PeopleSoft Payroll on Oracle Engineered Systems: Maximizing Productivity and Effectiveness
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Executive Overview

The Payroll Department, like most departments within an organization, is focused on finding ways to streamline processes and become more efficient. This challenge becomes more difficult when dealing with a diverse workforce that often has unique pay, deduction, and taxation requirements. In addition, the Payroll Department receives data/information for payroll from other departments and third-party sources. This data/information is occasionally delayed or even inaccurate. On top of all this, in today’s political climate legislative changes occur that the Payroll Department must react to quickly. Regardless of the challenges faced, the Payroll Department must deliver paychecks that are accurate and on time. They also must provide key information to other departments within their organization so that those departments can do their jobs. Often, the Payroll Department must work late hours and weekends to accomplish their work.

Oracle’s PeopleSoft delivers two robust Payroll solutions. The PeopleSoft Payroll for North America product provides the tools needed to process your U.S. and Canadian payrolls; the Global Payroll product supports your global payroll needs. Oracle’s PeopleSoft Payroll products deployed with Oracle Exadata improve the productivity and efficiency of the Payroll Department. They provide predictability and business continuity, and give the Payroll Department peace of mind in knowing they will be able to get the job done accurately and on time.

This whitepaper describes how PeopleSoft Payroll will benefit from Oracle Engineered Systems. For more information about these systems, see the section “Overview of Engineered Systems” at the end of this white paper.

Introduction

Oracle’s PeopleSoft Payroll for North America solution provides the tools to calculate earnings, taxes, and deductions efficiently; maintain balances; and report payroll data. With Payroll for North America, you can design the payroll system to meet your organization’s specific requirements. You just need to provide the system with some basic information about the types of balances that you want to maintain, how you want to group the workforce, and when you want to pay them. You can define and establish earnings, deductions, taxes, and processes that fit your unique business needs. The payroll system enables you to calculate gross-to-net or net-to-gross pay, leave accruals, and retroactive pay.
Oracle’s PeopleSoft Global Payroll is a state-of-the-art, internet-based payroll solution that is built on a truly global architecture. The benefits of this architecture include streamlined application maintenance (because there is one core product and a single rules-based engine) and easy deployment and management across borders (because the information is in one place). Global Payroll is a rules-based product, which means that all payroll processes, calculations, and results are determined by a set of rules that you can easily build. You can reuse the rules throughout the application to save time and space. All rules are external to the delivered code line. The core engine contains no payroll rules, no preset sequence, and no tax algorithms. Instead, the rules are stored in tables, so no program modifications are required to tailor the solution to your requirements.

Regardless of whether you use Payroll for North America, Global Payroll, or both, the ultimate goal is to pay your employees accurately and on time. Both applications are primarily batch-oriented processes, and that is where Exadata shines. Exadata is Oracle’s engineered system that is tasked with taking database performance to new heights. It is designed to handle complex, batch processes such as PeopleSoft Payroll for North America and Global Payroll. The performance boosts realized with Exadata provide the Payroll Department with faster results and more time to verify and correct any discrepancies.

SQL processing on the Exadata Storage Servers allows data filtering and processing to occur immediately and in parallel across all storage servers as data is read from Flash Cache or disk. Exadata Smart Flash Cache uses Flash memory to dramatically reduce the time to read and write to the database as well as writing log records. The intelligence in Smart Flash Cache transparently moves active database blocks from disk to flash in real time, thus ensuring that “hot” data is in Flash memory when the next access occurs. Blocks that should not be in Flash are similarly recognized, maximizing the amount of space in Flash for active data.

The payroll processing for PeopleSoft has been known to be somewhat “chatty” on the network. However, when it is run on Exadata and Exalogic, the Engineered Systems thrive. The Exadata Smart Flash Cache, together with the low latency, high bandwidth InfiniBand I/O fabric, provides great benefits for PeopleSoft Payroll. The InfiniBand network layer connects the two systems and is also used for communication between components inside each system. It ensures the lowest latency for messages and the highest bandwidth for data transfers. Any slowdown caused by communication between the application server and the batch server is dramatically reduced. Log entries written to Flash Cache take advantage of the low latency communication and benefit PeopleSoft customers substantially.
Exadata storage offload reduces database server CPU consumption and greatly reduces the amount of data moved between storage and database servers. Exadata Scale-Out Storage enables the full performance of Exadata to be realized against large and growing databases, without fear of bottlenecks. As the database size grows and storage capacity is added to Exadata, storage performance and networking bandwidth scale in equal proportion. Oracle provides best practices for implementing PeopleSoft Payroll on Exadata to gain even higher scalability and efficiencies. Please see the white paper PeopleSoft on Exadata for more details.

Adding other Oracle products to the mix will make your experience even better. Database backups performed with Oracle’s Recovery Manager (RMAN) on Exadata have seen dramatic performance improvements due to high bandwidth interconnect, resulting in higher system availability. Running PeopleSoft applications on Exalogic enjoy some unique advantages over other hardware platforms. Using Oracle Virtualization capabilities on Exalogic, customers will benefit from the Oracle VM Templates provided by PeopleTools. This allows you to deploy new environments in minutes versus days and apply patches more easily. It also provides better scaling by allowing new application servers or web servers to be brought online and dynamically added to your environment. Both Exadata and Exalogic are engineered to work with PeopleSoft applications. Its unparalleled performance and scalability complement an already robust PeopleSoft Payroll system well. Oracle SPARC SuperCluster is another Oracle High Performing system that can be analyzed to achieve high performance results. See 'Leveraging Oracle Engineered Systems for PeopleSoft Applications' at the end of this document for more details.

Creating Payroll Data/Identifying Payees

Whether you use Global Payroll or Payroll for North America, the first step in the process is to create payroll data. Each product goes about this step in a slightly different way, but the outcome is the same. The goal is to create employee data.

Payroll for North America uses a process called Create Paysheets to create Paysheets for each employee. Essentially, the process pulls in the information that is required to pay an employee. Not only does this process pull in information such as the employee’s salary or rate, but it is also intuitive, knowing when it should divide the earnings hours and amounts to multiple departments, accounts, or locations. It also establishes the necessary prorations for those employees who work only part of the pay period or who perhaps got a raise. When necessary, the process creates multiple pay entries for those employees who are subject to FLSA overtime laws.
PeopleSoft Global Payroll creates employee data in the Identify phase when running the calculate absence and payroll process. When the Identify box is selected, the process loops through each calendar that is linked to the calendar group ID and finds all the payees who belong to the pay group that you identified when you set up the calendars. It then identifies the subset of payees who meet the payee selection criteria in the calendars.

Both PeopleSoft Payroll products offer robust and flexible positive input templates to accommodate your organization’s best practices.

**Exadata Advantage**

Running either of these processes on Exadata will reduce the processing time required to create your payroll data, which will allow you more time to work on the positive input for data changes. It will also give the Payroll Administrator extra time to focus on auditing the data on the front end, and it will give you more opportunity to resolve issues before beginning the Pay Calculation process.

**Updating Payroll Data/Interfaces**

After you create the Payroll data, the next step is updating the data. The updates might include adding earnings (such as bonus or overtime pay) or perhaps the need to override a deduction amount or make a tax adjustment. The data often comes from other departments or third-party vendors. At times, the files are delayed and, occasionally, the data is incorrect.

PeopleSoft Payroll for North America provides various ways to update the payroll data in the Paysheet, including entering it manually. However, the easiest way to update the data is to use one of our delivered interfaces, such as Load Time and Labor, Absence Management, Stock Administration, Expenses, Variable Compensation, and more. PeopleSoft Payroll for North America Release 9.1 (and beyond) even has the ability to load third-party data using a Microsoft Excel spreadsheet.

Global Payroll is fully integrated with Absence Management and Time and Labor as well. Global Payroll also gives you an intuitive tool called an Array, which enables you to create your own interface. This user-friendly tool lets you define your own interfaces from other sources, such as Human Resource tables.

**Exadata Advantage**

The Exadata system will add to the great tools you already have available. The added processing speed will allow you to run those late, last minute interface files with ease. For example, imagine the Department Manager had a delay in approving overtime for a group of employees. Having the ability to pull in this last minute data quickly from a time management system into the Paysheet will ensure that employees are paid correctly and it will reduce the need for an additional off-cycle payroll run. The added speed will also give you more time to audit the data to ensure that the information is correct.
Calculating/Finalizing Payroll

The Payroll for North America calculation process is iterative, which means you can run and rerun calculations repeatedly until you are confident that they are correct. The calculation process can handle multi-organizational processes such as common paymaster. It performs intricate calculations, such as contract pay, tip processing, and FLSA/alternative overtime calculations, which often require the recalculation of a previous paycheck. The calculation process also pulls in and calculates all general, benefit, and garnishment deductions, as well as taxes, using the appropriate calculation rules and limits. The calculation process is flexible, allowing you to recalculate all checks in the event you have a table change that will affect all employees, such as a state unemployment insurance tax rate change. You also have the ability to recalculate only where needed, picking up employee-specific changes. The processing time for this job can depend on the size and complexity of your payroll. Often, the Payroll Department will initiate this process at night or during off-peak hours. After the calculated payroll has been reviewed and approved, the Payroll Administrator then moves forward to confirm the payroll. The Pay Conformation process assigns a number to each paycheck or deposit advice, and it updates the employee balance tables.

The PeopleSoft Global Payroll calculations process is also an iterative process that enables you to create flexible formulas using mathematical and logical elements in a simple and intuitive interface. You can define sophisticated rules and mathematical formulas simply by entering the appropriate attributes into online tables. Using flexible formulas, the system provides further flexibility to define complex organizational needs. Global Payroll batch processes use optimization algorithms, making efficient use of temporary tables, as well as providing state-of-the-art debugging capabilities. Earnings and deductions are the heart of any payroll solution; these elements are defined in PeopleSoft Global Payroll as calculation rules. Customers can create rules to automatically stop Earnings and Deductions from processing according to their company's policies. When the Payroll Administrator is confident that the paychecks are correct, the Finalize check box on the run control is selected to indicate that the payroll is accurate and that no further changes can be made.

Exadata Advantage

The Pay Calculation process is the core of any payroll process. It is also the most complex process of all the payroll jobs, and the calculation processing time can be lengthy, depending on the complexity of your payroll. The performance boost realized with Exadata enables you to run this process at a much faster speed. Our current customers using Exadata have reported a marked improvement in processing time. You will no longer a need to wait for off-peak hours to run this process, which will allow you to accommodate last minute table changes or employee pay rate changes. Most important, this improved processing speed allows you more time to audit your payroll and ensure accurate data on the front end. This capability will reduce the need for additional off-cycle payroll runs or after-the-fact corrections, thereby improving the accuracy and efficiency of your payroll reporting.

Moderate to large business organizations may wish to revisit their payroll processing setup as this can directly determine how the pay calculation and pay confirmation processes will scale. Exadata provides
an excellent platform to run multiple run-controls with assigned specific pay groups concurrently. This
improves overall system resource utilization and can substantially reduce overall elapse time.

Payroll Reports/Exports

Whether you use Payroll for North America, Global Payroll, or both, the payroll process is not
complete until all the exports files and reports are run and distributed. This process includes sending
payroll cost back to Time and Labor, sending your General Ledger information to Financials, and
processing any other standard and custom reports or exports. The accuracy and responsiveness of
payroll reporting directly affects a company’s bottom-line. Often, senior management uses these
reports to make important business decisions.

Exadata Advantage

The Exadata system will allow you to process these reports and exports at a much higher speed and in
less time, which will allow you to spend your time more productively—reviewing and analyzing the
output. This will also help to ensure that you meet your service level agreements with other
departments within your organization or, more importantly, your commitments to external parties,
such as providing the payroll direct deposit file to the bank. The faster the payroll and reports are
distributed, the faster the Payroll Administrator can focus on other important tasks.

Access to Payroll Information

In today’s economic climate, organizations often have a diverse workforce in various locations around
the world, which means that your employees must have access to pay (Payroll Self Service) at all times.
In addition, payroll operations are often performed in more than one location to reduce costs. Now,
more than ever, you must have 24/7 access to your payroll information.

Exadata Advantage

The performance boost that Exadata provides will enable you to process payroll anytime of the day or
night, which will result in making your 24/7 operations more productive. Exadata comes with
integrated high availability (HA) configuration using Real Application Clusters (RAC) and Automatic
Storage Management (ASM) providing redundancy for both server and storage failures. PeopleSoft has
integrated HA features that work with the database transparent to the application. Having your
database backup performed with Oracle’s Recovery Manager (RMAN) on Exadata will provide
dramatic performance improvements, reducing the downtime for Employee Self Service. For
additional details, see the MAA Best Practices for Oracle Exadata Database Machine white paper.
Exadata Results

Existing Oracle PeopleSoft customers have already achieved impressive results. A global professional services firm that uses PeopleSoft HCM 9.1 and has 600,000 employees and contractors saw an improved batch performance of 50 percent (on average) using Exalogic and Exadata. An insurance industry customer that uses PeopleSoft HCM 9.0 saw a 60 percent improvement running the Pay Calculation process using Exadata.

Conclusion

PeopleSoft Payroll is known in the industry as a best-in-class application that gets the job done and does it well. The Exadata high performance and speed will give you more time to focus on ensuring accuracy in front-end processing, thereby reducing the amount of corrective rework required on the back end. Since payroll is more accurate, your reporting will be more accurate. This accuracy and speed will eliminate the need for your staff to work overtime and will increase employee satisfaction because their paychecks are correct the first time. Updates to your financial systems will be accurate the first time, and time consuming payroll corrections can be better avoided.

Overview of Engineered Systems

Oracle’s engineered systems combine best-of-breed hardware and software components with game changing technical innovations. Designed, engineered, and tested to work best together, Oracle’s engineered systems can power the cloud or streamline data center operations to make traditional deployments even more efficient. The components of Oracle’s 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 prebuilt 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-downtime maintenance.

Exalogic dramatically improves performance of Oracle Applications, Fusion Middleware, and third-party applications without requiring code changes and reduces costs across the application life cycle, from initial setup to ongoing 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 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 preconfigured, pretuned, and pretested 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 reads 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.

**Oracle 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.