

Project 2: The Race Trap

Story

Now that Wile has a dessert map, it is time to set a trap. The reasoning behind this trap is that if the RoadRunner is so fast, then it must need a lot of energy. Thus a way of catching the RoadRunner is to lure it into spending more energy than it gains.

Wile has bought a huge bag of corn from ACME. Using the excellent map that we have previously generated for Wile he will now attempt to place 15 portions of corn in a way so that the shortest possible path between all corn-portions is longer than the energy obtained from the corn allow the RoadRunner to traverse.

The RoadRunner can run 200 KM on each portion of corn, so now we need to calculate the minimum distance between the ten portions that Willie has placed and see if this is longer than 3000 KM, in which case Wile can eat.

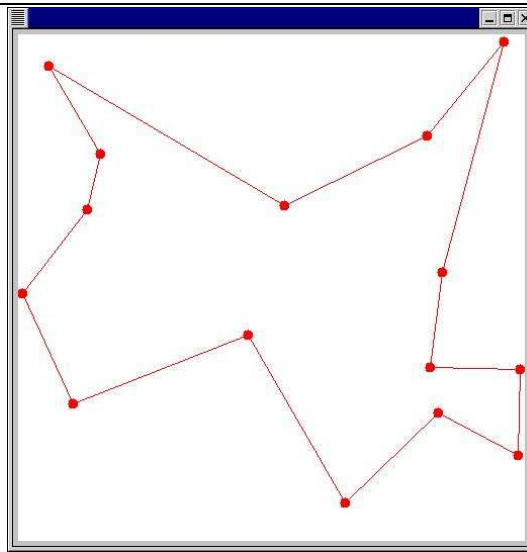


Figure 1 The shortest route for the race trap

Considerations on the parallel version

Programming Task

The solution should be implemented using Java PVM, and may be based on the sequential version below. The code should be run on from one through 32 CPUs. The 15 coordinates that Wile uses must be tested and the resulting path must be the same. The report should identify the various choices that have been made as well as individual techniques that have been applied to improve performance. And the impact of each should be documented. In addition the scalability of your implementation should be discussed and the achieved performance curve should be discussed.

Real World Relevance

Global Optimizations

- Chip floor planning
- Economic optimization
- Storage planning