

Task Mapping and Performance Analysis: Tools and Techniques

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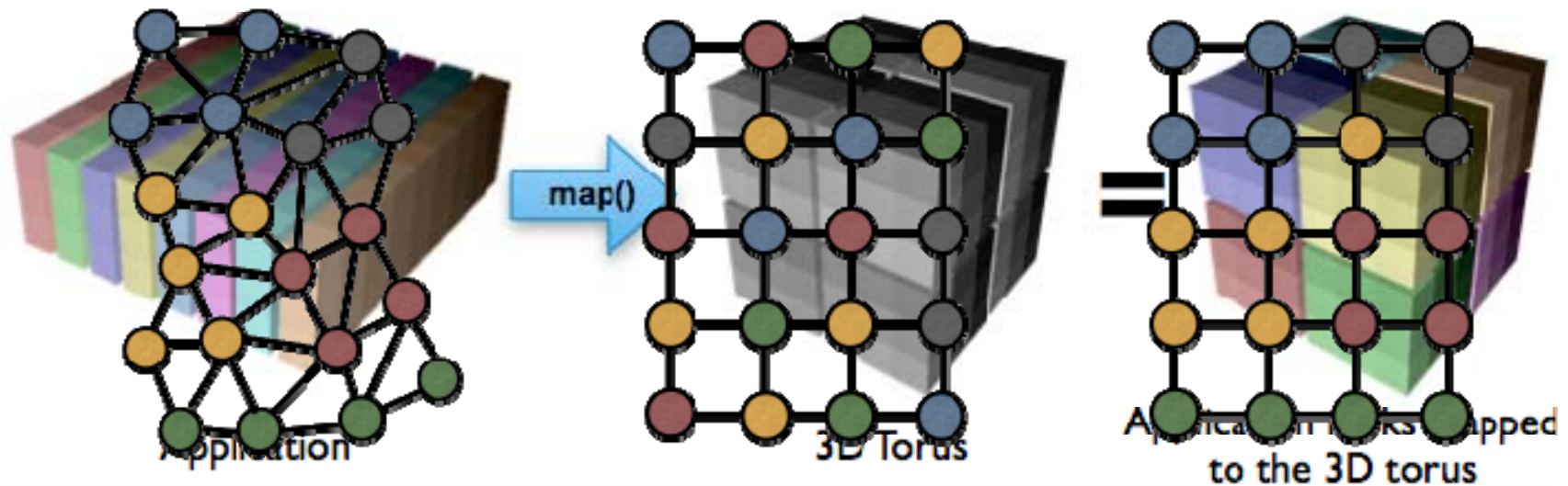
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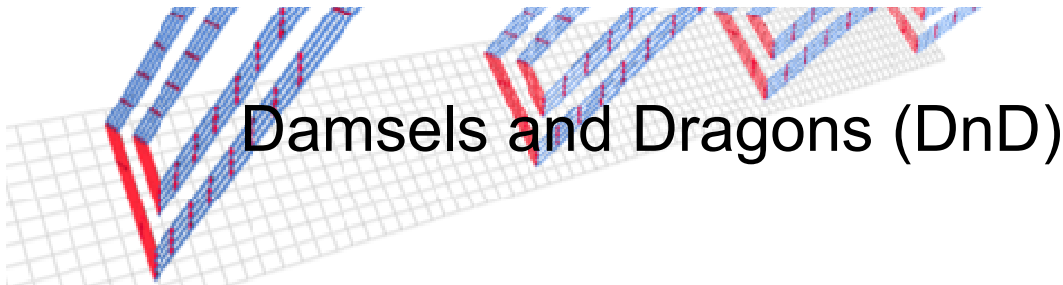
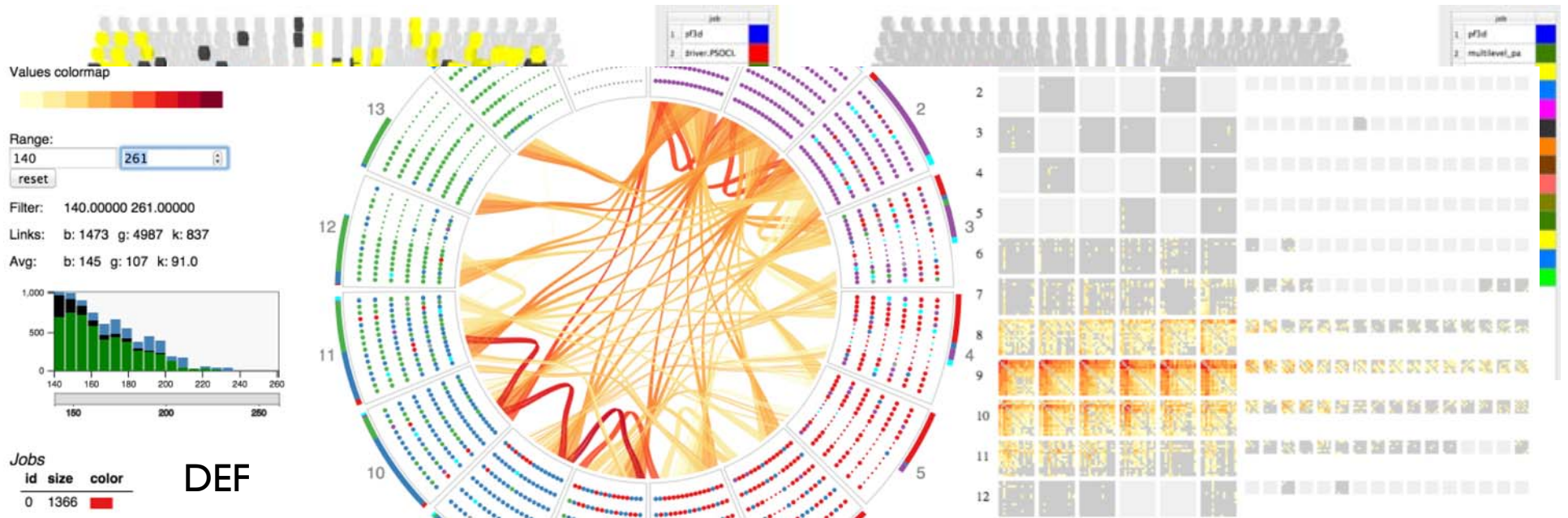


Network Topology Aware Task Mapping

- Process placement/ layout/ mapping can improve application performance significantly
- Tools developed at LLNL: Rubik and Chizu

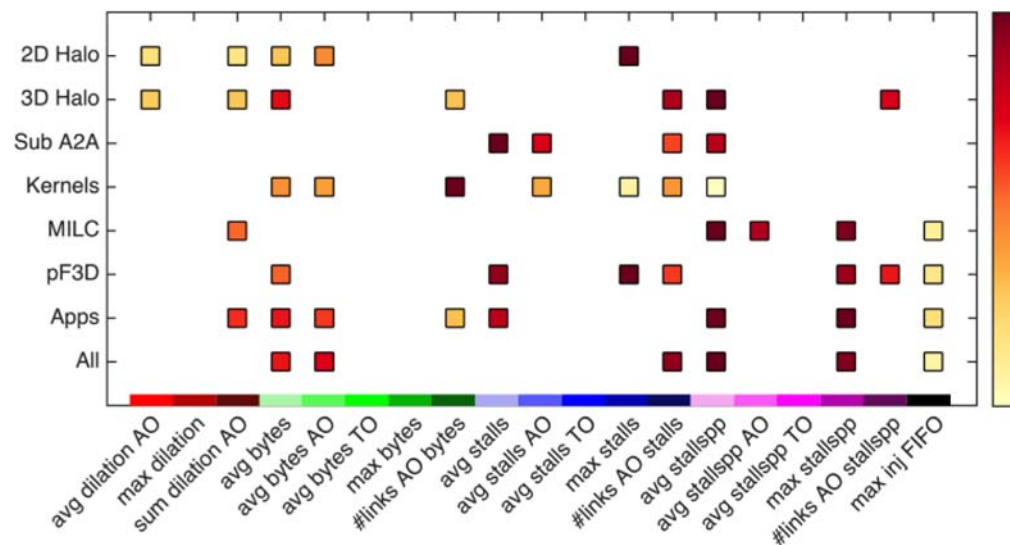


Visualization Tools for Traffic on Different Networks



Applying Machine Learning to HPC Performance Data

- Use regression to find relationship between hardware counters and performance
- Applied to Blue Gene/Q network counters



- Plans to look at Blue Waters LDMS data

Objectives for Collaborations with PRAC teams

- Identify application codes with heavy communication
- Work with PRAC teams on task mapping and performance analysis
- Collaborate with Blue Waters admins to gather and analyze system-wide LDMS performance data