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

**Funded under**

Digital, Industry and Space

**Total cost**

€ 9 127 711,25

**EU contribution**

€ 9 127 711

**Start date**

1 September 2022

**End date**

31 August 2025

**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  (MAIN PROGRAMME)
- 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

Address
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

Net EU contribution
€ 558 750,00

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
France

Net EU contribution
€ 432 147,50

Address
Domaine De Voluceau Rocquencourt
78153 Le Chesnay Cedex

Region
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

Address

Egnatia Street 156
540 06 Thessaloniki

Region

Θεσσαλονίκη > Κεντρική Μακεδονία > Βόρεια Ελλάδα

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

FUNDINGBOX ACCELERATOR SP ZOO

Poland

Net EU contribution

€ 195 476,00

Address

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
HORIZON collaboration network

Non-EU contribution

€ 0,00
THIRD-PARTY 🔄
FUNDINGBOX COMMUNITIES SL
Spain
Net EU contribution
€ 105 750,00
Address
Calle Mendez Alvaro 20
28045 Madrid

SME 🔄
Yes
Region
Comunidad de Madrid > Comunidad de Madrid > Madrid
Activity type
Other
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

ODIN SOLUTIONS SOCIEDAD LIMITADA
Spain
Net EU contribution
€ 433 187,50
Address
Calle Peru 5, Num. 5, Planta 3, Puerta 5, Poligono L Oeste-ediﬁcio Forum
30820 Alcantarilla Murcia

SME 🔄
Yes
Region
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
Address
1 Rue Royale
92210 Saint-cloud
Region
Ile-de-France > Ile-de-France > Hauts-de-Seine
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
INTERNET INSTITUTE, COMMUNICATIONS SOLUTIONS AND CONSULTING LTD
Slovenia
Net EU contribution
€ 398 000,00
Address
Crna Vas 128
1000 Ljubljana
ECLIPSE FOUNDATION EUROPE GMBH

Germany

Net EU contribution

€ 362 500,00

Address

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
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)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
€ 0,00

IBM IRELAND LIMITED
Ireland
Net EU contribution
€ 641 775,00
Address
Ibm House, Shelbourne Road
Dublin 4 Ballsbridge
Region
Ireland > Eastern and Midland > Dublin
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
**ESAOTE SPA**

*Italy*

Net EU contribution: € 273,750.00

Address

Via Enrico Melen 77
16152 Genova

Region

Nord-Ovest > Liguria > Genova

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

*Slovenia*

Net EU contribution: € 244,987.50

Address

Vojkovo Nabrezje, 38
6000 Koper

Region

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

Net EU contribution

€ 483,762.50

Address

Route Des Lucioles 2004 Sophia Antipolis
06410 Biot

SME

Yes

Region

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

Activity type

Other

Links

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

Non-EU contribution

€ 0.00

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