Page count (one page ≈ 250 words) vs compression ratio . We see that PSIP and PSIF essentially have a constant compression ratio with respect to page size. PSIP has a compression ratio of 0.75, and PSIF has a compression ratio of 0.25. PSIF, however, does not store any location information.

PSIB and BSIB are more directly comparable, since they both represent documents in the same way conceptually, i.e., segmenting a document into multiple blocks. We see that for documents less than 50 pages, PSIB is smaller than BSIB. For instance, when a document is around 16 pages, PSIB has a compression ratio of 0.3 while BSIB has a compression ratio of around 0.50—that is, PSIB is only 60% the size.

How long does it take the Encrypted Search scheme to respond to queries?

How does page count affect query lag time? We see that the lag times for PSIP, PSIF, and PSIP are, to a first approximation, independent of page count. However, the lag times for BSIB is linearly dependent upon page count; every additional page incurs additional milliseconds. This was the expected outcome, since as the page count increases the document must be segmented into more blocks, where each block is assigned a Bloom filter that must be independently queried for each query.

For small documents, the linear dependence is relatively minor, but as the page counts increase, BSIB is at a significant disadvantage compared to the PSI-based secure indexes, e.g., for a 50 page document, it is approximately four times slower.