

SunCoke Energy Solves Months of Oracle Performance Troubleshooting with V-locity VM



SunCoke Energy™

SunCoke Energy runs its business on IBM® Cognos® Business Intelligence software, supported by Oracle® on the backend. When the “45-second query” became notorious around the office, IT had a real problem on their hands, kicking off a lengthy “needle-in-a-haystack” project to troubleshoot the environment for better performance.

CHALLENGES

- Business users experiencing painfully slow query times, impacting their ability to carry out basic job functions
- Bottlenecks and latency caused by excessive I/O pushed from VMs to servers and SAN
- Expense and time invested in tuning and troubleshooting the virtual environment to gain only marginal performance improvement

V-LOCITY® VM BENEFITS

- Oracle query time significantly improved, Cognos latency dramatically reduced
- Ability to run and compile more reports in much less time
- Deferment of additional infrastructure upgrade and investment in hardware; spiraling data center costs reined in

THE CUSTOMER

SunCoke Energy is the largest independent producer of quality metallurgical coke in the Americas, delivering the highest value coal, coke, and power to an international customer base. With over 45 years in the business and annual revenues of \$1.9 billion, SunCoke uses blast furnace technology to superheat coal, turning it into metallurgical coke, a steel-hardening product delivered to the steelmaking industry at the rate of five million tons per year.

For the second consecutive year, SunCoke is proud to be one of Chicago's 101 Best and Brightest companies to work for (NABR annual list). Contributing to the positive work experience at SunCoke is a talented IT team, dedicated to supporting its internal business users.

THE CHALLENGE

SunCoke runs its business on IBM's Cognos BI (business intelligence) software, with Oracle on the backend. SunCoke's Financial, Business Development, and Sales teams rely on these applications to run sales data and detailed coal tracking—from the point the coal hits the oven to how much finished product was loaded on a train. They run reports on how much coke is produced per customer, how much was shipped, and how much to bill accordingly.

When queries became painfully slow and applications increasingly sluggish, IT needed a solution. “The ‘45-second query’ became notorious around here—synonymous with the frustration my users were experiencing when trying to perform basic tasks,” says Chris Mueller, Systems Administrator. “A bad day for my team is when our people can't do their jobs—it's like trying to find a needle-in-a-haystack, troubleshooting for performance.”

Solving the performance problem initiated a three-month project that involved setting up SAN RAID I/O partitions to increase read/write times, optimizing

“After months of trouble-shooting, we ran the same query with V-locity on all the Cognos VMs. It completed in one third of the time—a huge improvement for our users. We’re now rolling out V-locity to the rest of our virtual environment and assessing it for physical servers.”

CHRIS MUELLER
SYSTEMS ADMINISTRATOR

ENVIRONMENT

- IBM Cognos Business Intelligence and data warehouse software
- SAN Technology: EMC® VNX
- Oracle Database 11g and 12c
- 32TB of SAN data, 165 VMs, 120 cores

V-LOCITY VM FEATURES

IntelliWrite® I/O optimization technology automatically prevents split I/Os from being generated when a file is typically broken into pieces before write.

IntelliMemory™ intelligent caching technology caches active data from read requests using available server memory.

Benefit Analyzer embedded benchmark provides before/after performance comparisons, enabling IT to measure workloads and performance in a real-world environment.

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disk channels for different hard drives on the database servers, consolidating all VMs, upgrading the server network from 1GB to 10GB, dedicating RAM and CPU to each Cognos server, and upgrading the Dell EqualLogic SAN to EMC VNX technology. “After all that, the infamous 45-second query went down to 25 seconds, which was nice, but not good enough,” explains Chris. “That’s when we brought in V-locity VM and it knocked the door down.”

THE SOLUTION

Chris and Lou Figueroa, Information Systems Administrator, were not satisfied with the benchmark query result of 25 seconds—and additional time spent troubleshooting was not an option. “Around that time we heard about V-locity VM, so we tested it on one of the Cognos servers and couldn’t believe the improvement,” says Chris. “We rolled out V-locity on all the Cognos VMs, ran the same query, and got the time down to 15 seconds instantaneously,” he explains. “I wish we had V-locity sooner—it would have saved massive effort and solved our problems much earlier in the process.”

ConduSiv’s V-locity VM software is a complement to the advanced storage, virtualization, and networking technologies that SunCoke runs in its data center. Because V-locity is installed on all Windows VMs, it eliminates the surplus of unnecessary I/O directly at the source. SunCoke’s entire infrastructure (compute, network, and storage) derives benefit because only productive I/O is generated by the VM software OS layer. With IntelliWrite® technology, V-locity automatically prevents split I/Os from being generated when a file is typically split apart upon write. With IntelliMemory™, V-locity caches active data in available server memory, reducing physical read I/O requests on storage devices.

THE RESULTS

Over the first several weeks of running V-locity on all the Cognos VMs, Chris and Lou’s team received highly positive feedback from their users; however, they wanted to understand where the performance gains were coming from. Working with the Applications team on a series of tests, and using V-locity’s Benefit Analyzer for daily performance reports, Chris could see what was happening. “I/O counts were cut by 53% overall, so every virtual system we have was seeing major performance improvement,” he says. “On the database servers we were getting average response time improvements of 145%.” Chris continues, “The unexpected surprise is that our backup times have been cut down from hours to minutes. We were amazed—I can’t say enough.”

After months of tuning and investment in infrastructure upgrade, Chris acknowledges that some of the exercises helped improve performance. “We outgrew the Dell EqualLogic so the SAN upgrade was necessary; however, V-locity saved us from over-purchasing hardware to get that boost in performance.” He continues, “I definitely recommend V-locity as the first ‘go-to’ option for anyone experiencing application performance pains.”

For SunCoke Energy, the “45-second query” created a highly visible problem, pushing performance issues to the top of the priority list. By deploying V-locity VM, Chris and Lou have reined in spiraling data center costs, delivered high performance to their users, and dramatically reduced backup time—driving greater value from the hardware and infrastructure they already have.