

HighLevelidea

- All serve sample the same exponential random variables e_1, \dots, e_n

• Canonicalized using pseudorandom generators

• We want to find $i^* = \operatorname{argmax}_i e_i^{-1} (\sum_j x_i(j))^p$

- Server j computes the vector $(e_1^{-1}x_1(j)^p, \dots, e_n^{-1}x_n(j)^p)$

- Then server j samples $M = \mathcal{O}(s^{p-2} \cdot \log^3 n)$ coordinates independently

- Send all the sampled coordinates to the central server -- Does it receive i^* ?



$$i \propto e_i^{-1} x_i(j)^p$$

High Level Ideas

- All servers sample the **same** exponential random variables $\mathbf{e}_1, \dots, \mathbf{e}_n$
 - Can be derandomized using pseudorandom generators
- We want to find $i^* = \operatorname{argmax}_i \mathbf{e}_i^{-1} (\sum_j x_i(j))^p$
- Server j computes the vector $(\mathbf{e}_1^{-1} x_1(j)^p, \dots, \mathbf{e}_n^{-1} x_n(j)^p)$
$$i \propto \mathbf{e}_i^{-1} x_i(j)^p$$
- Then server j samples $M = O(s^{p-2} \cdot \log^3 n)$ coordinates independently
- Send all the sampled coordinates to the central server -- Does it receive i^* ?

Receiving the Top Coordinate