Map Reduce

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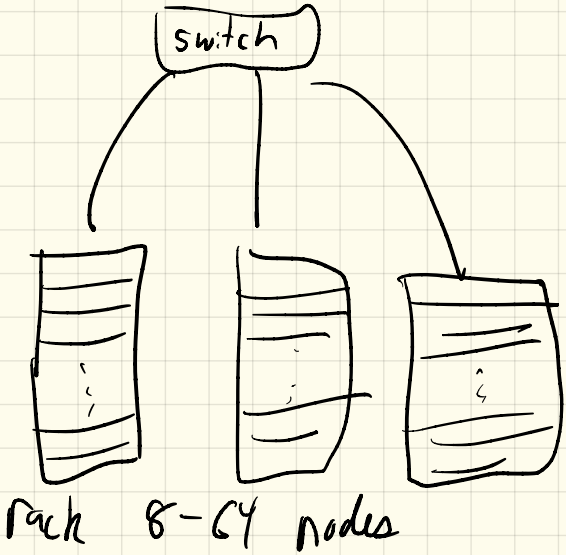
Distributed file system:



Failure types
- loss of node
- loss of rack
  :

handle failure cleverly
1. store files redundantly
   (node fails files become unavailable until the node replication is complete)

2. compute in tasks (node fails rerun task)

Dist File System (DFS):
- huge files (exa-bytes or bigger)
- rarely updated files (maybe appending is okay)

Separate files into chunks (usually 64 MB)
replicate chunks (usually 3 or more times)
to different compute nodes
on different racks

For each file master node (name node)
manages chunk locations (replicated)

For each directory maintain master node (replicated)

All nodes of DFS know locations of directories

MapReduce Paradigm

General idea
- 2 functions map and reduce
- system manages the exec and coordination of the tasks (e.g. the maps and reduces)
- system manages the exec of the tasks