

# IT for Argentina's stock exchange is on the move

Caja de Valores turns to HP to extend its always-on infrastructure to include mission-critical securities applications

Three institutions form the Argentine Market System (AMS), the country's largest stock exchange, where 20-30 million pesos are traded daily. Caja de Valores S.A. is the organization within the AMS that provides IT and communications support. It also handles the custodial repository for the exchange. Two years ago, Caja selected Hewlett-Packard to replace its aging mainframe infrastructure with an HP Metrocluster. Now the firm begins a new phase with the reengineering of its mainframe applications architecture. Caja is once again turning to HP.

Launched in 1974, Caja de Valores maintains its original mission, to provide IT and communications services to the AMS and to manage its custodial repository. But the way that mission is expressed has changed dramatically over the past two years.

Caja's IT environment since the mid-eighties was a Bull mainframe. State-of-the-art when installed in 1986, by the late nineties it had become extremely expensive to maintain. "The Bull environment had become much too rigid to support the needs of the exchange. It had reached the end of its life," says Eduardo Steinmann, director, Caja de Valores.

Looking to the future, Caja decided to build an IT infrastructure for the next century. The firm invited several companies to provide a quote for the business including HP, IBM, one of IBM's partners and Unisys who partnered with Sun.

"We had a long list of requirements," comments Steinmann. "We were looking not only at the infrastructure but beyond it to the database, languages, applications and other elements." >>

Caja de Valores S.A. Headquarters in Buenos Aires. (pictured opposite)





>> Caja de Valores decided that HP's architecture offered the best choice for the infrastructure and beyond. "HP's proposal was comprehensive while remaining cost effective," Steinmann says. The infrastructure project was essentially completed two years ago. Steinmann continues, "Now we are evolving toward an always-on environment for systems, networks, data and applications. That includes disaster-tolerant approaches."

Today Caja de Valores employs an HP Metrocluster designed for high availability and disaster tolerance. Its move to a high-uptime, flexible infrastructure is considered a great success. Now Caja can build on its mission-critical infrastructure, which includes an open systems application platform based on HP-UX, Java and Oracle.

"With the Bull system we also had two servers, but it was difficult to mirror data. With our new infrastructure, mirroring and failover are virtually automatic," says Steinmann. The firm is considering outsourcing to another location for better disaster recovery. It is also considering outsourced data centers.

#### Major re-engineering launched

The firm is launching a major re-engineering of all its applications, with HP acting as one of the two main technology partners for the project. The requirements for standards, performance, availability and robustness make this one of the most challenging development projects in Argentina.

"What we are doing is complex. It's not a mechanical migration but a total re-engineering. At the same time we need to control budgets and

schedules – so we asked for a fixed price and fixed development schedule for the first phase, and HP was more than willing to comply," explains Steinmann. HP will define the architecture, develop the applications, assist with technical support and participate with both the Project Office and as part of Caja's Steering Committee.

No applications area will be overlooked in this comprehensive re-engineering project. Caja has grouped its applications into six categories:

- Negotiations and trading;
- Trader registration;
- Pricing information;
- Futures trading;
- Clearing;
- Custodial management.

Caja is already moving from its proprietary Bull database to Oracle, the database technology it chose as part of the infrastructure makeover. "With a relational database, we have a flexible database to support an online, real-time application architecture," remarks Steinmann. "The Bull database was hierarchical, not relational, so it was rigid and did not adapt easily to change such as new government regulations." Under the legacy system, any change to the database was time-consuming and expensive to make. Developing a flexible architectural design using relational capabilities, Caja can be much more responsive to emerging requirements for data. The firm will also be able to leverage data. "We will capture much more operational and historical data and have more ways to manage and access it."

#### Caja de Valores S.A. at a glance

**Founded:** 1974

**Headquarters:** Buenos Aires

#### Mission

To provide IT and communications support to Argentina's largest exchange; also manage custodial repository

**Size of exchange:** 20 – 30 million pesos traded per day

**Number of Traders:** 200

#### Metrocluster environment:

- Two sites for disaster-tolerant IT
- Replicated storage and automatic server failover
- Oracle database
- Oracle application server
- Unix and Java application environment
- Rational methodology for project management of software development

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Eduardo Steinmann, director, Caja de Valores

Work on the core negotiations and trading applications is already under way. The stock exchange has 200 traders with high expectations for security, availability, performance and access to systems. Right now traders use HP Jornada systems or HP Vectras and e-PCs to view quotes and execute trades when they are on the trading floor. Trades can also be executed using paper forms, depending on the trader's preference. Trading floor systems are linked to Caja's network through an intranet, but traders can also use Internet connections from their offices. When the application environment is complete, traders on the Internet will have the option of a wireless interface.

#### **The need for a structured methodology**

Applying a structured methodology for developing the new software was high on Caja de Valores' requirements for the application environment. The Rational Unified Process methodology, which has been adopted by HP, was selected because of its phased approach and strong project controls. "Rational offers very clear specifications and defined tasks for each phase," comments Steinmann. Caja maintains 5,000 legacy programs that will be re-engineered as object classes with HP's help and the Rational methodology. "Using a structured methodology will enable us to control the scope, costs, effort and delivery for each phase of the re-engineering." As a core team partner, HP has major responsibility for how the methodology will work to control time and cost variables. Steinmann, formerly with IBM, has found working with HP "a very good experience for Caja over the past two years. HP is part of our team. The people are highly professional and willing to take responsibility for the success of projects – even mission-critical projects such as this one."

Once the new application environment is in place, including a new front-end to the trading system, Caja will be positioned to greatly expand trader services. Steinmann continues, "We will support trading with a variety of real-time, responsive solutions that would never have been possible using our old system." Caja de Valores is poised to become a best-in-class model whose example Steinmann envisions offering to other Latin American exchanges. "We have an enormous task ahead of us, but the end achievement – a state-of-the-art trading environment – is well worth the effort."

#### **Editor's note**

HP continues to work with leading stock exchanges worldwide, providing an HP infrastructure for an always-on business. HP also has very close relationships with partners in financial trading solutions such as Talarian Corporation ([www.talarian.com](http://www.talarian.com)). See articles on the American Stock Exchange and the Singapore Stock Exchange in the August 2001 issue of Worldfinance or view these online at:

[www.hp.com/solutions1/financialservices](http://www.hp.com/solutions1/financialservices)

**“The HP mission-critical application environment will enable us to turn off our legacy systems for good, as we develop and run flexible, high-performance applications with the guaranteed uptime that we require to support 200 traders on Argentina's largest stock exchange. We face the total re-engineering of 5,000 legacy programs, and we are impressed by HP's track record and willingness to take major responsibility for the success of an enormous mission-critical project.”**

Eduardo Steinmann  
director  
Caja de Valores