

Simulating storage part of application with Simgrid

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Simulation has been used for decades in various areas of computing science, such as network protocol design ,microprocessor design. By comparison, current practice in storage simulation is in its infancy. So we are trying to fulfill a simulator with Simgrid to simulate the storage part of application . Cluefs is a lightweight utility to collect data on the I/O events induced by an application when interacting with a file system. Simgrid is a counter-intuitive design approach. It is accepted wisdom that it must be highly specialized to a target domain and it can be both accurate ,fast and scalable.

Users can use cluefs to get I/O action sequence of the application, and input all the sequence to the simulator, the simulator will simulate I/O action .The simulator has two mode, sleep mode to simulate all the action according to the time in the trace file, it will produce the log including exact executing information and will produce another trace file which is used for visualization ,the visualization part can visualize all the I/O file action sequence of each process to make it clear how the application works in storage part. The second mode is action mode, it simulates all the I/O actions with a platform configuration file .In this file ,users can change the storage structure and storage parameters such as Reading bandwidth of disk. And then users can get the executing time of different platform file to make sure if it is worth to change some configuration of your real storage system. So the simulator is useful when you want to know how the storage part of your application works and when you want to know how your application will work with different disks and different structure of storage ,you can simulate it with the simulator and you will gain a lot.

Tertiary Keyword (Optional)

Visualization

Secondary Keyword (Optional)

Storage systems

Primary Keyword (Mandatory)

Simulation

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