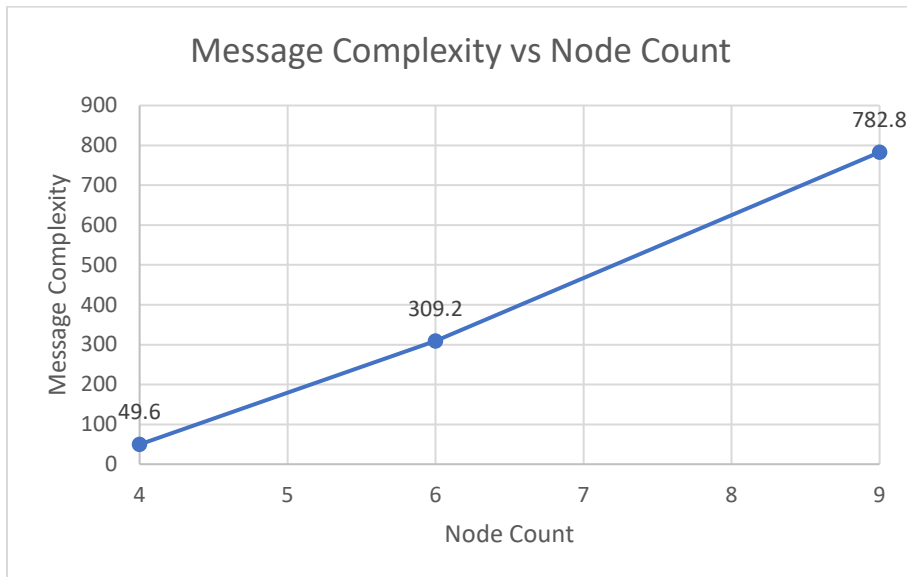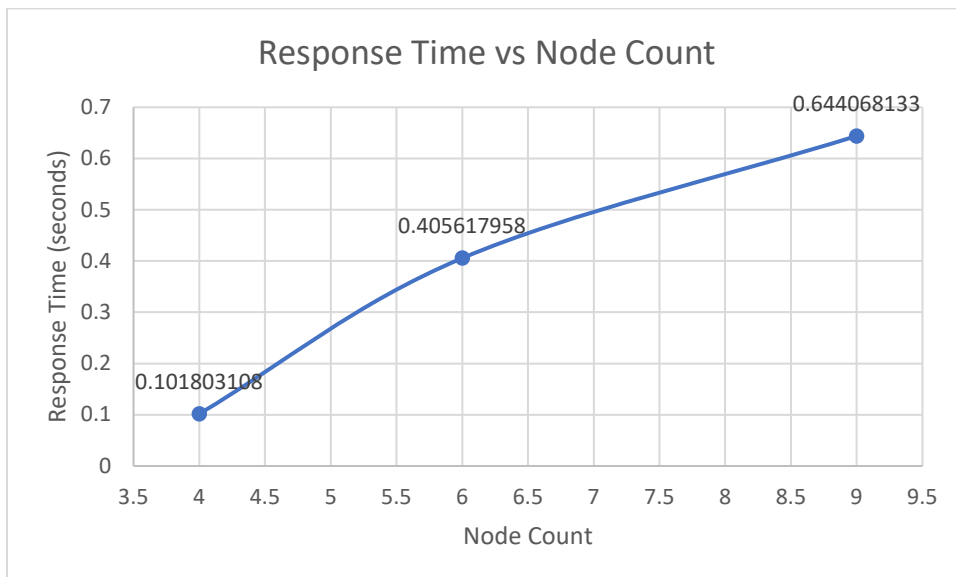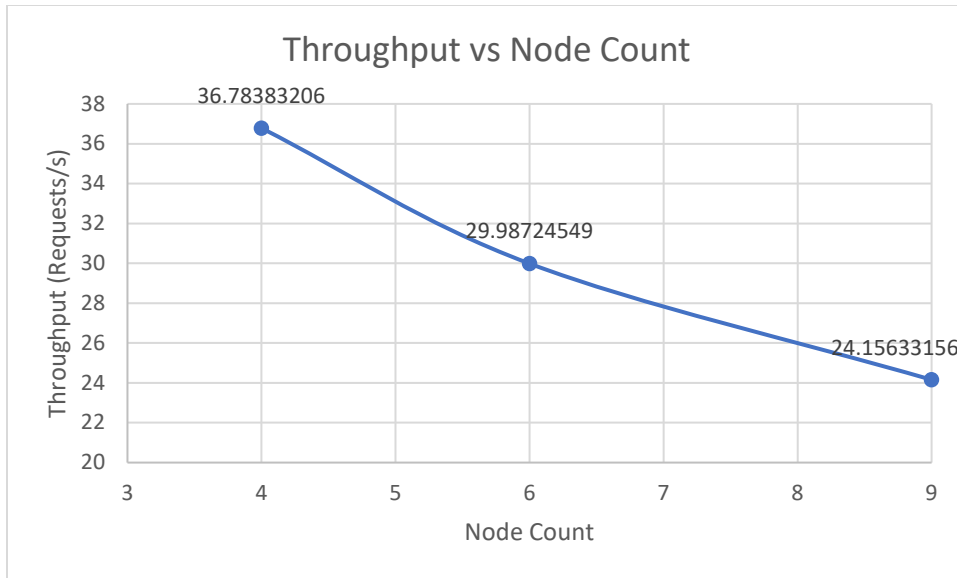For the following Node Count related statistics, inter-request delay is set to be 20ms; cs-execution time is set to be 10ms.

Message Complexity vs Node Count

Message Complexity (y-axis) vs Node Count (x-axis)
- At Node Count 4: 49.6
- At Node Count 6: 309.2
- At Node Count 9: 782.8

Message Complexity vs Node Count. When there are more nodes in the system, more messages needs to be generated.

Response Time vs Node Count

Response Time (seconds) (y-axis) vs Node Count (x-axis)
- At Node Count 4: 0.101803108
- At Node Count 6: 0.405617958
- At Node Count 9: 0.644068133

Response Time vs Node Count. When there are more nodes in the system, the time it takes for a request to be satisfied is longer.

Throughput vs Node Count. When there are more nodes in the system, requests that can be satisfied in a second is less.
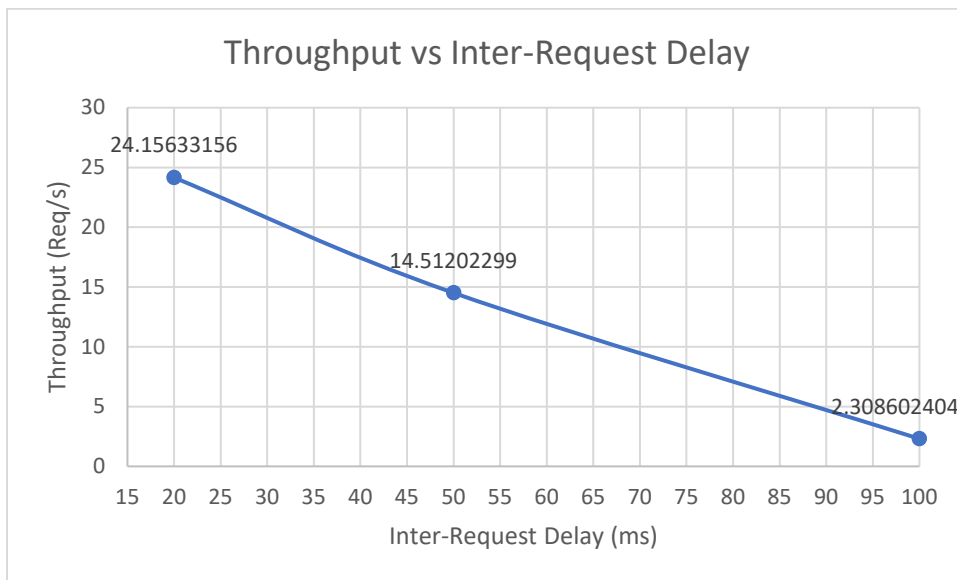
For the following inter-request delay related statistics, the nodes in the system is set to be 9; cs-execution time is set to be 10ms.
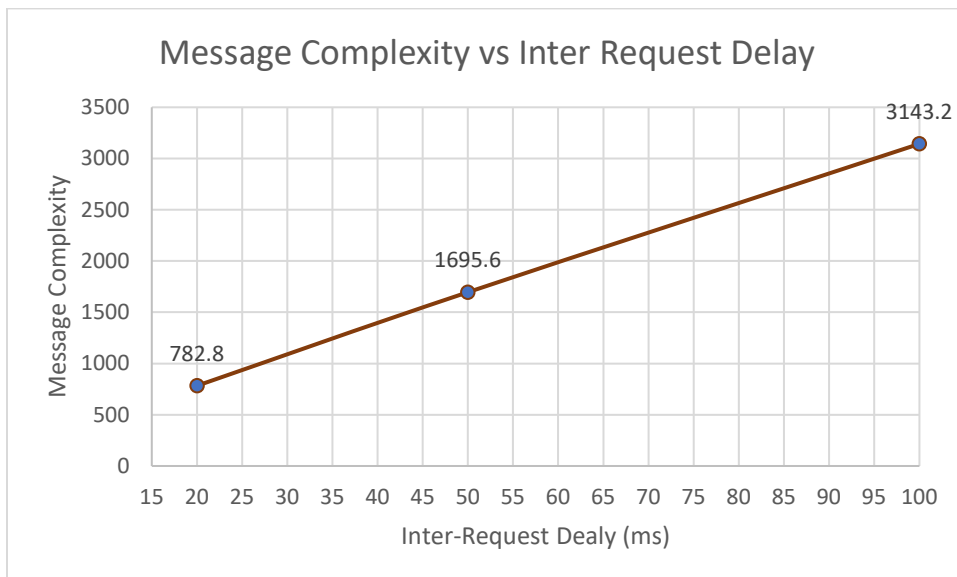
When the inter-request delay increases, more messages are sent in the system due to nodes has higher chance to claim others' key during the gap between requests.

Response Time vs Inter-Request Delay
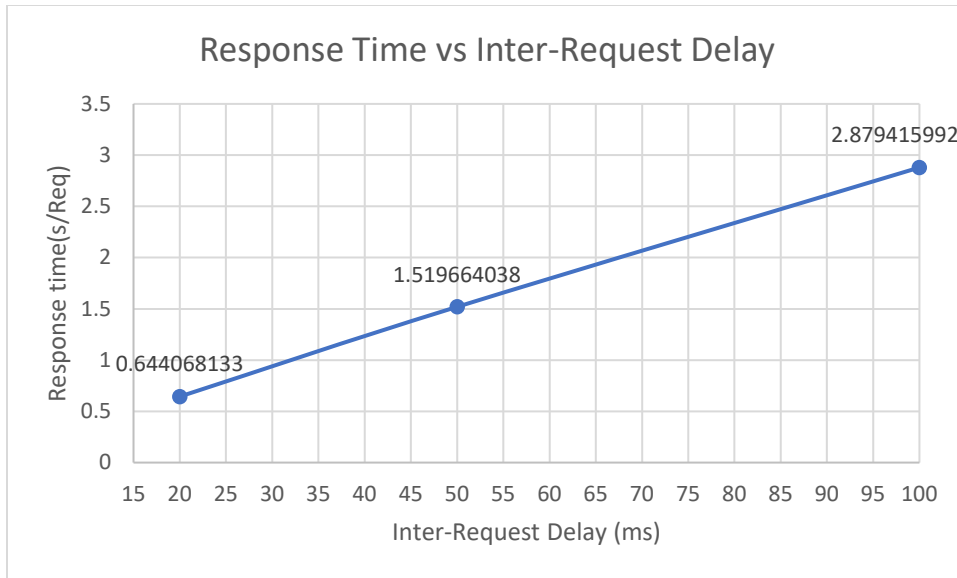
As inter-request delay increases, requests in each node takes longer time to be satisfied due to higher chance a node will lose a key and longer wait time spent in claiming all keys back from other nodes.


Throughput vs Inter-Request Delay

As inter-request delay increases, more time is spent between requests and lengthening the time it takes to execute all requests.

For the following cs-execution time related statistics, the nodes in the system is set to be 9; inter-request delay is set to be 20ms.

Message Complexity vs CS-Execution Time
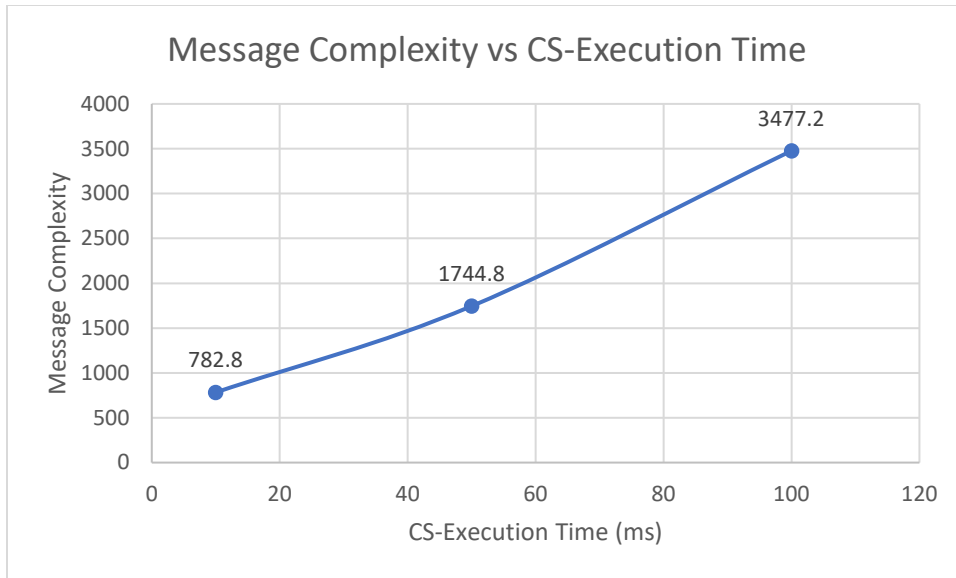
As time spent in critical section is longer, other nodes have a higher opportunity to have their nodes be deferred, causing more request messages to be sent.

Response Time vs CS-Execution Time
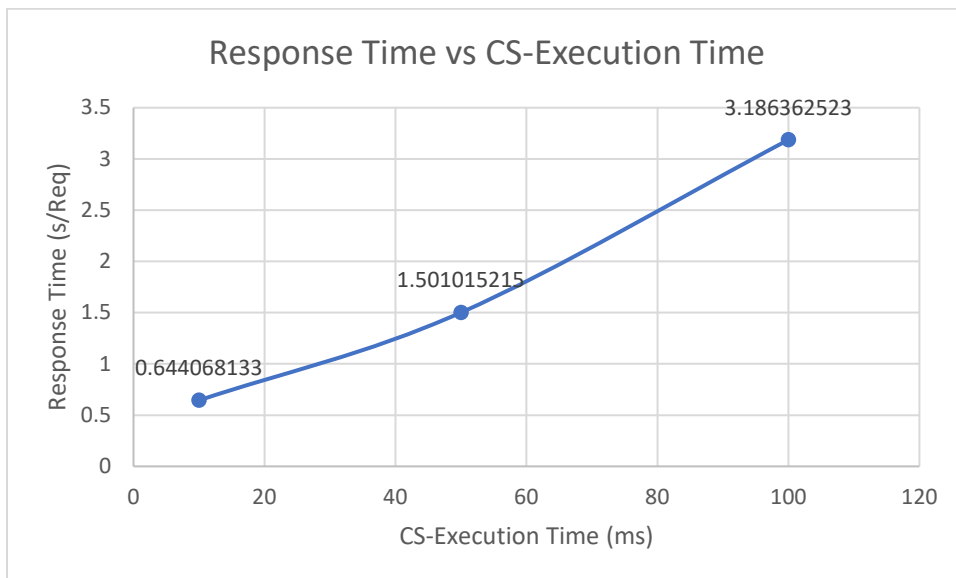
As time spent in critical section is longer, causing more deferred requests, it takes more time for some requests to be responded.

Throughput vs CS-Execution Time
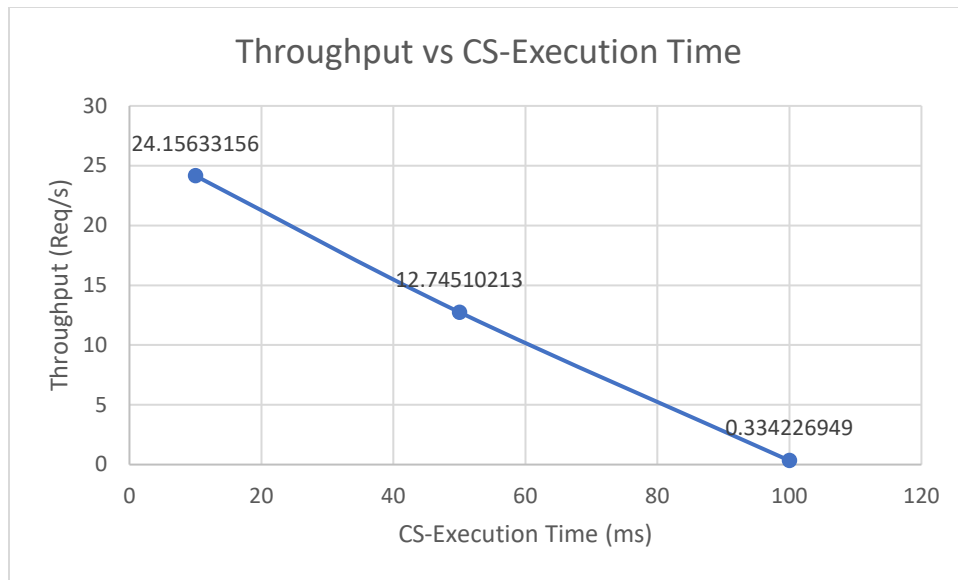
As time spent in critical section is longer, it delays the time for a batch of requests to be satisfied, degrading the throughput.