



Principles of Distributed Computing

Exercise 13

1 Determining the Median

Consider a radio packet network with n nodes and without collision detection. Furthermore, assume that each node has a token of size $\mathcal{O}(\log n)$ (a number) and is equipped with memory of size $\mathcal{O}(\log n)$. Present an uniform algorithm which allows the nodes to determine the median in $\mathcal{O}(n)$ time slots w.h.p.

Hint: You can assume that n is odd and each token is unique. **Hint:** Initializing first and then trying to determine the median simplifies the task.

Hint: With a memory of size $\mathcal{O}(\log n)$ the nodes can count up to n .