

The background is a solid blue color with a repeating pattern of white line-art icons. These icons include a document, a tag, a puzzle piece, a magnifying glass, a smartphone, a pie chart, an envelope, a speech bubble, a target, gears, a thumbs up, a lightbulb, a clock, a checkmark, and a presentation board with a line graph.

Lecture 12-15:

Big Scaling (with Indexes)

Hashing, Sorting, Counting

Big Scaling (with Indexes)

Roadmap

Hashing

Sorting

Counting

Hashing-Sorting-Counting solves (virtually) “all” known problems :=)

+ Boost with a few patterns -- Cache, Parallelize, Pre-fetch



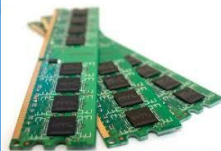
THE BIG IDEA

Note

Works for Relational, noSQL, OKVs
(e.g. mySQL, postgres, BigQuery, BigTable, Spark)

Big Scaling (with Indexes)

Roadmap



Primary data structures/algorithms

Hashing

HashTables
($\text{hash}_i(\text{key}) \rightarrow \text{value}$)

??????

Sorting

BucketSort, QuickSort
MergeSort

??????

Counting

HashTable + Counter
($\text{hash}_i(\text{key}) \rightarrow \langle \text{count} \rangle$)

??????



THANK
YOU!