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JD Edwards EnterpriseOne Job Status Inquiry on Oracle Engineered Systems: The Value of a Faster Application

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Executive Overview

Project managers use a variety of tools to stay informed on all aspects of their projects. The JD Edwards EnterpriseOne Job Status Inquiry (JSI) application provides a comprehensive view of much of the financial information associated with projects, and provides views into labor, commitments, materials, and subcontractors. Project managers use the JSI application for a variety of project management tasks including: viewing expenses booked to the project, comparing actual costs to budget, using change management to revise budgets, drilling into accounts for detailed research, and calculating earned value. While the JSI application is extremely powerful, for large or complex projects with high volumes of data response time can be an issue. Running the JSI application on Oracle Engineered Systems greatly improves performance, allowing project managers in real time to monitor, analyze, react, and execute to issues for all jobs, including large, complex projects.

JD Edwards EnterpriseOne running on Oracle Engineered Systems is the culmination of Oracle's "Engineered to Work Together" strategy. Project managers realize immediate business benefits when using their Project Management applications and sets the foundation for the next generation of in-memory business applications. Outstanding performance and manageability offer immediate benefits for existing applications such as real time project visibility using Job Status Inquiry.

For more information on JD Edwards EnterpriseOne and Oracle Engineered Systems please see the *Benefits of Running JD Edwards EnterpriseOne on Oracle Engineered Systems* white paper.

Introduction

In today's dynamic business environment, changes occur daily to projects: subcontractors don't show up to a job, materials arrive late, labor costs fluctuate, equipment breaks down, weather delays, and your Chief Financial Officer (CFO) wants to know the immediate impact to the project's timeline and profitability. The JSI application is a comprehensive tool that provides views and drill downs to actual and budget financial information, project schedules, commitments, materials, equipment, and labor associated with projects. Any type of project delay or cost overrun may impact a project's profitability, add to this impact are project managers that have to wait 24 hours for all project reports to process for complex projects before they can analyze and decide on the appropriate course of action. Any type of delay; labor, material, weather has the potential to completely derail a project schedule. Taking an extra 24 hours to make key project decisions takes more away from the project's earned value, and potential could damage the relationship with the customer. Project managers need the JSI application to be as responsive for inquires on large, complex projects as it is for a single job. The person who created the adage "Time is Money", had project management experience!

Speed is key and optimizing software and hardware is an essential step in improving application performance. The JSI application enables project managers to view real-time financial information, analyze project data for issues, determine best solutions, and execute on those decisions. With the performance gains of Oracle Engineered Systems, project managers enjoy the same quick response from the JSI application when inquiring on very large projects or small jobs.

This white paper will explore the Job Status Inquiry application and the benefits to be gained by faster interactive response time.

Introduction to Engineered Systems

Oracle Engineered Systems combine best-of-breed hardware and software components with game-changing technical innovations. Designed, engineered, and tested to work best together, Oracle Engineered Systems can power the cloud or streamline data center operations to make traditional deployments even more efficient. The components of Oracle Engineered Systems are preassembled for targeted functionality and then—as a complete system—optimized for extreme performance. By taking the guesswork out of these highly available, purpose-built solutions, Oracle delivers a solution that is integrated across every layer of the technology stack—a simplicity that translates into less risk and lower costs for your business. Only Oracle can innovate and optimize at every layer of the stack to simplify data center operations, drive down costs, and accelerate business innovation.

Oracle Exalogic

Oracle Exalogic is an Engineered System on which enterprises deploy Oracle business applications, Oracle Fusion Middleware, or third-party software products. Exalogic comes pre-built with compute nodes, memory, flash storage, and centralized storage; all connected using InfiniBand in a high redundancy architecture delivering five-nines availability, with fault tolerance and zero-down-time maintenance.

Exalogic dramatically improves performance of Oracle Applications, Fusion Middleware, and 3rd party applications without requiring code changes and reduces costs across the application lifecycle, from initial set-up to on-going maintenance, as compared to conventional hardware platforms. Oracle has made unique optimizations and enhancements in Exalogic firmware, Exalogic software, and in Oracle's middleware and Oracle's applications. These include on-chip network virtualization based on near zero latency Infiniband fabric, high-performance Remote Direct Memory Access, workload management in Oracle Weblogic server, and optimizations in Oracle Coherence and Oracle Traffic Director. Exalogic includes support for a highly optimized version of the Oracle VM, which significantly outperforms comparable virtualization solutions and is an ideal consolidation platform for Oracle Applications. Templates to simplify install, deployment, and configuration of applications on Exalogic are available.

Oracle Exadata Database Machine

Oracle's Exadata Database Machine is Oracle's database platform delivering extreme performance for database applications including Online Transaction Processing, Data Warehousing, Reporting, Batch Processing, or Consolidation of mixed database workloads. Exadata is a pre-configured, pre-tuned, and pre-tested integrated system of servers, networking, and storage all optimized around the Oracle database. Because Exadata is an integrated system, it offers superior price-performance, availability, and supportability. Exadata frees users from the need to build, test, and maintain systems and allows them to focus on higher value business problems.

Exadata uses a scale out architecture for database servers and storage. This architecture maintains an optimal storage hierarchy from memory to flash to disk. Smart Scan query offload has been added to the storage cells to offload database processing. Exadata implements Smart Flash Cache as part of the storage hierarchy. Exadata software determines how and when to use the Flash storage for read and write as well as how best to incorporate Flash into the database as part of a coordinated data caching strategy. A high-bandwidth low-latency InfiniBand network running specialized database

networking protocols connects all the components inside an Exadata Database Machine. In addition to a high performance architecture and design, Exadata offers the industry's best data compression to provide a dramatic reduction in storage needs.

SPARC SuperCluster

Oracle's SPARC SuperCluster is the world's most efficient multi-purpose engineered system, delivering extreme efficiency, cost savings, and performance for consolidating mission critical applications and rapidly deploying cloud services. Oracle's SPARC SuperCluster represents a complete, pre-engineered, and pre-tested high-performance enterprise infrastructure solution that is faster and easier to deploy than a collection of individual database and application servers. The system combines innovative Oracle technology—the computing power of Oracle's SPARC servers, the performance and scalability of Oracle Solaris, the Sun ZFS Storage Appliance, the optimized database performance of Oracle Database accelerated by Oracle Exadata Storage Servers, and a high-bandwidth, low-latency InfiniBand network fabric—into a scalable, engineered system that is optimized and tuned for consolidating mission-critical enterprise applications.

Oracle's SPARC SuperCluster provides both the capacity for growth, as well as the fine-grained server virtualization needed to isolate individual application components. With multiple layers of enterprise application infrastructure consolidated onto a high-performance, highly available SPARC SuperCluster system, deployment speed, application performance, and availability can all be optimized. Designed as a pre-configured, pre-tested, and ready-to-deploy SPARC SuperCluster engineered system, the solution provides a complete and optimized infrastructure solution for applications, built around robust compute, networking, storage, virtualization, and management resources. The result is a system that is orders of magnitude easier to manage, and up to five times faster to deploy than alternatives, all while occupying considerably less real estate requiring less power. Furthermore, the SPARC SuperCluster system provides full built-in redundancy resulting in a highly reliable infrastructure without single point of failure. An issue with one component will not impact other components of the system offering true isolation. Customers can consolidate multiple environments with minimum disruption, without fear of performance degradation, and the ability to achieve required service levels.

JD Edwards EnterpriseOne Job Status Inquiry

Job Status Inquiry (JSI) is the primary application for viewing and navigating financial project and job information. CFO's use the JSI application to compare actual costs against budgets for all projects in real time; create One View reports information about equipment, labor, and materials costs; monitor schedules, commitments, and statuses; and perform various profitability calculations. Use the JSI application to report on the Estimate to Complete Amounts and Percentage of Job Complete information requested on a regularly basis by management. If overages appear in a project cost code account, then the project manager uses JSI to research by drilling into the detail transactions associated with the account. The flexibility of the JSI application allows project managers to tailor project and job information display by:

- All jobs by Company, Project, Contract Type, or Owner.
- Specific Job and Account Codes.
- Cost Codes and Cost Types.
- Displayed Amounts by: Inception to Date, Year to Date, or Period to Date.
- Commitments still Open.
- Percent Complete, Estimate to Complete Amounts, Estimate Total Amounts.
- User defined ledgers.
- User defined column formulas.

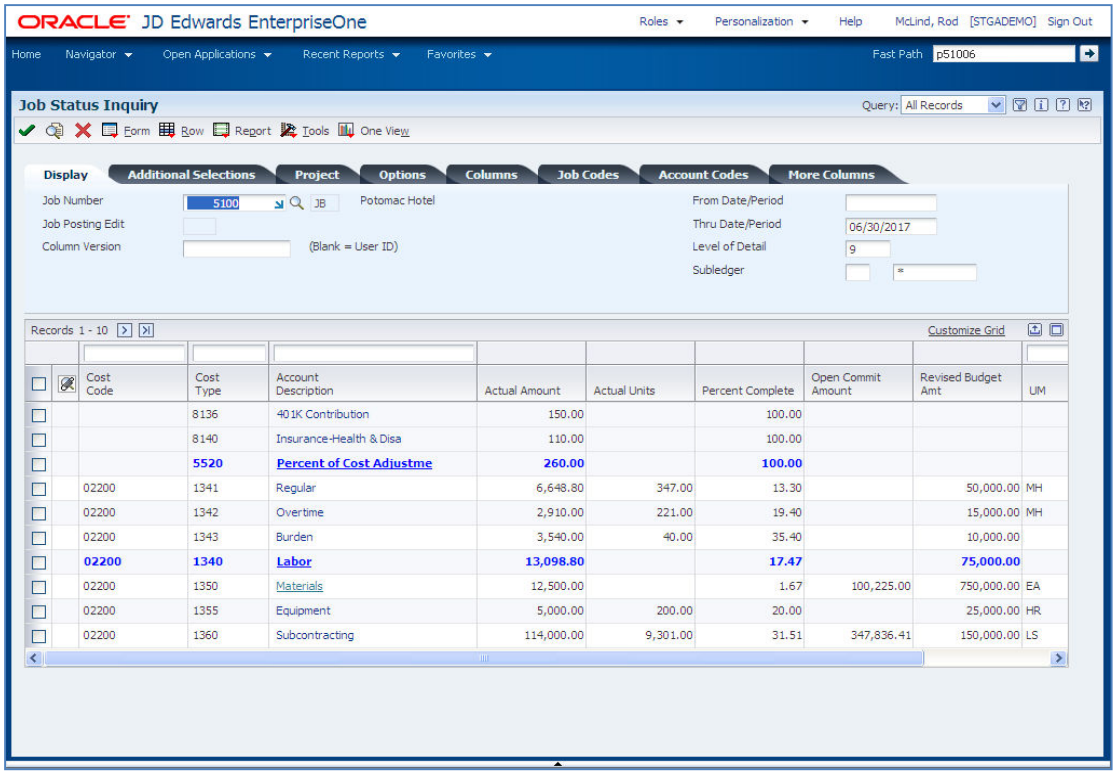

Figure 1.JD Edwards EnterpriseOne Job Status Inquiry Application

Why does viewing project financial information take time? Inquiring on large jobs and projects often involves large volumes of data. JSI provides real-time views of jobs and projects. The JSI application performs sorting, summarizations, calculations, and performing all these tasks on hundreds of thousands of records takes time. Waiting for the JSI application to process large volumes of data negativity impacts the project as whole, because project managers take longer to react to issues on projects. In some cases, project managers use last night's project status reports on which to base their decisions. A JSI application that processes and displays a project's financial information instantaneously allows the project manager to analyze changes and respond quickly with the right decisions.

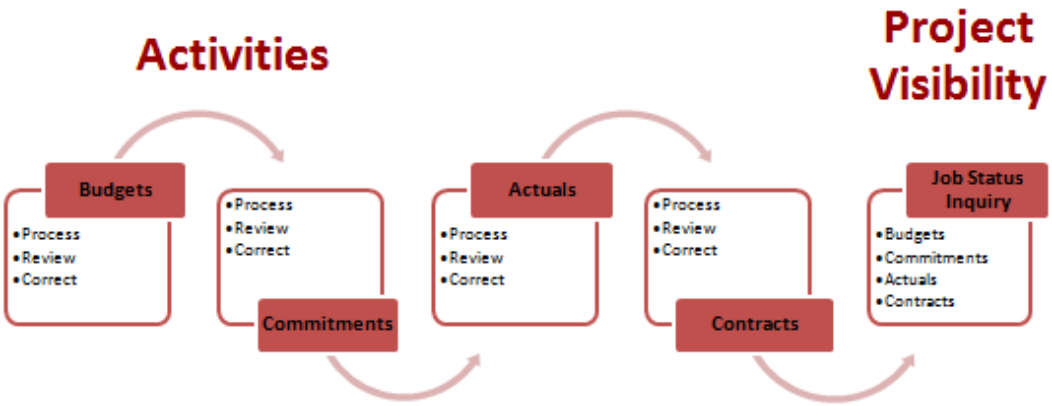

Figure 2: Order to Cash Running on Traditional Infrastructure

Improving Your Job Status Inquiry Application

Speed is key. What if your systems were capable of processing large amounts of data quickly? In an organization where the JSI application processes slowly, project managers delay making decisions or base their decisions on the previous night's data. What if the wrong materials were delivered to a job site, a subcontractor over charges on a job, the controller wants today's Estimated to Complete Amounts, and there is winter storm moving up the coast delaying completion critical job; real-time project information displayed in the JSI application enables the project manager to react quickly making better business decisions within minutes rather than hours or days. Manager's assess issues, define the necessary changes to schedules and budgets, create change orders, generate revised budgets, actuals, commitments, revenue and calculate earned value amounts. Real-time management results in more projects brought in on time and on budget. A JSI application that processes data faster, allows project managers to assess the health of all projects, identify potential trouble spots, and react decisively all in real time.

Figure3: Job Status Inquiry on Oracle Engineered Systems

With the performance of Oracle Engineered Systems, both batch and interactive processes can be performed concurrently as needed throughout the day. The Job Status Inquiry application running on an Exa platform is up to 4 times faster than a Job Status Inquiry application running on a standard non-Exa supported platform, looking at the same set of project information. This enables project managers to quickly analyze, react, and execute on information, generating value. Utilizing Oracle Engineered Systems, you can iteratively perform the many Job Status Inquiry application interactive tasks faster.

Oracle Engineered Systems improves performance of all your interactive processes, including those using large amounts of data in conjunction with analytical calculations.

Why Does JD Edwards EnterpriseOne Job Status Inquiry (JSI) Run Faster on Oracle Engineered Systems?

Skeptics will remind us that benchmark testing described above is conducted in a laboratory "perfect world" environment and that such performance metrics might seem too good to be true. An objective look at some of the innovations engineered into Oracle Exadata and Oracle Exalogic will provide some insight into how and why JD Edwards EnterpriseOne runs so well on these systems enabling the financial close to be completed much quicker.

We'll begin with Oracle Exadata. Oracle Exadata reads, writes, and performs database operations at extreme speeds over extreme data volumes due to the following innovations:

- Exadata Smart Flash Cache transparently caches "hot" reads, and writes data to fast solid-state storage, improving query response times and throughput. In fact, Exadata configurations can often be delivered with enough Flash Cache to contain an entire JD Edwards EnterpriseOne database. The Job Status Inquiry (JSI) application focuses on key tables with large volumes of data such as the Account Ledger (F0911) and Account Balances (F0902) tables. With these tables being in Exadata Smart Flash Cache, frequently executed interactive processes such as data validation, forecasting, budgeting, calculations, commitments, and scheduling read and write data to solid-state storage which greatly reduces processing times without impacting end users.
- Exadata Smart Scan improves query performance by offloading intensive query processing and data mining scoring to scalable intelligent storage servers. JSI is an iterative process which is done for specific data sets. Exadata Smart Scan is leveraged by JSI reports when users execute reports for a subset of the job data such as for a specific period, cost codes, projects, or jobs.
- Exabus I/O and InfiniBand networking provide fast, high-bandwidth networking among Exadata database servers and storage cells and between Exadata and Exalogic. The JSI application is comprised of I/O and logic intensive processes such as data validation, forecasting, budgeting, and scheduling. Exabus I/O and InfiniBand networking allows interactive process on the Enterprise Server to retrieve large data sets from the database, process the data and then perform updates back to the database at extreme speeds.
- Advanced Compression reduces the footprint of data on disk. Independent partner testing has shown compression rates of up to 75% for JD Edwards EnterpriseOne data. Exadata systems are designed for high-volume data—hundreds of terabytes of usable disk—plus available expansion units and multi-rack systems. To meet regulatory, customer, and business requirements, multiple years of project data is required to be stored in the transactional database. Advance Compression allows this historical data to be maintained without a negative performance impact on daily, monthly, quarterly or annual project processes.

Similar innovations in Exalogic provide extreme processing for the JD Edwards EnterpriseOne logic and web tiers.

- Oracle WebLogic Server and the Java virtual machine are optimized for fast processing of Java workloads, such as the JD Edwards EnterpriseOne HTML server and metadata kernel. The Enterprise Server batch processes interact with the metadata kernel (Java process). With the Java optimization, hundreds of interactive processes can execute concurrently without queuing for the metadata kernel.
- The same Exabus I/O and InfiniBand networking provide fast, high-bandwidth networking among JD Edwards EnterpriseOne server components within Exalogic, such as the HTML server and Enterprise server, and between Exalogic and Exadata. Similar to batch processing on the Enterprise server, interactive users on the HTML server retrieve and review large data sets in the close process. Exabus I/O and InfiniBand networking optimizes the transport of the data sets from the database to the HTML server.
- Single Root I/O Virtualization (SR-IOV) streamlines the I/O of the virtual machines running on the hypervisor, resulting in negligible impact due to virtualization. This allows virtual instances of the Enterprise server to be added to the JD Edwards EnterpriseOne environment to handle the additional JSI workload without impacting the performance of interactive users and non-close processes.

Benefits of a Faster Job Status Inquiry Application

Benefits of using Oracle Engineered Systems with the JSI application are many, and include:

- Faster response of the JSI application.
- View budget, actual, commitments, and forecast comparisons for large, complex projects.
- Tailor the JSI display to project specific requirements.
- Quickly track and identify problems with a project or job.
- Increased customer satisfaction.
- Real-time information for large, complex jobs and projects.

Conclusion

In the ultra-competitive environment that your company operates in, information management is an increasingly important and vital process. Speed is key, whether you are managing customer projects, or internal capital projects. Project managers need to complete their projects on time and on budget. Job Status Inquiry's real-time information provides the project manager with faster access to budgets, actuals, staffing, resources, and the financial information necessary for completing projects on time and under budget. Using Oracle Engineered Systems with your Job Status Inquiry application offers tremendous potential to add value to your company's projects, customers, business processes, and bottom line.

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