HPS

# SIG IO UK Workshop



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**Limitless** Storage
**Limitless** Possibilities

https://hps.vi4io.org

Julian M. Kunkel

LIMITLESS POTENTIAL | LIMITLESS OPPORTUNITIES | LIMITLESS IMPACT

# About: Julian

University of
**Reading**

### Key Information

- 2003: First HPC-IO experience with PVFS2
- 2007-2009: Uni-Heidelberg (at Bioquant for large scale screening)
- 2010: Contributed to first project proposals (total till today 16)
- 2011: Manage contributions to won projects (ICOMEX, SIOX; total six)
- 2013: PhD Topic: Simulation of Parallel Programs on Application and System Level
- 2009-2018: German Climate Computing Center (DKRZ)
- Since April: Lecturer at the University of Reading
  - ▶ Started research group HPS; Partner in research group ACES
  - ▶ Founded/contribute to various community efforts (IO-500, VI4IO, HPC-CF)
  - ▶ Still manages several research projects at DKRZ/Uni-Hamburg
  - ▶ Will prepare general I/O benchmarks for DKRZ's HLRE4 system

# The Research Group High-Performance Storage

University of
**Reading**

**Limitless** Storage
**Limitless** Possibilities

## Mission

- ■ The research group *High-Performance Storage* **improves the capabilities** of storage landscapes applying **smart concepts**.

- ■ We speak big data analytics and high-performance computing and **apply our knowledge** to meet the needs of environmental modeling.

# Research

## Goals

- Efficient execution of data-driven workflows
- Autonomous storage systems making intelligent decisions

## Interests

- Smart storage and machine learning
- Performance analysis and benchmarking
- Data reduction techniques
- Efficient software stacks with middleware and parallel file systems
- Management of I/O in cluster systems
- *Other: Community building, training, scientific software development*

# Research Group Advanced Computing for Environmental Science

University of
**Reading**

### Mission

The *Advanced Computing for Environmental Science (ACES)* research group conducts cutting-edge research in computer science to **accelerate environmental science**

# Outline

# The Special Interest Group I/O in the UK

### Goals

- Strengthen networking the community in the UK:
  - System, middleware, ..., researchers and developers
  - Users with I/O-intense workflows
  - Data centers
  - Storage and independent software vendors
- To bring forward RD&E:
  - Research
  - Product development
  - Funding opportunities

### Approach

- Information exchange and meetings (to discuss today)

# Outline

# Sponsoring

University of Reading

The workshop is funded by

Department of Computer Science, the University of Reading

The workshop is powered by

# EU funded Project: ESiWACE

University of **Reading**

The Centre of Excellence in Simulation of Weather and Climate in Europe

- ■ Representing the European community for
  - ▶ climate modelling and numerical weather simulation
- ■ Goals in respect to HPC environments:
  - ▶ Improve efficiency and productivity
  - ▶ Supporting the end-to-end workflow of global Earth system modelling
  - ▶ Establish demonstrator simulations that run at highest affordable resolution
- ■ Funding via the European Union's Horizon 2020 program (grant #675191)

http://esiwace.eu

esiwace

CENTRE OF EXCELLENCE IN SIMULATION OF WEATHER
AND CLIMATE IN EUROPE

# The Virtual Institute for I/O

University of
**Reading**

### Goals

- Provide a platform for I/O enthusiasts for exchanging information
- Foster training and collaboration in the field of high-performance I/O
- Track and encourage the deployment of large storage systems by hosting information about high-performance storage systems

https://www.vi4io.org

# Structure of the Agenda

University of
**Reading**

10:15  3x Challenges

11:45  lunch = Pizza and finger food, sponsored by CS

12:30  2x Research talks

13:30  2x Industry talks

14:30  Coffee break

15:00  Discussion

15:30  3x Research talks

16:45  Discussion: next steps

Talks are 25 + 5min (more discussion is better!)