

Paper Title : I/O Access Patterns in HPC Applications:A 360-Degree Survey

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Motivations :

This paper is motivated by the lack of a universally accepted definition for "I/O access pattern" in High-Performance Computing (HPC). The aim is to provide a foundational taxonomy, based on two decades of community knowledge, to standardize the understanding of I/O access patterns.

Methodology :

This paper proposes a baseline taxonomy for I/O access patterns in HPC.

It analyzes existing literature, identifies common features, and synthesizes a comprehensive understanding.

This standardized framework will benefit HPC researchers and developers.

Limitations :

>Definition Variability: The paper recognizes the challenge of diverse "I/O access pattern" definitions in HPC literature, proposing a baseline taxonomy without claiming universal acceptance due to HPC's complexity and diversity.

>Evolutionary Nature: The comprehensive taxonomy is dynamic, acknowledging HPC's evolving landscape, necessitating ongoing adjustments and extensions to accommodate new features and technologies.

>Application-Specific Considerations: The proposed taxonomy may not fully address all application intricacies, requiring further research for domain-specific refinements tailored to diverse HPC applications.

Synthesis :

Recognizing the diverse definitions of "I/O access pattern" in HPC, the paper proposes a dynamic baseline taxonomy while acknowledging its limitations. Future plans involve refining the taxonomy for specific applications, evaluating optimization techniques, and addressing generalizability concerns to enhance its adaptability in the evolving HPC landscape. In conclusion, the proposed dynamic taxonomy offers a foundation for refining I/O access patterns, with future plans ensuring adaptability and efficacy.