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ENGINEERED SYSTEMS

An Oracle White Paper
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Siebel CRM Contact Center on Oracle Engineered Systems Maximizing Contact Center Productivity

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Executive Overview

Today's Contact centers have evolved to become sophisticated, high-tech showcases of service, support, and sales, it is the front door into any business and huge opportunity to establish relationship with their customers. There is tremendous investment that goes into a corporate call center, improving productivity and efficiency is a business imperative for executives and managers. In today's economy organizations are looking for a competitive advantage and companies are finding ways to do things effectively across all the business units and efficiency in all aspects of the organization is extremely important. Global businesses must be able to operate across all time zones and provide customers with 24x7 access to their information.

Siebel CRM running on Oracle Engineered Systems is the culmination of Oracle's "Engineered to Work Together" strategy. Customers realize immediate business and technical benefits and set the foundation for the next generation in-memory business applications. Outstanding performance and manageability offer immediate benefits for existing applications and business processes.

This white paper will explore how Contact Centers using Oracle's Siebel CRM Contact Center product suite can benefit from Oracle Engineered Systems. The combination of Siebel CRM Contact Center and Oracle Engineered Systems significantly improves end user responsiveness, making Call Center agents more productive and allowing them to handle higher volumes of service calls. This is extremely advantageous for centers handling large call volume requests and tasks on a daily basis, by utilizing the Siebel CRM product suite for servicing their customer's needs. The across-the-board improvement in performance, throughput and scalability achieved by deploying Siebel CRM on Engineered Systems allows customers to improve agent productivity, minimize response times, drastically reduce SLA violations, and significantly improve customer satisfaction and retention.

For more information on Siebel CRM and Oracle Engineered Systems, please see the Siebel CRM on Oracle Engineered Systems white paper.

Introduction

Organizations must conduct business the way their customers choose: anytime, anywhere, and across any channel. Oracle makes it easy for you to deploy new channels, whether it is phone, chat, email, or self-service, to better serve your customers.

Speed is always valued in business, but in customer service organizations, speed has been traditionally viewed in terms of efficiency and cost control. A lower average handle time (AHT) equals fewer CSRs, equals lower costs. Such efforts towards efficiency have driven customer service in the past, but companies that want to create brand advocates need to change their approach and begin to look at speed from the customer's point of view. At the risk of stating the obvious, this means adding the average wait time to the AHT, because this is the metric that impacts customer satisfaction. And once the customer is engaged, speed means real-time problem resolution and real-time transaction enhancement.

Time is money, which makes the productivity of the call center agents a top priority. Call centers must be highly flexible and agile to meet demanding scalability requirements, whether it is a known seasonal spike or an unanticipated service issue. Software and hardware that is engineered to work together goes a long way to solve this issue. An enterprise operating in a changing environment such as a call center can benefit from the flexibility of running on an engineered system to quickly deploy additional processes to manage these spikes effectively. With the performance gains of Oracle Engineered Systems, this same enterprise can now run thousands of call center agents with integrated access to collaboration tools with a complete 360 view of the customer to provide improved customer experience to their customers. All of this can be with lower operational costs to their business.

Overview of 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 third-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.

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.

Siebel CRM Contact Center Product Suite

Oracle's Siebel Contact Center transforms a business's call center into an integral part of its total sales, marketing, and service delivery strategy. The application enables agents to handle service, support, and sales interactions seamlessly across all communication channels. As a result, businesses can reduce costs while enhancing service delivery. Only Oracle provides agents with a complete, real-time view of the customer by drawing data from systems used by field sales and accounting. With this capability, agents can quickly resolve issues, provide meaningful upsell and cross sell recommendations, tailor service based on the customer value, and achieve higher levels of customer satisfaction and loyalty. It also enables call scripts, email and text templates, and embedded process guidance to help your agents deliver the right service experience quicker and faster. Oracle also offers pre-built solutions to all the major billing and ERP systems, enabling organizations to integrate customer billing, purchasing history, and contracts.



Figure 1: Siebel CRM Contact Center and Service Product Suite

Siebel Contact Center on Engineered Systems

Improved Scalability

Siebel Contact Center services thousands of call center agents and Siebel customers deploy multiple call centers across the globe. This entails expanding their footprint, geographical reach and strategic resource deployment. The main strength of Siebel CRM Call Center application is its capability to scale up to the increasing volumes of each account, opportunity, service request and activity creation while at the same time, handling significant increases in the number of application users, in a rapidly expanding global service business organization. The Siebel application is architected to support these data,

hardware and infrastructure intensive processes in real time. The application is designed to support an agile call center organization with the ability to add additional process and servers on a single node of Oracle Engineered Systems built to support scalability, as the businesses grow over a period of time.

Call Centers operating in high call volume environments will accumulate millions of transactional data throughout the day (contacts, opportunities, service requests, activities, agent assignment, field service engineer), in very short amounts of times. Engineered Systems are specifically designed to deal with these scaling challenges. Additional business benefits include less frequent archiving and longer access to historical data.

Test Metrics and Results

The scalability and performance benchmarks were done with 10,000 and 30,000 call center agent that simulated a large call center usage patterns through the day

- **Sales:** Create Contact and Opportunity, Lookup Account, Associate Contact & Opportunity and Add products and Create Quote and Order.
- **Create Service Request:** Lookup Contact, Create Service Request and activities and add Entitlement, Lookup Account, associate contact & opportunity and Add products and create Quote and Order.
- **Update Service Request:** Lookup Service Request and add activities and Add Solution for the Service Request.

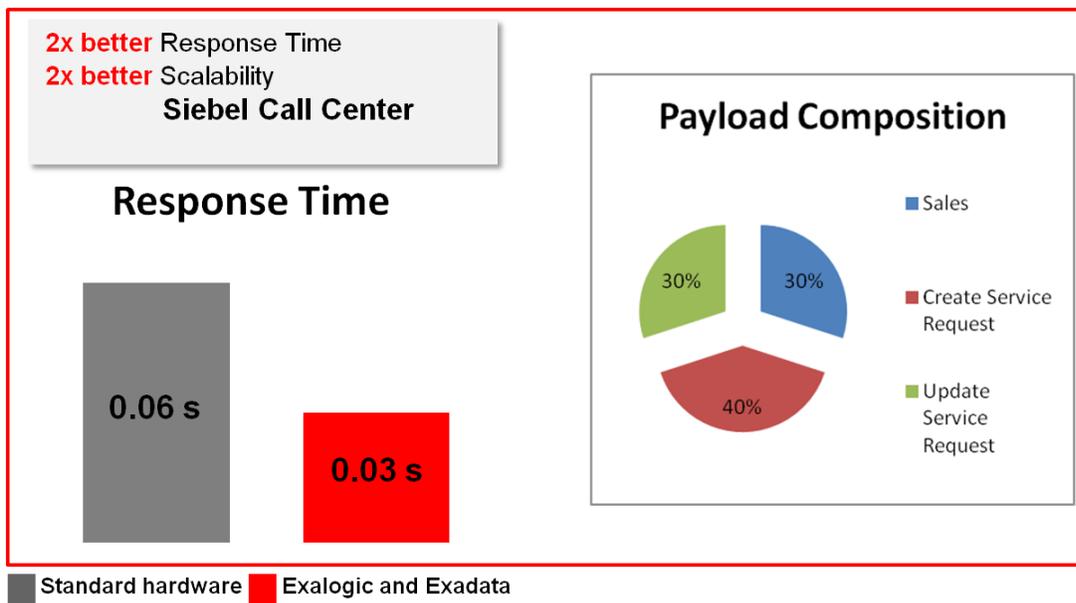


Figure 2: Exadata and Exalogic Performance Results

Scalability results achieved were 10k users on a single node with linear scalable results on 30K call center users on 3 nodes with the same response time. Comparing results for the same tests done on traditional commodity hardware with the same processing power shows that Exadata/Exalogic delivered 2X better response times indicating the effectiveness of the “engineered” hardware-software solution

Reducing the Total Cost of Ownership

Large Enterprise Call centers use multiple applications to support their end-end business needs. Oracle Engineered Systems provide multiple configurations supporting the growth a data center needs. These systems allow the ability consolidate other applications in your Siebel Call Center ecosystems such as E-Business Suite, Peoplesoft, Billing and middleware components such as Oracle Business Intelligence, SOA Suite. Exadata features including Resource Manager, Smart Flash Cache, Smart Flash Log and Smart Scan, make the Exadata Database Machine an excellent choice on which to consolidate multiple databases. Exadata features significantly improve both the performance and the control of a consolidated database environment.

Deploying these common components consolidated together on Exalogic and Exadata allows customers to achieve both high scalability and high performance across all applications along with a dramatically lower total cost of ownership.

Improved Contact Center Experience for Employees and Customers

A day in the life of a Siebel call center normally follows the process as shown in the diagram below. A contact center agent needs to have a complete 360 view of the customer that includes interactions across multiple service requests with the ability to search knowledge base (Oracle Knowledge) to provide quick in-context response to questions. They also need to provide customers with optimized scheduling for in-home service with complete knowledge of their assets including entitlements and warranty verifications.

Running Siebel with Oracle Knowledge, Oracle Real Time Scheduler and E-billing on the same Exadata nodes allows the contact center agent to be extremely productive with information available to them very quickly, thus helping them respond to the customers in a timely manner in a single interaction. Delighting customers with proactive customer service, more targeted messaging and greater intimacy provides a superior contact center experience for both the customer as well as the employees

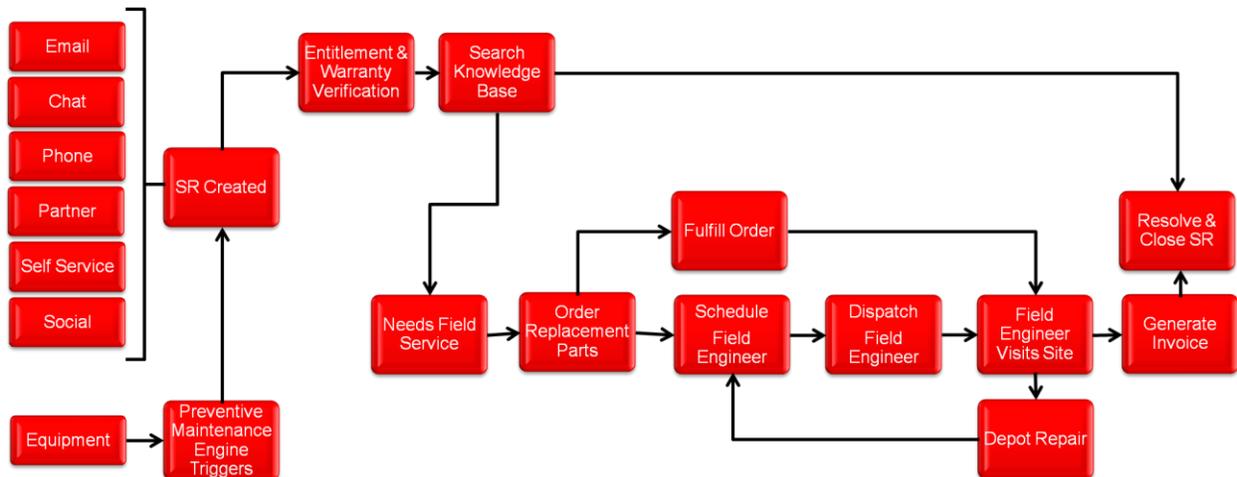


Figure 3: Complete end to end process flow for a Contact Center Agent

Business Benefits

Improved Contact Center Agent Efficiency

- Faster Response time for a contact center agent improving customer and agent experience
- Reduced call handling times in large contact centers improving agent
- Improved on-time delivery of services for field service engineers by providing optimized scheduling
- Decreased cost per call, thus improving ROI for contact centers

Improved Customer Satisfaction

- Increased customer satisfaction due to reduced response time
- Optimized Field Service enablement and improvement in first-time field repair rate
- Faster in-context knowledge management for better customer experience

Lower TCO for Contact Centers

- Simplified deployment for large call-centers reducing operational management costs
- Less servers required in the enterprise leading to large cost savings.
- Reduced Servers in the Siebel enterprise means quicker startup times for the enterprise thus reducing maintenance downtimes

Engineering Advances That Enable Siebel Contact Center Performance Results

Below is a list of the technical features in Exadata and Exalogic that were key aspects of driving the performance improvements for Siebel Contact Center. It is through these significant engineering advances that the results were achieved in our evaluation:

Exadata

Exadata Smart Flash Cache

Exadata Smart Flash Cache uses Flash memory to dramatically reduce the time to read and write database and 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.

Exadata Smart Scan

Exadata Smart Scan speeds up data-intensive queries by leveraging the processing power of Exadata Storage Servers to scan and filter out results. By moving queries to storage instead of moving the data to the database servers, long-running reports and queries often complete 10x faster than on conventional systems.

InfiniBand

The use of InfiniBand as the networking fabric within Exadata ensures the lowest latency for messages and the highest bandwidth for data transfers. High-speed transactions as well as data-intensive queries and reports reap the benefits.

Exadata Scale-Out Storage

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.

I/O Resource Manager (IORM)

IORM allocates I/O bandwidth across different applications and databases, based on a prioritized allocation plan, to ensure that the most important applications get the performance they need when they need it.

Hybrid Columnar Compression (HCC)

Hybrid Columnar Compression dramatically reduces the storage space consumed by the database, while at the same time speeding up queries against the compressed data through reduced I/O. Compression often reduces the data storage by a factor of 10x or more, storing a petabyte scale database in 100TB of disk. Since compressed tables remain compressed in Flash memory as well as on disk, very large databases often fit entirely in Flash memory when compressed.

Exalogic

Exalogic Exabus

Applications running on Exalogic utilize Exabus, the underlying Infiniband fabric, which provides low latency and high throughput eliminating I/O bottlenecks in every application layer. Applications components are typically deployed in more than one server and Exabus provides low latency for I/O across nodes on same Exalogic rack. Access to ZFS storage device over Exabus greatly reduces latency for log file writes and other file access operations. For applications running on Exalogic and accessing database tier on Exadata, Exabus delivers faster I/O, reduces CPU usage on both the mid-tier and DB-tier and provides higher connection pooling efficiency.

Oracle VM for Exalogic

Exalogic Oracle VM can be used to sub-divide a physical compute node into multiple virtual machines to increase application deployment efficiency while maintaining application performance. Oracle VM has been engineered for tight integration with Exalogic Exabus I/O backplane using a technique called Single Root I/O Virtualization (SR-IOV) ensuring Oracle VM significantly outperforms comparable hypervisors from other leading vendors. The benefit of this approach is unmatched application performance. In an Exalogic configuration, the impact of virtualization on application throughput and latency is negligible.

Conclusion

Time is money, which makes the productivity of your agents a top priority. In addition to providing your agents a single desktop with relevant, timely, and quality data, Oracle enables call scripts, email and text templates, and embedded process guidance to help your agents deliver the right service experience, faster.

Oracle Engineered Systems offers unequalled performance gains and time reduction for transactional data that scales up to thousands of users that are at the heart of all contact center operations.

Companies can re-think their internal expectations and provide a complete cross-channel experience throughout the customer journey for their customer. Simple and quick task flows with complete 360 view of the customer helps contact center agents provide quick and contextual response to their customers. This results in; timely response, better customer service, and higher productivity thus lowering operational cost for businesses that run large call center operations.



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