

CS633-Assignment2, Group 3

Deven Gangwani (210327, devenag21@iitk.ac.in)

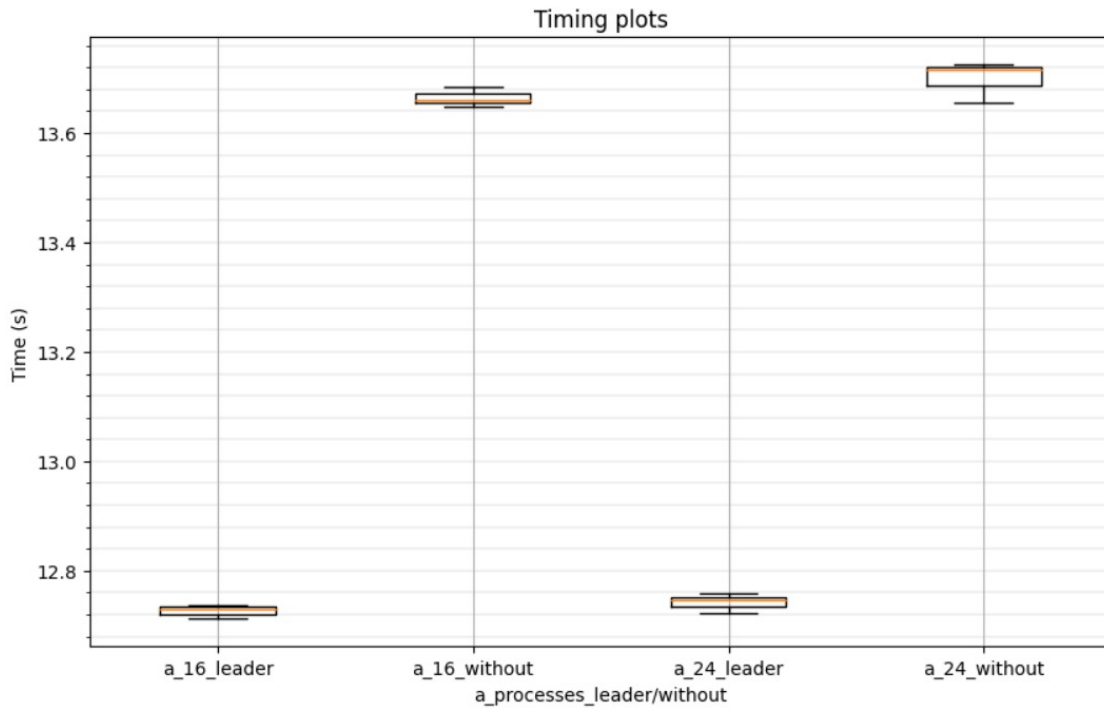
Geetika (210392, geetika21@iitk.ac.in)

Talin Gupta (211095, taling21@iitk.ac.in)

April 18, 2024

1 Observations

We used timing data from 3 iterations and got the following timing box plot:



We note that :

1. Communication with leader(that is, topologically aware) takes less time : it can be explained by the following reason: The number of inter node communications decreases. In the case without leader, all processes in a row in virtual topology(8 processes in a row) perform inter node communications, but now only the leader does it with a bigger message size. This observation is similar to the paper discussed in class about topology aware collectives. The gather and scatter taking place are all intra-node.
2. For different number of processes(16 and 24), the time taken for 24 processes is slightly more. The difference is more evident in the case of communications without leader. The difference can be explained by the following reason : For second row in virtual topology, with 16 processes, there are 8 internode communications, but with 24, there are 16 internode communications.
3. Topologically aware/ not aware creates more difference compared to number of processes.
4. Timings on hpc are lower than compared to csews.