

Monitoring ElastiCache



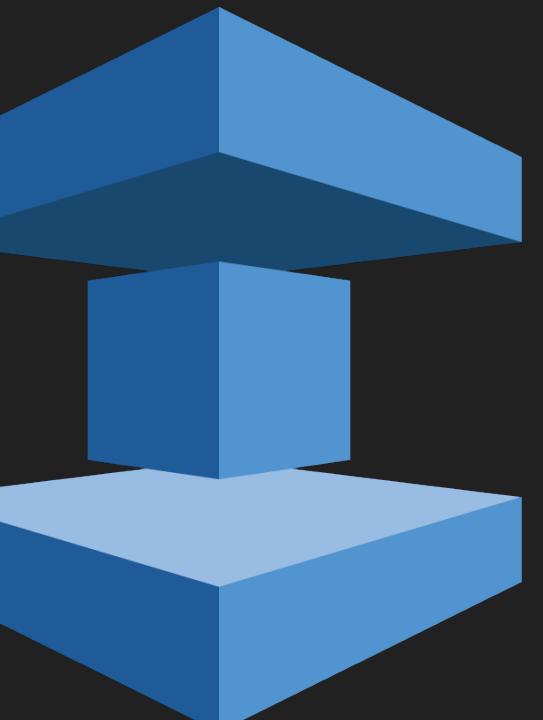
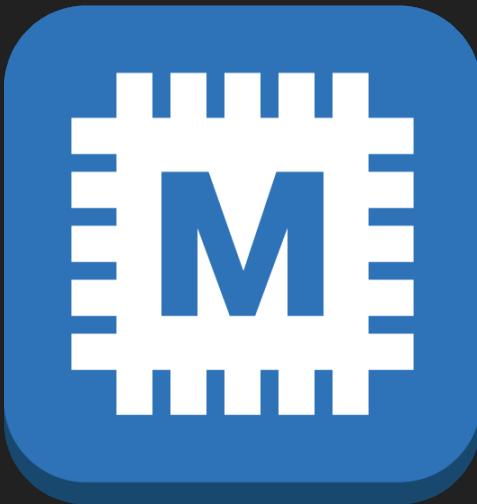
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Elasticache



From our previous courses you will remember that ElastiCache consists of two engines:

- Memcached
- Redis



<http://docs.aws.amazon.com/AmazonElastiCache/latest/UserGuide/CacheMetrics.WhichShouldIMonitor.html>

Elasticache



When it comes to monitoring our caching engines there are 4 important things to look at:

- CPU Utilization
- Swap Usage
- Evictions
- Concurrent Connections

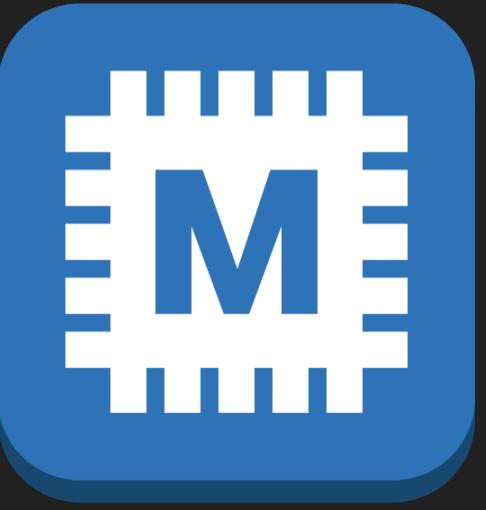




CPU Utilization

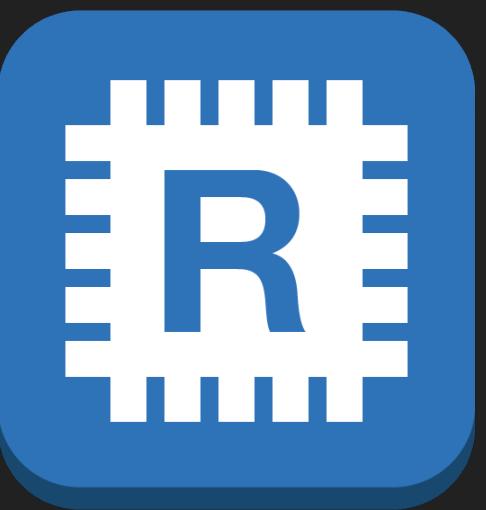
Memcached

- Multi-threaded
- Can handle loads of up to 90%. If it exceeds 90% add more nodes to the cluster



Redis

- Not multi-threaded. To determine the point in which to scale, take 90 and divide by the number of cores
- For example, suppose you are using a cache.m1.xlarge node, which has four cores. In this case, the threshold for CPU Utilization would be $(90 / 4)$, or 22.5%



Exam Tip:

You will not have to calculate Redis CPU Utilisation in the exam



What is SwapUsage?

Put simply, swap usage is simply the amount of the Swap file that is used. The Swap File (or Paging File) is the amount of disk storage space reserved on disk if your computer runs out of ram. Typically the size of the swap file = the size of the RAM. So if you have 4Gb of RAM, you will have a 4GB Swap File.





SwapUsage

Memcached

- Should be around 0 most of the time and should not exceed 50Mb.
- If this exceeds 50Mb you should increase the memcached_connections_overhead parameter.
- The memcached_connections_overhead defines the amount of memory to be reserved for memcached connections and other miscellaneous overhead.
- Learn More; <http://docs.aws.amazon.com/AmazonElastiCache/latest/UserGuide/CacheParameterGroups.Memcached.html>



Redis

- No SwapUsage metric, instead use reserved-memory

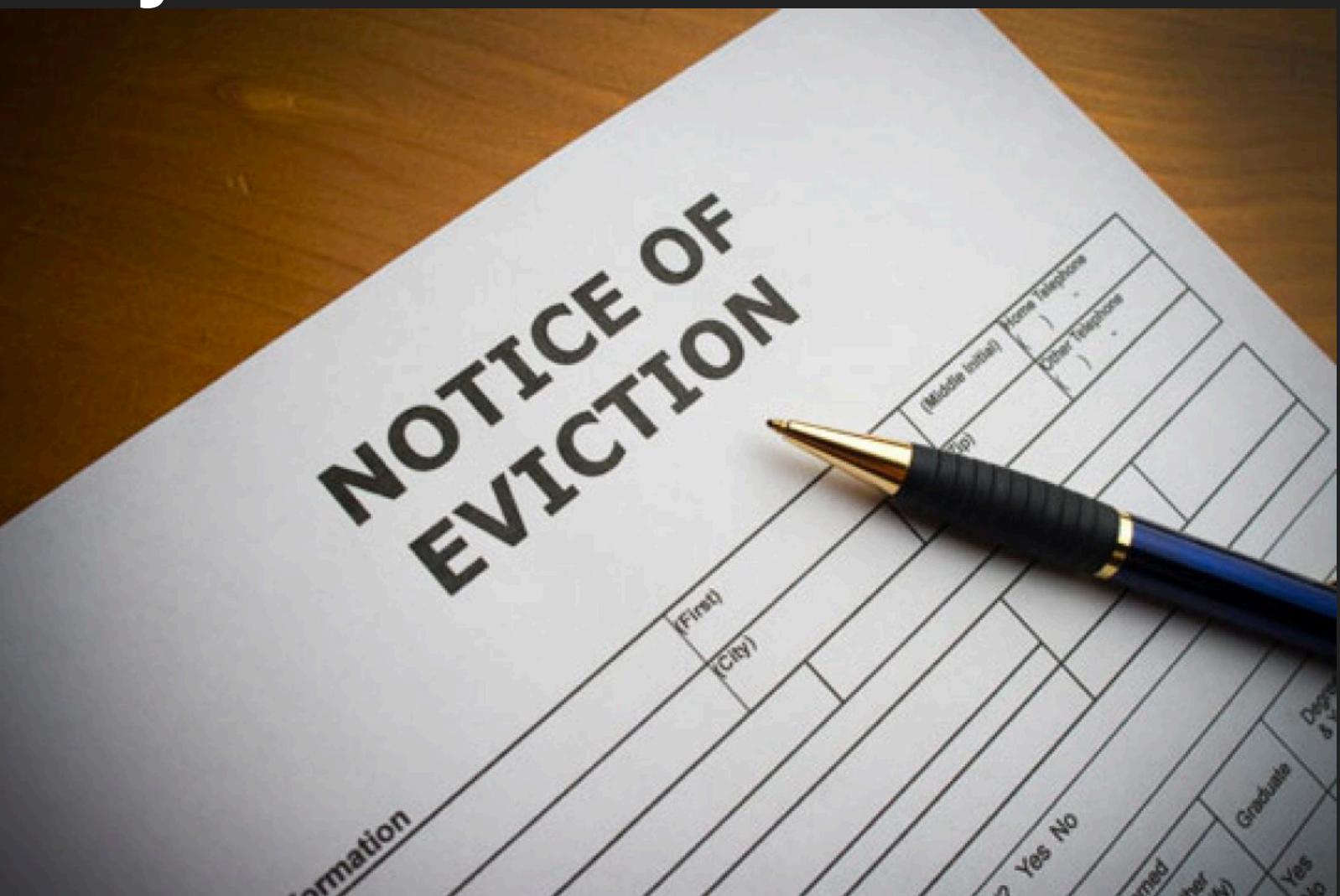




What are Evictions?

Think of evictions like tenants in an apartment building. There are a number of empty apartments that slowly fill up with tenants. Eventually the apartment block is full, however more tenants need to be added.

An Eviction occurs when a new item is added and an old item must be removed due to lack of free space in the system.





Evictions

Memcached

- There is no recommended setting. Choose a threshold based off your application
- Either Scale Up (ie increase the memory of existing nodes) OR
- Scale Out (add more nodes)

Redis

- There is no recommended setting. Choose a threshold based off your application
- Only Scale Out (add read replicas)

Exam Tip:

This can be an exam question. Remember the different approaches between Memcached & Redis



Concurrent Connections

Memcached & Redis

- There is no recommended setting. Choose a threshold based off your application
- If there is a large and sustained spike in the number of concurrent connections this can either mean a large traffic spike OR your application is not releasing connections as it should be



Exam Tip:

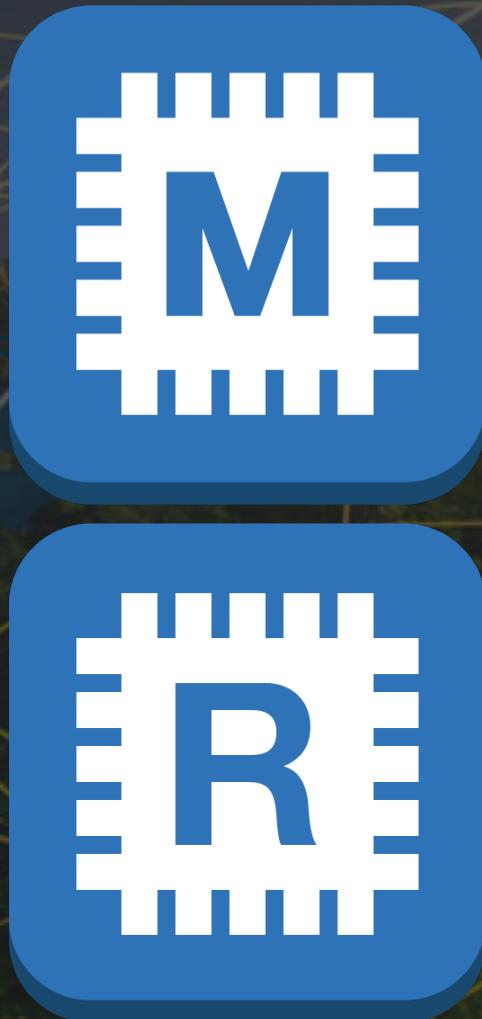
This can be an exam question. Remember to set an alarm on the number of concurrent connections for elasticache.

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Elasticache Exam Tips

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