

## Leveraging CA Datacom® Improves Business Agility and Performance

### Summary:

Existing enterprise technologies, such as CA Datacom® are often processing workhorses supporting current revenue streams and delivering high-performance operational benefits to their organizations. Yet these technologies must also prosper within rapidly changing datacenter environments, which are populated with dynamic web and mobile applications, new software architectures and innovative business projects. While Ptak, Noel & Associates advocates enterprise innovation that embraces and extends valuable existing technology, the suppliers of that technology must be committed to sustaining the solution's competitive advantages and simplifying its participation in innovative business projects. This paper discusses CA Technologies' commitment to improving the business value of CA Datacom through continued investment to sustain the solution's performance, accessibility and optimization advantages. It also reviews the benefits of leveraging CA Datacom's advantages in innovative software projects.

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## Improving Business Performance Requires Technology Commitments

The rapid achievement of business goals has always been the fundamental driver of enterprise technology spending. CEOs and CIOs agree that market factors are the most important external force impacting their businesses.<sup>i</sup> Their expectation going forward is that those market forces will be increasingly complex and volatile. As a result, how enterprises use technology to increase business agility is undergoing dramatic changes. Therefore, IT organizations are under intense pressure to evolve their datacenters to adapt to new business agility requirements and economic realities.

Increasing business agility drives the need for increasingly flexible business processes, rapid analysis of vast amounts of customer data and swift development of new business applications and improved cost optimization. In response, enterprises are changing their datacenters by including new web and mobile applications that can be rapidly developed, quickly changed and more flexibly integrated with widely varying data sources. Additionally, with energy-related costs accounting for about 12% of data expenses<sup>ii</sup>, enterprise IT organizations are evaluating workload placement and server platforms with power consumption in mind.

Applying new technologies to these enterprise concerns are widely discussed, and often hotly debated, by technology media and vendors. Yet this focused attention is often seen as being at odds with maintaining proven technologies, such as CA Datacom, that support and sustain current enterprise operations.

Enterprise technology executives know that proven solutions cannot improve business agility and performance if they remain static in a dynamic technology environment. In the case of enterprise databases, this concern is particularly acute as many firms directly depend on long-standing technologies to support current operations and revenue. The usefulness and value of enterprise databases are extended when they are enhanced to perform competitively against alternative platforms and effectively leveraged in new application development.

Long-term vendor commitment to installed solutions is required to drive development of the necessary enhancements. Software vendors can, and frequently do, make promises declaring their commitment to a specific technology or solution. In Ptak, Noel & Associates' (Ptak/Noel) opinion, the only way to accurately judge the true level of commitment to a technology is by looking for the tell-tale signs in the public track-record of:

- Delivery of enhancements that sustain and expand the solution's competitive advantages,
- Delivery of enhancements that simplify its participation in innovative business projects,
- Investment in supportive customer programs, and
- Additive value realized by existing customers.

Let us examine CA Technologies' investment in CA Datacom against these metrics.

## CA's Commitment to CA Datacom's Competitive Edge

CA Technologies' mainframe business unit is structured to focus on the unique requirements of this market niche and perpetuating CA Datacom's advantages through ongoing investments in several different areas. These competitive advantages include managing tremendously high workload processing in environments with extreme performance and accessibility requirements.

Figure 1 illustrates the depth of CA Technologies' belief that high performance is vital to CA Datacom's competitive advantage. The point is clearly made that exploitation and delivery of high performance capabilities represent a major portion of every new release. It can be as straight-forward as improving SQL command processing (such as joint methods or MIN/MAX optimization) or adding support for JDBC connection pooling to produce measurable performance gains. It can be more sophisticated, such as the addition of the Parallel Variable Log capability, which is a performance boon for customers with constant database updates.

CA Technologies' diligence in adapting the solution in response to business agility and cost optimization needs are also evident. Figure 1 represents a subset of CA Datacom capabilities introduced to help enterprises meet new challenges, exploit IBM's advances in System z™ hardware and architecture, and gain additional competitive and/or operational advantages.

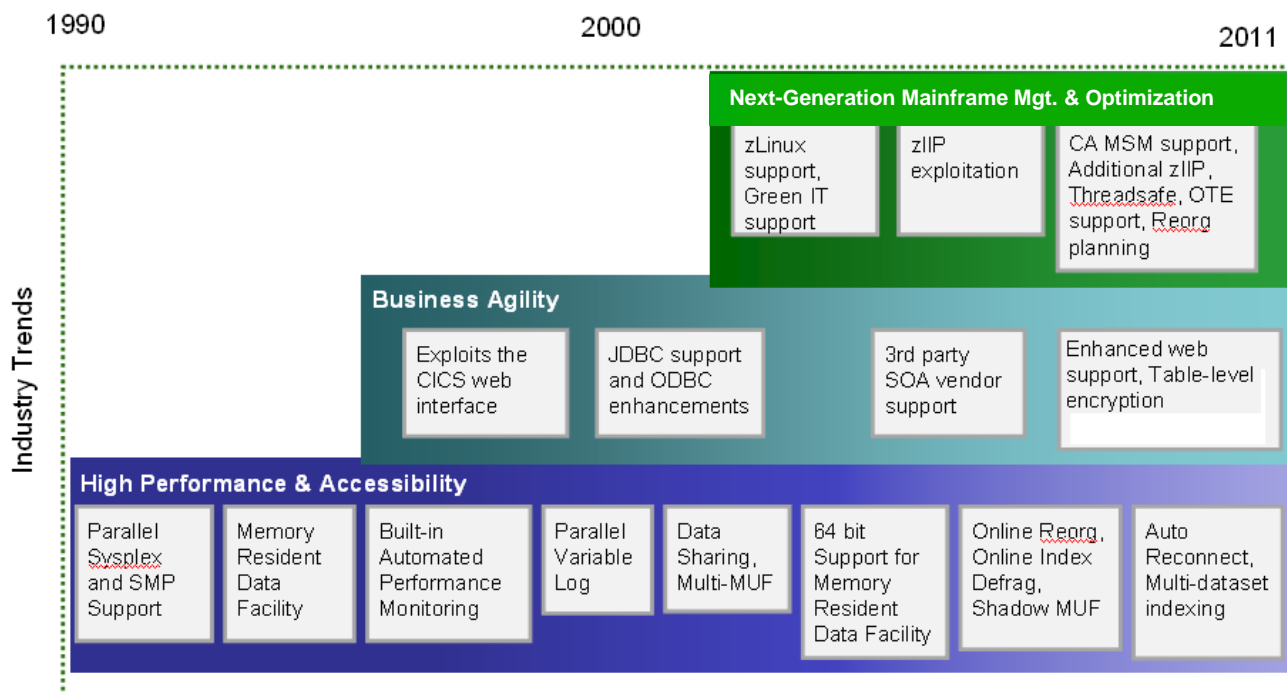


Figure 1: CA Datacom support for business performance, agility and optimization needs

Another area of investment is enhancing CA Datacom's underlying engine to keep pace with IBM's advances in System z hardware and architecture. For example, CA's exploitation of IBM's specialized processors, such as System z Integrated Information Processor (zIIP). These processors are designed to off-load processing of specialized workloads from the main processor with the

expectation of delivering higher performance at significantly lower total cost of ownership. Similarly, CA Datacom's updated Memory Resident Data Facility (MRDF) leverages the introduction of 64-bit memory. MRDF allows users to store large quantities of critical data in memory, reduce I/O operations and provide tremendous performance benefits.

One database manager put it this way, "We had to decide where our money would best be spent. Should we convert to a new platform, where we are not really sure what the final performance results will be, or should we invest to get the best performance out of our existing infrastructure? CA's philosophy of 'performance first' when it comes to CA Datacom releases made that decision easy."

### Putting Customers in the Driver's Seat

CA has also invested resources in customer partnership programs, such as performance monitoring and tuning support, where CA staff help customers respond to dramatic increases in database performance demands. CA also works closely with the CA Datacom (CADRE) Global User Community, made up of technical representatives from companies and organizations which use CA Datacom as a strategic component in their IT infrastructure. This group plays a key role in prioritizing CA's adoption of new technologies and adapting its product functionality to new industry trends.

CA's pre-release customer validation programs are another example. This program provides customers access to pre-beta and pre-GA code to get their direct feedback about prospective new features. Originally known as the Development Buddy program, it started in 2000 with a few select customers. It has expanded to include over 30 highly active customers as key participants in the development of CA Datacom's releases. These customers, with their real-life operational requirements and high performance demands, provide significant input into the solution's roadmap, as well as on solution testing and feedback.

The development of CA Datacom's Shadow MUF is a good example of CA's responsiveness to unique customer needs. Sharing data across multiple LPARs is inherently more resource intensive due to the requirements to share data and provide adequate protection for data updates. A customer decided to implement data sharing capabilities for continuous availability. It became apparent that this customer's performance requirements could not be met with the increased resource consumption. CA's development teams responded by working closely with the client to develop a patented hybrid solution. The Shadow MUF provides 24x7 failover support with an on-demand data sharing capability. This allows the client to run in the Shadow mode for heavy processing periods providing a failover solution that can handle unexpected failures at no additional resource consumption, with an on-demand capability that will allow the Shadow MUF to become a full data sharing partner when needed. This on-demand capability provides the client with a means to migrate workload between LPARs to support rolling IPLs. The integrated Shadow MUF solution provides a cost effective and dynamically flexible solution. The customer started testing with the earliest versions of

the new technology made available to them through their participation in CA's pre-release customer validation programs. As a result, the customer was able to gain early benefit with a solution to an immediate problem.

These customer-focused programs and projects also improve the quality of CA Datacom releases since they provide the opportunity for the software and its usability to be refined in actual, production customer scenarios. Customers do notice the effort. As one customer noted, "The payback for our early and extended pre-release customer validation programs testing is the knowledge that the new software will be stable from the moment it is introduced into our production environment. That comfort is critical to our company."

### High Performance & Availability Improvements Delivered

The pervasiveness of the web and mobile business applications has dramatically increased the continuous accessibility and high performance expectations of enterprises and their customers. Online transactions combined with global operations mean that round-the-clock datacenter operation is a necessity, not an option. High performance service is expected when and where it is demanded, even in the face of ever-expanding and increasing workloads, budget freezes, over-scheduled staff and high resource utilization. In the datacenter, this translates to highly variable workloads with an expectation of zero downtime and high speed application-level recovery if, for some reason, an outage occurs.

CA's focus on high performance is fueled by their customer's requirements to do much more with the resources they have. For example, in the public sector, performance requirements are typically driven by increasing demand for more online public services and the need for improved collaboration between various agencies without increasing public funding. "Over the last several years our workload volumes have grown tremendously," said one database manager at a large federal agency. "In 2001, we were processing about 5,000 database operations per second and now we are seeing over 50,000 operations per second. It [CA Datacom] was able to comfortably scale up to manage that load."

One reason CA Datacom was able to scale in that environment was its support of traditional, high-performance data navigational commands, which allow extremely fast access to a particular record, group of records, or index entries. "The majority of our users need to quickly look up one or two records out of hundreds of millions of stored records. We've found that navigational commands are much more efficient than using SQL commands, so it's the best approach for those applications," he continued. "We use SQL for applications that don't require processing of those rapid 'is it there?' type requests, so it's great that it [CA Datacom] supports both."

CA continues to invest in performance improvements. For example, CA Datacom's multi-dataset indexing capabilities improves performance and flexibility when databases have very large index areas and when other performance enhancement techniques (such as removing low-use index keys or



adding more index buffers) are unavailable. This enhancement enables mainframe professionals to improve the performance on certain highly referenced indexes using options, such as the Memory Resident Data Facility (MRDF).

CA also responded to the pressure for continuous data accessibility by delivering new capabilities while avoiding both unplanned and planned outages. Most enterprises expend significant effort in preventing unplanned outages, however, planned outages for routine database maintenance tasks can also be very disruptive. It is a significant challenge for database managers to provide even minimal levels of resource maintenance, such as implementing updates, reorganizing data, and executing mandated data backup/restore procedures, while maintaining continuous operations in such demanding environments.

For example, one large financial institution specifically called out CA Datacom's Parallel Variable Log processing as being a key component of its disaster recovery operations. Other recent enhancements to online data reorganization and automatic reconnection to application servers allow CA Datacom implementations to remain open and accessible to user data requests, even when it is occupied performing such maintenance tasks. In addition, working directly with key customers, CA development has delivered a new sequential efficiency report (patent pending) that easily identifies for the DBA the access efficiencies for data tables. This report can be combined with other information in the system to determine only those data tables that need to be reorganized, thus avoiding unnecessary and costly data table reorganizations. This reduces the number of scheduled downtimes required to maintain peak database performance, which in turn increases the technology's return on investment by increasing productivity and raising customer satisfaction with the services supported by CA Datacom.

## **Business Agility Delivered**

Business agility and innovation is the lifeblood of future revenue growth and competitive advantage. Thus the need to adopt and absorb new technology into the operating environment is never going to cease or decrease. However, enterprises cannot afford to abandon proven technologies that perform effectively and efficiently to achieve today's business goals and deliver today's revenue streams. For this reason, Ptak/Noel advocates enterprise innovation that embraces and extends existing infrastructure and application assets. This becomes even more important as competition for raw materials and scarce resources drives prices higher, and 'green' pressures to 'recycle, reuse and extend lifecycles' escalate.

Interestingly, the advancement of new application architectures (such as Cloud, J2EE, .Net, SOA, and Web Services) has enhanced the means to leverage existing infrastructure in innovative ways. While much of the current excitement about modern application architectures revolves around creating new applications, it is important to remember that these architectures also dramatically simplify creative reuse of existing technology. 'Legacy systems' become valuable 'reusable assets.' In other words, innovation is no longer at odds with maintaining existing technology investments, as

long as those investments perform competitively against alternative platforms and are modernized to participate in these architectures. The onus is on the technology supplier, in this case CA Technologies, to deliver superior database responsiveness to new workloads generated by the new projects and to simplify database access, thereby enabling enterprise developers to use current tools and techniques to leverage existing data repositories.

For example, CA Datacom's SQL command extensions allow enterprise developers to reuse non-relational data repositories (such as VSAM, DL/I, or TOTAL) and legacy data formats (such as array elements, redefined columns or compound fields) in new web applications. And, Web services can call CA Datacom for data and business logic using the CA Ideal™ Web interface or third-party partner technology. This is particularly useful for automating business responses to market events or newly created customer data.

In another example, one European financial organization needed to expand their services internationally. This expansion is being implemented with a technology strategy involving a web-based client interface allowing international customers to easily access financial services and a Service-Oriented Architecture to make business-critical processes ready for the new online transactions. By leveraging existing CA Datacom infrastructure and CA Ideal<sup>iii</sup> applications, the organization was able to reduce development costs and achieve earlier time to market.

## Cost Optimization Delivered

CA's focus on delivering higher performance also delivers cost avoidance benefits to enterprise innovation projects. Extensive reuse of existing mainframe applications and data in new business processes and services typically result in dramatic increases in MIPS workloads. Since many organizations depend on technology outsourcing contracts where costs are determined on the basis of MIPS usage and similar measures, processing performance becomes a key factor in controlling fixed operational costs for innovative business projects. Therefore, CA Datacom's continued efforts to scale workload volumes processed by the same hardware will help enterprises keep infrastructure costs in check even as they bring new services online.

For example, CA Datacom CICS Services' Threadsafe and Open Transaction Environment (OTE) support includes making all programs that do request processing (open/close, connect/disconnect, etc.) threadsafe for better performance. The overhead on database requests from enterprise applications can be as much as 30% of the total CPU consumption,<sup>iv</sup> which has a direct impact on mainframe software costs.

Additionally, CA's use of zIIP specialty processors differs from other database vendors, who often limit the workload types which can utilize zIIP, thereby limiting the enterprise's cost optimization efforts. Instead, CA Datacom allows customers to place all types of production database workloads to zIIP specialty processors, including workloads generated by online transaction systems, batch



processing jobs and distributed platform requests. This approach allows CA Datacom to service and support larger and more workloads, while optimizing software costs for the customer.

Finally, modernization of mainframe applications enables enterprises to take advantage of the mainframe's energy efficiency. IBM studies<sup>v</sup> have shown that a z10 BC may provide up to 16 times the work for the same power consumption of 14 Sun Fire x2100 2.8 GHz servers. Therefore, consolidating Linux applications that integrate with CA Datacom onto a single mainframe platform may result in significant energy savings.

As Phil Frankford, database administrator at SC Data Center, Inc. put it, "CA Datacom's zIIP capability will enable us to reap greater returns on our existing mainframe infrastructure by giving us more capacity without more cost. The ability to add workloads to our existing mainframe infrastructure is especially attractive to us because of the centralized management and security the mainframe provides for business-critical applications."<sup>vi</sup>

## **Simplified Management Delivered: Next-Generation Mainframe Management**

CA's Next-Generation Mainframe Management strategy dramatically simplifies how mainframes are managed. CA Mainframe Software Manager (MSM) extends its Install Shield-like capabilities and automated processes geared to dramatically streamline software configuration. Currently, over 400 customers use CA MSM with mainframe professionals reporting up to 99.4 percent time savings in acquiring, deploying and maintaining<sup>1</sup> CA products. CA Datacom and CA Datacom CICS Services have expanded MSM support, such as deployment and configuration and new methods for setting customizations and optional features, including APARs. This reduces many of the manual, error-prone system set up and configuration tasks so that mainframe professionals can focus more of their expertise on optimization. Finally, as mentioned earlier, CA Datacom's patent pending reorganization planning tools improve efficiency with reports that indicate when reorganization is required, along with optimization options for online reorganization when free space is available.

## **Final Word**

Any fair reading of our indicators supports the conclusion that CA has met the product commitment burden of proof. There is documented consistency in delivering CA Datacom enhancements that improved database processing performance, shown by an order of magnitude in the span of seven years at one customer site. Customers are openly supportive of and participate in CA's customer programs. Customers have been able to leverage CA Datacom's open API paths, including the CICS web interface, to deliver new value through innovative SOA projects. In each case, CA Datacom enhancements allowed customers to improve their organization's performance.

Ultimately, customers decide which technologies continue to be valuable assets in spite of other available options. Since Web and SOA application architectures facilitate and encourage business

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<sup>1</sup> <http://www.ca.com/~media/Files/IndustryResearch/mainframe-software-mgr-benchmark.pdf>

innovation that embraces existing CA Datacom implementations, customers seem to have focused on CA Datacom's performance and availability as sources of enterprise value that should be leveraged wherever possible. As one CA Datacom manager noted, "I am always impressed by the fact that whenever our company requires a large and or important performance improvement, CA Datacom has always been able to deliver it."

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<sup>i</sup> "The Essential CIO: Insights from the Global Chief Information Officer Study," IBM Institute for Business Value, May 2011

<sup>ii</sup> "How to Measure Energy Consumption in Your Data Center," Gartner Group, September 2010

<sup>iii</sup> CA Ideal is an application development system that supports the entire application life cycle (including design, development, testing, production and maintenance) and is closely integrated with CA Datacom.

<sup>iv</sup> "Building Better Performance for Your DB2/CICS Programs With Threadsafe," by Russ Evans & Nate Murphy, z/Journal, September 2010

<sup>v</sup> "IBM System z, the Smarter Mainframe," by Robert Neidig IBM, March 2010

<sup>vi</sup> CA Technologies Press Release: "CA Extends its Leadership in Leveraging the Power of IBM zIIP Processors with Newest Release of CA Datacom Relational Database," June 1 2009

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We help IT organizations become “solution initiators” in using IT management technology to business problems. We do that by translating vendor strategy & deliverables into a business context that is communicable and actionable by the IT manager, and by helping our clients understand how other IT organizations are effectively implementing solutions with their business counterparts. Our customers recognize the meaningful breadth and objectivity of our research in IT management technology and process.

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