Call for papers

[Deadline Extended]

FRAME 2025 : 5th Workshop on Flexible Resource and Application Management on the Edge

*Affiliated with the **34th ACM International Symposium on High-Performance Parallel and Distributed Computing (HDPC) 2025***

Key deadlines:

~~19 March~~ 02 April, 2025	Title and abstract submission
~~26 March~~ 09 April, 2025	Submission of regular and short papers
02 May, 2025	Notification of acceptance
23 May, 2025	Camera-ready paper submission
20 July, 2025	Workshop day

Website: https://www.accordion-project.eu/frame2025/

Cloud computing architectures and related paradigms are gaining an ever increasing degree of popularity and interest both from the industrial and the scientific community. They allow customers to “outsource” the management of physical resources by renting a variable amount of resources according to their actual needs, in a pay-per-use fashion. Research and technological efforts in this field keep expanding with the emergence of Edge computing infrastructures, as new problems and exploitation opportunities surface. Cloud and Edge infrastructures can work together to fulfill requirements from a variety of applications, composing the so-called Cloud/Edge Continuum. Clouds must provide appropriate levels of performance to large groups of different users, whereas Edge resources act as a first layer of computing capacity that is close to the user, enabling reduced latency and increasing the exploitable portion of network bandwidth. Edge infrastructures typically belong to different administrative domains, are resource constrained with respect to central Clouds, and are composed of a very heterogeneous set of resources, introducing new challenges in the fields of security, orchestration and resource management. From a business point of view, organizations can benefit from the distributed nature of Edge computing to deploy dedicated services on a context-driven, tenancy-driven or time-driven basis to serve certain areas. From a technological perspective, the scalability, interoperability, and efficient (de-)allocation of resources at the edge can enable a whole new set of scenarios. Interactive and time-sensitive services can be extended towards the edge, thereby closing the proximity gap with (potential) users.
Data collection can happen within geographically/administratively bounded areas, ensuring compliance with data privacy and data retention policies. Real-time data-driven decisions can be promptly taken on the spot, without the need to wait for data to travel to the Cloud and back, and allowing collaborative and interactive systems to perform live data processing fully exploiting the closest available devices.

The immersive data processing of Extended Reality (XR) applications such as VR, AR and Holography is a key example where dynamically shifting computation towards the network edges can also allow for a better computation to communication trade off, smoother connections and improved perceived QoE and collaboration.
An even wider range of heterogeneous resources is nowadays available thanks to the integration of HPC-clusters and hardware-accelerated devices within Cloud platforms, leading to the scenario known as Hybrid Cloud HPC HC-HPC). The HC-HPC paradigm can aim at new tradeoffs in advanced system solutions by combining the computational prowess of HPC clusters, the dynamic management of virtually limitless resources of Cloud Computing, and the low-latency of Edge devices, overcoming the limitations of HPC systems designed for their peak performance and bringing cost savings as well as increased dynamic scalability and reliability.
Additionally, the emergence of adversarial threats and the increasing need for secure Federated Learning in distributed systems further underline the importance of robust techniques in the Cloud/Edge Continuum.
Improvement and innovation opportunities like these call for new solutions and theoretical frameworks.
The 5th International Workshop on Flexible Resource and Application Management on the Edge (FRAME 2025) aims at bringing together cloud and edge computing experts from academia and industry to identify new challenges, discuss novel systems, methods and approaches for the management of resources in cloud-edge infrastructures, as well as to promote this vision toward academia and industry stakeholders.

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Topics of interest

Topics of interest for the workshop include but are not limited to the following ones:

- Monitoring of Resources and Applications at the Edge
- Efficient management of storage at the Edge
- Efficient orchestration and Resources management for the Cloud/Edge continuum
- Fault detection and prevention in the Cloud/Edge continuum
- Adaptive management of Applications in the Cloud/Edge continuum
- Application Models for the Cloud/Edge continuum
- Lightweight virtualization tools and techniques for Edge devices
- Novel Computing and Data Architectures for the Cloud/Edge Continuum and Federations
- Edge OS approaches for hyper-distributed applications
- ML/AI techniques and algorithms for Cloud/Edge orchestration
- Neural Network architectures for edge computing such as TinyML and compressed neural networks.
- QoE/QoS modeling and assessment for the Cloud/Edge continuum
- Distributed infrastructures, architectures, network protocols for ultra low latency
- Techniques and methods for streaming 3D and VR data in Continuum platforms

- Next-gen applications in the Continuum like AR, VR and Holography
- Workflows on highly heterogeneous and distributed platforms
- Cybersecurity, privacy, rights and sensitive/strategic data management in the Cloud/Edge Continuum
- Infrastructure as Code and automation in the Cloud/Edge Continuum
- Hybrid Cloud HPC and integration of HPC and Continuum platforms
- Federated learning, adversarial robustness and secure Federated Learning in the Cloud/Edge Continuum

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Submissions and attendance

Accepted papers will be published in the HPDC conference Proceedings and in the ACM digital Library. Submitted papers must be original work that has not appeared in and is not under consideration for another conference or a journal. Every submitted paper will be reviewed by at least three members of the Program Committee. Reviewing will be single-blind.
Starting this year, HPDC workshop proceedings are published as ACM Open Access papers. Workshop papers thus gain better visibility, but are limited to 5 pages to avoid additional publication fees (per ACM OA policy). Authors are invited to submit papers of the following types and lengths, in the ACM Proceedings format style:

- **Regular papers** (maximum 5 pages, sharp) should present innovative works whose claims are supported by solid justifications.
- **Short Papers** (maximum 3 pages, sharp) should target position papers or be new and promising approaches that still await full development and validation.

Submissions will be received via HotCRP: https://frame2025.hotcrp.com/

Please note that registering on the submission site with a title and meaningful abstract by the earliest deadline is required to enable the actual paper submission. For full submission rules and updates, please refer to the workshop website.

Publication
FRAME proceedings will be published by ACM in the HPDC proceedings companion book, as in previous years, as well as on the ACM DL as Open Access. The authors must be prepared to sign a copyright transfer statement. At least one author of each accepted paper must register to the workshop by the early registration date (TBD), attend, and present the work.

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Organizers:

* **Luca Ferrucci**, University of Pisa, luca.ferrucci@unipi.it, General Chair
* **Massimo Coppola**, ISTI-CNR, massimo.coppola@isti.cnr.it, Program Co-Chair
* **Hanna Kavalionak**, ISTI-CNR, hanna.kavalionak@isti.cnr.it, Program Co-Chair
* **Antonios Makris**, NTUA, antoniosmakris@mail.ntua.gr, Program Co-Chair

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Preliminary list of program committee members:

- Jörn Altmann, Seoul National University
- Emanuele Carlini, ISTI-CNR
- Karim Djemame, University of Leeds
- Domenico Talia, University of Calabria
- Konstantinos Tserpes, ICCS-NTUA
- José Luis Vázquez-Poletti, Universidad Complutense de Madrid
- Evangelos Psomakelis, ICCS-NTUA
- Lorenzo Blasi, HPE
- Ferran Diego Andilla, Telefonica
- Theodoros Theodoropoulos, ICCS-NTUA
- Antonio Carta, University of Pisa
- Nishant Saurabh, University of Utrecht
- Andrea Michienzi, University of Pisa
- Doriana Medici, University of Turin
- Gianluca Mittone, University of Turin
- Alessia Antelmi, University of Turin
- Stavros Bouras, ICCS-NTUA
- Aristotelis Ballas, Harokopio University of Athens
- Ioannis Kontopoulos, ICCS-NTUA
- Stefano Forti, University of Pisa
- Barbara Guidi, University of Pisa
- Artsiom Yautsiukhin, IIT-CNR
- Matteo Mordacchini, IIT-CNR
- Patrizio Dazzi, University of Pisa