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Theory of Network Communication

Fall 2003

Assignment 8

Problem 17 (4 points)**:**
Suppose that the current number of nodes in the supervised DeBruijn network is 2^k for some integer k, and that this is known to all nodes. Suggest a search method for this case that allows a node to locally compute where a data item is currently stored, and argue why this method works.

Hints: You may use a cut-and-paste related approach or even try to come up with a closed formula for computing the node. It may be helpful to go through some examples.

Problem 18 (6 points)**:**
Write a C++ program in the Spheres environment that has an implementation of Join and Leave for the supervised overlay network in the lecture organizing the peers in a linked list that is robust against concurrent Join and Leave requests. Explain your approach in words and/or pictures, print out the program, and test your program with an initial situation of a linked list of 10 peers where additional 3 peers want to join and 3 of the 10 peers want to leave at the same time.