

We consider the problem of managing a dynamic heterogeneous storage system in a distributed way so that the amount of data assigned to a host in that system is related to its capacity. Two central problems have to be solved for this: (1) organizing the hosts in an overlay network with low degree and diameter so that one can efficiently check the correct distribution of the data and route between any two hosts, and (2) distributing the data among the hosts so that the distribution respects the capacities of the hosts and can easily be adapted as the set of hosts or their capacities change. We present distributed protocols for these problems that are self-stabilizing and that do not need any global knowledge about the system such as the number of nodes or the overall capacity of the system. Prior to this work no solution was known satisfying these properties.