Game of Life in MPI on AWS

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Abstract

The goal of this experiment was to test the speedup of running the Game of Life in parallel across multiple processes relative to the run-time of a serial version of the program.

Experiment

The experiment used a serial version of the program written in C and a parallel version program written in C and using the MPI library for parallel execution. Both programs were run on an AWS EC2 cluster with m3.medium nodes These nodes contain a single virtual central processing unit, 3.75 gigibytes of memory, and 4GB of SSD storage each. The serial program was run on a single m3 instance whereas the MPI parallel version ran on 2, 4, and 8 m3 instances in succession (as scheduled by MPI based on number of processes designated at the command line).

Results

Even with two nodes running the parallel version, there was already noticeable speedup (run-time nearly halved) compared to the serial version. Running more processes/nodes in successive powers of two, a relatively linear speedup can be observed.