Parallel Processing (Warehouse Scale Computing)

CS 350: Computer Organization & Assembler Language Programming
Lecture 20, Wed 4/10

Warehouse Scale Computers (WSC)

• Extremely large-scale settings - one building holding 100,000 servers
  • Not just one huge cluster
  • Try to operate to some extent as one giant computer

• Programming style is very different
  • Book talks about MapReduce and Hadoop
  • Run program on thousands of servers simultaneously
    • Creating data and collecting it
  • How do problems and programs get thought about when you want this massive amount of parallelism?

• Requires whole other level of
  • Power distribution, cooling, processor monitoring/operations
  • Some modern systems are built in the Arctic to take advantage of cooler weather / cooler river/lake water

• Actual use is for systems that involve a lot of independent work
  • Emulate one huge web server

• Start thinking about possible computations as a mass instead of as a collection of individual processors