TERABIT NETWORK FOR RESEARCH AND ACADEMIC BIG DATA IN ITALY

Panel di riferimento: **DIGIT**

Titolo della Proposta: **Terabit network for Research and Academic Big data in ITaly**

Codice della proposta: **IR0000022**

Tipologia: **(iii) - Networking**

Proponente:**INFN**

Infrastruttura di Ricerca: **HPC-BD-AI - National HUB for HPC, Big Data and Artificial Intelligence**

Importo totale: **41.000.000,00€**

Di cui al Sud: **19.914.753,18€ (48,57%)**

Abstract:

The demand for data-intensive processing and archiving services in research and innovation is dramatically growing.Multidisciplinary research communities have diverse and complex requirements, needing tailored solutions, while computing-intensive, hyper-networked elements are becoming the cornerstone of applications in every domain and on any scale, bringing networking, cloud and high-performance Computing technologies closer than ever. TeRABIT's grand vision is to create a distributed, hyper-networked, hybrid Cloud-HPC computing environment offering tailored services to meet the diverse requirements of research communities, open to the widest possible set of users.This will be done by networking, integrating and upgrading three leading digital Research infrastructures, GARRX, PRACE-Italy and HPC-BD-AI.

The project will seamlessly integrate state-of-the-art High-Performance and High-Throughput computing elements into an innovative distributed platform, leveraging heterogeneous hardware and offering a rich portfolio of computing solutions for data-intensive research and industry applications, from edge computing to connectivity and workflows to central HPC Exascale systems. The extensive portfolio and a computing power in the order of Petaflops will enable TeRABIT to handle parallel requests from all scientific domains and industrial applications, where and when needed and act as a fast lane to prototype innovative research.

Thanks to substantial technology and capacity upgrades and the geographical extension of the ultra-broadband network layer, focussed on the southern regions of Italy, the project will bring Terabit-grade connectivity and composable services to research and innovation all over Italy. The increased geographical coverage will bridge the digital gap that still affects many areas of

southern and insular Italy, reinforce local research and innovation ecosystems and enhance their competitiveness and attractiveness for talents as well as investments.

Elenco partecipanti alla Proposta:

• Istituto nazionale di fisica nucleare

• Istituto Nazionale di Oceanografia e di Geofisica Sperimentale