

Measuring Performance Impact of Excess SCSI Commands in a VMware Environment with Flash Storage

Environment

2 10GB drives hosted on the same datastore backed by flash storage

Drive 1 (I:): Single 3GB file in 23,452 fragments

Drive 2 (J:): Same 3GB file contiguous

Application that reads a file from beginning to end

Results

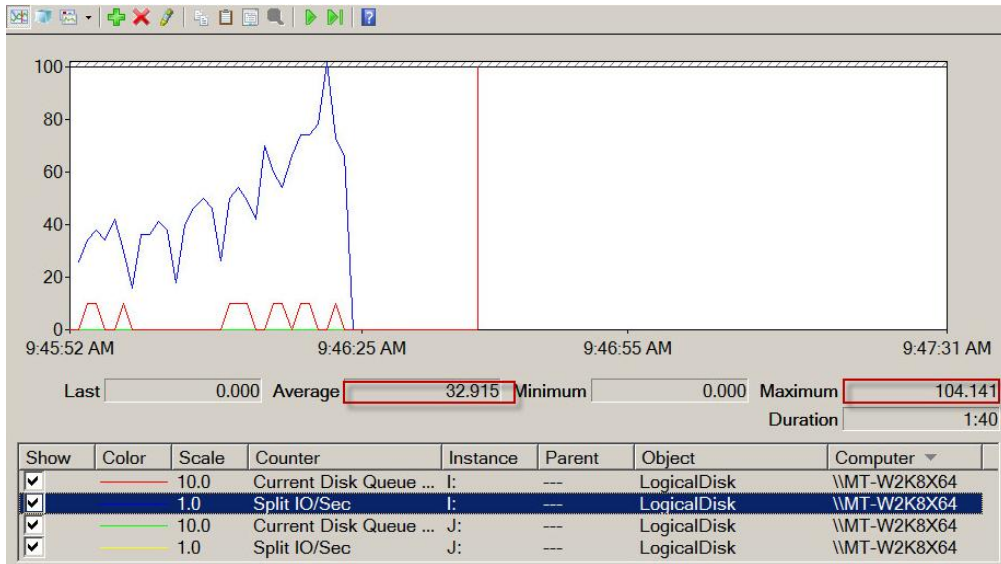
27% reduction in Read Latency

18.7% improvement in Read Rate

Reduced Outstanding Read Requests by 25%

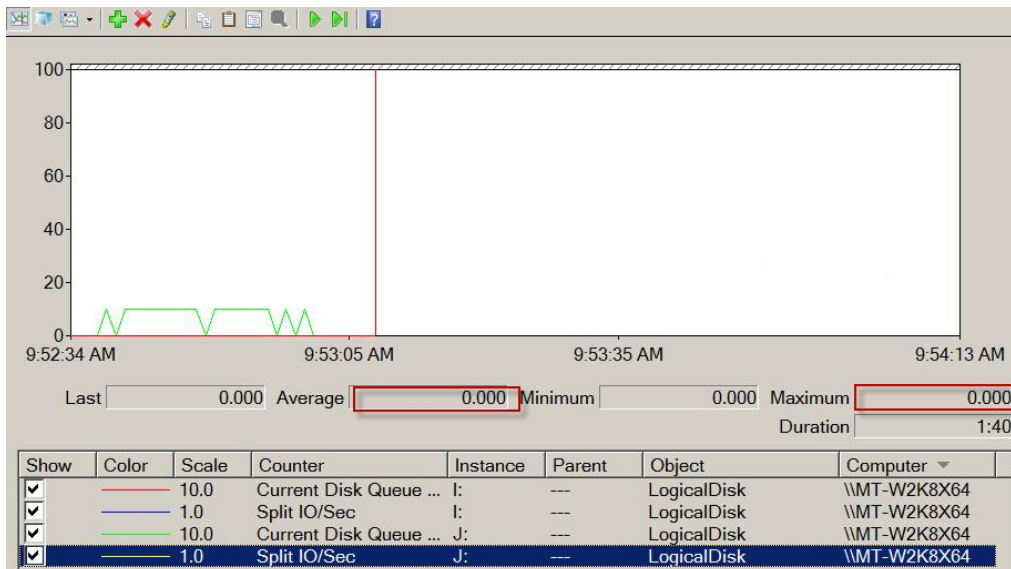
17.4 % improvement in Read Requests per Second

Windows Performance Monitor - Reading Fragmented File



Split IO/Sec - indicator of fragmentation - un-necessary SCSI commands being issued.

Windows Performance Monitor - Reading Contiguous File

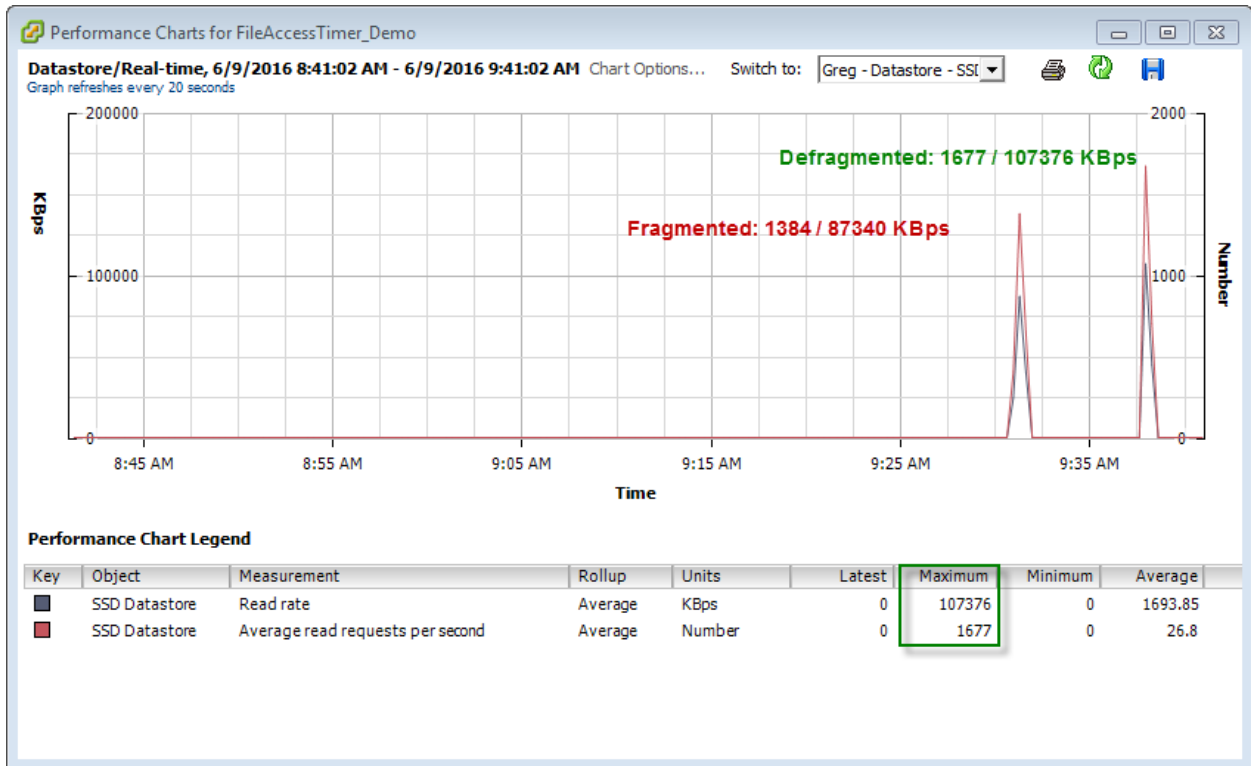


Split IO/Sec - no un-necessary SCSI commands being issued.

VMware Datastore Metrics

Metric	Fragmented File	Contiguous File	Improvement
Read Rate in KBps	87340	107376	18.7% improvement in Read Rate
Average Read Requests Per Second	1384	1677	17.5% improvement in Read Requests per Second

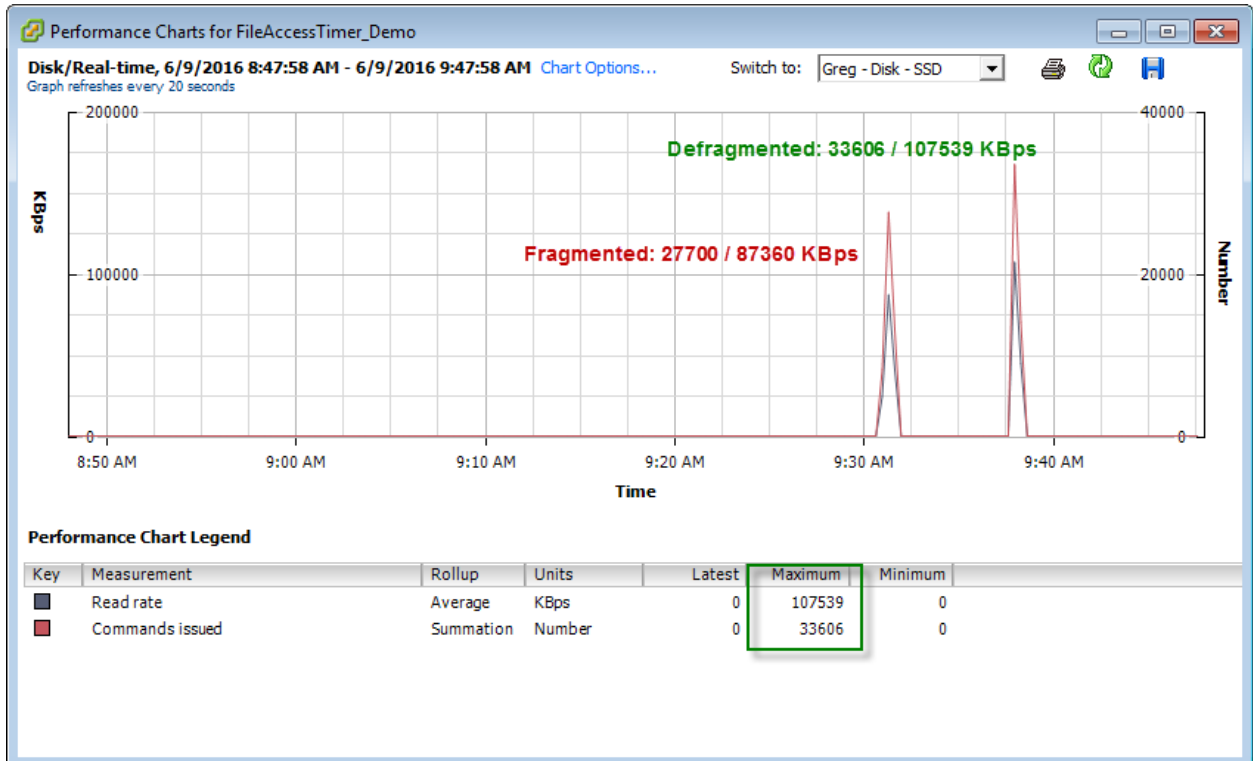
VMware Performance Chart - Datastore



VMware Disk Metrics

Metric	Fragmented File	Contiguous File	Improvement
Commands Issued	27700	33606	17.5% improvement in Commands Issued
Read Rate in KBps	87360	107539	18.7% improvement in Read Rate

VMware Performance Chart - Disk



VMware Virtual Disk Metrics

Metric	Fragmented File	Contiguous File	Improvement
Read Latency in ms	0.62	0.45	27.4% reduction in Read Latency
Outstanding Read Requests	8	6	Reduced Outstanding Read Requests by 25%
Average Read Requests per Second	1384	1677	17.4 % improvement in Read Requests per Second

VMware Performance Chart - Virtual Disk

