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Pilot Applications for Distributed Task Execution in the SPD Online Filter System

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Pilot applications play a crucial role in distributed computing, enabling dynamic resource management and workload execution. These applications are widely used in high-performance computing and large-scale experiments, providing a flexible mechanism for managing computational tasks. However, the lack of a unified abstraction and best practices has led to the emergence of numerous implementations with varying degrees of portability and efficiency. This talk will explore different architectures of pilot applications, their key components, and operational principles. Special attention will be given to the late-binding mechanism, which allows for dynamic task distribution and improved resource utilization efficiency. Our solution is a two-component system consisting of a pilot and a daemon. It employs a multithreaded approach that accounts for the specifics of the SPD experiment, ensuring task execution, monitoring, and status reporting. The presentation will provide insights into the use of pilot applications in distributed systems and their specific application in the SPD experiment.

Summary

Presenter: РОМАНЫЧЕВ, Леонид

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