A LIGHTWEIGHT SOFTWARE STACK AND SYNERGETIC META-ORCHESTRATION FRAMEWORK FOR THE NEXT GENERATION COMPUTE CONTINUUM

Fact Sheet

Project Information

**NEPHELE**
Grant agreement ID: 101070487

**DOI**
10.3030/101070487

**Start date**
1 September 2022

**End date**
31 August 2025

**Funded under**
Digital, Industry and Space

**Total cost**
€ 9 127 711,25

**EU contribution**
€ 9 127 711

**Coordinated by**
ETHNICON METSOVION
POLYTECHNION
Greece

**Objective**

The vision of NEPHELE is to enable the efficient, reliable and secure end-to-end orchestration of hyper-distributed applications over programmable infrastructure that is spanning across the compute continuum from Cloud-to-Edge-to-IoT, removing existing openness and interoperability barriers in the convergence of IoT technologies against cloud and edge computing orchestration platforms, and introducing automation and decentralized intelligence mechanisms powered by 5G and distributed AI technologies.
The NEPHELE project aims to introduce two core innovations, namely:

(i) an IoT and edge computing software stack for leveraging virtualization of IoT devices at the edge part of the infrastructure and supporting openness and interoperability aspects in a device-independent way. Through this software stack, management of a wide range of IoT devices and platforms can be realised in a unified way, avoiding the usage of middleware platforms, while edge computing functionalities can be offered on demand to efficiently support IoT applications’ operations.

(ii) a synergetic meta-orchestration framework for managing the coordination between cloud and edge computing orchestration platforms, through high-level scheduling supervision and definition, based on the adoption of a “system of systems” approach.

The NEPHELE outcomes are going to be demonstrated, validated and evaluated in a set of use cases across various vertical industries, including areas such as disaster management, logistic operations in ports, energy management in smart buildings and remote healthcare services. Two successive open calls will also take place, while a wide open-source community is envisaged to be created for supporting the NEPHELE outcomes.

**Fields of science**

- engineering and technology ➔ electrical engineering, electronic engineering, information engineering ➔ information engineering ➔ telecommunications ➔ telecommunications networks ➔ mobile network ➔ 5G
- natural sciences ➔ computer and information sciences ➔ internet ➔ internet of things
- natural sciences ➔ computer and information sciences ➔ software
- social sciences ➔ sociology ➔ industrial relations ➔ automation
- medical and health sciences ➔ health sciences ➔ health care services

**Programme(s)**

- HORIZON.2.4 - Digital, Industry and Space
- HORIZON.2.4.7 - Advanced Computing and Big Data

**Topic(s)**

- HORIZON-CL4-2021-DATA-01-05 - Future European platforms for the Edge: Meta Operating Systems (RIA)

**Call for proposal**
Funding Scheme

HORIZON-AG - HORIZON Action Grant Budget-Based

Coordinator

ETHNICON METSOVION POLYTECHNION

Net EU contribution
€ 2,379,875.00

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Heroon Polytechniou 9 Zographou Campus
157 80 Athina
Greece

Region
Κεντρικός Τομέας Αθηνών > Αττική > Αττική

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

Participants (16)

CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI

Italy

Net EU contribution
€ 558,750.00

Address
Address
Viale G. P. Usberti 181a
43124 Parma

Region
Nord-Est > Emilia-Romagna > Parma

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation  
Website  
Participation in EU R&I programmes  
HORIZON collaboration network  

Non-EU contribution
€ 0,00

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SIEMENS AKTIENGESELLSCHAFT
Germany

Net EU contribution
€ 799 375,00

Address
Werner-von-siemens-str. 1
80333 Munchen

Region
Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  
Website  
Participation in EU R&I programmes  
HORIZON collaboration network  

Non-EU contribution
€ 0,00

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ATOS IT SOLUTIONS AND SERVICES IBERIA SL
Spain
Net EU contribution
€ 408 375,00

Address
Ronda De Europa 5
28760 Tres Cantos Madrid

Region
Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET AUTOMATIQUE

Net EU contribution
€ 432 147,50

Address
Domaine De Voluceau Rocquencourt
78153 Le Chesnay Cedex

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Ile-de-France > Ile-de-France > Yvelines

Activity type
Research Organisations

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00
UNIVERSITY OF MACEDONIA

Greece

Net EU contribution

€ 370 000,00

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Egnatia Street 156
540 06 Thessaloniki

Region

Θεσσαλονίκη > Κεντρική Μακεδονία > Βόρεια Ελλάδα

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation 
Website
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HORIZON collaboration network

Non-EU contribution

€ 0,00

FUNDINGBOX ACCELERATOR SP ZOO

Poland

Net EU contribution

€ 195 476,00

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Ul Postepu 15
02-676 Warszawa

SME

Yes

Region

Makroregion województwo mazowieckie > Warszawski stoleczny > Miasto Warszawa

Activity type

Other

Links

Contact the organisation
Participation in EU R&I programmes
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Non-EU contribution

€ 0,00
THIRD-PARTY

FUNDINGBOX COMMUNITIES SL

Spain

Net EU contribution

€ 105 750,00

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28045 Madrid

SME

Yes

Region

Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type

Other

Links

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Non-EU contribution

€ 0,00

ODIN SOLUTIONS SOCIEDAD LIMITADA

Spain

Net EU contribution

€ 433 187,50

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Calle Peru 5, Num. 5, Planta 3, Puerta 5, Poligono L Oeste-edificio Forum
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Yes

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Región de Murcia > Murcia

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)
ALTER WAY
France
Net EU contribution
€ 586 250,00
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Ile-de-France > Ile-de-France > Hauts-de-Seine
Activity type
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INTERNET INSTITUTE, COMMUNICATIONS SOLUTIONS AND CONSULTING LTD
Slovenia
Net EU contribution
€ 398 000,00
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Crna Vas 128
1000 Ljubljana
ECLIPSE FOUNDATION EUROPE GMBH

Germany

Net EU contribution

€ 362 500,00

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Berliner Allee 47
64295 Darmstadt

SME

Yes

Region

Darmstadt > Darmstadt, Kreisfreie Stadt

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution

€ 0,00

WINGS ICT SOLUTIONS INFORMATION & COMMUNICATION TECHNOLOGIES

IKE
Greece

Net EU contribution

€ 453 750,00

Address

189, Syggrou Avenue
171 21 Nea Smyrni

SME
Yes

Region
Νότιος Τομέας Αθηνών > Αττική > Αττική

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

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Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

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IBM IRELAND LIMITED

Ireland

Net EU contribution

€ 641 775,00

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Region
Ireland > Eastern and Midland > Dublin

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

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ESAOTE SPA

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16152 Genova

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- HORIZON collaboration network

LUKA KOPER, PORT AND LOGISTIC SYSTEM, D.D.

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6000 Koper

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Slovenija > Zahodna Slovenija > Obalno-kraška

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
- Contact the organisation
- Website
- Participation in EU R&I programmes
- HORIZON collaboration network
GEIE ERCIM

France

Net EU contribution

€ 483 762.50

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Route Des Lucioles 2004 Sophia Antipolis
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SME

Yes

Region

Provence-Alpes-Côte d'Azur > Provence-Alpes-Côte d'Azur > Alpes-Maritimes

Activity type

Other

Links

Contact the organisation
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Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution

€ 0.00

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