PeopleSoft In-Memory Labor Rules and Monitoring for Oracle Engineered Systems
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Executive Overview

Organizations must respond to constantly changing market and industry conditions with an increasingly diverse and dispersed workforce. Many organizations today are not accurately accounting for their labor spend and lack the monitoring tools necessary to make a positive effect on their financial bottom line. In addition, they need to adhere to ever-changing contractual and compliance obligations that are challenging to maintain, leaving them exposed to non-compliance and serious legal ramifications. With increased cost pressures due to the global economic condition, organizations face challenges to reduce labor spend while streamlining workforce productivity.

PeopleSoft In-Memory Labor Rules and Monitoring will be engineered to take complete advantage of the Exadata and Exalogic hardware platforms for optimized performance and scalability. In-Memory processing greatly enhances response time for users and reduces overall processing time for high-volume batch jobs. Additionally, the solution will leverage Oracle Policy Automation to provide capabilities to standardize and enforce consistent policy-based decisions throughout the organization with simple to understand rules definitions. With labor costs typically being the largest expense for many organizations, an operational dashboard will provide decision support so line managers can analyze historical and real-time labor spend. This analysis will enable insight into overtime, unplanned absences, and other critical labor data needed for key business decisions.
The Challenge of Labor Costs Control and Policies Adherence

Whether your organization has a high percentage of hourly employees that need to adhere to specific work hours or a large population of exempt employees, your accountability in monitoring labor hours and absenteeism has never been more critical. Successful enterprises need a commonly understood set of business rules to execute policies as well as real-time insight into planned and actual labor information.

Organizations unaware of unplanned absences or tardiness will usually see a direct effect on productivity and customer service levels. Similarly, organizations that are not closely monitoring their workers’ labor hours will have high overtime expenses and experience a direct negative effect on their financial bottom line where labor spends exceed labor budget.

For many organizations, getting operational results can be a cumbersome and arduous process. Current hardware constraints can cause processing limitations and result in delayed access to real-time labor costs. These constraints can contribute to increased labor spend because delays in real-time access to information can affect critical decision-making throughout the day.

Collecting information that resides in various groups of policy experts in order to deploy and enforce pay policies can present significant challenges. Organizations need an effective method for communicating across the various policy experts and for updating the policies based on changing contractual and compliance laws across all business areas in any language. Done correctly, this process can eliminate waste in downstream processes such as reducing payroll errors. If, on the other hand, policies are not readily translated into simple to understand business rules, organizations will be prohibited from effectively monitoring labor, improving the financial bottom line, and meeting their compliance obligations.

Oracle Policy Automation

The solution will incorporate Oracle Policy Automation (OPA), a powerful solution that allows you to create easily understood rules and to simulate rule changes in advance of implementation. OPA complements the legacy PeopleSoft rules engine, and it will include sample OPA rules to help support your organization’s policies. The usage of natural language enables policy experts to collect, model, deploy, analyze, and update policies using terminology well known to them.

Your policy experts manage policy manuals, union contracts, and various compliance documents. Here is an example of a bargaining unit overtime policy.

**Overtime**

- Bargaining Unit Employees in grade levels AP 00, 09, 10, and 11 will receive overtime payment at the rate of time and one-half for scheduled hours worked in excess of 40 in a work week. Compensatory time at the same rate may be used where mutually agreed to by the employee and the Unit Administrator.

Figure 1. Sample bargaining unit overtime policy
Using Oracle Policy Modeling, your policy experts can open Microsoft Excel and Word, copy and paste the policy to mark up, and create a rule.

![Rule Example](image)

The bargaining unit employee is eligible for overtime if
- The employee's grade is '08' or '09' or '10' or '11'.

The overtime payment rate = the hourly rate \* the hourly rate \* 0.5

<table>
<thead>
<tr>
<th>The compensatory rate</th>
<th>The Unit Administrator approved the compensatory rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>the overtime payment rate</td>
<td>otherwise</td>
</tr>
</tbody>
</table>

Figure 2. Sample rule in Oracle Policy Modeling

When changes are made to contractual or compliance obligations, OPA provides capabilities for your policy experts to run what-if scenarios and perform pilot tests to determine their viability and effect on specific business areas. They can easily change data criteria and, using the tools within OPA, perform the tests without ever having to run any processes or stage tedious production data in PeopleSoft. When you need to know how much a rate increase will affect your overtime budget, you will be able to quickly model these policy changes and get your answers to drive your business decisions.

Do you run a global organization that operates in multiple countries? OPA provides your policy experts with the ability to create the rules and then displays the results in a different language. This capability enables collaboration between different groups across multiple countries to ensure that the result reflects the knowledge and priorities of the different areas of the organizations. It also gives you audit control over your global policies.

**PeopleSoft Time and Labor Dashboard**

Are your managers waiting for reports to be run to get access to workers’ productivity, labor hours, and time exception metrics? With the use of Exadata and Exalogic, organizations will be able to increase processing capacity and benefit from greater performance results. Transactional results will be produced and displayed quickly in the Time and Labor operational dashboard. The dashboard will bring up real-time and historical data, enabling managers to perform iterations of data analysis, drill into the details, and take immediate actions. The dashboard will enable you to set performance thresholds for key labor indicators such as unplanned absences, overtime expenditure, scheduling adherence, and time exceptions. Your managers can make labor decisions based on real-time data and get alerts when your labor data does not meet the set performance thresholds or violates your business policies.

If you were a line manager for a company that has a large population of hourly employees, you would need to know:

- Are there any employees who called in sick or have not shown up for the shift?
• What are the reported labor hours?
• Is my department adhering to the planned hours?
• Was overtime incurred at the end of the shift?
• Which employees are working excessive hours?
• Which employees have a high number of unplanned absences or tardiness?

By accessing real-time labor data, the manager will have immediate insight into actuals data versus plan. The manager will no longer have to wait for a scheduled process or report to run, which could provide stale data resulting in erroneous decisions. Knowing the problems as they occur and having the information at hand to correct the issues helps your manager make the business decisions needed to positively influence your financial bottom line.

Controlling labor costs is not the only factor. Providing your manager with the right tools to make timely decisions may decrease excessive work hours. This decrease will help your organization adhere to overtime and rest periods compliance laws and not disrupt your employees’ work life balance, thus helping you maintain your commitment to the values reflected in your Workplace Rights Policy.

Figure 3. PeopleSoft Time and Labor Dashboard

The Value of Oracle Engineered Systems Exadata and Exalogic

Organizations will get their labor data results faster with an optimized solution on Exadata and Exalogic. This solution will enable them to better understand the true costs related to excessive work
hours, unplanned absences, and time exceptions and to quickly correct any issues. For example, an existing PeopleSoft customer realized an average batch execution time improvement of over 60% percent on Exadata. For a Time and Labor batch example, the processing time reduced from 41 minutes to 6 minutes, which is an 85 percent performance increase!

The Oracle Exadata Database Machine is engineered to be the highest performance and most available platform for PeopleSoft customers. The Exadata Database Machine delivers extreme performance for all types of database workloads, including Online Transaction Processing (OLTP), Batch, Data Warehousing (DW), and consolidation of mixed workloads, and it often runs them at least 10 times faster. Simple and fast to implement, the Exadata Database Machine is ready to tackle the largest and most important database applications, such as PeopleSoft Human Capital Management and Financials.

Exalogic is designed to provide extreme high performance, reliability, ease of use, and versatility for online applications. The fast InfiniBand networking— together with the numerous performance enhancements that Oracle has engineered into its products running on Exalogic, including WebLogic, Tuxedo, and JAVA—significantly enhance the performance realized by PeopleSoft online applications. Exalogic is the evolution of Oracle’s Grid architecture, fulfilling the role of the Application Grid and complementing Oracle Exadata, which fills the role of the Database Grid. The Exalogic private cloud system supports a PeopleSoft in-memory parallel processing grid. All Oracle Policy Automation Labor rules will be processed in this in-memory system, which scales to extraordinary levels of parallelism. This combination of design features will enable PeopleSoft to provide real-time responses to business events.

Customers 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 Virtual Machine (VM) Templates provided by PeopleTools.

• Faster Deployment: The templates provided by Oracle contain fully configured web application and batch servers as well as the operating system on which they run. They enable new environments to be deployed in minutes, versus the days it could take before. Preconfigured and pretested, PeopleSoft middle-tier components are always at the right release level with the required patches installed. No longer, do you need to procure a server, install and patch the operating system, install and patch Tuxedo, install and patch WebLogic Server, or configure your application and web servers; the templates do it for you, saving valuable time and effort while providing a fully tested environment.

• Easier Patching: Patching your PeopleTools environment on Exalogic just got easier, too. With new VM templates being provided with new PeopleTools patches, updating the PeopleTools middle tiers is as easy as downloading a new template and booting the new virtual machine.

• Better Scaling: Scaling your PeopleSoft environment was simplified as well. When the system gets busy, new application servers or web servers can be brought online and dynamically added to the environment. No configuration or downtime is required. As the spike subsides and the additional resources are no longer needed, the resources are transparently removed and the virtual machine is shut down until the next time. The system resources used by the added virtual machine during the
spike can be used by other projects instead of sitting idle. The VM templates provide a great way to respond to usage spikes while ensuring the most efficient use of hardware resources.

Taken together, Exadata and Exalogic provide a complete "Private Cloud in a box" platform that is ideal for consolidating mission-critical enterprise applications. PeopleSoft HCM users will not only see major benefits in Time and Labor, but across the entire suite in areas such as self-service response times and payroll processing.

In addition, Oracle’s SPARC SuperCluster is another Oracle High Performing system that can be analyzed to achieve high performance results. Please refer to ‘Overview of Oracle Engineered Systems' section for more details.

Conclusion

Achieving control over your labor spend and accurately enforcing policies for your organization should be a deliberate goal. To meet this goal, you need a solution that will enable your organization to effectively manage policies, process data at the highest performance levels, and continuously monitor real-time labor data to support critical decision making throughout the day.

Here is an example of how overtime can affect your financial bottom line. On average, 10 percent of a 50,000-employee organization reported 10 extra minutes to their normal work day. Assuming that these are hourly employees making $10 per hour, this alone translates to a negative effect on the bottom line of more than $2 million annually. Keep in mind this is a simple example in a world of sometimes not so simple policies. Our solution manages the entire process from implementation of policies to continuous monitoring of real-time results to help your organization meet its goal and maintain a positive effect on the bottom line.

Overview of Oracle 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.