Performance Results with Test Scenarios

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There are a few things that can be varied in the program.

1. The number of pigs can be modified by changing the number of entries in the file called portConfig.
2. The maximum hop delay can be varied by setting the value of the MAX_HOPDELAY macro in inc/comconst.h. Note that the actual hop delay varies randomly, but does not exceed the value set in the macro
3. The number of positions on the grid can be varied by setting the value of the macro MAX_POSN
4. The maximum number of walls can be varied using the macro MAX_WALLS
5. The time taken for the bird to land can be varied using the macro AIRTIME

The Test Scenarios

For validating correctness, the number of "I was hit" messages by the individual pigs was compared with the actual scores reported by the leaders. Also, as much as possible, the positions of the pigs were verified to see if the leader is calculating the actual number of affected pigs correctly. At one point of time, there were print statements to compare the actual timestamps, but those were removed later because it was too verbose. So, to an extent, even the timestamp validation was done.

For each scenario, there were a minimum of 150 rounds of the game. The scores were averaged out over 150 rounds in order to give an accurate picture that is free of bias due to the randomization employed in the program.

First, for 6 pigs, the maximum hop limit was varied from 5 to 7 and then to 9.

Secondly, for each of these, the maximum number of positions on the grid was varied. It took the values 3, 5, 8 and 10.

Thirdly and finally, the number of pigs was varied with the number of positions on the grid constant at 8. The maximum hop limit was again varied and took the values 5, 7 and 9.

The actual performance numbers are presented in the file called records, in the birdypigs2 directory. Here are two graphs that represent the performance measures: