



HORIZON EUROPE FRAMEWORK PROGRAMME

NEARDATA

(grant agreement No 101092644)

Extreme Near-Data Processing Platform

D1.1 Public Project Website

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Abstract	This document summarizes the structure, the content and the functionalities of the public website of the NEARDATA project.
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History of changes

Version	Date	Author	Summary of changes
1.0	31-01-2023	Vanesa Ruana	Initial version.

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1 Executive summary

The NEARDATA website has been designed, developed and populated with initial content. The website was launched in January 2023 and can be found at <http://neardata.eu>

Key features of the website are:

- Responsive web design. The website will dynamically adjust to the device of the viewer.
- The Homepage showcases the project objectives, latest news and events, deliverables and other outcomes of the project.
- Project information including use cases and partners.
- Links to the NEARDATA Social Media pages

The website will continue to be maintained and updated as the project progresses. The project social media presence will be further developed by updates, interactions and community building activities.

2 Introduction

The project public website is part of the management and dissemination strategy of the NEARDATA project. It serves as a first source of information to the general public, particularly with regards to activities, news and public project results. In addition, it aims to attract potential collaborators to the project.

The website implemented and described below is the initial version of the site that will be further maintained and updated with new information and functionalities as the project advances.

3 NEARDATA website

The NEARDATA website is available at <http://neardata.eu> and <http://www.neardata.eu> and is hosted at <https://neardata-eu.github.io/>. The website was designed and developed with the following requirements:

- Attractive and functional design: to achieve an effective dissemination of the latest project news, events and results available.
- Responsive web design: the layout changes based on the size and capabilities of the device (phone, tablet, desktop computer, ...).
- Simple management tool: the maintenance must be easy and fast.

3.1 Website management tool

The NEARDATA website was built using Jekyll¹, a static-site generator that provides some of the benefits of a Content Management System (CMS) while avoiding the performance and security issues introduced by such database-driven sites.

A Jekyll webpage content can be maintained using lightweight text editors instead of web forms. Additionally, Jekyll allows us to use version control to track changes to the website. Jekyll is written in Ruby and it is distributed under the open source MIT license.

3.2 Website structure

The Website has been structured using a single page design that provides a quick and easy navigation to all the information about the project. The primary navigation of the site will be via the menu located at the top. Specifically, the Website (Fig. 1) is divided into several sections, including:

- Objectives: This provides a basic overview of the project objectives.
- Use cases: This contains information about the 3 use cases of the project: genomics, metabolomics and surgery.
- Deliverables: A list of all public deliverables and peer reviewed publications specifically related to the project. As the project advances, this section will include links to data sets, prototypes and other project outcomes.
- News: News and events concerning the NEARDATA Project. This section will be periodically updated.
- Partners: A list of all NEARDATA Partners, including their logos and links to their institutional websites.
- About: This provides a general information of the project.
- Footer: This section includes contact details, links to social media, and the acknowledgement to the Horizon Europe (HORIZON) programme.

The website uses a fully responsive Bootstrap² template that allows it to dynamically adjust to different sizes of device. This template also supports responsive, full screen modal windows that are used to expand news or show more details about the use cases.

¹<https://jekyllrb.com/>

²<https://getbootstrap.com/>

NearData OBJECTIVES USE CASES DELIVERABLES NEWS PARTNERS ABOUT

NearData

Extreme Near-Data Processing Platform

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Objectives

The goal of **NEARDATA** is to create an extreme data infrastructure mediating data flows between Object Storage and Data Analytics platforms across the Compute Continuum. Our novel **Intermediary** platform is an intermediary data service that intercepts and optimizes data flows (3rd API stream APIs) with high-performance near-data connectors (CloudEdge). Finally, our unique **Data Broker** service will provide secure data access and orchestration of dispersed data sources thanks to TEEs and federated learning architectures. Our **NEARDATA** platform is a novel technology for data mining of large and dispersed architectural data sets that can be deployed in the Cloud and in the Edge (MPC, IoT Devices), that leverages advanced AI technologies and offers a novel confidential (cybersecurity) layer for trusted data computation.

The goals of NearData are the following:

- **Provide high performance near-data processing for Extreme Data Types:** The first objective is to create a novel intermediary data service (**Intermediary**) providing serverless data connectors that optimize data management operations (partitioning, filtering, transformation, aggregation) and interactive queries (search, discovery, matching, multi-object queries) to efficiently present data to analytic platforms. Our data connectors facilitate a *data-driven process* (rather than compute paradigm) which significantly reduces data communication on the data interconnect, ultimately resulting in higher overall data throughput.
- **Support real-time video streams but also event streams that must be ingested and processed very fast to Object Storage:** The second objective is to seamlessly combine streaming and batch data processing for analytics. To this end, we will develop stream data connectors deployed as stream operators offering very fast dataflows over low-latency event and video streams.
- **The third objective is to create a Data Broker service enabling trustworthy data sharing and confidential orchestration of data pipelines across the Compute Continuum:** We will provide secure data orchestration, transfer, processing and access thanks to Trusted Execution Environments (TEEs) and federated learning architectures.

Use Cases

Genomics
Creation of methods, test storage, and communications infrastructures to communicate distributed computing power with scalable storage systems, allowing efficient distribution of datasets across the system.

Metabolomics
Expand the analysis of metabolomics raw data and boost external access and efficient re-use of open data. Creation of federated and hybrid distributed architecture and ensuring data privacy but also shared global computation.

Surgery
Create generalised machine-learning models that can aid surgeons during surgery and allow video data to be analysed in real-time and with low latency.

Deliverables

News

Partners

The NearData consortium is a well-balanced team of industrial and academic partners

About

Project title: NearData: Extreme Near-Data Processing Platform
Grant agreement ID: 101092644
Coordinator: Dr. Pedro García López
Universidad Rovira i Virgili (Spain)
Barcelona Supercomputing Center (Spain)
Technische Universität Dresden (Germany)
Deutsches Krebsforschungszentrum Heidelberg (Germany)
Partners: European Molecular Biology Laboratory (Germany)
EMBL Information Systems International (Ireland)
4IO Network (Spain) (Spain)
Sano - Centrum Zwykłych i Niezwykłych Medycyń (Olsztyn) (Poland)
Scout24 (Germany)
Department of Health - United Kingdom (United Kingdom)
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Figure 1: NEARDATA website main page (desktop browser).

4 Social media

The website includes links to NEARDATA social media accounts (Twitter, YouTube). The NEARDATA consortium will use Twitter as its main social media platform for the project. At the same time the website was launched, we also created the Twitter account @neardata2023 (Fig. 2) to disseminate information about project activities. Both the website and the Twitter account will be used for the public communication of all project activities and events.

The Consortium will also use the NEARDATA YouTube channel to share promotional videos that disseminate the achievements of the project.

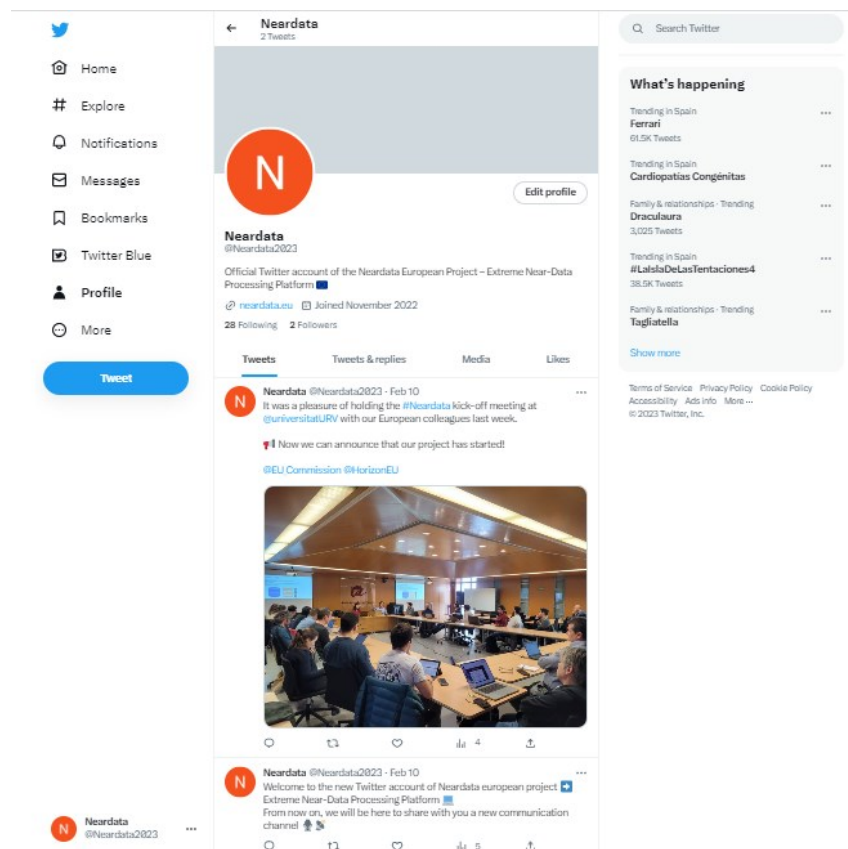


Figure 2: NEARDATA Twitter account.

5 Conclusions

This deliverable presents the NEARDATA public website. The objective of the website is to inform the general public about NEARDATA and its achievements, as well as to attract potential collaborators to the project.

The success of a project such as NEARDATA depends on efficient communication and coordination, and the public site is an essential tool to achieve this goal. The site provides public information, news, events and deliverables. It will be promoted through social media and during conferences and events where partners present the project.

The *.eu* domain name of `neardata.eu` has been registered for the site. The website will be continuously updated, adjusted and improved.