



Adaptive multi-tier intelligent data manager for Exascale

Results

Project Information

ADMIRE

Grant agreement ID: 956748

[Project website](#)

DOI

[10.3030/956748](https://doi.org/10.3030/956748)

Project closed

EC signature date

2 December 2020

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INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

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€ 7 963 286,25

EU contribution

€ 3 981 643,13

Coordinated by

UNIVERSIDAD CARLOS III DE MADRID



Spain

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from [OpenAIRE](#) .

Deliverables

[Documents, reports \(23\)](#)



[Monitoring solution at Exascale](#)

Monitoring solution at Exascale for containerised malleable applications, running on ephemeral file system

[Report on the intelligent controller design](#)

Report with the design of the modules of the controller

[Applications co-design report](#)

Describes the applications, the list of used WP2-WP4 concepts, their modes of integration with the applications, recommendations and APIs taken into account in the redesign process, as well as the key performance indicators for the evaluation of the improvements in performance through the re-design and re-implementation.

[Midterm report](#)

A report describing all activities and results from the first half of project execution time

[I/O Scheduler requirements and API](#)

Report describing the IO Requirements API and the design of the IO Scheduler

[Validation of project outcomes through applications](#)

Final validation and evaluation of the project tools by WP2-WP6 using the proposed use cases.

[Dissemination, communication, exploitation, and standardisation plan](#)

A report describing the planned activities for dissemination communication exploitation and standardisation The plan will include a detailed description of objectives and KPIs

[Final report](#)

final report describing all activities and results during the project execution time

[Project web site](#)

The web site of the project containing public and private sections performance counters and external feedback forms

[Design of the monitoring and profiling tool](#)

Definition of the modules the functionality and the control points of the profiling and monitoring tools

[Data Management Plan](#)

A data management plan describing in detail the life cycle of the data collected, processed and generated by the project

[Extra-P extended with I/O modelling capabilities](#)

[Definition of requirements for ad-hoc storage systems](#)

A report describing the requirements for the ad-hoc files system, the limitations of existing file semantics and proposed modifications

[Final report on the I/O Scheduler](#)

Final report on the I/O Requirements API. I/O Scheduler prototype with QoS guarantees and in-situ/in-transit computation

[Final report on dissemination, communication, exploitation, and standardisation results.](#)

A report describing the activities and results of the execution of the activities planned and the level of fulfilment of KPIs

[Applications requirement definition](#)

Deliverable including requirements analysis strategy and a second stage in the shape of the requirement repository

[Definitions of the profiling and monitoring requirements](#)

Report with the definition of requirements and API of monitoring infrastructures and applications IO profiling

[Report on the intelligent controller requirements](#)

Report with the definition of requirements and API of the control plane

[Malleability requirements definition](#)

Definition of the requirements and API for the malleability mechanisms to be provided in ADMIRE

[Scheduling algorithms and policies](#)

Report with simulation results that demonstrate performance improvement according to KPIs

[Report on the implementation of application I/O profiling](#)

Description and implementation of application I/O profiling

[Midterm report on dissemination, communication, exploitation, and standardisation](#)

A report describing the activities and results of the execution of the activities planned and the level of fulfilment of KPIs

[Updated Data Management Plan](#)

Demonstrators, pilots, prototypes (10)

[Distributed and multi-criteria I/O management system](#)

A distributed prototype that manages I/O and applications at system-scale dealing with multi-criteria objectives

[Base mechanisms for malleability](#)

Design and tested prototype of base mechanisms including documentation

[Slurm malleability plugin available](#)

Tested prototype of the integration of Slurm and malleability management that validates KPIs.

[Short-lived ad-hoc storage system](#)

Prototype providing efficient storage I/O access according to the technical KPIs 4, 5, and 6

[Resilience for ad-hoc storage systems](#)

Resilient ad-hoc storage systems according to the technical KPIs 1, 2, 4, and 5

[Design of the ad-hoc storage systems](#)

Design report and test suit to check semantical correctness of ad-hoc storage systems and application needs

[Runtime tools to tune I/O system behaviour](#)

Runtime analytics tools to tune I/O system behaviour

[Software to support I/O scheduling policies](#)

Prototype providing an API for mechanisms for on-line data collection and decision making

[Coordination language for intelligent I/O systems](#)

Definition and implementation of the coordination language for intelligent I/O systems

[Malleable storage system available](#)

Tested prototype of efficient malleability mechanisms according to the technical KPIs 1 and 2.

[Applications - alpha version](#)

The first versions of the applications using the software prototypes, strategies, methodologies and concepts from WP2-WP4 and the feedback for their improvement; internal user manuals

Publications

Conference proceedings (42)

ElastiSim: A Batch-System Simulator for Malleable Workloads

Author(s): Taylan Özden, Tim Beringer, Arya Mazaheri, Hamid Mohammadi Fard, Felix Wolf

Published in: Proc. of the 51st International Conference on Parallel Processing (ICPP), Bordeaux, France, 2022

Publisher: ACM

[Streamlining distributed Deep Learning I/O with ad hoc file systems.](#)

Author(s): Frederic Schimmelpfennig, Marc-André Vef, Reza Salkhordeh, Alberto Miranda, Ramon Nou, and André Brinkmann

Published in: 23rd IEEE Cluster Conference, Issue Proceeding of the 23rd IEEE Cluster Conference, 2021, Page(s) 169-180

Publisher: IEEE

DOI: 10.1109/cluster48925.2021.00062

[Data Management in EpiGraph COVID-19 Epidemic Simulator](#)

Author(s): Miguel Guzmán-Merino, Christian Durán, Maria-Cristina Marinescu, Concepción Delgado-Sanz, Diana Gomez-Barroso, Jesus Carretero, David E. Singh

Published in: European Conference on Parallel Processing, 2022, Page(s) 267-278, ISBN 978-3-031-06156-1

Publisher: Springer, Cham

DOI: 10.1007/978-3-031-06156-1_22

[Workflows' applications in computational environmental science: a survey](#)

Author(s): Mellone, Gennaro, Ciro Giuseppe De Vita, Dario Caramiello, David Exposito Singh, Javier Garcia Blas, and Angelo Ciaramella

Published in: Proceedings of the 2nd Workshop on Workflows in Distributed Environments, 2024, Page(s) 1-7, ISBN 840070546-5

Publisher: ACM

DOI: 10.1145/3642978.3652833

[eScience Serverless Data Storage Services in the Edge-Fog-Cloud Continuum](#)

Author(s): Dante D. Sanchez-Gallegos, Diana Carrizales-Espinoza, José L. Gonzalez-Compean, Jesus Carretero

Published in: 2023 IEEE 19th International Conference on e-Science (e-Science), 2023

Publisher: IEEE

DOI: 10.1109/e-science58273.2023.10254882

[Energy Consumption Studies of WRF Executions with the LIMITLESS Monitor](#)

Author(s): Alberto Cascajo, David E. Singh, Jesús Carretero, Andres Bustos, Antonio Juan Rubio-Montero, Elena García-Bustamante, José A. Moriño, Rafael Mayo - García

Published in: LATIN AMERICA HIGH PERFORMANCE COMPUTING CONFERENCE - CARLA 2021, 2022, Page(s) 19–33, ISBN 978-3-031-04209-6

Publisher: Springer, Cham

DOI: 10.1007/978-3-031-04209-6_2

[I/O performance of multiscale finite element simulations on HPC environments](#)

Author(s): Francieli Boito, Antonio Tadeu A. Gomes, Louis Peyrondet, Luan Teylo

Published in: 2022 International Symposium on Computer Architecture and High Performance Computing Workshops (SBAC-PADW), 2023

Publisher: IEEE

DOI: 10.1109/sbac-padw56527.2022.00012

[Sistema de almacenamiento Ad-Hoc para entornos HPC basado en el sistema de ficheros paralelo Expand](#)

Author(s): Diego Camarmas-Alonso; Felix Garcia-Carballeira; Alejandro Calderon Mateos; Jesus Carretero Perez

Published in: XXXII Jornadas de Paralelismo (JP22), Issue 2, 2022

Publisher: ZENODO.org

DOI: 10.5281/zenodo.6862882

[From Static to Malleable: Improving Flexibility and Compatibility in Burst Buffer File Systems](#)

Author(s): Marc-André Vef, Alberto Miranda, Ramon Nou, André Brinkmann

Published in: International Workshop on Malleability Techniques Applications in High-Performance Computing (HPCMall), Issue 2, 2023, Page(s) 3 - 15

Publisher: Springer

DOI: 10.1007/978-3-031-40843-4_1

[A highly scalable high-performance Lagrangian transport and diffusion model for marine pollutants assessment](#) 

Author(s): Montella, Raffaele, Diana Di Luccio, Ciro Giuseppe De Vita, Gennaro Mellone, Marco Lapegna, Gloria Ortega, Livia Marcellino, Enrico Zambianchi, and Giulio Giunta

Published in: 2023 31st Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP), 2023, Page(s) 17-26, ISBN 979-8-3503-3763-1

Publisher: IEEE

DOI: 10.1109/pdp59025.2023.00012

The SWH-Analytics Framework

Author(s): Alessia Antelmi, Massimo Torquati, Daniele Gregori, Francesco Polzella, Gianmarco Spinatelli and Marco Aldinucci

Published in: Proceedings of the 2nd Italian Conference on Big Data and Data Science (ITADATA 2023), 2023

Publisher: CEUR-WS.org

[Xfast: Extreme File Attribute Stat Acceleration for Lustre](#) 

Author(s): Yingjin Qian, Wen Cheng, Lingfang Zeng, Xi Li, Marc-André Vef, Andreas Dilger, Siyao Lai, Shuichi Ihara, Yong Fan, André Brinkmann

Published in: Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Issue 49, 2023, Page(s) 96:1-96:12

Publisher: ACM

DOI: 10.1145/3581784.3607080

[Malleability Techniques for HPC Systems](#) 

Author(s): Carretero, Jesus, David Exposito, Alberto Cascajo, and Raffaele Montella

Published in: International Conference on Parallel Processing and Applied Mathematics, 2022, Page(s) 77-88, ISBN 978-3-031-30445-3

Publisher: Springer International

DOI: 10.1007/978-3-031-30445-3_7

[An ad-hoc file system accelerated workflow application for accidental fire fast response](#) 

Author(s): De Vita, Ciro Giuseppe, Dario Caramiello, Gennaro Mellone, Genaro Sánchez-Gallegos, Dante Domizzi Sánchez-Gallegos, Valeria Mele, Stefania Cavallo, and Diana Di Luccio

Published in: In Proceedings of the 2nd Workshop on Workflows in Distributed Environments, 2024, Page(s) 21-27, ISBN 840070546-5

Publisher: ACM

DOI: 10.1145/3642978.3652836

Fault tolerant in the Expand Ad-Hoc parallel file system.

Author(s): Dario Muñoz-Muñoz, Félix García-Carballeira, Diego Camarmas-Alonso, Alejandro Calderón-Mateos and Jesús Carretero.

Published in: Proceedings of the 30th International European Conference on Parallel and Distributed Computing., 2024, Page(s) 14

Publisher: Springer

[Understanding the Impact of Synchronous, Asynchronous, and Hybrid In-Situ Techniques in Computational Fluid Dynamics Applications](#) 

Author(s): Yi Ju, Adalberto Perez, Stefano Markidis, Philipp Schlatter, Erwin Laure

Published in: 2022 IEEE 18th International Conference on e-Science (e-Science), Issue 2022 IEEE 18th International Conference on e-Science (e-Science), 2023, Page(s) 295-305

Publisher: IEEE

DOI: 10.1109/escience55777.2022.00043

[Adaptive multi-tier intelligent data manager for Exascale](#) 

Author(s): Jesus Carretero; Javier Garcia-Blas; Marco Aldinucci; Jean Baptiste Besnard; Jean-Thomas Acquaviva; André Brinkmann; Marc-André Vef; Emmanuel Jeannot; Alberto Miranda; Ramon Nou; Morris Riedel; Massimo Torquati; Felix Wolf

Published in: CF 2023 - 20th ACM International Conference on Computing Frontiers, Issue 19, 2023

Publisher: ACM

DOI: 10.1145/3587135.3592174

[Democratizing the computational environmental marine data science: Using the High-Performance Cloud-Native Computing for inert transport and diffusion Lagrangian modelling](#) 

Author(s): Mellone, Gennaro, Ciro Giuseppe De Vita, Enrico Zambianchi, David Exposito Singh, Diana Di Luccio, and Raffaele Montella

Published in: 2022 IEEE International Workshop on Metrology for the Sea; Learning to Measure Sea Health Parameters (MetroSea), 2022, Page(s) 267-272, ISBN 166549942-2

Publisher: IEEE

DOI: 10.1109/metrosea55331.2022.9950862

Scheduling distributed I/O resources in HPC systems

Author(s): Bandet, Alexis; Boito, Francieli; Pallez, Guillaume

Published in: 30th International European Conference on Parallel and Distributed Computing 26 - 30 August 2024 Madrid, Spain 30th International European Conference on Parallel and Distributed Computing, Issue 1, 2024, Page(s) 16

Publisher: INRIA

[Improving Generalization for Few-Shot Remote Sensing Classification with Meta-Learning](#)

Author(s): Surbhi Sharma, Ribana Roscher, Morris Riedel, Shahbaz Memon and Gabriele Cavallaro

Published in: IEEE International Geoscience and Remote Sensing Symposium (GRSS), 2022, Page(s) 5061-5064

Publisher: IEEE

DOI: 10.1109/igarss46834.2022.9884699

The role of storage target allocation in applications' I/O performance with BeeGFS

Author(s): Boito, Francieli; Pallez, Guillaume; Teylo, Luan

Published in: CLUSTER 2022 - IEEE International Conference on Cluster Computing. <https://clustercomp.org/2022/>, 2022

Publisher: IEEE

[Artificial Intelligence for mussels farm quality assessment and prediction](#)

Author(s): De Vita, Ciro Giuseppe, Gennaro Mellone, Francesca Barchiesi, Diana Di Luccio, Angelo Ciaramella, and Raffaele Montella

Published in: 2022 IEEE International Workshop on Metrology for the Sea; Learning to Measure Sea Health Parameters (MetroSea), 2022, Page(s) 33-38, ISBN 166549942-2

Publisher: IEEE

DOI: 10.1109/metrosea55331.2022.9950875

[The I/O Trace Initiative: Building a Collaborative I/O Archive to Advance HPC](#)

Author(s): Nafiseh Moti, André Brinkmann, Marc-André Vef, Philippe Deniel, Jesús Carretero, Philip H. Carns, Jean-Thomas Acquaviva, Reza Salkhordeh

Published in: International Parallel Data Systems Workshop (PDSW), Issue 8, 2023, Page(s) 1216--1222

Publisher: ACM

DOI: 10.1145/3624062.3624192

[Multi-objective Hybrid Autoscaling of Microservices in {Kubernetes} Clusters](#)

Author(s): Angelina Horn, Hamid Mohammadi Fard, Felix Wolf

Published in: Proc. of the 28th Euro-Par Conference: Parallel Processing, Glasgow, UK, Issue 13440, 2022, Page(s) 233--250, ISBN 978-3-031-12597-3

Publisher: Springer

DOI: 10.1007/978-3-031-12597-3_15

[Dynamic management of processes and communicators in malleable MPI applications](#)

Author(s): Javier Fernández Muñoz, Alberto Cascajo García, Jesús Carretero Pérez

Published in: 2023 IEEE 29th International Conference on Parallel and Distributed Systems (ICPADS), 2024, ISSN 2690-5965

Publisher: IEEE

DOI: 10.1109/icpads60453.2023.00127

MetaWBC: POSIX-Compliant Metadata Write-Back Caching for Distributed File Systems

Author(s): Yingjin Qian, Wen Cheng, Lingfang Zeng, Marc-André Vef, Oleg Drokin, Andreas Dilger, Shuichi Ihara, Wusheng Zhang, Yang Wang, André Brinkmann

Published in: The International Conference for High Performance Computing, Networking, Storage, and Analysis 2022 (SC22), 2022

Publisher: IEEE

[Towards a GPU parallel software for environmental data fitting](#)

Author(s): De Luca, Pasquale, Diana Di Luccio, Ardelio Galletti, Giulio Giunta, Livia Marcellino, and Raffaele Montella

Published in: Proceedings of the 15th International Conference on Pervasive Technologies Related to Assistive Environments, 2022, Page(s) 469-472, ISBN 145039631-8

Publisher: ACM

DOI: 10.1145/3529190.3534776

[The Italian Research on HPC Key Technologies across EuroHPC](#)

Author(s): Aldinucci, Marco and Agosta, Giovanni and Andreini, Antonio and Ardagna, Claudio A. and Bartolini, Andrea and Cilardo, Alessandro and Cosenza, Biagio and Danelutto, Marco and Esposito, Roberto and Fornaciari, William and Giorgi, Roberto and Lengani, Davide and Montella, Raffaele and Olivieri, Mauro and Saponara, Sergio and Simoni, Daniele and Torquati, Massimo

Published in: Proceedings of the 18th ACM International Conference on Computing Frontiers, Issue CF '21, 2021, Page(s) 178–184, ISBN 9781450384049

Publisher: Association for Computing Machinery

DOI: 10.1145/3457388.3458508

Capturing Periodic I/O Using Frequency Techniques

Author(s): Tarraf, Ahmad; Bandet, Alexis; Zanon Boito, Francieli; Pallez, Guillaume; Wolf, Felix

Published in: Proceedings of the 38th IEEE International Parallel & Distributed Processing Symposium,, Issue 1, 2024, Page(s) 13

Publisher: IEEE

Capturing Periodic I/O Using Frequency Techniques

Author(s): Tarraf, Ahmad; Bandet, Alexis; Zanon Boito, Francieli; Pallez, Guillaume; Wolf, Felix

Published in: IPDPS 2024-38th IEEE International Parallel & Distributed

Processing Symposium, Issue 38, 2024, Page(s) 1-13, ISBN 9798350337662
Publisher: IEEE

Protected Functions: User Space Privileged Function Calls

Author(s): Nafiseh Moti, Reza Salkhordeh, André Brinkmann

Published in: ARCS 2022: International Conference on Architecture of Computing Systems, 2022

Publisher: Springer

[Pooling critical datasets with Federated Learning](#)

Author(s): Y. Arfat, G. Mittone, I. Colonnelli, F. D'Ascenzo, R. Esposito and M. Aldinucci

Published in: 31st Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP), Issue 31, 2023, Page(s) pp. 329–337

Publisher: IEEE

DOI: 10.1109/pdp59025.2023.00057

[Towards Smarter Schedulers: Molding Jobs into the Right Shape via Monitoring and Modeling](#)

Author(s): Jean-Baptiste Besnard, Ahmad Tarraf, Clément Barthélemy, Alberto Cascajo, Emmanuel Jeannot, Sameer Shende & Felix Wolf

Published in: ISC High Performance 2023: High Performance Computing, 2023, Page(s) 68-81

Publisher: Springer, Cham

DOI: 10.1007/978-3-031-40843-4_6

ENHANCING LAND COVER MAPPING: A NOVEL AUTOMATIC APPROACH TO IMPROVE MIXED SPECTRAL PIXEL CLASSIFICATION

Author(s): Surbhi Sharma, Rocco Sedona, Morris Riedel, Gabriele Cavallaro, Claudia Paris

Published in: Proceedings of the IEEE International Geoscience and Remote Sensing Symposium (GRSS), 2024

Publisher: IEEE

[Enabling the CUDA Unified Memory model in Edge, Cloud and HPC offloaded GPU kernels](#)

Author(s): ontella, Raffaele, Diana Di Luccio, Ciro Giuseppe De Vita, Gennaro Mellone, Marco Lapegna, Giuliano Laccetti, Sokol Kosta, and Giulio Giunta

Published in: 2022 22nd IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2022, Page(s) 834-841, ISBN 166549956-9

Publisher: IEEE

DOI: 10.1109/ccgrid54584.2022.00099

[Parallel and hierarchically-distributed Shoreline Alert Model \(SAM\)](#)

Author(s): De Vita, Ciro Giuseppe, Gennaro Mellone, Aniello Florio, Catherine Alessandra Torres Charles, Diana Di Luccio, Marco Lapegna, Guido Benassai,

Giorgio Budillon, and Raffaele Montella

Published in: 2023 31st Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP), 2023, Page(s) 109-113

Publisher: IEEE

DOI: 10.1109/pdp59025.2023.00024

[CAPIO: a Middleware for Transparent I/O Streaming in Data-Intensive Workflows](#)

Author(s): Alberto Riccardo Martinelli, Massimo Torquati, Marco Aldinucci, Iacopo Colonnelli, Barbara Cantalupo

Published in: 2023 IEEE 30th International Conference on High Performance Computing, Data, and Analytics (HiPC), 2023, Page(s) pp. 153-163

Publisher: IEEE

DOI: 10.1109/hipc58850.2023.00031

[Accelerating Stream Processing Queries with Congestion-aware Scheduling and Real-time Linux Threads](#)

Author(s): Fausto Frasca, Vincenzo Gulisano, Gabriele Mencagli, Dimitris Palyvos-Giannas, Massimo Torquati

Published in: Proceedings of the 20th ACM International Conference on Computing Frontiers, 2024, Page(s) 144-153, ISBN 979-8-4007-0140-5

Publisher: ACM, SIGMICRO

DOI: 10.1145/3587135.3592202

[A new Ad-Hoc parallel file system for HPC environments based on the Expand parallel file system](#)

Author(s): Felix Garcia-Carballeira, Diego Camarmas-Alonso, Alejandro Caderon-Mateos, Jesus Carretero

Published in: 2023 22nd International Symposium on Parallel and Distributed Computing (ISPDC), 2023, Page(s) 69-76, ISSN 2379-5352

Publisher: IEEE

DOI: 10.1109/ispdc59212.2023.00015

[Autonomy Loops for Monitoring, Operational Data Analytics, Feedback, and Response in HPC Operations](#)

Author(s): Boito, Francieli; Brandt, Jim; Cardellini, Valeria; Carns, Philip; Giorba, Florina M.; Egan, Hilary; Eleliemy, Ahmed; Gentile, Ann; Gruber, Thomas; Hanson, Jeff; Haus, Utz-Uwe; Huck, Kevin; Ilsche, Thomas; Jakobsche, Thomas; Jones, Terry; Karlsson, Sven; Mueen, Abdullah; Ott, Michael; Patki, Tapasya; Peng, Ivy; Raghavan, Krishnan; Simms, Stephen; Shoga, Kathleen; Showerman, Michael; Tiwari, Devesh

Published in: 2023 IEEE International Conference on Cluster Computing Workshops (CLUSTER Workshops), Issue 43, 2023, Page(s) 37-43, ISBN 979-8-3503-7062-1

Publisher: IEEE

DOI: 10.1109/clusterworkshops61457.2023.00016

[Gradual Guarantee for FJ with lambda-Expressions](#)

Author(s): Pedro Ângelo, Viviana Bono, Mariangiola Dezani-Ciancaglini, Mário Florido

Published in: Proceedings of the 25th ACM International Workshop on Formal Techniques for Java-like Programs, FTfJP 2023, 2023, Page(s) pp. 32–38

Publisher: ACM

DOI: 10.1145/3554355

[AIQUAM: Artificial Intelligence-based water QUALity Model](#)

Author(s): De Vita, Ciro Giuseppe; Mellone, Gennaro; Di Luccio, Diana; Kosta, Sokol; Ciaramella, Angelo; Montella, Raffaele

Published in: 2022 IEEE 18th International Conference on e-Science, Issue 1, 2022, ISBN 978-1-6654-6124-5

Publisher: IEEE

DOI: 10.1109/escience55777.2022.00058

Peer reviewed articles (14)

[Malleability techniques applications in high-performance computing](#)

Author(s): Jesus Carretero, Estela Suarez, Martin Schulz

Published in: The International Journal of High Performance Computing Applications, Issue 38, 2024, Page(s) 53-54, ISSN 1094-3420

Publisher: SAGE Publications

DOI: 10.1177/10943420241238032

[Analyzing FOSS license usage in publicly available software at scale via the SWH-analytics framework](#)

Author(s): Antelmi A., Torquati M., Corridori G., Gregori D., Polzella F., Spinatelli G., Aldinucci M.

Published in: The Journal of Supercomputing, 2024, ISSN 0920-8542

Publisher: Kluwer Academic Publishers

DOI: 10.1007/s11227-024-06069-x

[Monitoring InfiniBand Networks to React Efficiently to Congestion](#)

Author(s): Alberto Cascajo, Gabriel Gomez-Lopez, Jesus Escudero-Sahuquillo, Pedro Javier Garcia, David E. Singh, Francisco Alfaro-Cortés, Francisco J. Quiles, Jesus Carretero

Published in: IEEE Micro, Issue 43, 2024, Page(s) 120-130, ISSN 0272-1732

Publisher: Institute of Electrical and Electronics Engineers

DOI: 10.1109/mm.2023.3241840

[A high-performance, parallel, and hierarchically distributed model for coastal run-up events simulation and forecasting](#)

Author(s): Di Luccio, Diana, Ciro Giuseppe De Vita, Aniello Florio, Gennaro Mellone, Catherine Alessandra Torres Charles, Guido Benassai, and Raffaele Montella

Published in: The Journal of Supercomputing (2024), 2024, Page(s) 1-22, ISSN 0920-8542

Publisher: Kluwer Academic Publishers

DOI: 10.1007/s11227-024-06188-5

[LIMITLESS - Light-weight Monitoring Tool for Large Scale Systems](#)

Author(s): Alberto Cascajo, David E. Singh, Jesús Carretero

Published in: Microprocessors and Microsystems (MICPRO), Issue 01419331, 2022, ISSN 0141-9331

Publisher: Elsevier BV

DOI: 10.1016/j.micpro.2022.104586

[Assessing population-sampling strategies for reducing the COVID-19 incidence.](#)

Author(s): Miguel Guzmán-Merino; Christian Durán; Maria-Cristina Marinescu; Concepción Delgado-Sanz; Diana Gómez-Barroso; Jesus Carretero; David E. Singh

Published in: Computers in Biology and Medicine, Issue 00104825, 2021, ISSN 0010-4825

Publisher: Pergamon Press Ltd.

DOI: 10.1016/j.combiomed.2021.104938

[Detecting interference between applications and improving the scheduling using malleable application clones](#)

Author(s): Alberto Cascajo, David E. Singh, Jesús Carretero

Published in: The International Journal of High Performance Computing Applications, Issue 38, 2024, Page(s) 108-133, ISSN 1094-3420

Publisher: SAGE Publications

DOI: 10.1177/10943420231220898

Sen4Map: Advancing Mapping with Sentinel-2 by Providing Detailed Semantic Descriptions and Customizable Land-Use and Land-Cover Data

Author(s): Surbhi Sharma, Claudia Paris, Rocco Sedona, Morris Riedel, Gabriele Cavallaro

Published in: IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Issue 14, 2024, ISSN 1939-1404

Publisher: Institute of Electrical and Electronics Engineers

[A novel approach for large-scale environmental data partitioning on cloud and on-premises storage for compute continuum applications](#)

Author(s): Gennaro Mellone, Ciro Giuseppe De Vita, Dante D. Sánchez-Gallegos, Genaro Sánchez-Gallegos, Catherine A. Torres-Charles, Javier Garcia-Blas, Jesús Carretero Pérez, J. L. Gonzalez-Compean, Giuliano Laccetti
Published in: Concurrency and Computation: Practice and Experience, Issue 35, 2023, ISSN 1532-0626
Publisher: John Wiley & Sons Inc.
DOI: 10.1002/cpe.7893

[Malleability in Modern HPC Systems: Current Experiences, Challenges, and Future Opportunities](#)

Author(s): Ahmad Tarraf, Martin Schreiber, Alberto Cascajo, Jean-Baptiste Besnard, Marc-André Vef, Dominik Huber, Sonja Happ, André Brinkmann, David E. Singh, Hans-Christian Hoppe, Alberto Miranda, Antonio J. Peña, Rui Machado, Marta Garcia-Gasulla, Martin Schulz, Paul Carpenter, Simon Pickartz, Tiberiu Rotaru, Sergio Iserete, Victor Lopez, Jorge Ejarque, Heena Sirwani, Jesus Carretero, Felix Wolf
Published in: IEEE Transactions on Parallel and Distributed Systems, Issue 35, 2024, Page(s) 1551-1564, ISSN 1045-9219
Publisher: Institute of Electrical and Electronics Engineers
DOI: 10.1109/tpds.2024.3406764

[Enhancing the power of two choices load balancing algorithm using round robin policy](#)

Author(s): Garcia-Carballeira, F., Calderon, A. & Carretero, J.
Published in: Cluster Computing, Issue 24, 2021, Page(s) 611–624, ISSN 1386-7857
Publisher: Baltzer Science Publishers B.V.
DOI: 10.1007/s10586-020-03139-6

[Detailed parallel social modeling for the analysis of COVID-19 spread](#)

Author(s): Ayman Cublier Martínez, Jesús Carretero, David E. Singh
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Author(s): Yi Ju, Adalberto Perez, Stefano Markidis, Philipp Schlatter, Erwin Laure

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Author(s): Tarraf, Ahmad; Bandet, Alexis; Zanon Boito, Francieli; Pallez, Guillaume; Wolf, Felix

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Author(s): Ramon Nou; Marc Vef

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Author(s): Jean Baptiste Bernard; Jesus Carretero; Raffaele Montela; Adalberto Pérez; Laura Bellentani; Wojciech Stefaniak; Shahbaz Memon

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Author(s): David E. Singh; Carmen Olmedo Lucerón; Aurora Limia Sánchez; Miguel Guzman-Merino; Christian Duran; Concepción Delgado-Sanz; Diana Gomez-Barroso; Jesus Carretero; Maria-Cristina Marinescu

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Author(s): Marco Aldinucci

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Author(s): Marc-André Vef

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Author(s): Nafiseh Moti

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Author(s): Alberto Cascajo; Gabriel Gomez-Lopez; Jesus Escudero-Sahuquillo; Pedro Javier Garcia; David E. Singh; Francisco Alfaro-Cortés; Francisco J. Quiles; Jesus Carretero

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[New techniques for multi-level adaptive intelligent data management](#)

Author(s): ALMAAITAH NJOUD OMAR KHALAF

Published in: PhD Thesis, 2024

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Author(s): Alberto Cascajo

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Author(s): Marc-André Vef

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[Malleable and Adaptive Ad-Hoc File System for Data Intensive Workloads in HPC Applications](#) 

Author(s): Genaro Sanchez-Gallegos, Javier Garcia-Blas, Cosmin Petre, Jesus Carretero

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DOI: 10.1007/978-3-031-40843-4_5

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Author(s): Javier Garcia-Blas, Genaro Sanchez-Gallegos, Cosmin Petre, Alberto Riccardo Martinelli, Marco Aldinucci, Jesus Carretero

Published in: Euro-Par 2023: Parallel Processing, Lecture Notes in Computer Science, 2023, Page(s) 679-693, ISBN 978-3-031-39698-4

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Datasets

Datasets via OpenAIRE (1)



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Other Research Products

Other Research Products via OpenAire (1)



[Sistema de almacenamiento Ad-Hoc para entornos HPC basado en el sistema de ficheros paralelo](#)
[Expand](#) 

Author(s): Camarmas-Alonso, Diego; Garcia-Carballeira, Felix; Mateos, Alejandro Calderon; Perez, Jesus Carretero

Published in: Zenodo

Last update: 5 March 2025

Permalink: <https://cordis.europa.eu/project/id/956748/results>

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