

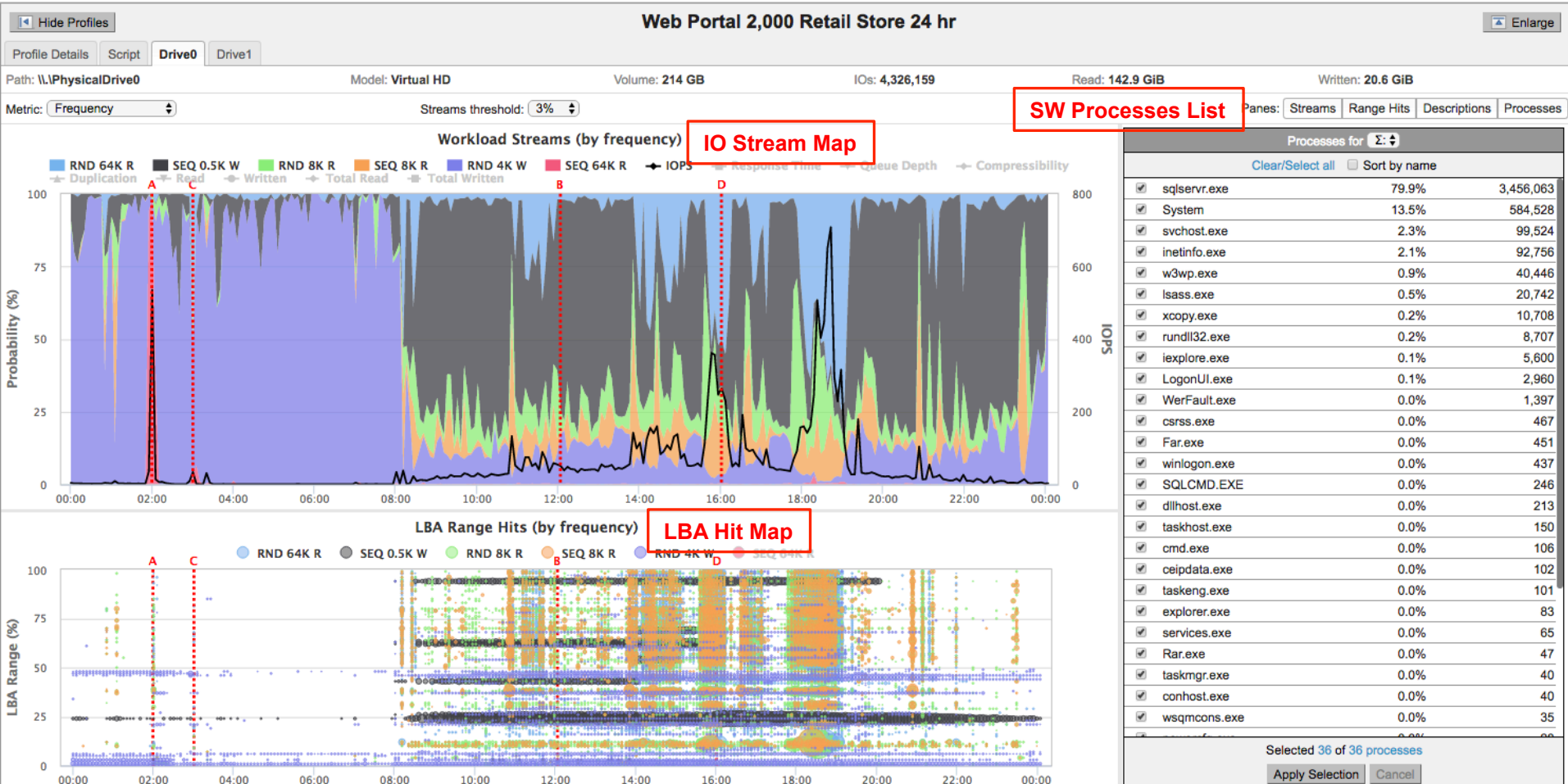
An Examination of User Workloads

2,000 Outlet Retail Store Web Portal

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24 Hour Real World Storage Workload Capture



Selected Workloads from IO Stream Map

Cumulative Workload
Over 5,000 IO Streams
6 Streams = 64% of IOs

SQL Server Back Up
83.9% SEQ 64K Reads

System Activity
Mixed Block R/W IOs

Σ Cumulative Workload	
<input checked="" type="checkbox"/> RND 64K R	19.5%
<input checked="" type="checkbox"/> SEQ 0.5K W	17.9%
<input checked="" type="checkbox"/> RND 8K R	10.5%
<input checked="" type="checkbox"/> SEQ 8K R	8.8%
<input checked="" type="checkbox"/> RND 4K W	4.1%
<input checked="" type="checkbox"/> SEQ 64K R	3.5%
<input type="checkbox"/> RND 8K W	2.91%
<input type="checkbox"/> RND 4K R	2.74%
<input type="checkbox"/> RND 16K R	1.94%
<input type="checkbox"/> SEQ 4K R	1.70%
<input type="checkbox"/> RND 32K R	1.63%
<input type="checkbox"/> RND 24K R	1.41%

Total IOs of 5,038 streams: 4,326,159
Selected 6 streams: 2,784,635 (64.4%)

A solservr.exe: 02:00:20	
<input checked="" type="checkbox"/> SEQ 64K R	83.9%
<input type="checkbox"/> RND 4K R	1.67%
<input type="checkbox"/> RND 24K R	1.20%
<input type="checkbox"/> SEQ 60K R	1.17%
<input type="checkbox"/> SEQ 40K R	1.10%
<input type="checkbox"/> RND 32K R	0.88%
<input type="checkbox"/> SEQ 32K R	0.84%
<input type="checkbox"/> RND 8K R	0.82%
<input type="checkbox"/> RND 12K R	0.79%
<input type="checkbox"/> RND 36K R	0.69%
<input type="checkbox"/> SEQ 28K R	0.63%
<input type="checkbox"/> RND 20K R	0.60%

Total IOs of 69 streams: 160,620
Selected 1 stream: 134,809 (83.9%)

B iexplor.exe: 12:03:41	
<input checked="" type="checkbox"/> RND 32K R	19.5%
<input checked="" type="checkbox"/> SEQ 32K R	18.1%
<input checked="" type="checkbox"/> RND 16K R	15.4%
<input checked="" type="checkbox"/> SEQ 16K R	13.8%
<input checked="" type="checkbox"/> RND 4K R	8.8%
<input type="checkbox"/> SEQ 4K R	2.60%
<input type="checkbox"/> RND 8K R	2.40%
<input type="checkbox"/> SEQ 8K R	2.30%
<input type="checkbox"/> RND 12K R	2.00%
<input type="checkbox"/> SEQ 12K R	1.80%
<input type="checkbox"/> RND 1.5K R	1.50%
<input type="checkbox"/> RND 24K R	1.00%

Total IOs of 63 streams: 999
Selected 5 streams: 756 (75.7%)

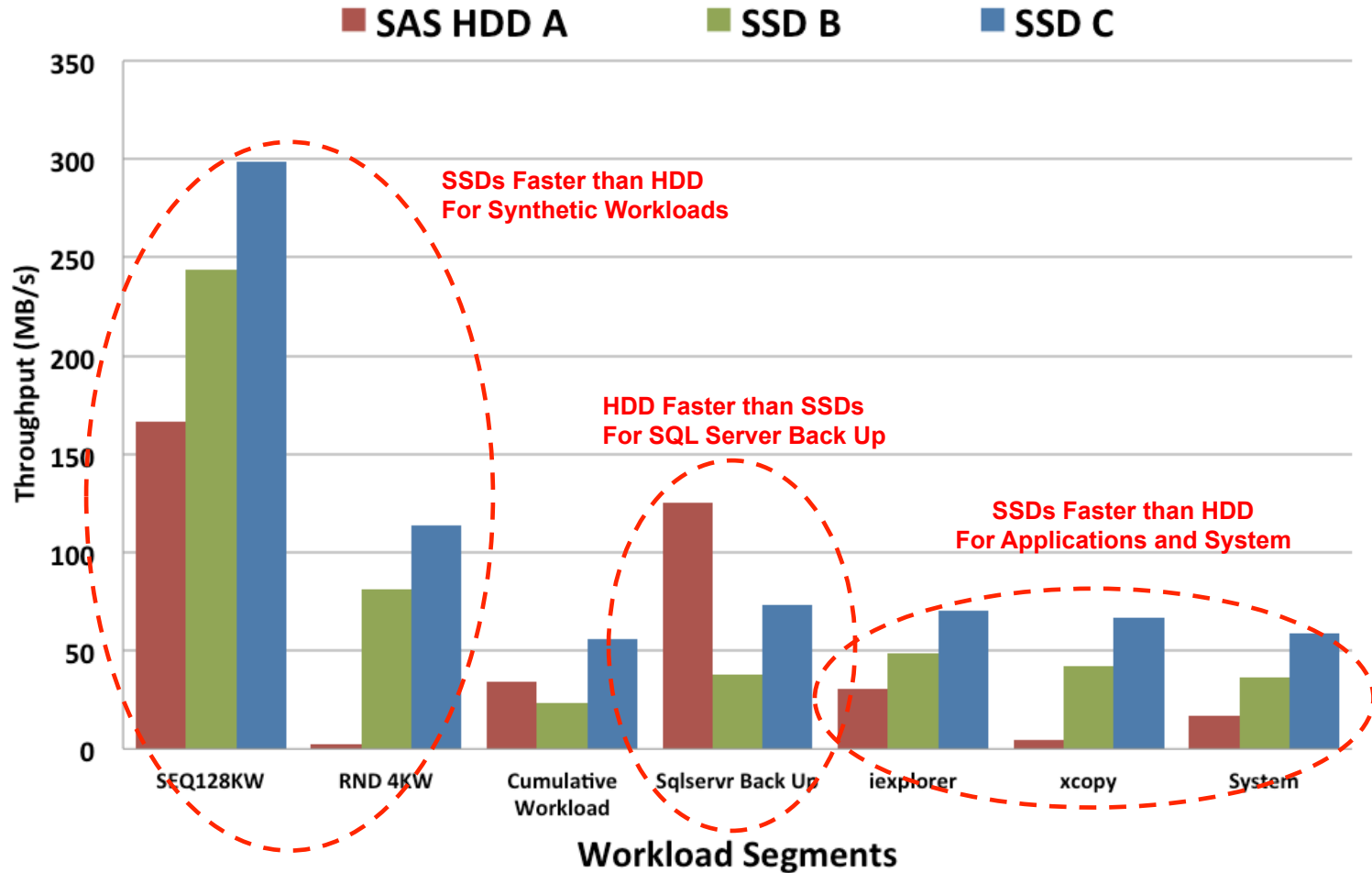
C xcobv.exe: 03:00:27	
<input checked="" type="checkbox"/> RND 4K R	66.6%
<input checked="" type="checkbox"/> SEQ 4K R	25.6%
<input type="checkbox"/> RND 64K R	2.22%
<input type="checkbox"/> RND 128K R	1.02%
<input type="checkbox"/> RND 20K R	0.60%
<input type="checkbox"/> RND 44K R	0.41%
<input type="checkbox"/> RND 32K R	0.37%
<input type="checkbox"/> RND 8K R	0.29%
<input type="checkbox"/> RND 16K R	0.25%
<input type="checkbox"/> RND 24K R	0.24%
<input type="checkbox"/> RND 9.5K R	0.22%
<input type="checkbox"/> RND 68K R	0.177%

Total IOs of 59 streams: 9,035
Selected 2 streams: 8,325 (92.1%)

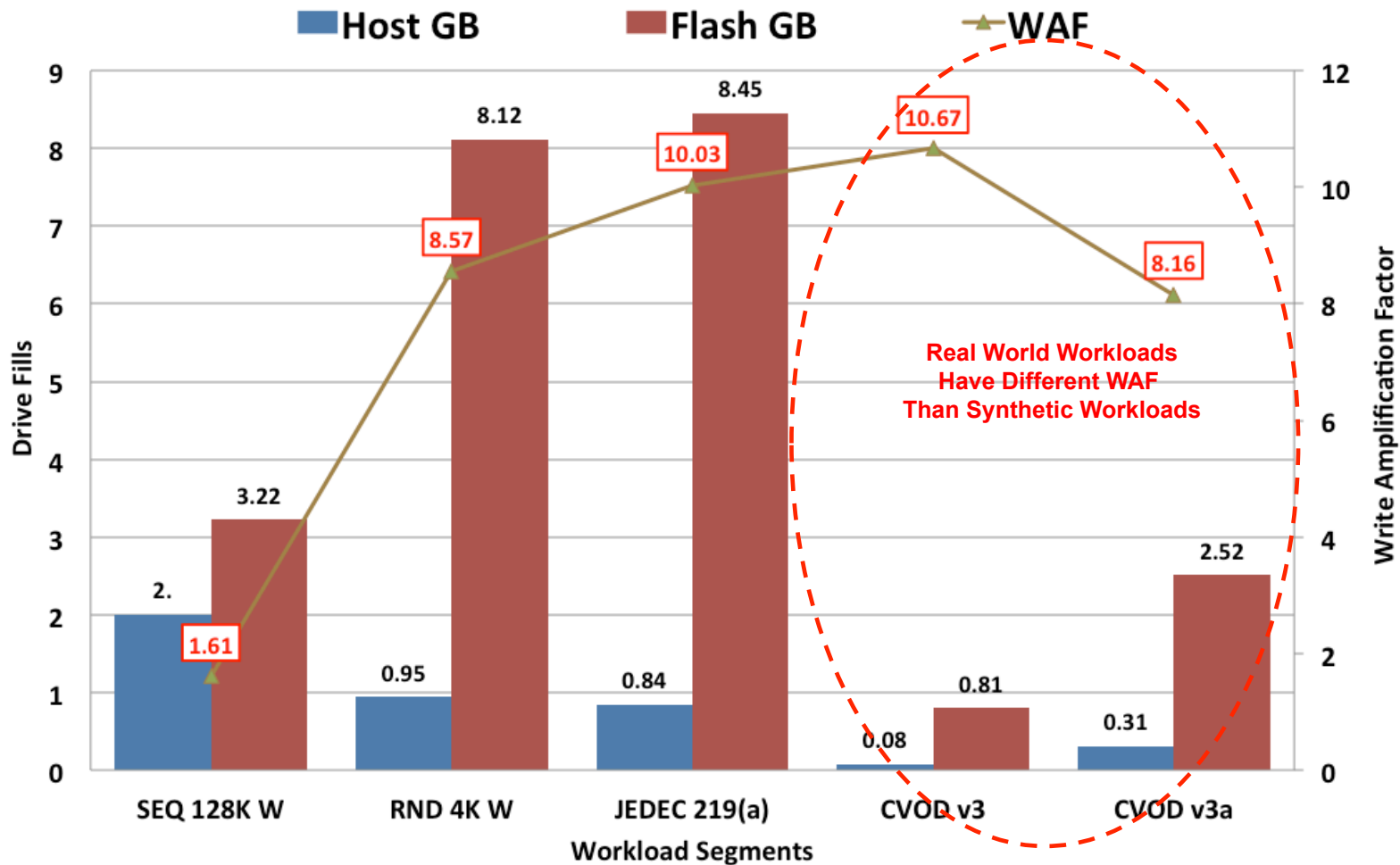
D System: 16:01:21	
<input checked="" type="checkbox"/> RND 4K W	12.1%
<input checked="" type="checkbox"/> RND 64.5K R	8.1%
<input checked="" type="checkbox"/> RND 16K R	6.1%
<input checked="" type="checkbox"/> RND 64K R	5.1%
<input checked="" type="checkbox"/> RND 8K R	3.1%
<input checked="" type="checkbox"/> RND 4K R	3.1%
<input type="checkbox"/> RND 20K R	2.7%
<input type="checkbox"/> RND 32K R	2.5%
<input type="checkbox"/> RND 0.5K R	2.3%
<input type="checkbox"/> RND 36K R	2.1%
<input type="checkbox"/> SEQ 128K R	1.7%
<input type="checkbox"/> RND 128K R	1.6%

Total IOs of 622 streams: 8,141
Selected 6 streams: 3,132 (38.5%)

Workload Comparison: Performance (Bandwidth)



Workload Segments - Endurance (WAF)



Take Aways

- ***Real World Workloads are Very Different*** than Synthetic Benchmark Workloads
- ***SSD Performance Depends*** on the IO Streams the Storage Sees
- Be Sure to ***Buy the Right Amount of Performance***
- Be Sure Your ***Endurance is Based on Your Workload***
- Go to **TestMyWorkload.com** to try FREE IO Capture Tools

