Cross-Institution Grid Classroom

William M. Jones, Ph.D.
(Coastal Carolina University)

Walter B. Ligon III, Ph.D.
(Clemson University)
Coastal Carolina In A Nutshell

- Liberal arts institution
- Myrtle Beach, SC
- Around 8,400 students
- 51 degree programs
  - Primarily undergraduate
- Computer science
  - Compilers
  - Programming languages
- Information systems
  - Web application development
- Change was on the horizon!
Change in Faculty Makeup

• Several new faculty hired
• Broaden dept. focus areas
  – Computer architecture
  – Parallel computing
    • PGAS
    • Explicit message passing
  – Cloud & HT computing
• Introduction to parallel systems
  – Basics
  – MPI
• No locally available cluster computing resources
Collaboration With Clemson University

- Opened dialog
- Overwhelming support
- 100+ core cluster
- Team-teach
- Prototype grid-classroom
- Spring 2010 CSCI 473
  - Trial run
- Logistics
  - Classroom scheduling
  - Calendars
Grid Classroom Prototype

- Dedicated classroom
  - Clemson
- Mobile classroom
  - Coastal Carolina
- Video-conferencing
  - IOCOM
- Enrollment (Sp’10)
  - 8 (CCU)
  - 15 (CU)
- Spring 2011
- Adding to curriculum
Course Content

• Lecture
  – History
  – Architectures
  – MPI & OpenMP
  – Algorithms
  – Performance (Iso)

• Assignments
  – Global sum from basics
  – Floyd’s all-pairs (2D)
  – Cannon’s matrix multiply
  – Monte Carlo (NT)
Student Feedback

• Programming assignments on cluster
• Multiple perspectives from professors
• Confidence building
• Interest in graduate school
• Performance (7 students)
  – Assignment average: 86%
  – Exam average: 66%
• Challenges
  – Conferencing technology
  – Network congestion
  – Jitter & artifacts
“This collaboration has provided CCU students an opportunity to access a level of technology not previously available to them.”

“We believe that continuing this relationship to its natural conclusion is in our best interest both as a department as well as a university.”

“This course allows our students to be competitive in an area of computer science that is completely under-represented in the department at this time.”
Thank You!

Questions?

William M. Jones, Ph.D.
(Coastal Carolina University)

Walter B. Ligon III, Ph.D.
(Clemson University)