Step 1 Partitioning

• Separate dataset across nodes to exploit data locality
  – Use information from programmer
    • Stencils
    • Grids
    • More?

• Here divide dataset across 4 nodes duplicating data in border cells.
Step 2 Staging and Stripmining

- Data in one node fits in memory (dram) but not all in SRF
- Need to load smaller size into SRF,
  - Convolve
  - Diverge
Step 2 continued

1. Load data

->Controller-Cluster Sync Start Convolution

2. Convolution (generate new stream)
Step 2 continued

->Cluster-Controller Sync Start loading more data

3. Diverge and Max of these divergences

->Controller-Cluster Sync Start Convolution / Store new data

4. Convolve, generate new stream
Step 2 Continued

- Need to do divergence on inner borders, but need new data from outer borders
  - Sync with each neighbor
  - Read borders from neighbors separately
- Then do divergence and max on the inner borders
- Finally do Max across all nodes
  - Sync all nodes
  - Tree combine