RPO Simulation Study I

- Simulator created by J. Palmer and D. Auerbach; modified by Pei-Jung Ho (UCSD student.)

- Study effects of changing the rpo head positioning data representations (to save space.)

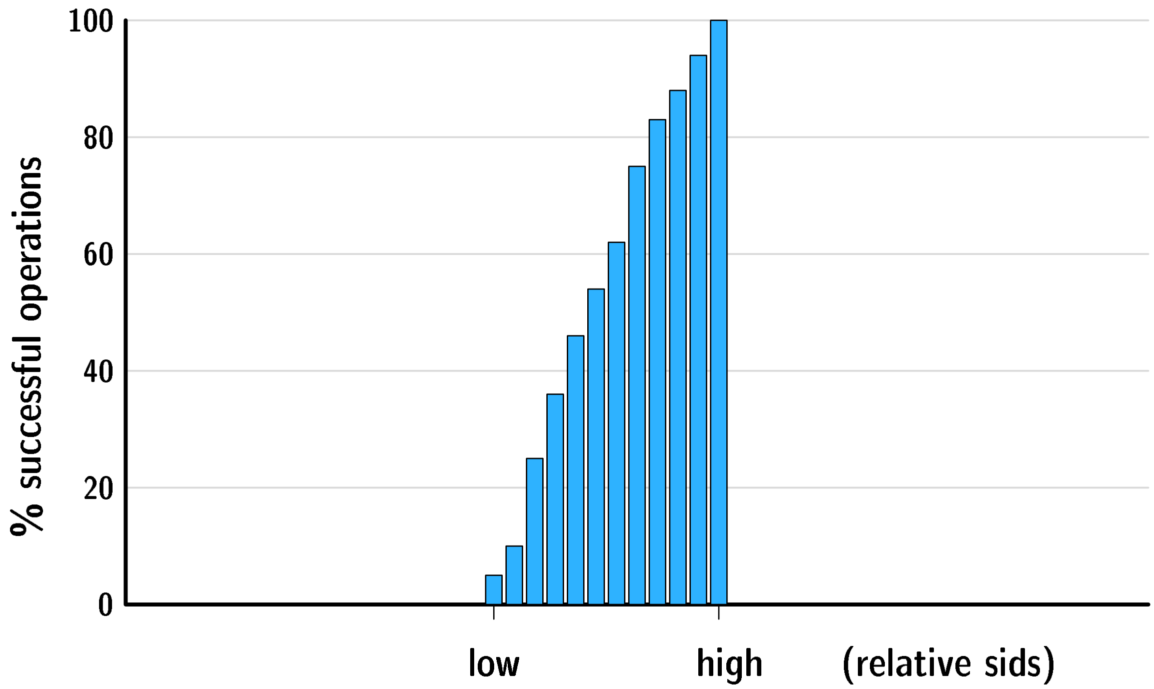
  Eight tables: Rnu, Rnd, Rdu, Rdd, Wnu, Wnd, Wdu, Wdd; each table contains 227 groups of data; each (cylinder) group contains up to approximately 30 “expected access time” (eat) values.

  Each set of eight tables occupies approximately

  $$227 \times 30 \times 8 = 54480 \text{ bytes.}$$

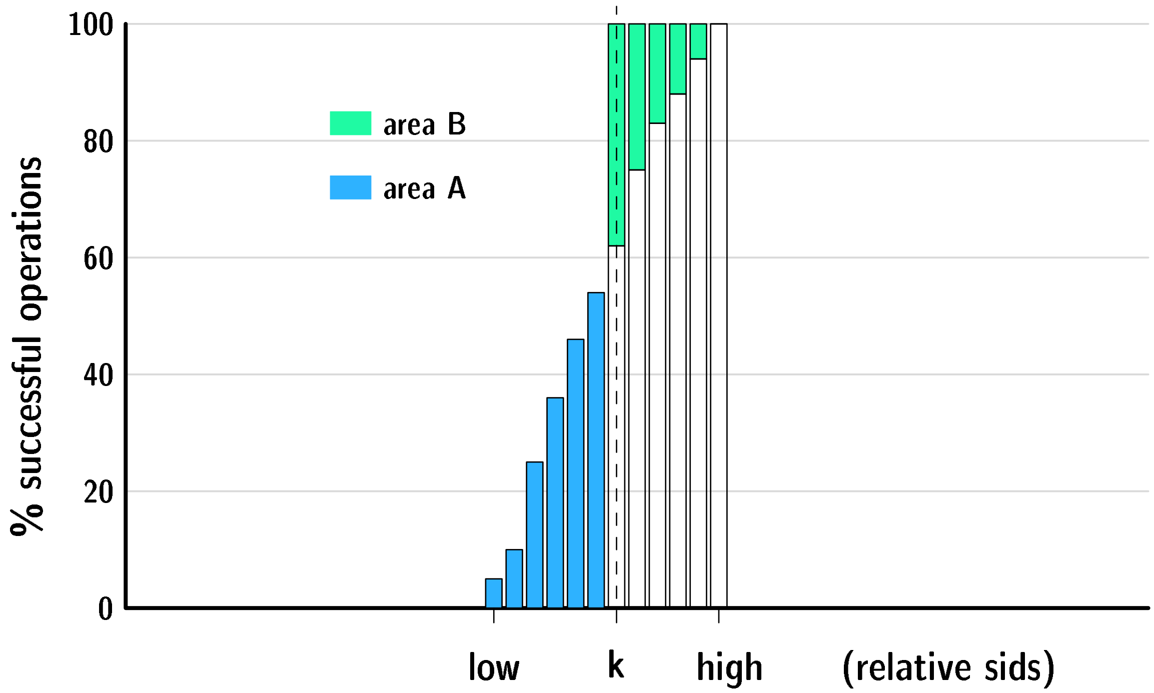
- We wish to have several sets of data; one for each head. We considered data for head 0, head 2, and head 5. Stringray (18GB) has 10 heads.

- Fraction of operations arriving without a miss.



derived from RPO tables; one such “curve” for each cylinder group and each operation mode.

- Reduce storage space for table data. Represent each curve as a step function.



Area A is $\sum_{i\,=\,low}^{k-1} f_i$ Area B is $\sum_{i\,=\,k}^{high} \left(100 - f_i \right)$

- α is $\dfrac{\text{Area A}}{\text{Area B}}$

α small: very aggressive

α large: very conservative

RPO Simulation Study IV

- Two questions:

  How well does this work? Is there a uniformly best α?

- Simulation results.

- `http://www.cs.ucsd.edu/~pho`

- Comparison of "actual model" versus "step function model."