

Monsanto Company

COMPANY OVERVIEW

Industry: Bio-Technology/Agriculture

Employees: ~22,000

Revenue: US\$11.8 billion in FY 2011

Monsanto is a leading global provider of agricultural products that improve farm productivity and food quality. The company is committed to producing more, conserving more and Improving lives.

- **Double yields in our core crops by 2030**
- **Use one-third fewer resources per unit of output**
- **Improves lives of farmers all over the world**

CHALLENGES / OPPORTUNITY

Putting better seeds into the hands of farmers faster will help them feed a growing world population. To produce these new products, we leverage innovative technologies such as biotechnology and molecular breeding, both information-intensive activities that require fast turnaround times and massive computing power. Harvest data collected from the fields must be processed quickly so scientists can make advancement decisions about potential products. Researchers analyze huge volumes of data to determine which potential products have the right combination of traits for combating insects, controlling weeds, and increasing yield, while ensuring, quality, flavor, and nutrition of the resulting harvest.

CUSTOMER PERSPECTIVE

"We plan the harvest season for two or three times the load on our information systems. The Oracle Exadata systems contain Oracle hardware, Oracle software, and Oracle database technology, all integrated into a cohesive system. Working with a single vendor has made it a lot easier to resolve issues. There's no question about responsibility or ownership if something goes wrong."

"We were no longer comfortable with our ability to recover the entire database within a day's time. Now, with the Sun ZFS Storage Appliance, if we have any type of data corruption issue, we can resolve it very quickly. ZFS provides a more accessible, faster solution"

SOLUTIONS

Exadata Database Machine X2-2

Oracle Real Application Clusters

Sun ZFS Storage Appliance

Oracle Secure Backup

Oracle Active Data Guard

Oracle WebLogic Server

Oracle Service Bus

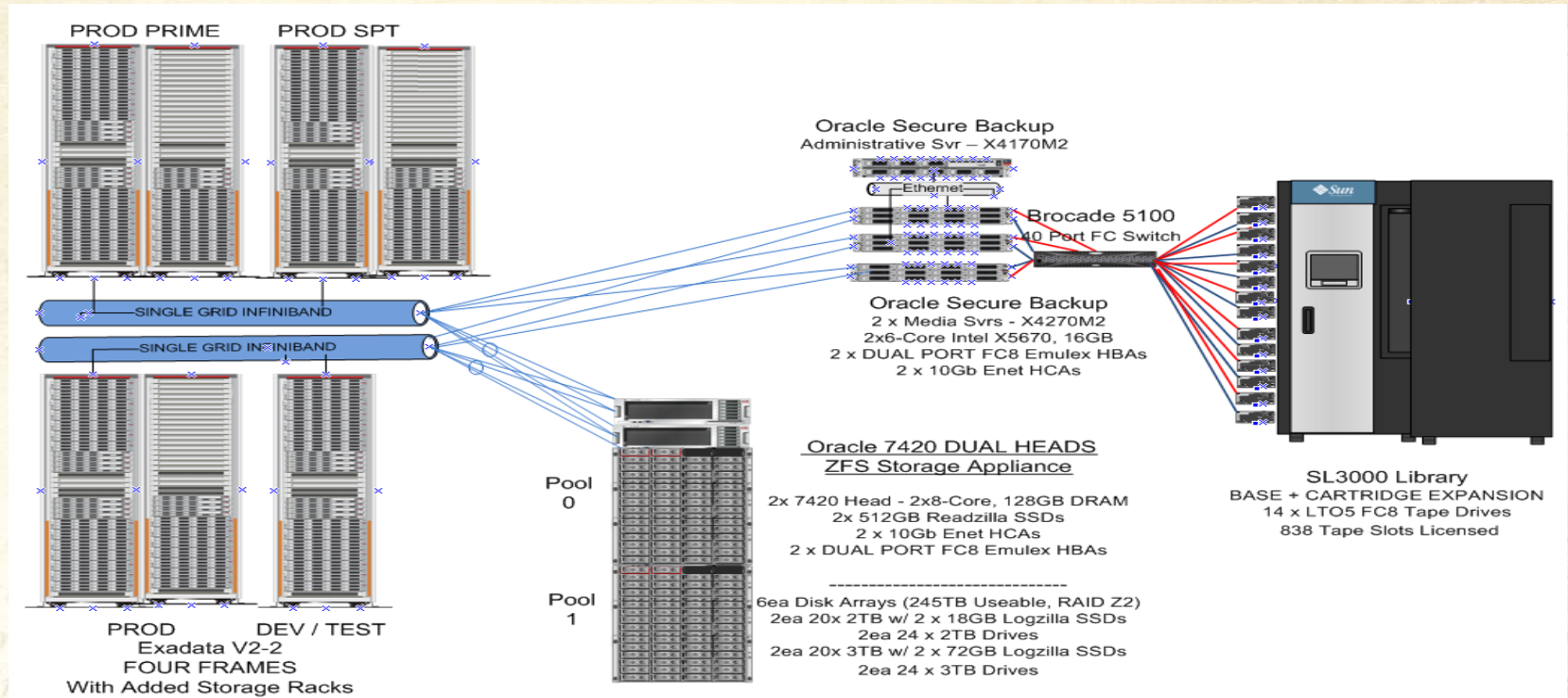
Oracle Coherence

Oracle Managed Services

Website: <http://www.monsanto.com/> **MONSANTO**

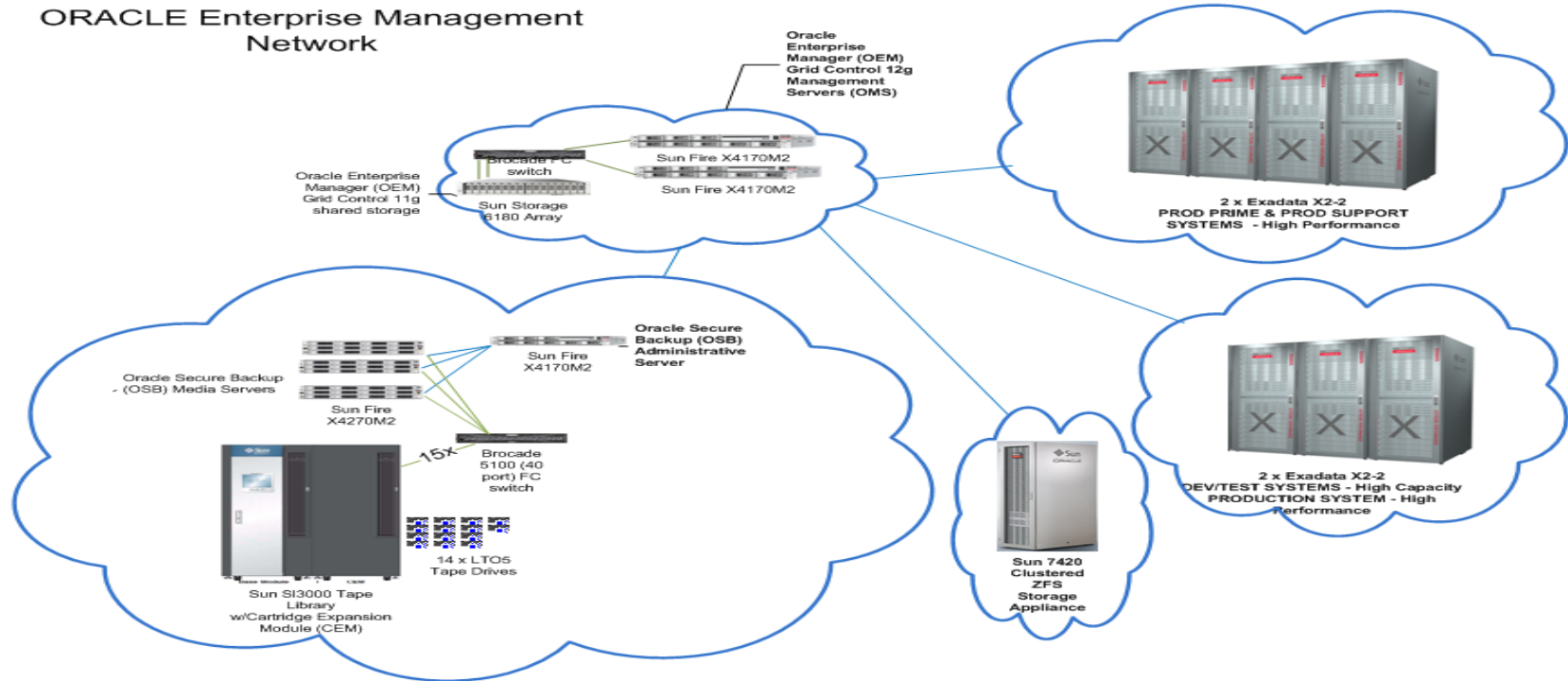


Monsanto Exadata Architecture



Monsanto – Exadata and Backup Cloud

ORACLE Enterprise Management Network



Monsanto Exadata Transformation

Targeted Goals

Exadata Differentiator

Realized Benefits

Platform Consolidation



- Migrated over 80 business critical applications to Exadata Platform
- Consolidation of 21 databases into single RAC and storage platform
- Maintain 4 Production like environments with equal data size and similar outage, backup and recovery process



- Reduced Support and Maintenance cost related to managing multiple platforms and Databases
- Implementation of standard support process across all environments

High Availability / Zero Outage



- Efficient use of Maximum Availability Architecture
- Proactive Monitoring and Reporting
- Proactive patching
- Onsite Exadata support staff
- Predictive hardware failure and issues resolution



- 100% availability during Harvest season
- 99.95% availability during Non Harvest season
- Reduced planned and unplanned outages by effectively using Standby
- Zero impact to customer during component failure

Improved data backup and recovery



- RMAN compression algorithm changes and implementation of BUR best practices
- Optimized use of ZFS storage
- Enabled multi-level compression options based on application data.
- Improved disk refresh process through continuous process improvements



- Capacity management of disk backup for larger databases.
- Over 40% improvements in tape backup performance
- Improved ZFS disk refresh process (RTO of 8 hrs)
- Reduced ZFS disk backup time from 11 to 4 hrs

