



Small Business Case Study

Intel® Xeon® processor servers,
Intel® Centrino® mobile technology,
Hyper-Threading technology
Company Size: 1-25 employees

Debit card transactions secured with Intel® at CardOne Plus



Case Summary

CardOne Plus provides customized debit card solutions for corporations internationally. As a start-up company, CardOne Plus quickly went from 500 active debit cards to more than 5,000. The company needed to expand its available network infrastructure to support CardOne Plus' service level agreements and to handle more than five million cards in the pipeline. The company turned to a clustered network infrastructure leveraging the power and stability of Compaq* servers using Intel® Xeon®.

Challenge

CardOne Plus issues cards to corporate clients to provide an Interac-style service for their employees for things like payroll and expenses while travelling. Corporations issuing these stored-value cards can limit the dollars stored on the card, but they can also replenish them easily for travelling employees in need of emergency funds.

Marketing Manager Kevin Zicherman notes that the customized debit solution industry is growing rapidly as people move towards a cashless society. "Our transactions have quintupled in the past three to six months," he says.

When the company was founded in 2004, it was set up like a start-up: with a simple network infrastructure and enough servers to support its small operations. As larger corporate clients were secured, CardOne Plus started to roll out a larger and more robust network infrastructure to support the projected increase in activity.



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To attract and retain clients, CardOne Plus needed a sophisticated network infrastructure with the redundancy, speed and robustness that clients expect from a banking service. For president Kevin Lewis, this meant having the right technology in place not only for today's clients but the projected growth of the company.

It was quickly becoming obvious that the start-up infrastructure of a single web server, database server and firewall couldn't handle the projected traffic as clients and new customers activated their cards.

“Our infrastructure has tripled in size over the past three months,” says Jonathan Poole, Infrastructure Specialist at CardOne Plus. “We need a high availability network that allows enough redundancy to implement maintenance without impacting service level agreements for uptime.”

Solutions

CardOne Plus recognized it needed a clustered server environment that would grow with the company and provide more flexibility for service upgrades and maintenance. Poole implemented a server farm of 20 production servers running Intel® Xeon® processors in a cluster that is round robin load balanced.

“Our growth is stratospheric,” says Lewis who is projecting 150 to 200 percent growth. “Our customers need reliability and dependability so our technology has to be robust.”

With the new system in place, Poole says that even if they needed to pull two servers offline for maintenance, they would have enough processing

power to support their clients. “Everything is in a high availability, high uptime environment. All of our hardware is based on Intel® Xeon® for performance, reliability and warranty. Intel® is a trusted source which is important to us,” he says.

Poole adds that his SQL servers run better and more stably on a server using Intel® Xeon® processors, allowing him to spend more time in other areas of the business. The time he saves on customer support he is able to dedicate to the performance of the company's application. Poole also sees real benefits to the dual processors that can work on two sets of tasks simultaneously thanks to Hyper-Threading technology, which gets more work done in the same amount of time.

Key Advantages

For CardOne Plus, stability and availability of the network is critical. Whether it's a major power failure or required maintenance to keep the system running efficiently, CardOne Plus needs to be up and running for its customers 24 hours a day, seven days a week.

Security is Number One

In addition to high availability, CardOne Plus is focused on providing the highest levels of security. As a company that is dealing with monetary transactions and is connected into the banks, ensuring top-level encryption is essential.

“Security is our number one concern,” says Zicherman, noting that whether it's accessing the corporate LAN while working remotely, or customers logging into their network to run reports, security protocols are redundant and



powerful. The company also employs outside agencies to regularly test their security system, and Poole notes all reports have been positive.

"Everyone wants to know that their money is safe and secure and cannot be penetrated," says Lewis, noting their infrastructure provides that security to customers. Poole notes that they need high levels of processing power to allow their intrusion detection system to quickly monitor and qualify every packet entering the system.

With the internal implementation of a wireless network, ensuring high levels of security through the wireless access has been an important consideration. "We have secure 128 bit SSL encryption open to the banks, so every point of entry is secure," says Poole, who notes that even people accessing their wireless LAN from the office have to play "by his rules, meaning accessing is strictly controlled."

Wireless Adds Convenience

Implementing a wireless LAN in the office has added convenience for CardOne Plus clients. With clients coming to their Toronto offices from around the world, it's valuable to be able to allow them access to the Internet for e-mail or connecting to their corporate LAN.

In addition, many staff are travelling extensively to client sites and trade shows. Zicherman says that with the flexibility to carry a wireless notebook powered by Intel® Centrino® mobile technology, staff can stay in touch while on the road through encrypted VPN networks.

"Wireless has no limits," says Zicherman. "Whether at a workstation or a boardroom table, we have access to all our information and files."

Lewis relies on his IBM Thinkpad* with Intel® Centrino® mobile technology to stay in touch while travelling. "It's really a convenience," he says. "I can access everything I need from anywhere in the world."

An added benefit of wireless has been the impression it leaves with their customers. With work underway to secure a second round of financing, having the latest technology in the offices makes a positive impression on potential investors. Wireless has had a positive financial benefit as well. With extensive growth, wireless access has saved the company more than \$5,000 in cabling costs.

Maintenance Made Easy

For Poole, being able to upgrade services and conduct routine maintenance, without having to alert customers or send out maintenance e-mails, has been a major boon. The clustered environment allows him to bring servers on and off the system without customers knowing that maintenance is underway.

This flexibility also allows the company to live up to service level agreements; it has not had to pay out for any service interruptions.

Explosive Growth

Moving from a start-up company to a global financial services company has meant building an infrastructure that can withstand overnight growth.

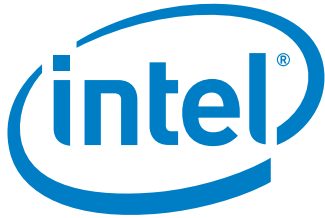
To meet the growing number of clients, the internal staff has tripled. Poole says internally all their employees are using either desktops running Intel® Pentium® 4 processor technology or notebooks using Intel® Centrino® mobile technology because it is reliable and secure.

Feature Rich Services

CardOne Plus is looking to change the way people view financial transactions. As the world moves toward becoming a cashless society, more and more companies are looking to provide their clients and employees with a flexible service for payment, purchases and all expenses.

"We provide the flexibility to manage all of a person's cards in one solution," says Lewis. "With one single product, we can do everything from paying an employee, transferring funds and making payments seamlessly."

Lewis sees the trend towards use of debit cards continuing to increase – and with the clustered network infrastructure in place, CardOne Plus can easily expand as new clients come on board.



Future Uses

The future is full of opportunities for growth, says Lewis. Beyond expanding points of presence around the globe to increase worldwide access speed, the company is also seeing growth of staff, clients and cardholders. New points of presence are planned for North America, Asia, South America and Europe.

Poole is already investigating opportunities to take advantage of 64-bit architecture and servers using Intel® Itanium® 2 processor technology. He is also investigating new storage devices and more redundancies in the load balances to reduce further potential points of failure.

Lewis also sees opportunities for access to their services over a wide range of devices including handhelds and cell phones. Plans are already in the works to add RFID chips in all the cards to take further advantage of wireless opportunities.

With the projected growth in staff, the company is taking over the second floor of their Toronto office space. This will expand the use of wireless in the office, as they do not want to add further cabling. Wireless further enables them to expand operations without the additional costs associated with wiring a new workstation for every new employee.

Another evolution for CardOne Plus is in working to integrate their solution with XML technology to increase the number of ways clients can access their services.

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