

13 – Access Path Selection in Main-Memory Optimized Data Systems:

Should I Scan or Should I Probe?

1. Overview of Idea

Since memory bandwidth and size are increased, and columnar storage models are preferable to analytical workloads, scan become good way to access data. But, there are still some situation that secondary index is preferable. So, fixed-pivot APS is not proper to improve performance. We should select access path dynamically.

2. Main Finding

Access path can be selected by some conditions like hardware specification, query selectivity, concurrency of queries, dataset size... etc.

3. Systems used and its Specifications

Custom system 'FastColumn' is used.

A. Runtime APS

evaluate sequential scan time and secondary index probing time dynamically, with information of hardware specification, query selectivity, concurrency of queries, and choose more efficient method.

4. Workloads evaluated

TPC-H and custom workloads are used. Workloads varied on selectivity, concurrency.