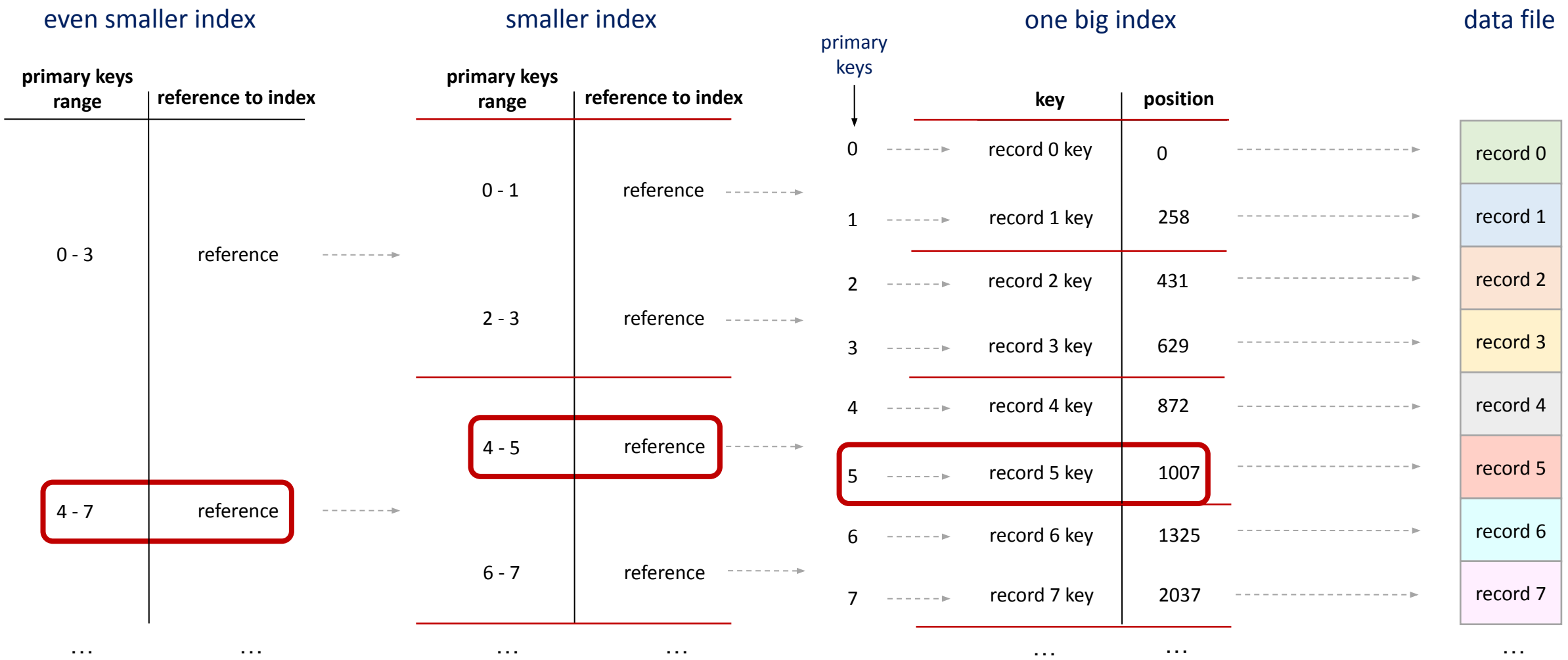
B-tree index



1. load the entire index into memory

2. load only the relevant chunk into memory

3. load only the relevant chunk into memory

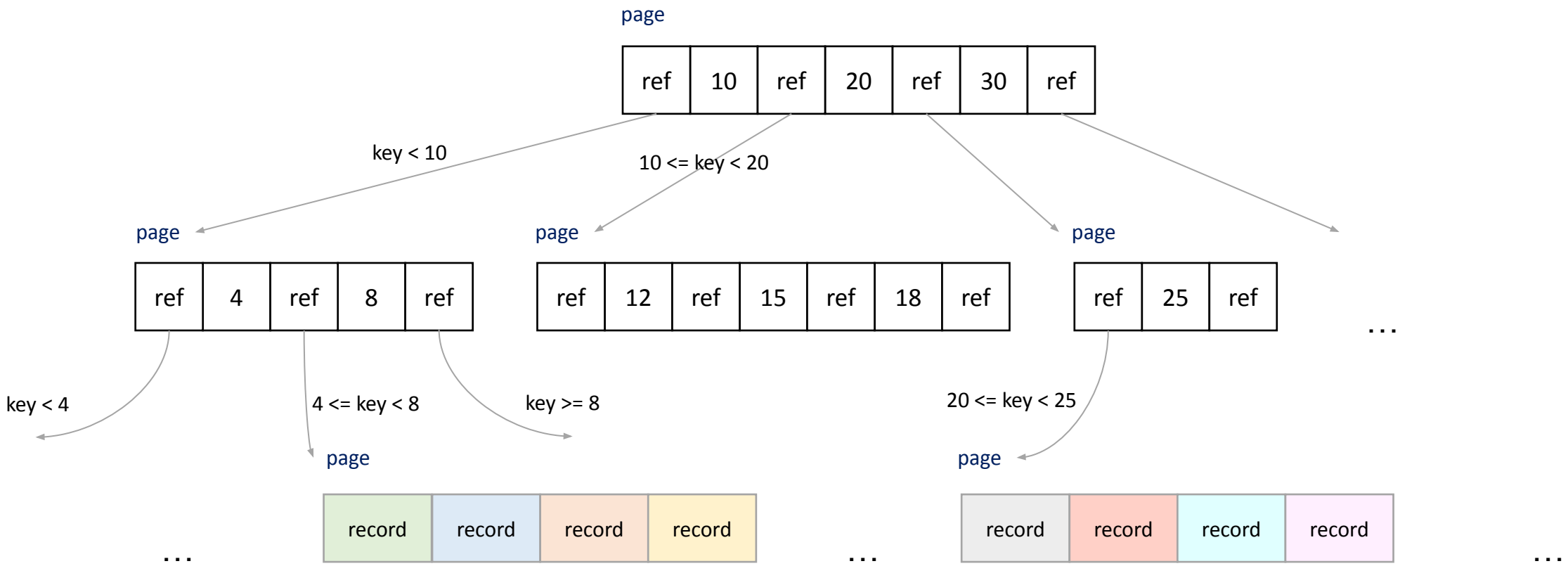
4. retrieve record's bytes from disk

B-tree index

B-tree

self-balancing tree data structure

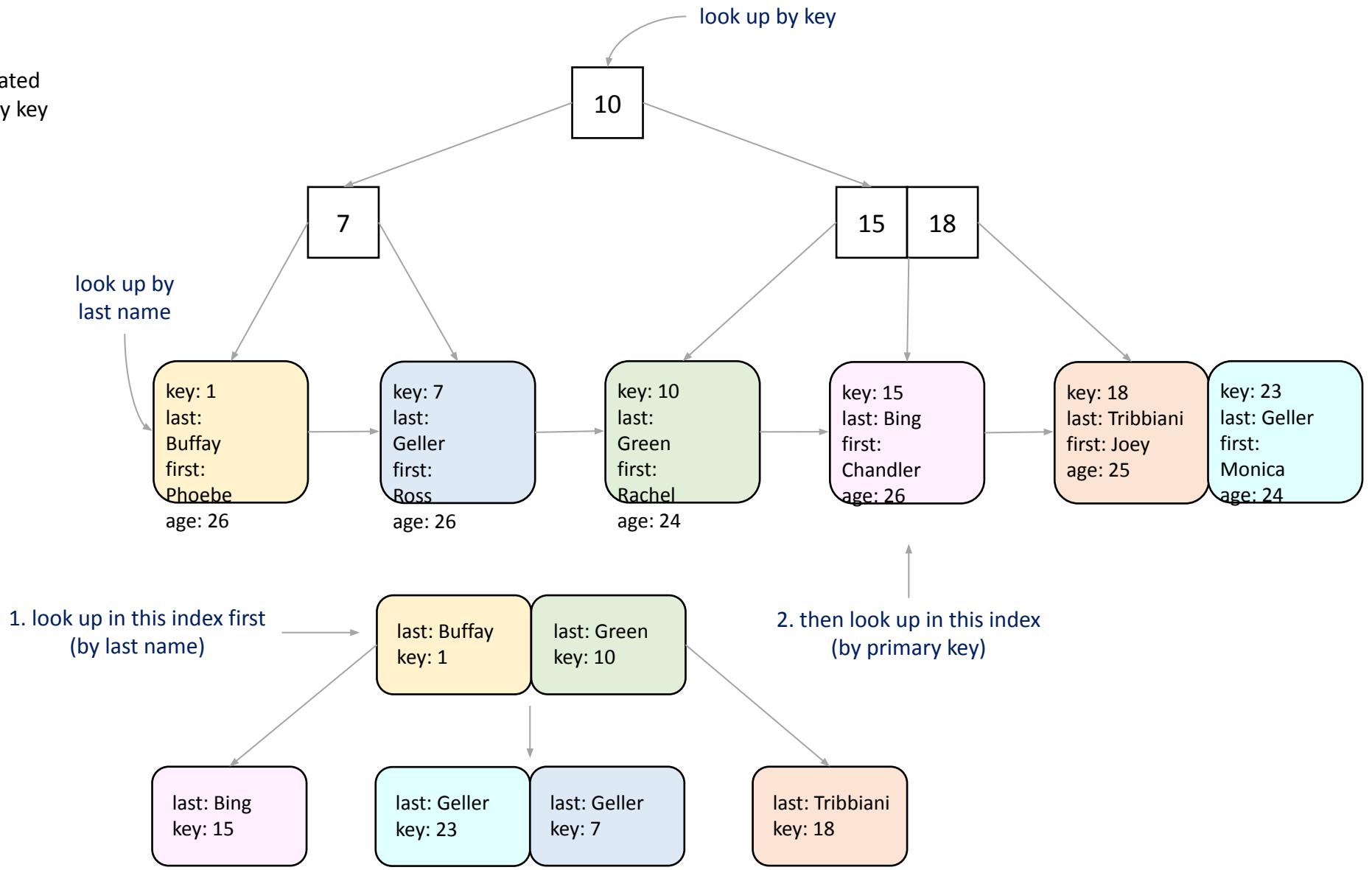
insert, delete, search - O(log(n))



B-tree index

how databases use B-tree indexes

Last Name	First Name	Age	generated primary key
Green	Rachel	24	10
Geller	Monica	24	23
Buffay	Phoebe	26	1
Tribbiani	Joey	25	18
Bing	Chandler	26	15
Geller	Ross	26	7



B-tree index

how messaging systems use B-tree indexes

e.g. KahaDB, file-based message store in ActiveMQ