



Case Study: U.S. Census Bureau Utility Computing Environment

Business Value

- Lower costs
- Non-proprietary systems
- Higher utilization
- Faster time to market
- Server consolidation
- Simpler management and infrastructure
- Better service levels
- More responsive IT
- HA/COOP
- High performance

Executive Summary

A directive of the Census CIO, the Census Bureau Utility Computing Environment (CBUCE) reduces the cost and complexity of IT infrastructure by recentralizing the Bureau's IT function and replacing proprietary RISC/UNIX servers with open platforms running Red Hat® Enterprise Linux® and Microsoft® Windows®. The first step in the migration was choosing a server platform. The Bureau established a lab to evaluate systems from Sun, IBM, HP, RLX and Egenera. Egenera was selected for high-performance applications. The first to be ported, MAF/TIGER, runs on dual-core AMD Opteron™ processors and is being migrated to Oracle® Database 10g. In addition, the Bureau is teaming with Egenera Professional Services to further accelerate its adoption of utility computing.

Business Challenge

The U.S. Census Bureau is known for counting the population every 10 years, but it also does much more. The agency is the primary source of basic statistics about the citizenry, including labor, housing and tax information. To continue providing the best mix of timeliness, relevancy, quality and cost for the data it collects and services it provides, the Bureau launched an initiative to overhaul its datacenter by establishing the Census Bureau Utility Computing Environment (CBUCE).

A directive of the Census CIO, CBUCE seeks to reduce the cost and complexity of IT infrastructure by recentralizing the Bureau's IT function, which had become distributed into silos of departmental systems, and by replacing proprietary RISC/UNIX servers with open platforms running Red Hat Enterprise Linux and Microsoft Windows. Along with cost savings, results of this in-house hosting model include better service levels, resource utilization and IT responsiveness; faster application time to market; and simpler management. CBUCE has become such a showcase facility that other government agencies are looking to come into the environment.

"Utility computing is the future of datacenter infrastructure at the Census," said Thomas J. Berti, CSVD, BCC, U.S. Census Bureau. "Capitalizing on this vision means eliminating dedicated servers in favor of flexible resources that can be allocated to any application at any time. It means delivering processing capacity to our clients in minutes or hours instead of weeks or months. And it means sharing systems across departments for high availability and continuity of operations—improving utilization, consolidating servers and reducing both capital and operational costs."

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"In choosing the platforms for CBUCE, we found the utility computing capabilities of the Egenera system very desirable," noted Berti. "At the same time, it offered low total cost of ownership. Also significant is the responsive, hands-on support Egenera provides. This combination of forward-thinking functionality, quantifiable savings and top-notch service convinced us that the Egenera platform was an exceptional investment in our datacenter's future."

In addition, the Census Bureau is teaming with Egenera Professional Services to further accelerate its adoption of utility computing. Initiatives are underway around datacenter process design and engineering, utility hosting for the application lifecycle, and migration to Oracle 10g. An onsite Egenera residency engineer ensures program quality. Moreover, the system administrators managing the Egenera systems were fully trained in just one week.

Initial Application: MAF/TIGER

Egenera is being used for mission-critical, compute-intensive applications in the new utility environment.

The first of these is the Master Address File/Topologically Integrated Geographic Encoding and Referencing Accuracy Improvement Project (MAF/TIGER® AIP). The MAF, or Master Address File, is designed to be a complete and current list of all addresses and locations where people live or work, covering an estimated 115 million residences as well as 60 million businesses and other structures in the U.S. The TIGER portion of the project is a digital database that identifies the type, location and name of streets, rivers, railroads and other geographic features, and geospatially defines their relationships to each other, to the MAF addresses, and to numerous other entities.

The decision to port MAF/TIGER to Egenera was based on the platform's utility computing features and on performance of the dual-core AMD Opteron processors selected by the Census Bureau. With four CPUs and 32 GB of memory on each Egenera blade, MAF/TIGER can be supported by the equivalent of 24 very powerful eight-way servers in a single chassis. The exceptional performance of the AMD-based blades should also contribute to unprecedented server consolidation.

The Census Bureau's Geography Division maintains both the MAF and TIGER databases, which are being migrated to Oracle Database 10g with Real Application Clusters (RAC) as part of the professional services engagement with Egenera. The first relational database designed for utility computing, Oracle Database 10g RAC coordinates multiple processing and storage resources as a single, self-managing grid. According to Mark Salser, senior vice president of Oracle's Technology Business Unit, "The Egenera system is an ideal computing platform for the Oracle 10g stack."



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