The Paradyn Parallel Performance Measurement Tools

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On the Wednesday, Sept. 17, 1997 Dr. Oscar Naim, who is researcher in the Computer Sciences Department of University of Wisconsin, gave us talk of " The Paradyn Parallel Performance Measurement Tools".

Dr. Oscar Naim is a researcher in vast area of parallel computing. First, he said, traditional performance tools for sequential machines fail to scale to large parallel systems. Normal post-mortem-style toolsa typically collect information about all events that occur during execution; this can produce trace data at a rate of several Gigabytes per second on a machine with thousands of nodes, a rate which is impossible for a performance tool to cope with. The standard solution to this problem is to collect only a small subset of available performance data. However, choosing the right set of metrics is difficult or impossible to know a priori, and places a large decision-making burden on the programmer.

He said that paradyn is a performance measurement tool for parallel and distributed programs. Paradyn uses several novel technologies so that it scales to long running programs (hours or days) and large (thousand node) system, and automates much of the search for performance bottlenecks. It can provide precise performance data down to the procedure and statement level.

They have defined a language, called the Metric Description Language (MDL). The MDL is a specialized language that has two key roles. First, it specifies the code that will be inserted into the application program to calculate the value of performance metrics. This code includes simple control and data operations, plus the ability to instantiate and control real and virtual times. Second, it specifies how the instrumentation code is inserted into the application program. This specification includes the points in the application program that are used to place the instrumentation code.