norway, Poland, Spain, Sweden, Switzerland)

TIMELINE & ESTIMATED COSTS



Lead

FR

Member

DE, HU

Prospective member

BE, CH, CY, ES, FI, GR, LU, NL, PL



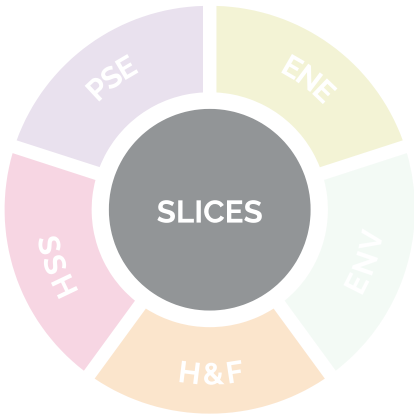
IMPACTS

SLICES is the outcome of our experience in the design, deployment, and operation of several test platforms such as Planet-lab Europe or the EU FIRE testbeds since 2005. This convinced us to put a proposal named SILECS to the ESFRI call of 2017 as a response to the scientific challenges ahead, the demand of the research community as well as the competition with the US and China. SLICES is the outcome of intense work carried out by our research community integrating the lessons learned with SILECS. A design phase will be achieved (2017 to 2022). Our INFRADEV-01 H2020 proposal has been accepted to support the Design phase. In the rest of the proposal the Design Phase refers to the period 2017-2022. A preparation phase (2022-2025) phase, supported by HORIZON-INFRA-2021-DEV-02-01, is currently investigating all issues related to sustainability, including the set up of the legal structure (ERIC) and financial frameworks and enable both deployment (2026) and full-operation (2029 on). A partial service will be made available as early as in 2025 based on existing infrastructures and a continuous integration and deployment methodology. The ICT domain contributes significantly to the European economy with a market size of about €600 billion and a fully functional Digital single market could contribute €415 billion per year to the European economic growth, boosting jobs, competition, investment and innovation in the EU. It is fundamental for the success of European digital services that ICT contributors act together. One of the driving motivations of SLICES-RI is the support and development of new technologies, services, and practices for the Next Generation Internet encompassing communication, networking, data-management and data-intelligence issues and help bring them to market for the benefit of Europe at different levels (economic, industrial, research, societal, education). To reach these objectives, SLICES-RI 1) defines a long-term strategy and vision for the research in the European and International ecosystems, connecting with other Research Infrastructures (eg SKA, SoBigData, HL-LHC) from other domains to leverage the synergy of them. SLICES ; 2) Secures the delivery of a number of readily-available Services according to FAIR principles and integration with the EOSC federated data infrastructure; 3) Performs a series of actions to support stakeholders at every stage of the research and innovation cycle, e.g., from researchers in public and private institutions, small and large business enterprises, and to the public sectors; 4) Strengthens the competitiveness of the digital ecosystem and socio-economic impact; 5) Provides training material and support, and 6) Contributes to standardisation of specifications and regulations.

SERVICES

SLICES-RI will provide access to a large variety of hardware together with a palette of different softwares and OS and monitoring tools in order to enable experimentation on every aspect of the data lifecycle within the large continuum from IoT/5G/edge/cloud.

INTERCONNECTIONS



COOPERATION WITH OTHER RIS

To date SLICES-RI has only established first discussions but aims to strongly collaborate with SKA and HL-LHC to work on very large datasets, with ECRIN, OPERAS and EURO BIOIMAGING to work on the handling of privacy-sensitive data.