How Scientific Atlanta Is Migrating SAP to the Cisco Unified Computing System

The Cisco® Scientific Atlanta team will benefit from faster provisioning and greater flexibility and scalability in responding to changing business needs.

Introduction

Scientific Atlanta, which Cisco acquired in 2006, has been running SAP for 15 years, traditionally on a proprietary UNIX system. A leading provider of set-top boxes and end-to-end video distribution networks, with more than 3000 employees and US$2.5 billion in annual revenue, Scientific Atlanta uses SAP to run inventory management, manufacturing, sales and distribution, and service management applications. Today, Scientific Atlanta is migrating SAP onto a standard x86 platform with the Cisco Unified Computing System™.

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>
> **Brian Kennelly, IT Manager, Network and Data Services, Cisco**

Business Opportunity

The proprietary SAP infrastructure at Scientific Atlanta consists of a main 3-terabyte (TB) database server with 64 GB of RAM and 16 cores, surrounded by seven application servers. Also included is a SAP Secure Network Communication (SNC) client used to migrate files between different systems. For this platform, on average, Scientific Atlanta has spent about US$1.5 million on new hardware every 3 to 5 years, and about US$200,000 on software and hardware support a year.

"We have been looking for ways to take advantage of the lower cost structure, greater flexibility, and rapid innovation around standard hardware platforms," says Brian Kennelly, IT manager in the Network and Data Center Services group at Cisco. "With the x86 architecture moving to true 64-bit, it helps enable large memory systems to run on this architecture. UCS gives us the ability to run large amounts of memory, making this possible."

IT Project

Scientific Atlanta is shifting its overall SAP landscape to the Cisco Unified Computing System in a phased approach with new applications moving to the Cisco Unified Computing System first and older applications moving with the natural upgrade cycle of the infrastructure. Test and development platforms are the first systems to be migrated.

The Cisco Unified Computing System migration consists of three phases spanning approximately 1½ to 2 years. The team is currently in phase 1.

Phase 1: Next 3 to 6 Months

- Convert SAP Enterprise Resource Planning (ERP) test and development landscape components within a Cisco Unified Computing System test and development environment.
- Develop and design the new Cisco Unified Computing System landscape for a production environment, taking into account the existing SAP landscape.
- Begin replacing SAP application servers in the test and development environment with Cisco Unified Computing System equivalents.
- Begin sizing the Cisco Unified Computing System production environment according to business requirements.
- Complete the full migration of the production-sized test environment.

Phase 2: Next 6 Months to a Year

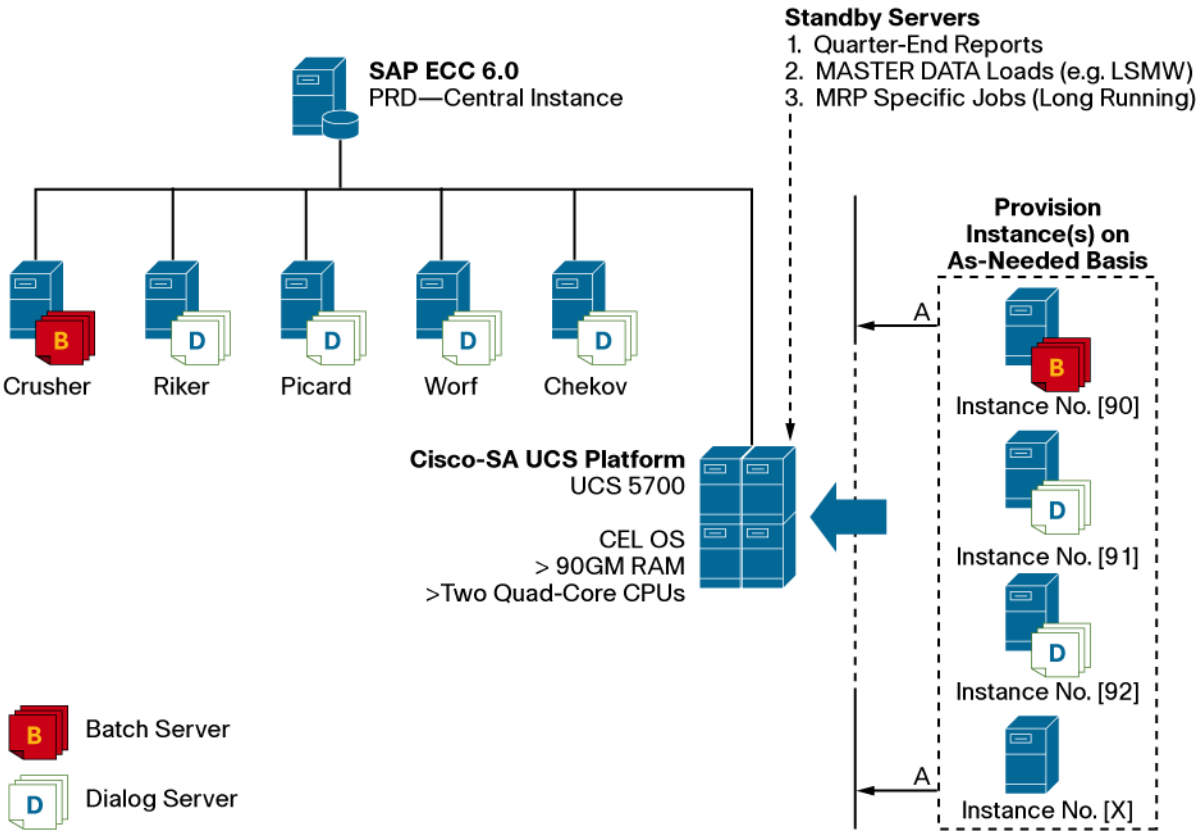
- Deploy the Cisco Unified Computing System production environment.
- Begin SAP ERP practice migration from the current proprietary system to the Cisco Unified Computing System.
- Replace current application servers with Cisco Unified Computing System application servers.
- Begin database conversion testing.

Phase 3: Year 1 to 2

- Convert the SAP ERP Central Component (ECC) 6.0 Central Instance and Oracle database to the Cisco Unified Computing System platform.
- Upgrade the SAP Exchange Infrastructure (XI) production environment from version 7.0 to 7.1 using the Cisco Unified Computing System.

Figure 1 shows the current production SAP environment and the planned (phase 1) application server production SAP environment with the Cisco Unified Computing System.

Figure 1. Cisco Scientific Atlanta Production SAP Environment with the Cisco Unified Computing System



Scientific Atlanta has performed four SAP version upgrades in the past 15 years, with the most recent SAP ECC 6.0 upgrade in 2008. Together, Cisco IT and Scientific Atlanta developed a best-practices upgrade model that is serving the team well.

For the 2008 upgrade, the Cisco Scientific Atlanta team had to convert the Oracle database and all data to Unicode format. The Unicode conversion involved using the SAP system copy toolset, which unloads the data from one database instance to a new database instance located on another server. Moving the current database to the Cisco Unified Computing System will involve the same process of unloading and reloading data.

“Using our previous conversion experience and the UCS accelerated provisioning, we’ll leverage additional UCS server resources to enable SAP’s parallel unload/reload system copy functionality,” says Chris Ellison, IT manager of technical services and architecture. “Having additional UCS server resources at hand significantly reduces the time for SAP system copy conversion.”

The 2008 upgrade was completed in 6 months, with replatforming, Unicode, and ERP upgrades all performed in one weekend. “We were able to use multiple systems to help reduce the time it took to do the unload and load,” says Kennelly. “If we had been using Cisco UCS, we could have quickly repurposed the test and development systems and added them to the mix, which would have resulted in more CPUs helping to do the work.”

“We practiced the complete upgrade and Unicode 10 times over 4 months before the actual conversion weekend,” adds Ellison. For the Unicode conversion, additional servers were used to reduce the conversion time.

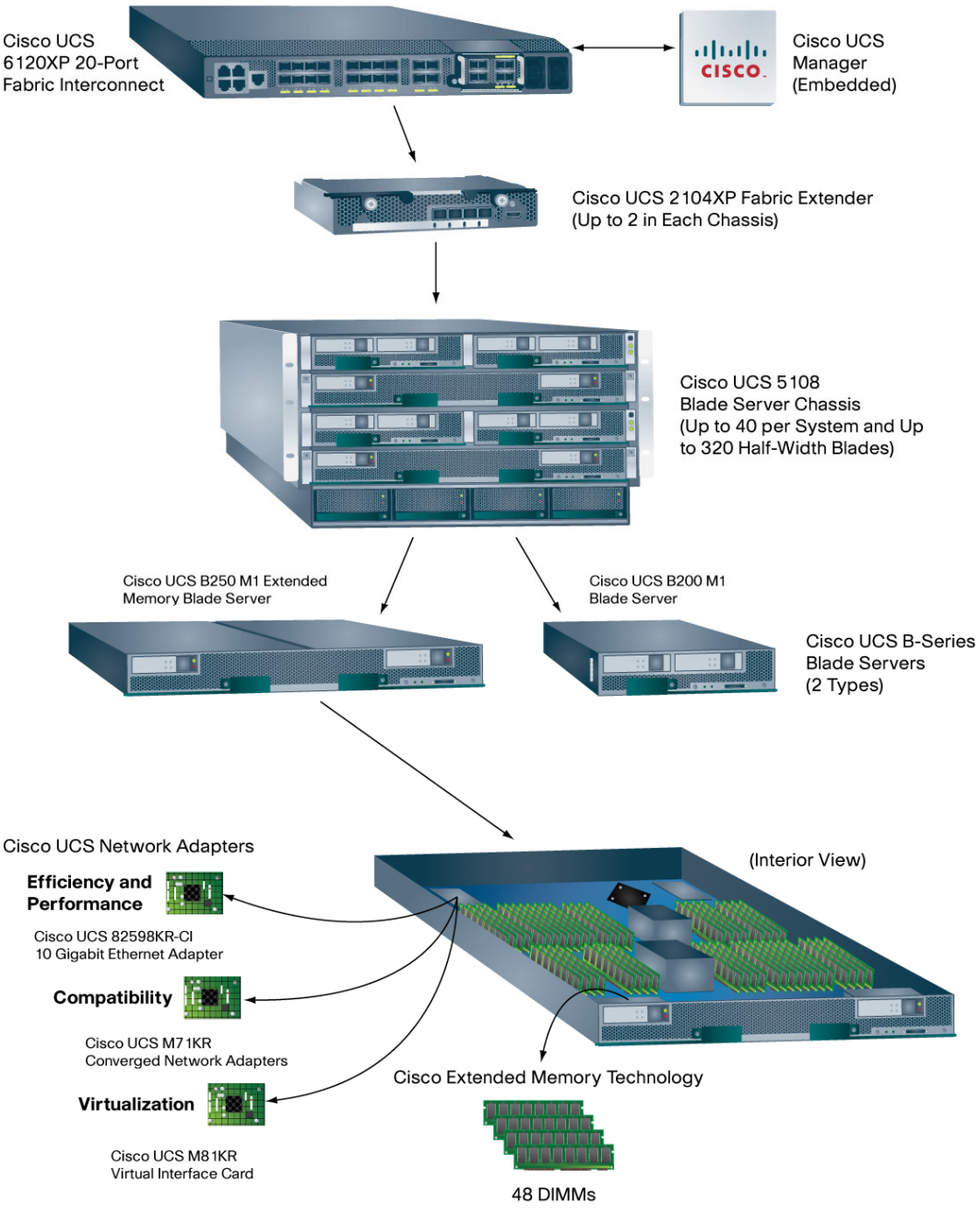
For the SAP migration to the Cisco Unified Computing System, the team will negotiate with the business for an extended downtime period over a single weekend. Additional Cisco Unified Computing System server resources should reduce the conversion time of Scientific Atlanta’s 3-TB database to less than 24 hours.

Cisco Unified Computing System Components

The Cisco Unified Computing System (Figure 2) includes the following components:

- **Two Cisco UCS 6120XP 20-Port Fabric Interconnects:** Through an expansion card with four Ethernet and four Fibre Channel ports, the interconnects provide native Fibre Channel access to the storage system.
- **Four Cisco UCS 5108 Blade Server Chassis, each equipped with two Cisco UCS 2104XP Fabric Extenders:** Each fabric extender has four 10-GB uplinks to the fabric interconnects, for a total of 80-GB bandwidth per chassis.
- **Twenty Cisco UCS B200 M1 Blade Servers with two Intel X5500 series processors:** Sixteen blades have 96 GB of memory installed for high-use applications and four servers with 48 GB of memory.

Figure 2. Cisco Unified Computing System



Cisco Unified Computing System Integration Considerations

The Scientific Atlanta team spent a few weeks learning how to take advantage of the Cisco Unified Computing System integrated architecture. “We worked out all of the details and made some slight adjustments on the data center network gateways and Cisco MDS Multilayer SAN Switches to allow for proper network and storage connectivity,” says James Argilagos, infrastructure technical lead who set up the Cisco Scientific Atlanta and Cisco Unified Computing System platform.

For example, the network switch ports had to be configured as Link Aggregation Control Protocol (LACP) active. The Fibre Channel switch must have the N-Port Virtualization (NPV) service enabled to allow multiple World Wide Name (WWN) identification and visibility on one switch port.

Firmware package downloading and updating (staging) is straightforward, says Argilagos. “The components need to be updated in a specific order: IOM modules, UCS Manager, and then the fabric interconnects. The blades themselves can be updated as part of the predefined host firmware packages selected for your service profile.”

When the blades are associated with a service profile with a different set of packages, after the change is made the server will immediately reboot and reflash the BIOS with the new information.

Installation of the operating system also is straightforward, using the preexecution environment (PXE) boot process. When the image is downloaded, the server is up and running in 15 to 20 minutes with a base configuration. After additional packages have been installed for administration and the required file systems created and kernel parameter changes made, a server can be up and running in a few hours.

Anticipated Results

The Cisco Scientific Atlanta IT team recently used the Cisco Unified Computing System platform to overcome a challenging performance problem in the current production SAP application. As part of a Cisco global initiative with an accelerated timeline for completion, the team had to load more than 300,000 part numbers into SAP, most of which required part-number descriptions in the simplified Chinese Unicode character set. The initial SAP Legacy System Migration Workbench (LSMW) parts load significantly slowed the SAP environment, which created performance problems for users and caused several application servers to fail.

Using the Cisco Unified Computing System platform, the team brought additional SAP application servers online within Cisco’s production SAP environment to meet the heavy demand. The additional SAP servers allowed the team to segregate user application servers from batch-load application servers. Segregating the massive parts loads to servers specifically assigned to handle these intensive processes offloaded the SAP LSMW-related work to separate application servers, which freed valuable resources on current servers assigned to users.

In addition to reducing the effects on SAP users, this solution takes advantage of the flexibility and scalability inherent in the Cisco Unified Computing System:

- New SAP application servers can be provisioned quickly through a common configuration interface.
- Servers can be configured and scaled appropriately to meet additional demand.
- When the loads are completed, the Cisco Unified Computing System SAP application servers return to the pool for future repurposing.

Cisco IT will configure additional SAP application servers when needed to meet the increased demands of quarter-end reporting and business-to-business interfaces as well as of large data loads.

Next Steps

The Cisco Scientific Atlanta team is on track and will continue to implement its phased approach for SAP migration to the Cisco Unified Computing System. In the meantime, the team is continuing to prove and get comfortable with the Cisco Unified Computing System platform and Cisco Scientific Atlanta infrastructure.

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