CSV880

Assignment II

Due on 13th April 2014

The file code.zip contains 4 files: test.c, sim.c, comm.c and common.h. The code is self explanatory :). It performs a broadcast on a 2D Torus using a single spanning tree. The code reports the total packets received by every node and the maximum congestion on any link. For the current version of the code, each node receives 1 packet and congestion=1. Modify the code to perform the broadcast using 4 non-contending spanning trees. Each node should receive 4 packets, congestion should remain 1. You can use the header fields to distinguish between the packets of different spanning trees (see $hdr1$ in code below).

YOU ARE ONLY ALLOWED TO MODIFY sim.c!!! I will be replacing the other files with my own version that does some extra checking (do not bother for the contents of these files - they are only for reference). For instance I might use the arrays *stats*, *estats* to store additional statistics. Currently, there is no data carried in the packets. The *size* field in *pkt* signifies the amount of data carried. Your new *broadcast* routine should look something like....

```
void broadcast( pkt *p, int src )
{
    int s = p→size;
    p→src = src;
    p→dst = −1;
    p→hdr1 = 1;
    p→size = s/4 + ((s%4 > 0)?1 : 0);
    recv(p, src);
    p→hdr1 = 2;
    p→size = s/4 + ((s%4 > 1)?1 : 0);
    recv(p, src);
    p→size = s/4 + ((s%4 > 2)?1 : 0);
    p→hdr1 = 3;
    recv(p, src);
    p→size = s/4;
    p→hdr1 = 4;
    recv(p, src);
}
```