MPI_Allgather

William Lynch
Matthew Grieder

What does it do?
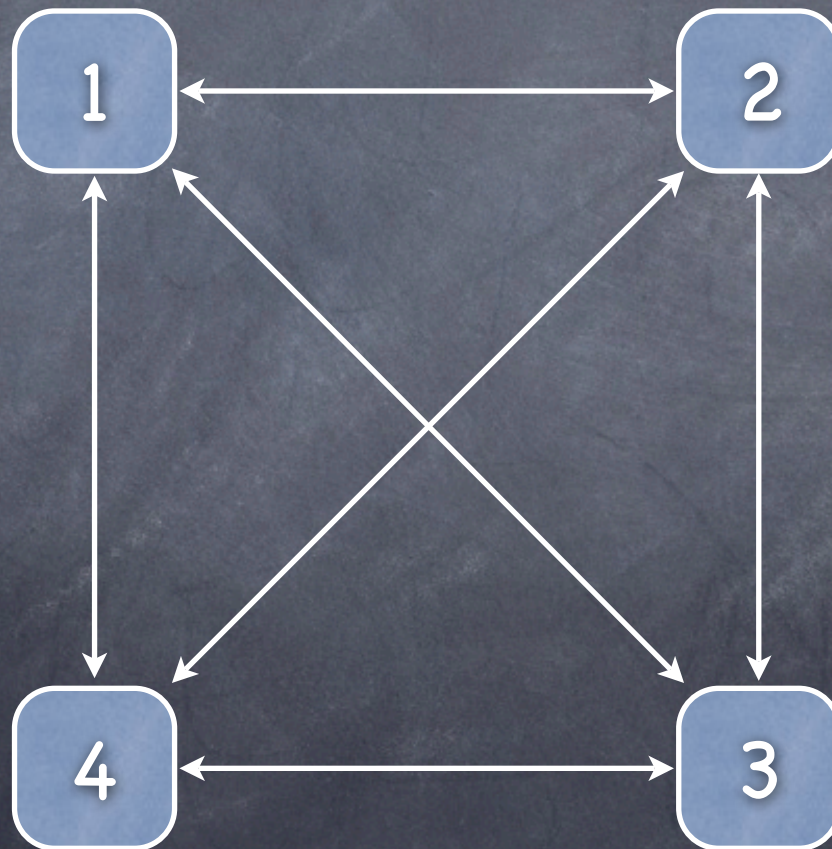
Gathers data from all tasks and distribute it to all.

The block of data sent from the jth process is received by every process and placed in the jth block of the buffer.

How do you code it?

MPI_Allgather(void *sendBuff, int sendCount, MPI_Datatype sendType, void *recvBuff, int recvCount, MPI_Datatype recvType, MPI_Comm comm);

What does this look like?

This looks like some code

```
int rank, size;
MPI_Comm_rank(MPI_COMM_WORLD, &rank);
MPI_Comm_size(MPI_COMM_WORLD, &size);

int *recvBuffer = new int[size];
MPI_Allgather(&rank, 1, MPI_INT, recvBuffer, size,
MPI_INT, MPI_COMM_WORLD);

/* recvBuffer now contains an array of {1,2,3,4,...,size-1} on
every processor. */
```

Where would you use this?

You would use this if all of your processors had some data that you wanted then all to have. That is, so they all have all of the data.