



NebulOuS

A META OPERATING SYSTEM FOR BROKERING HYPER-DISTRIBUTED APPLICATIONS ON CLOUD COMPUTING CONTINUUMS



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OUR VISION

NebulOuS aims to **revolutionize cloud and fog computing brokerage** through the development of advanced provisioning tools, a **unique Meta Operating System**, and the **comprehensive NebulOuS solution**.



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KEY FEATURES



Unified security
for cloud computing
continuums



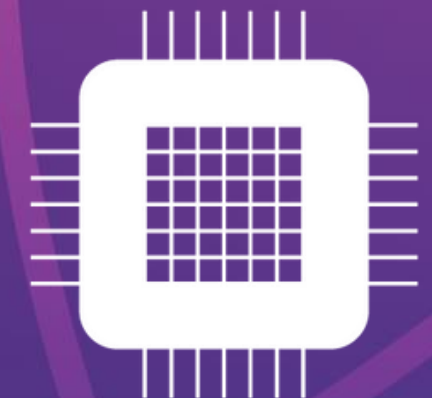
Smart contract
service level agreements
monitoring



Intelligent applications,
workflows and data
stream managements



Efficient multi-criteria
assessment of
available offerings



New tools for describing
app requirements
& data streams



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OUR GOALS



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1. ADVANCED TOOLS FOR PROVISIONING

- Develop secure and optimal methods and tools for application provisioning and reconfiguration across the cloud computing continuum.

2. META OPERATING SYSTEM DEVELOPMENT

- Create a Meta OS and platform for transient fog brokerage ecosystems that utilize edge and fog nodes, as well as multi-cloud resources.

3. NEBULOUS SOLUTION DIRECTIONS

- Develop modelling methods and tools for application topologies, their requirements and optimization criteria.
- Monitor QoS and adapt to workloads.
- Compare hosting options using multi-criteria decision-making.
- Manage intelligent apps, workflows, and data streams.
- Address security and smart contract-based SLAs in cloud computing.



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OUR INNOVATION

EASIER DEPLOYMENT AND AUTOMATED OPTIMIZATION

NebulOuS provides an advantage of easy application deployment to different cloud resources and automatic optimization of apps.

CLOUD CONTINUUM AFFORDABILITY

NebulOuS will unlock innovations in the Big Data & IoT industry thanks to the highly resource-intensive services becoming economically viable.

CLOUD CONTINUUM ACCESSIBILITY

NebulOuS will help companies and consumers to benefit from Cloud Computing Continuum, making data intensive services more accessible.



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TWO-FOLD APPROACH

Use cases in key industrial and societal applications, which in future require more power at the edge:

- i) Project demonstrators
- ii) Funding Support to Third Parties



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NebulOuS Demonstrators

The NebulOuS framework will be applied and tested in 5 real-life demonstrators targeting different business areas



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USE CASES



**Windmill
maintenance**

Energy and utilities



**Computer vision for
city maintenance**

Smart City



**Precision
agriculture**

Agriculture



**Fresh food
supply**

Transport and logistics



**Crisis
management**

Environment



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Energy and utilities

Windmill maintenance

Methodology: Deployment of continuum-integrated survey drones, integration of Cloud-Edge processing with preventative and inspection tools, implementation of AI image recognition software.

Objective: Predictive maintenance through alert generation; Inspection optimisation through self-managing drone reconnaissance; Reduction in energy use through edge processing of image/video data.



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Smart city

Computer vision for city maintenance

Methodology: Integration of Cloud-Edge processing with infrastructure maintenance, deployment of sensor and smart device-based data to the continuum, alert generation for damage detection and other applications.

Objective: Public buildings/infrastructure maintenance optimisation through detection of damages; Flexible information verification and inspection through sensor data; Establishment of a platform for future city-wide applications.



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Agriculture

Precision agriculture

Methodology: Integration of Cloud-Edge processing with agricultural machinery and vehicles, re-allocation of data streams to local resources, implementation of sensor-based alert generation.

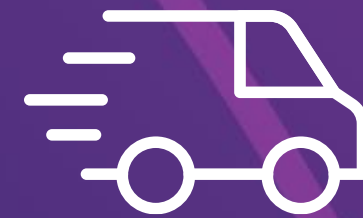
Objective: Optimisation of resource usage and distribution through relevant data collection and processing; Increased micro-management capabilities through platform harmonisation; Data securitisation through local processing and authentication.



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Transport and logistics

Fresh food supply

Methodology: Cloud-Edge continuum harmonisation for transportation processes, delivery and logistics tracking through sensors and smart equipment, decision-making decentralisation and automation (Decision Support System).

Objective: Delivery optimisation through sensor analytics related to vehicle and road conditions; Increased logistics efficiency through the predictive and recommendation software; Reduction in energy usage through waste and error avoidance.



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Environment

Crisis management

Methodology: Implementation of edge technology in support of crisis tools, deployment of AI algorithms for data processing and alert generation, incorporation of field sensors in the crisis management continuum.

Objective: Preventing communication breakdowns during crises through localised processing; Increasing crisis management's monitoring and response tools by adding them to the continuum; Optimising crisis team responses via alert generation and toolkit expansion.



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*Empower Your Cloud Journey to
the Edge with NebulOuS:
Efficient and Intelligent Fog
Brokerage for Data-Driven
Applications*



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