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
- 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)
HORIZON-CL4-2021-DATA-01

See other projects for this call

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

Italy

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

SIEMENS AKTIENGESELLSCHAFT
Germany

Net EU contribution
€ 799 375,00

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

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

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

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**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**

Île-de-France > Île-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
SME
Yes
Region
Slovenija > Zahodna Slovenija > Osrednjeslovenska
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

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

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)

Links

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

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

€ 0,00
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

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
HORIZON collaboration network

Non-EU contribution
€ 0,00

GEIE ERCIM

France

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

Partners (1)

ZURCHER HOCHSCHULE FUR ANGEWANDTE WISSENSCHAFTEN

Switzerland

Net EU contribution
€ 0,00

Address
Gertrudstrasse 15
8401 Winterthur
Switzerland/Suisse/Svizzera > Zurich > Zurich

Activity type
Higher or Secondary Education Establishments

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

Non-EU contribution
€

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