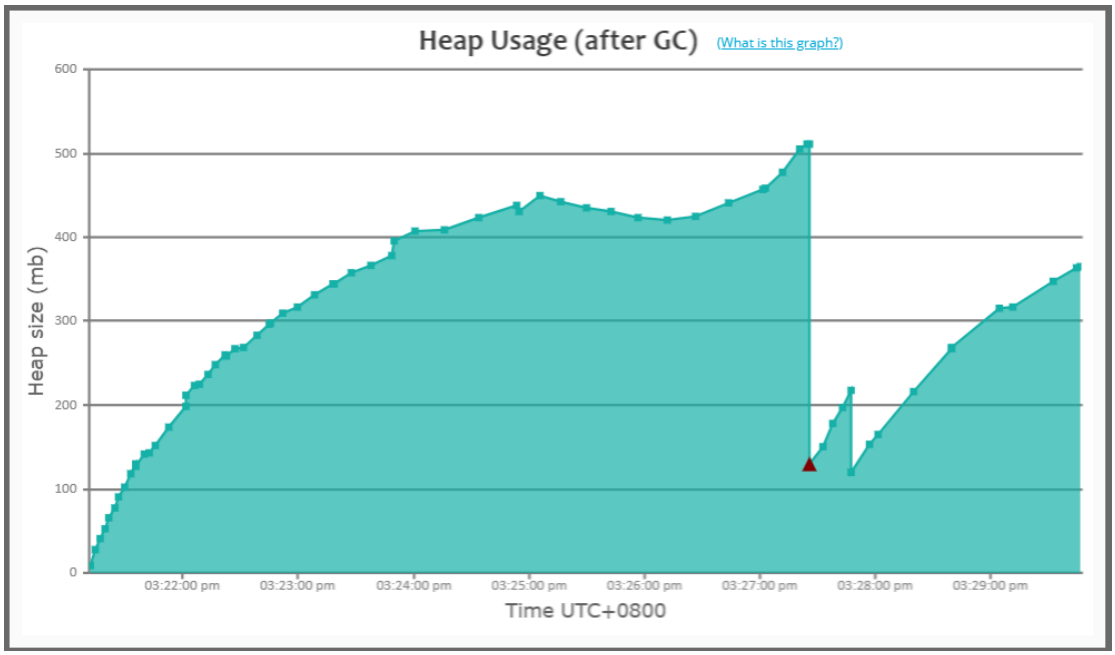
JVM config:

-Xmx512m -XX:+UseG1GC -XX:MaxGCPauseMillis=100 -XX:+ParallelRefProcEnabled -XX:+PrintGCDetails -XX:+PrintGCDateStamps -XX:+PrintHeapAtGC -XX:+PrintReferenceGC -XX:+PrintTenuringDistribution -XX:+PrintAdaptiveSizePolicy -Xloggc:E:/testDir/g1gc.log

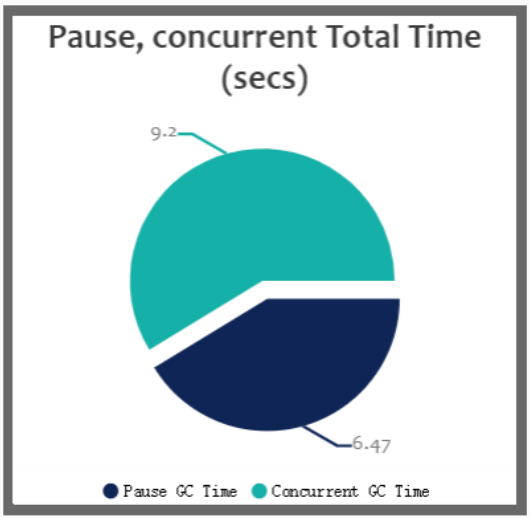
Test code:

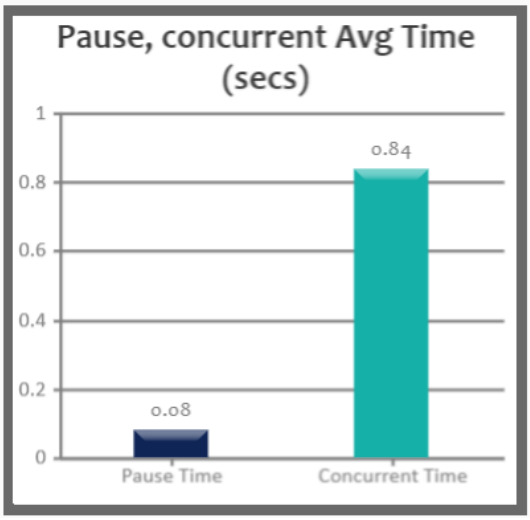
```
public class RefTest {
    public static void main(String[] args) {
        IdReadWriteLock<Long> offsetLock = new IdReadWriteLockStrongRef();
//        IdReadWriteLock<Long> offsetLock =
//                new IdReadWriteLockSoftOrWeakRef(ReferenceType.SOFT);
        Random random = new Random();
        for (long i = 0; i < 10000000; i++) {
            long offset = Integer.toUnsignedLong(random.nextInt(2000000));
            offsetLock.getLock(offset);
            try {
                if (i > 0 && i % 2000 == 0) {
                    System.out.println("sleep,i=" + i);
                    Thread.sleep(100L);
                }
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
    }
}
```

Result for soft reference:

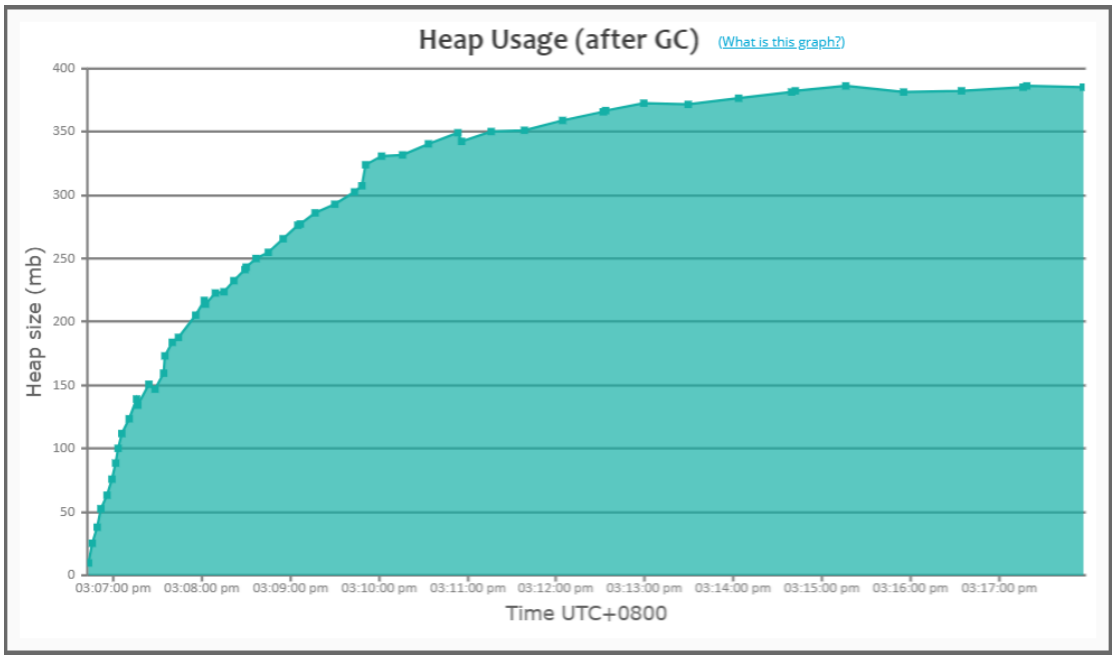


	Concurrent Mark	Mixed	Full GC	Young GC	Remark	initial-mark	Cleanup	Total
Count	11	19	1	30	11	11	11	94
Total GC Time	9 sec 200 ms	3 sec 470 ms	1 sec 90 ms	1 sec 30 ms	460 ms	410 ms	10.0 ms	15 sec 670 ms
Avg GC Time	836 ms	183 ms	1 sec 90 ms	34.3 ms	41.8 ms	37.3 ms	0.909 ms	167 ms
Avg Time std dev	319 ms	222 ms	0	14.3 ms	84.3 ms	12.1 ms	2.87 ms	311 ms
Min/Max Time	0 / 1 sec 224 ms	0 / 790 ms	0 / 1 sec 90 ms	0 / 80.0 ms	0 / 230 ms	0 / 70.0 ms	0 / 10.0 ms	0 / 1 sec 224 ms
Avg Interval Time	49 sec 22 ms	24 sec 952 ms	n/a	17 sec 253 ms	49 sec 22 ms	48 sec 947 ms	49 sec 22 ms	33 sec 444 ms

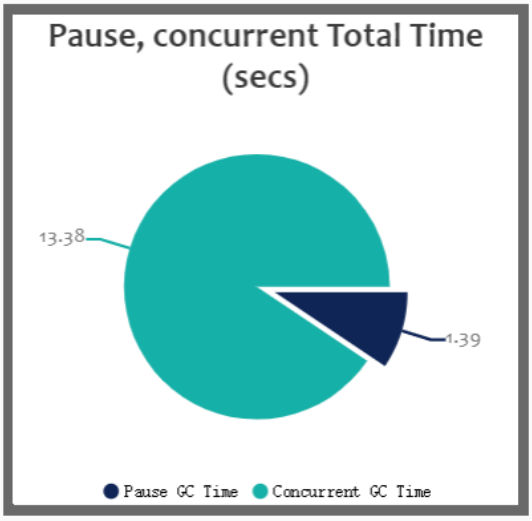


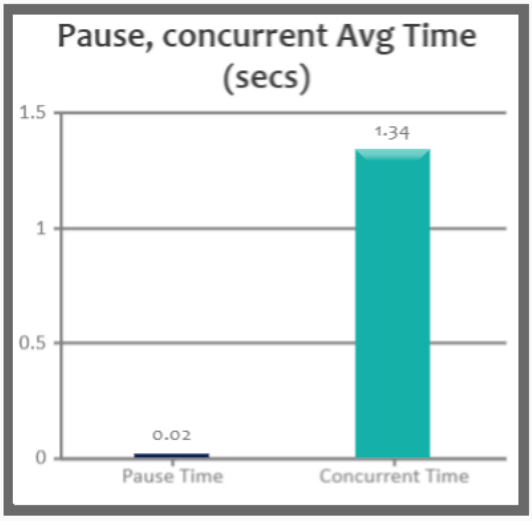


Result for strong reference:



	Concurrent Mark	Young GC	Mixed	initial-mark	Remark	Cleanup	Total
Count	10	28	9	10	10	10	77
Total GC Time	13 sec 384 ms	780 ms	350 ms	250 ms	10.0 ms	0	14 sec 774 ms
Avg GC Time	1 sec 338 ms	27.9 ms	38.9 ms	25.0 ms	1.00 ms	0	192 ms
Avg Time std dev	583 ms	10.1 ms	11.0 ms	6.71 ms	3.00 ms	0	491 ms
Min/Max Time	0 / 2 sec 60 ms	0 / 60.0 ms	0 / 50.0 ms	0 / 30.0 ms	0 / 10.0 ms	0 / 0	0 / 2 sec 60 ms
Avg Interval Time	1 min 6 sec 899 ms	24 sec 988 ms	1 min 3 sec 498 ms	1 min 6 sec 715 ms	1 min 6 sec 899 ms	1 min 6 sec 899 ms	50 sec 555 ms





We can get some info from the test result:

1. soft ref could be reclaimed when there is not enough mem,but strong ref cann't.
2. when use strong ref ,the cost time of remark is much lesser than soft.
3. The pause of strong ref test is lesser than soft too,the reason maybe is that it create lesser

object,and can avoid recreate them,.

So ,if the count of offset is limited and has enough mem(most of the time it is true) ,then the strong ref is better choice,