

Cloud Chess

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Objectives

- Modify chess engine
- Compare distributed and local hardware
- Compare AWS and Azure
 - Chess-playing ability
 - CPU, memory, network benchmarks

Modify chess engine

- Stockfish
 - Multithreaded
 - Memory-reliant
 - Generates trees and tables without writing to disk
- C++



Message Passing Interface

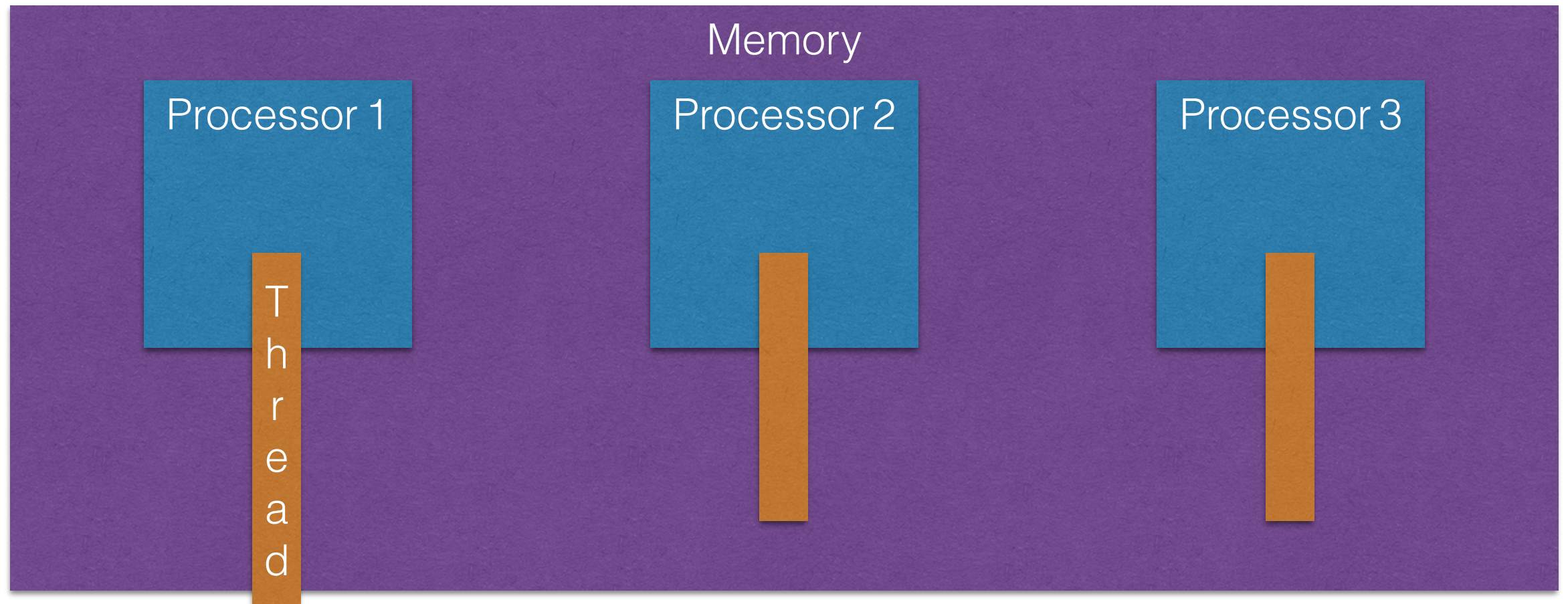
- Open standard with many implementations
- Designed to manage distributed memory
- Supports master-workers model
 - MPI_THREAD_FUNNELED
 - Master thread calls MPI



Open MPI

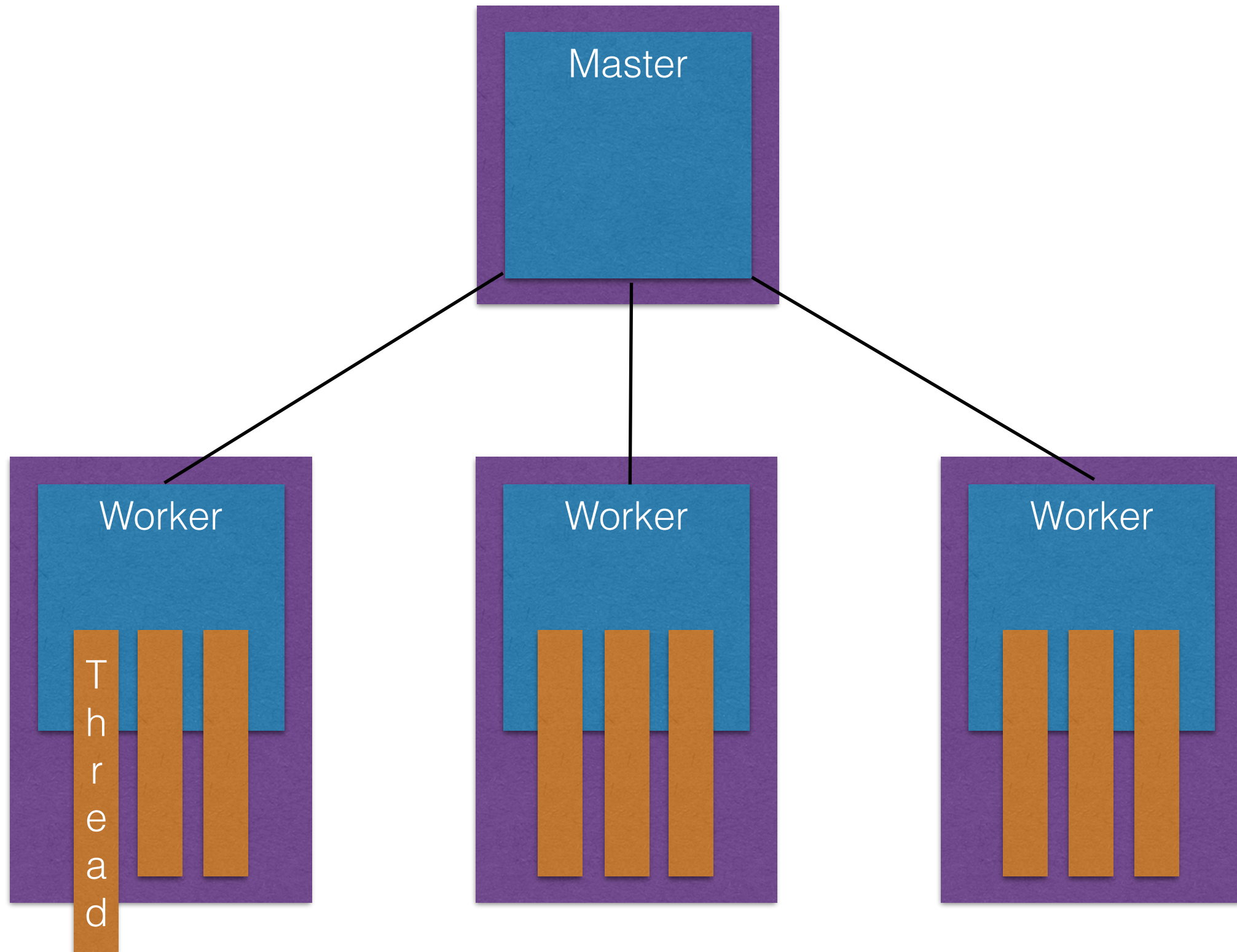
Stockfish

Manages threads



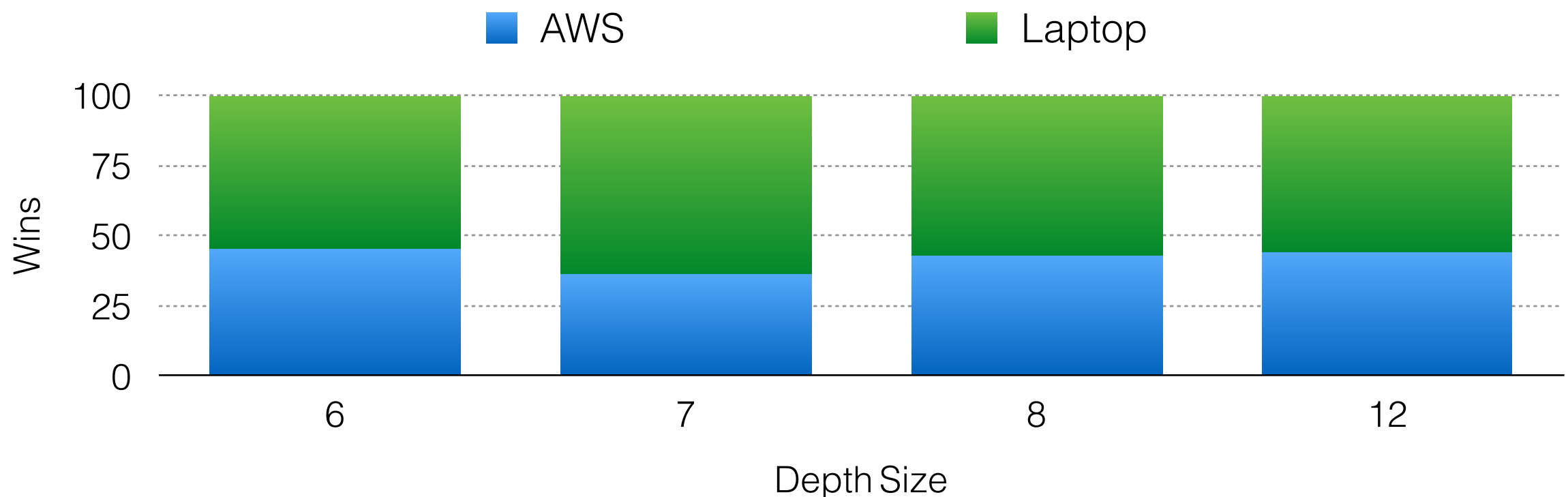
- Generate data
- Search

Stockfish-MPI



Distributed vs local

- AWS: t1.small (1 vCPU, 2 GiB memory)
 - Intel Xeon, 2.5 GHz
- My laptop: Macbook Air (2 CPU, 8 GB memory)
 - Intel Core i5 Haswell, 1.8 GHz



Left to do

- AWS: Measure CPU and memory perf
- Azure: Measure CPU, memory, network
- Run Stockfish-MPI
- AWS vs Azure (aka Bezos vs Ballmer)