Biweekly MSc Thesis Progress Presentation – Lukas Strebel

September 26, 2018

CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Updates from Last time

- MPI One Sided
  - Windows creation conditional
  - Able to run the weak scaling as setup at the moment
- SWES stencil on field that is output from previous stencil
  - Works, probably other issue or mixed up with field that is input and output (this still needs a copy)
- NumPy limit for initial condition
  - Changed preprocess of use case to save initial condition per subdivision.
  - Added loading from separate file for each subdivision for the field registration

Burger's Equation - Zhao - 5k x 5k per task - 100 time steps - 1 subdivision per task

Weak Scaling Efficiency (t1/tN * 100)

N=Nodes T=Tasks
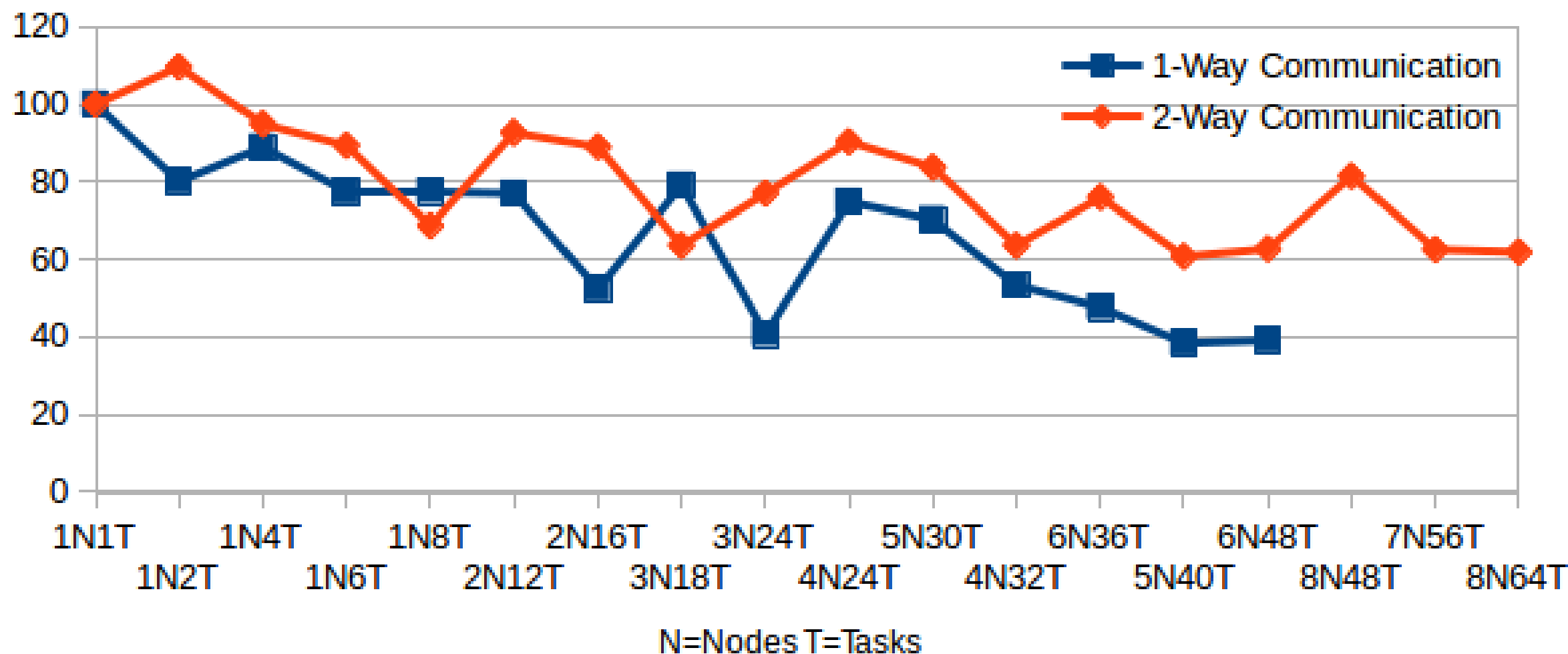
Weak Scaling

- Not all experiments finished
  - Some more partial results (4k by 4k only one-way, 7k only up to 5 Nodes)
  - Had issues over the weekend caused by the global boundary condition
  - Tried to run even larger weak scaling (starting with 7k x 7k grid up to 56k x 56k for 8 nodes)
    - Issues for the graph partitioning (vertex weights overflow the integer limit) had to normalize the vertex weights.
    - Normalized to 1 sometimes produced partition file where not all processers received subdivisions

- Run with more subdivisions per task for comparison.

Thesis text

- Updated overleaf
- Currently 56 pages (with ~16 pages of plots/diagrams/code)
- Experiments chapter / Shallow Water Equation chapter unfinished
- Abstract / Conclusion

- Will update overleaf with first complete draft by Friday 29th
  - Probably updated on Monday 1.10. with experimental results from the weekend

Last Milestones

October 1 – Complete Thesis for reviews

October 15 – Complete Thesis document incl. reviews.

October 20 – Thesis text submission to Thomas Schulthess

November 13 – Thesis text submission to ETH (Deadline)