Introduction to Chapel
A Next-Generation HPC Language

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Cray Inc.
What is Chapel?

- A new parallel language
  - Under development at Cray Inc.
  - Supported through the DARPA HPCS program
- Goals
  - Improve the programmability of parallel computers
  - Match or improve performance of MPI/UPC/CAF
  - Provide better portability than MPI/UPC/CAF
  - Improve robustness of parallel codes
  - Support multi-core and multi-node systems
The Chapel Team

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Jonathan Turner (‘10 – U. Colorado)
Goals For Today

- Introduce you to Chapel with a focus on
  - Task parallelism
  - Data parallelism
  - Multi-locale parallelism
- Provide hands-on experience with Chapel Version 1.1
- Get your feedback on Chapel
- Look for collaboration opportunities
- Point you towards resources to use after today
8:00 – Productivity Overview
9:00 – Chapel Background
9:30 – Language Basics
10:00 – Break
10:15 – Task Parallelism
10:45 – Hands-On Time
11:45 – Locality and Affinity
12:15 – Lunch
1:00 – Data Parallelism
1:45 – Distributions and Layouts
2:30 – Break
2:45 – Status, HPCC, and SSCA #2
3:30 – More Hands-On Time
4:30 – Feedback and Q & A