



Case Study

Pakistan

Recording Electronic Votes for A Powerful Democratic System

Viper Pakistan Creates Integrated Statewide Election Management System for ECP with Intel's Modular Servers

Challenge

The Election Commission of Pakistan:

Needed To Replace their old manual system of collecting, collating & reporting election results.

Required an IT solution that was both robust and secure was to provide the necessary infrastructure for their e-government initiative.

In addition, ECP needed assurance on Reliability of data, Cost & Performance since the database system would hold critical voting information.

Previous System

The main purpose of the implementation was to get real time reporting and analysis. The previous environment was paper-based, manual system thus was fraught with challenges such as delay in reports and potential for stealing the elections.

Benefits

Intel Modular Server provided the following benefits:

- Improved hardware performance
- Efficient system management
- Decreased total cost of ownership (TCO) through increased power efficiency and space utilization
- System environment stability and high availability (HA)

Key Technologies

- Microsoft Windows Server® 2003 Editions and Intel® architecture-based servers allow Election Commission of Pakistan to reap the benefits of 64-bit computing.
- Microsoft SQL Server™ 2005 on Intel architecture-based servers allow ECP to allow more transactions faster
- 98% uptime reliability with N+1 Redundancy

About Election Commission Of Pakistan

The Election Commission of Pakistan is an independent and autonomous constitutional body charged with the function of conducting transparent, free, fair and impartial elections to the National and Provincial Assemblies.

Hardware Configuration

- Servers running on Quad-core Intel® Xeon™ technology played a key role in the proposed benchmarking hardware-based performance gains.
- 5-Server Computing with MFSYS25 Chassis
 - 2 Web Servers
 - 1 Application Server
 - 1 DB Server
 - 1 HA Standby Server
- Storage Modules
 - 10 x 500 GB 2.5" SAS HDD
- Management Module
- Redundant Power Supply
- Microsoft Windows Server 2003 and SQL Server 2005\ formed the twin operating system (OS) and software benchmark pillars, whilst the front end user interface was programmed in .Net technologies.

Solution

ECP needed fast and reliable solution because the data was mission critical. The servers had to have the capacity to record about 80 million votes at approximately 100 transactions per second. They also needed to ensure 100% accurate data and wanted to see everything in black and white.

Intel® Modular Servers provided the perfect solution for recording real time mission critical data, serving as consolidated data centers, solving ECP's stated challenges.

Viper solutions analyzed all of ECP's detailed requirements while comparing the pros and cons of various solutions in the market today, taking great pains to benchmark results against leading technology solutions from various vendors.

In helping ECP map out the best-fit architecture, Viper benchmarked efficiencies by analyzing Intel Quad Core infrastructural technologies with comparative technologies based on dual-core Intel Xeon processor technology as well as Microsoft server software architecture.

It was clear toward the conclusion of the evaluation that the Intel Dual Xeon processor technology-based server option combined with Microsoft Windows Server 2003 and SQL Server 2005 formed the potential best package for ECP's needs. Modular servers were chosen based on reliability, cost and performance. In terms of cost-performance ratio, Intel Modular Servers were 50% more economical than conventional servers.

The solution was deployed in 3 regions and five locations. All transactions would be made in Islamabad and the data would be replicated in Karachi, Quetta and Peshawar. The servers were connected through optic fiber.

Benefits

Decreased Total Cost Of Ownership & Cost Of IT Operations

The new operating system and database provide greater cost efficiencies over the long term due to:

1. Performance

The selected operating system and database deliver a high performance data transaction environment and scalability. The selected database is highly scalable and can allow for future growth by utilizing standard servers and storage solutions.

2. Space Maximization

MFSYS25 Chassis completely houses the 5 server environment in less space than any other solution resulting in lower rack space and storage.

3. Power Savings

Power consumption is 20 percent less than conventional server solutions.

4. System stability with High Availability (HA)

Viper provided the N:1 HA solution for all servers in the Intel Modular Server configuration to ensure full redundancy, increase system availability and minimize database downtime.

ECP also benefited from additional features offered by Intel within the same solution at no extra cost (unlike other vendors) such as:

Intel Power management

Intel's control units completely shut down the inactive cores and divert spare power to active ones. The unit can also moderate the speed and power consumption of each core independently, thus leading to more efficient power usage.

Intel Server Management software.

The Intel Solution allows ECP to simplify server setup and reduce system management costs

Intel IT Administration software.

The solution provides manageability functions that assist IT administrators in maintaining clean and stable systems. It can also help customers to lower the cost with higher management efficiency.

Return On Investment

The investment has a projected ROI at approximately 35 percent annually over three years.

About Viper

VIPER was one of the first original clone PCs to arrive in Pakistan in 1996 and today is ranked one of the top locally assembled PC brands. Viper maintains and enjoys an impeccable reputation for delivering reliable, quality products with a strong emphasis on performance, whilst keeping abreast of the competitive nature of the Pakistani PC market. VIPER Technology (Pvt) Ltd. manufactures and distributes the range of VIPER PCs, Enterprise Server range and notebooks.

VIPER Technology (Pvt) Ltd. has been dedicated to the industry for last 15 years; with 200+ IT professionals throughout Pakistan. Viper provides a whole range of IT products, including Consultancy, VIPER branded computers, which are customized to cater Enterprise-to-Personal Computing—EPC IT infrastructures, Services Solutions and Products.

VIPER Technology (Pvt) Ltd has a dedicated team of professionals committed to supporting and servicing the wide range of PCs, software, associated hardware peripheral products and solutions offered.



For information about Intel Modular Server based on Intel Multi-Flex Technology, visit www.intel.com/go/mft

For sales information and marketing tools visit www.intelmodularserver.com

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