Dialogic®

Technology Brief

Dialogic Ports the ControlSwitch System to Oracle's Sun Netra X4270 Platform

Dialogic is committed to improving performance for the Dialogic® ControlSwitch™ System softswitch to meet the demanding requirements for next generation converged IP communications networks. As a proof point and to benefit both new and existing ControlSwitch System customers, Dialogic has ported the ControlSwitch software elements from the Sun SPARC architecture to Oracle's Sun Netra X4270 Intel-based platform.

With the changeover to new server technology, Dialogic is also introducing two new ControlSwitch platforms - the X1 ControlSwitch Platform and the X2 Policy Server - to replace the Sun Netra T2000 B1- B6 platforms. In addition, the other platforms have been ported to the Netra X4270 to take advantage of the increased speed and processing power of the new server technology.

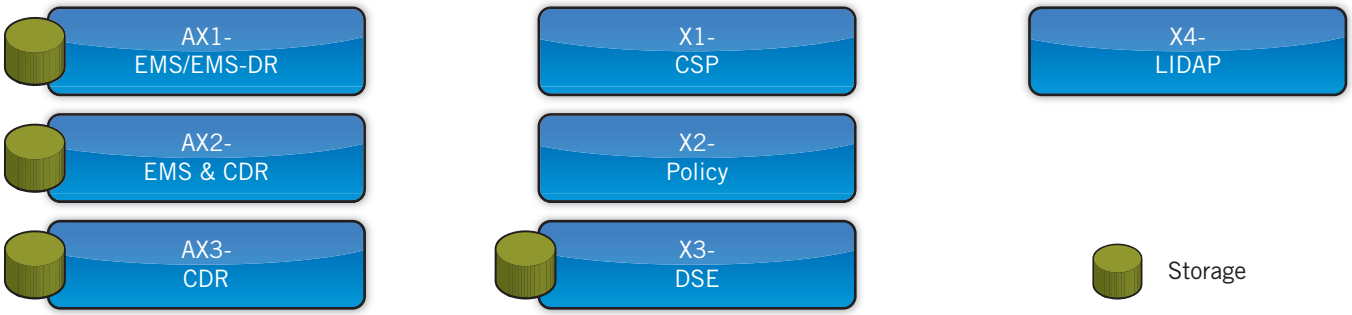

Figure 1 - Netra X4270 based ControlSwitch System reference architecture

Platform	Function	Active Elements	2530 M2 Storage
AX1	EMS/EMS-DR	Element Management System (EMS) and EMS Disaster Recovery	Mandatory
AX2	EMS CDR	EMS and Call Detail Record (CDR)	Mandatory
AX3	CDR	CDR	Mandatory
X1	Call Signaling Platform (CSP)	Service Execution Element (SEE), Policy Engine (PE), Event Collector (EC), IP Call Element (ICE), Call Control Platform (CCP), SIGTRAN Signaling Element (SSE), Event Relay Server (ERS), Media Resource Controller – Border Gateway Controller (MRC-BGC), Data Collection Element (DCA), LNP SIP Gateway (LSG), Routing SIP Gateway (RSG)	N/A
X2	Policy	PE, DCA	N/A
X3	DSE	Directory Service Engine (DSE)	Mandatory
X4	Lawful Intercept	Lawful intercept Data Access Point (LIDAP)	N/A

Table 1 - ControlSwitch System platforms and functions

Netra X4270 Overview

According to Oracle, the Netra X4270 server is an Intel processor-based carrier-grade system for network infrastructure applications such as delivering IP-based services in mobile and fixed networks. The Netra X4270 has improved performance and lowered power consumption compared to previous Sun servers, yet maintains the same footprint. The Netra X4270 server is NEBS Level 3 certified and ETSI compliant with features for enhanced availability like hot-swappable AC or DC power supplies and hot-pluggable hard disk drives.

Benefits of a Netra X4270 based ControlSwitch System

A ControlSwitch System solution based on the Netra X4270 offers the following benefits as compared to a ControlSwitch solution based on a Sun SPARC implementation:

Improved Switch Capacity and Performance

- Increase in overall switch capacity beyond 500,000 ports and support for up to 100,000 ports with one X1 ControlSwitch platform pair using the Netra X4270 server
- SEE process supports 900 Half Calls Per Second (HCPS)
- Single CDR supports 2000 Call Attempts Per Second (CAPS)
- Single PE on an X2 Policy Server supports 2000 Queries Per Second (QPS)
- Better handling of Busy Hour Call Attempts (BHCA) pick traffic

Enhanced CAPEX and OPEX Savings Opportunities

- Reduction in both the number of servers and the number of elements - in some cases up to 50% - that need to be managed
- Reduction in footprint and power consumption
- Reduction in licensing costs: One Netra X4270 based CSP license bundles most of the Call Control Element individual licenses, CCP, ICE, PE, SEE, etc.
- Network expansions readiness: A Netra X4270 based CCP provides high capacity and may allow expansion of switch ports without the need for additional hardware
- Fast upgrades along with ease of installation: A single X1-CSP platform includes all Call Control elements
- Reduced number of IP addresses
- Eliminates the need to purchase external storage for deployments up to 100,000 ports (*Planned capability*)
- More room for Operational Support System (OSS) operations on EMS with reduction of EMS heartbeats, statistics, logs, alarms etc.

Benefits to the Element Management System (EMS)

With up to three times increase in performance compared with the T2000 having been measured, a ControlSwitch System utilizing the Netra X4270 provides faster bulk loading of routing information, reduced element provisioning time, management of a larger number of elements, higher database performance, improved handling of alarm spikes and alarm floods, and elimination of the need for an auxiliary EMS. Service providers can seamlessly migrate the EMS from the SPARC-based platform (Netra 240, Netra 440, T2000) to the Netra X4270. Also, Oracle 11g with Active Data Guard enables database queries to be run on a Netra X4270-based EMS-DR, offloading OSS database queries from the main EMS.

The Oracle Application Express (APEX) development tool has replaced the Oracle Forms and Reports, which had been used for the EMS Graphical User Interface (GUI) screens. APEX provides the following benefits as compared to the Forms and Reports:

- Widely used industry technology
- GUI extensibility across more browsers and operating systems through the use of thin clients, alleviating the need for plug-ins
- Support for existing APIs involved in OSS integration provide for backward compatibility while at the same time replacing the User Interface (UI) rendering
- No operational down time required for users due to the preservation of the look-and-feel of existing Oracle forms
- Java-based framework for rendering a UI that offers all Web application capabilities

Replacement of Fault Management Server and SNMP Northbound Interface by the In-house Frameworks

The Fault Management Server (FMS) and the Northbound Interface (NBI) ControlSwitch EMS applications are responsible for alarms logging and correlation, current and history alarms handling, alarms email notification, user-configurability of alarm definitions and SNMP traps generation. The X4270 EMS, FMS and NBI applications were replaced with frameworks from Dialogic that provide:

- High performance to handle alarm floods and alarm spikes (for example, in case of STM-1 link bouncing)
- Prevention of repetitive clearing/raising of events across element restarts
- Email notification option for individual alarms
- Improved operator control over definition of alarms and events

Netra X4270 Call Control Platforms - X1 and X2

As discussed above, the Netra X4270 X1 CSP and X2 Policy Servers replace the T2000 B1- B6 platforms. X1 is used as the CSP and hosts the call control elements. The Netra X4270 based CSP platform can handle up to three times the capacity of a B1 platform (T2000 HW), and the single CSP configuration simplifies and unifies the switch layout, planning and sizing for the X1 platform.

All call control elements licenses, except for the LSG and RSG, are bundled into a single X1 license (LSG and RSG require separate software licenses).

Compare, for example, a ControlSwitch System platform with a traffic profile that supports 200,000 ports with 1,200 calls per second deployed on a T2000-based architecture against the same platform using the Netra X4270-based architecture. While both systems can support the same amount of traffic, there is a significant reduction in the number of servers, number of elements, footprint, and power consumption for a Netra X4720 based system, which requires 60% fewer servers, 60% fewer rack and 1/3 the amount of SEE pairs, while still allowing for reduced power consumption.

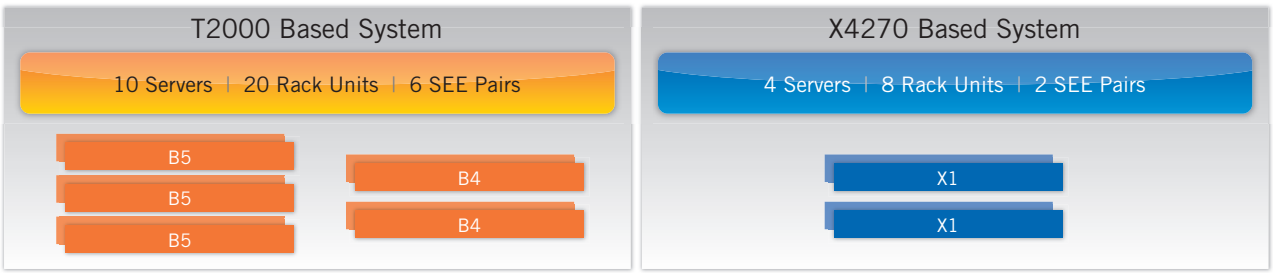

Figure 2 - ControlSwitch System platforms layout comparison example for T2000 and Netra X4270-based architectures

The X2 Policy platform includes only the PE and QoS DCA elements. It supports up to 2,000 Queries per Second (with up to 8,000 rule nodes), reducing the required number of PEs in the system. This also dramatically reduces the PE provisioning time on startup or during bulk loading and frees the EMS for performing other tasks. When the X2 platform is in use, the PE acts as a centralized policy engine and the X1 platform is implemented without any PE/DCA elements.

Use of the X2 platform can be beneficial in the following circumstances:

- When a centralized PE/QoS is required
- If the capacity of a PE on a call processing platform needs to be scaled beyond X1 PE capacity
- If a policy setup involves navigating through more than 1,000 nodes before a treatment is reached.
- Each three X1 platforms require a centralize X2 policy

Summary

Netra X4270 based ControlSwitch System software platforms are already being deployed in production networks worldwide, and service providers are seeing improvements in areas like capacity and performance, smaller footprint and lower power consumption, providing exciting opportunities for significant OPEX and CAPEX savings. Contact Dialogic to see how your service delivery network can take advantage of the cost savings possibilities with this platform upgrade.

Want to Learn More?

For more information, contact your local Dialogic representative. Contact information is available at www.dialogic.com/contact.

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