

How is Sketching Useful?

$A(1)$



Server 1

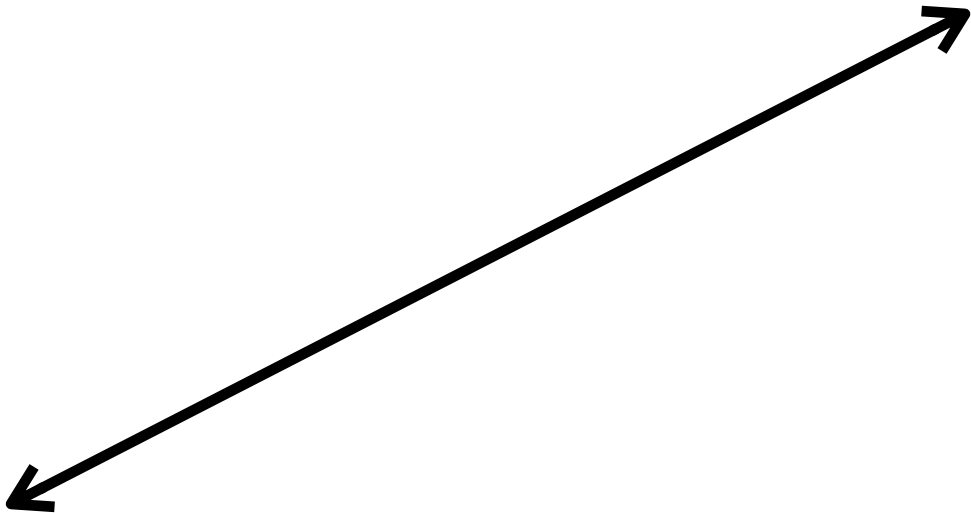
$A(2)$

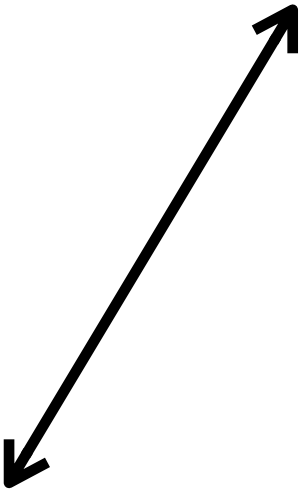


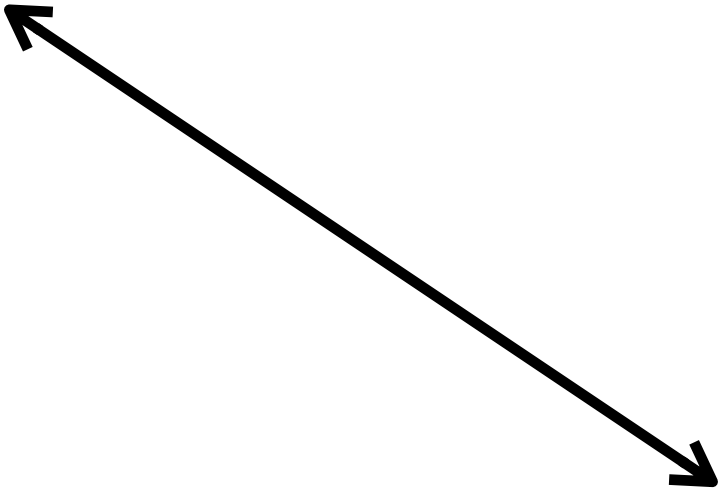
Server 2

Coordinator











$$= A(1) + \dots + A(s)$$

S

S

$A(s)$



Server s

S

$sk(A_1)$

$sk(A_2)$

$sk(A_s)$

$sk(A)$

$=$

$sk(A_1)$

$+$

$sk(A_2)$

$+\dots+$

$sk(A_s)$

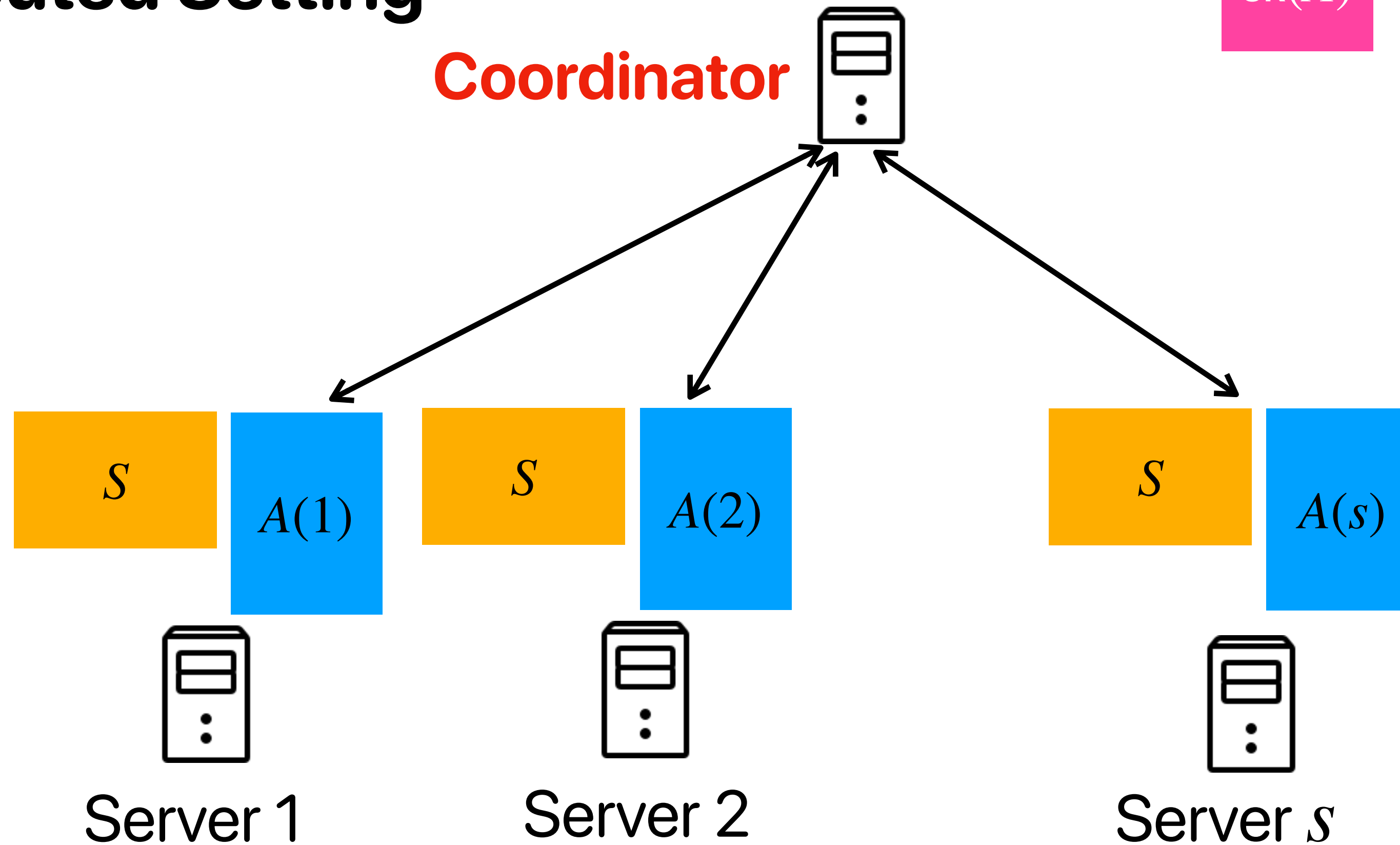
Distributed Setting



(Cautiously handled with caution using pseudonyms)

How is Sketching Useful?

Distributed Setting



$$\text{sk}(A) = \text{sk}(A_1) + \text{sk}(A_2) + \dots + \text{sk}(A_s)$$

$$A = A(1) + \dots + A(s)$$

(Can typically be handled with low communication using pseudorandom generators)

How is Sketching Useful?

Turnstile Streaming