Workflow Agent Throughput

Best Practices

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Table of Contents

Testing Conclusions **4**
Performance Boosts 4
Collected Data 4

Testing Conclusions

Workflow Agent uses a complex algorithm to maximize performance and efficiency for automated workflow processes. This algorithm intelligently searches for outstanding work which is then bundled and made ready for a worker thread. Workflow Agent simultaneously assigns a worker from a pool of worker threads to a parcel of the work it is going to complete. This process of bundling, assigning, and processing work is designed to be fair to queues yet still maximize throughput. Workflow Agent tracks the amount of time spent for each workflow action performed to make smart decisions on how much work should be done for each queue. For example, if a workflow script takes several minutes to run per item, then Workflow Agent must ensure that processing for this queue does not impact queues with quicker actions. Workflow Agent accomplishes this by gradually scheduling long actions and aggressively scheduling short ones.

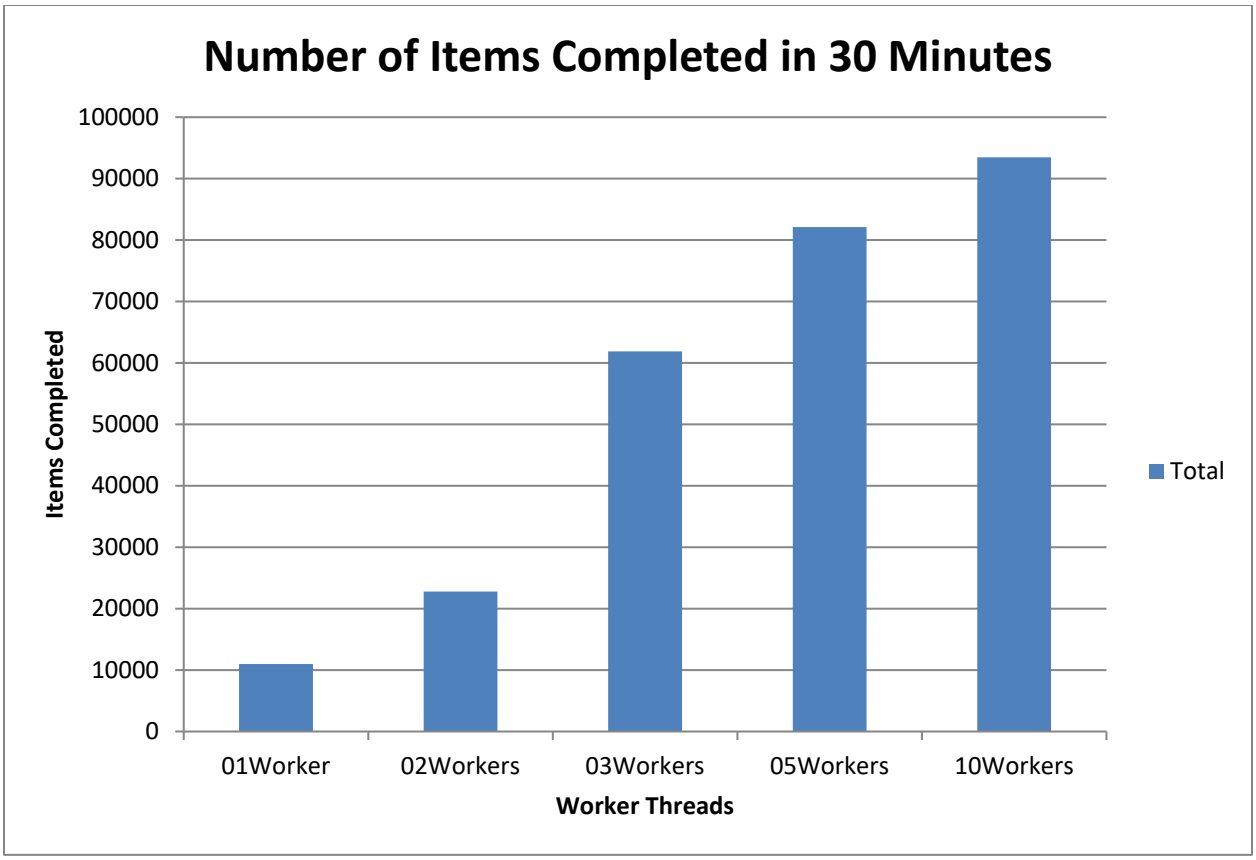
Performance Boosts

Workflow Agent allows up to two worker threads to process items from a single queue. The system administrator should adjust the total number of worker threads for the number of work-saturated queues and overall CPU capacity. Each additional worker thread costs the system memory and CPU consumption, as well as additional peak CPU resource consumption when all worker threads are busy processing. Perceptive Software recommends that for each long-term work-saturated queue, two worker threads be added to the overall configured number. If additional throughput is needed, contact Product Support for guidance in adding additional threads.

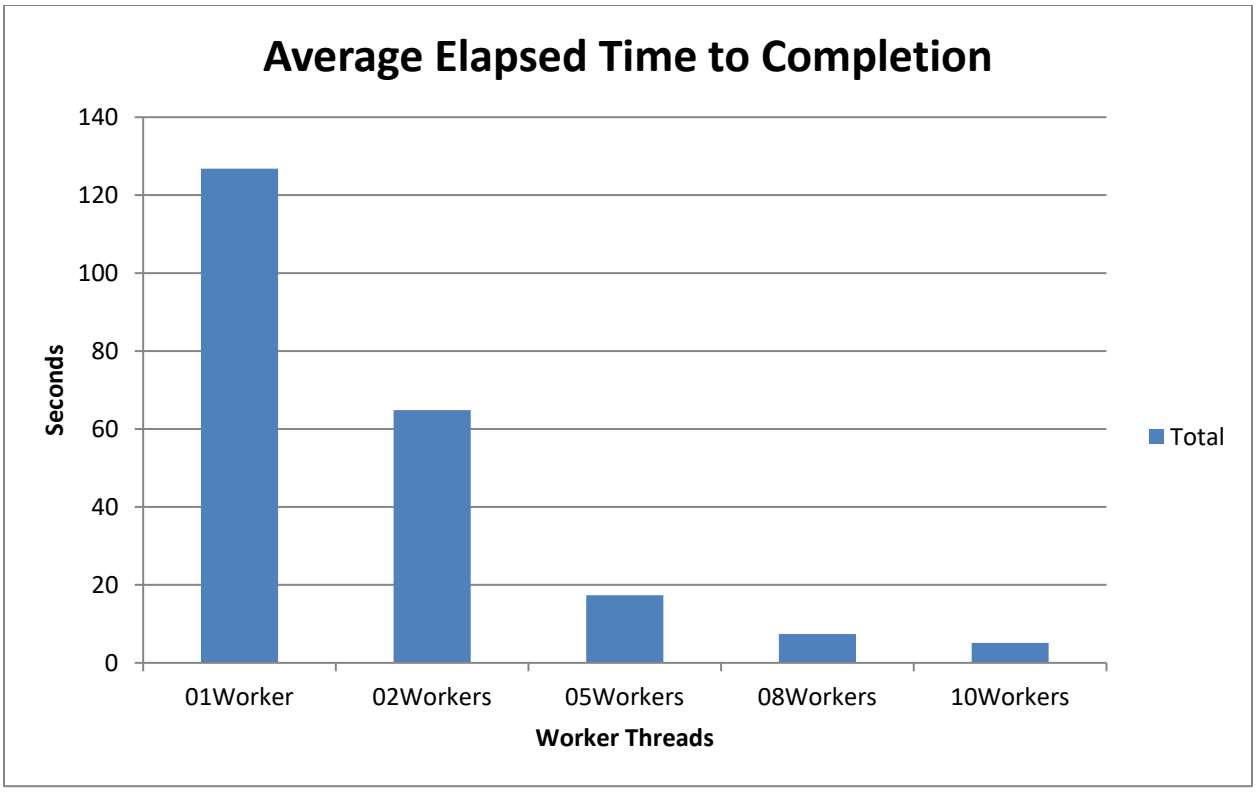
For business processes with complex or time-sensitive actions, parallelizing actions across multiple worker queues can improve performance. To parallelize an action, move items through a load balance route to multiple work queues performing that same action. Additional worker threads should accompany any additional high volume queues.

Collected Data

The graph below shows how increasing the number of worker threads for a workflow process containing a series of eight, load-balanced queues affects overall throughput.



Using the same test also shows that the average time taken to move the item from the starting queue to the complete queue improves with additional workers.


Average Elapsed Time to Completion
140
120
100
80
60
40
20
0
Seconds
01Worker
02Workers
05Workers
08Workers
10Workers
Worker Threads
Total