**Report for CSE411 Homework#8**

**Xin Wang**

**xiw412**

**Problem2:**

mpirun n0-19 running time: 9.327431

mpirun n0-18 running time: 10.993295

mpirun n0-17 running time: 11.302842

mpirun n0-16 running time: 12.498235

mpirun n0-15 running time: 13.119064

mpirun n0-14 running time: 13.236331

mpirun n0-13 running time: 14.435278

mpirun n0-12 running time: 15.045784

mpirun n0-11 running time: 15.350539

mpirun n0-10 running time: 16.329253

mpirun n0-9 running time: 16.611974

mpirun n0-8 running time: 18.052551

mpirun n0-7 running time: 18.569092

mpirun n0-6 running time: 16.748755

mpirun n0-5 running time: 18.184497

mpirun n0-4 running time: 18.855488

mpirun n0-3 running time: 19.868366

mpirun n0-2 running time: 22.612374

mpirun n0-1 running time: 25.802084

Conclusion: from the table and the above figure we can see that there is an obvious speedup when using an increasing number of nodes.

**Problem3:**

mpirun n0-19 running time: 9.084685

mpirun n0-18 running time: 10. 234686

mpirun n0-17 running time: 10. 458397

mpirun n0-16 running time: 12.324554

mpirun n0-15 running time: 12.235348

mpirun n0-14 running time: 13.174940

mpirun n0-13 running time: 12.793482

mpirun n0-12 running time: 14.032853

mpirun n0-11 running time: 15.018392

mpirun n0-10 running time: 13.430183

mpirun n0-9 running time: 15.018402

mpirun n0-8 running time: 18.023937

mpirun n0-7 running time: 17.269452

mpirun n0-6 running time: 16.290116

mpirun n0-5 running time: 16.939014

mpirun n0-4 running time: 18.359828

mpirun n0-3 running time: 18.630326

mpirun n0-2 running time: 23.543062

mpirun n0-1 running time: 25.493029

Conclusion: from the table and the figure we can see that there is a slight speedup when spreads the files in multiple nodes. The average improved running time is: ***1.3s***

**Problem4:**

mpirun n0-9 running time: 0.904115

mpirun n0-8 running time: 0.896310

mpirun n0-7 running time: 21.783169

mpirun n0-6 running time: 45.873660

mpirun n0-5 running time: 1.377519

mpirun n0-4 running time: 1.369468

mpirun n0-3 running time: 1.586637

mpirun n0-2 running time: 1.799614

mpirun n0-1 running time: 2.223329

Conclusion: from the results, I can see a slight speed up when using more nodes. But this trend is not obvious. Sometimes the results totally disobey the rule. This may be caused by unstable network environment and conflicts of requesting network recourses. This suggests presence of bottlenecks of sunlab when connecting to the outside world. The speed is unstable and the bandwith changes all the time.