An Industry Standard Benchmark Consortium

Networking Version 2.0 **Benchmark Name: OSPF Version 2**

Highlights

- **Benchmarks Potential Performance of Routers**

Application

The OSPF (Open Shortest Path First)/Dijkstra benchmark implements the Dijkstra shortest path first algorithm, which is widely used in routers and other networking equipment.

Benchmark Description

The Dijkstra algorithm finds the shortest, or least cost path, from a specific router (called the source) to all other routers that the source knows about. It builds a table of nodes where each node is a router. Each node has one or more “arcs” where each arc is a directed (one way) link to another node. These arcs represent links between routers. Each arc has a cost value that represents the 'value' of the link. The lower the cost number, the more desirable it is to use the link.

The Dijkstra algorithm starts at a source (or root) node. It then computes the best-case cost, or shortest route of all the other nodes in the network in relation to the source node.

There are two tables, `arc_base` and `node_base`. Each table is initialized before the benchmark starts and then reinitialized after each iteration of the benchmark, so that each iteration does exactly the same thing.

Instead of building a predefined route, the standard method in this benchmark builds the routing tables dynamically.

Analysis of Computing Resources

The benchmark repeatedly walks the list that is used to hold the nodes. Consequently, a processor's load-use latency and its ability to handle frequent CTI (control transfer instructions) operations are an important factor in this benchmark.

Special Notes

1. Do not directly compare Version 2.0 results to results of Version 1.The dataset in Version 2.0 has been significantly changed from the Version 1 implementation to improve the quality and real-world nature of this benchmark.