

Jernej Zidar

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Summary

Senior HPC technology consultant with 6+ years of hands-on experience deploying, tuning, and stabilizing large-scale HPC systems in research and enterprise environments.

Specialized in Slurm-based clusters, open-source high-availability solutions, and performance analysis of scientific workloads. Known for systematic troubleshooting of complex system behavior, node-level triage at scale, and turning fragile deployments into reproducible, supportable systems.

Core Skills

- **Workload Management:** Slurm, PBS Pro
 - **High Availability & Storage:** DRBD, Pacemaker, PCS
 - **MPI & HPC Software:** OpenMPI, Intel MPI
 - **GPU & Accelerated Computing:** NCCL (benchmarking, environment setup)
 - **Networking:** InfiniBand, Ethernet
 - **Container Orchestration:** Kubernetes
 - **Operating Systems:** Linux, macOS, Windows
 - **Automation & Tooling:** Bash — deterministic, dependency-minimal scripting favored for air-gapped and regulated HPC environments
 - **HPC Workloads:** Molecular dynamics (Gromacs, NAMD)
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Professional Experience

HPE — Dubai, UAE

Technology Consultant | June 2023 – Present

- Maintain up-to-date expertise across HPE HPC platforms and the broader vendor ecosystem (GPU, networking, and software stack developments) to support informed design and deployment decisions
- Deploy and configure Slurm-based HPC systems in customer environments, using both distribution packages and source builds based on system requirements
- Design and validate highly available Slurm configurations using open-source components, including DRBD-backed storage, with solutions prototyped prior to customer deployment
- Perform systematic node-level triage during deployments, including GPU health validation, BIOS and firmware consistency checks, and remediation of unstable nodes
- Benchmark NCCL-based GPU collective communication performance as part of GPU cluster validation and environment preparation
- Contribute to deployment and validation work on several Top500-class leadership GPU supercomputing systems
- Prepare and customize compute node images with required drivers, libraries, and runtime dependencies, including post-install adjustments for stability and performance
- Monitor large-scale benchmark runs during system validation phases, identifying errant nodes in real time and coordinating reboots or marking hardware for repair

- Conduct exploratory validation work in virtualized environments ahead of deployments to reduce risk and shorten delivery timelines
- Evaluate Slurm build and configuration workflows to distinguish mandatory steps from post-install customization, improving image flexibility and maintainability
- Setup of airgapped servers, including disk partitioning, operating system update and network configuration
- Evaluate configuration-management tooling (e.g., Ansible) for HPC deployments; favor deterministic, dependency-minimal Bash-based automation for reliability in air-gapped and regulated customer environments

Technologies: Slurm, Linux, GPUs, NCCL, DRBD, Pacemaker, InfiniBand, HPE HPC platforms

National Supercomputing Centre (NSCC) — Singapore

Senior HPC Application Analyst | February 2021 – June 2023

- Led exploratory evaluation of public cloud platforms as a complement to on-premise HPC resources during periods of constrained system availability
- Engaged directly with major cloud vendors to secure trial credits, define evaluation scopes, and execute benchmarking campaigns on cloud-based HPC infrastructure
- Designed and ran performance benchmarks for scientific workloads to assess cost, performance, and operational trade-offs of running HPC applications in the cloud
- Contributed to the preparation of collaboration and governance documentation with external cloud providers
- Developed a practical understanding of the technical complexity and cost risks involved in migrating HPC workloads from on-premise systems to cloud environments
- Acted as NSCC point of contact for a quantum computing initiative, coordinating communication between internal stakeholders
- Prepared and completed a tender for a small on-premise supercomputing system, contributing to technical requirements and evaluation criteria

Technologies: EasyBuild, Spack, public cloud platforms

Archanan Pte Ltd — Singapore

Senior HPC Application Analyst | August 2019 – January 2021

- Benchmarked large-scale HPC systems across on-premise and cloud environments, spanning bare-metal clusters and containerized platforms, including a Top500-class leadership system
- Conducted performance evaluation of leadership-class, RISC-based HPC architectures using standardized benchmarks and scientific workloads
- Designed and executed benchmarking workflows for Kubernetes-based HPC clusters on public cloud infrastructure
- Ran MPI-based workloads (Gromacs, HPL) on vanilla Kubernetes using OpenMPI and Intel MPI, analyzing performance characteristics and limitations
- Automated testing and troubleshooting of Kubernetes clusters to support repeatable performance measurements

Technologies: Kubernetes, OpenMPI, Intel MPI, Gromacs, HPL, AWS

A*STAR Institute of High Performance Computing - Singapore

Senior Scientist | July 2011 - August 2019

- Benchmarked the newly released ASPIRE1 system at National Supercomputing Centre Singapore
- Studied skin disruption using molecular dynamics simulations of a simplified skin model
- Maintained several Linux workstations in the department

Technologies: Gromacs, OpenMPI, CHARMM, forcefield development, CUDA

Education

PhD — Biochemistry and Molecular Biology

University of Ljubljana, Medical Faculty, Slovenia | 2010

(Used HPC to study large biomolecular systems)

Diploma — Biochemistry

University of Ljubljana, Faculty of Chemistry and Chemical Technology, Slovenia | 2005

(Used HPC to study metal–protein complexes)

Additional Information

- Work authorization: EU citizen (Slovenia), Singapore Permanent Resident (SPR)
- Willingness to relocate: Yes
- Availability: 3-month notice
- Languages: English (fluent), Slovenian (native), Italian (fluent)