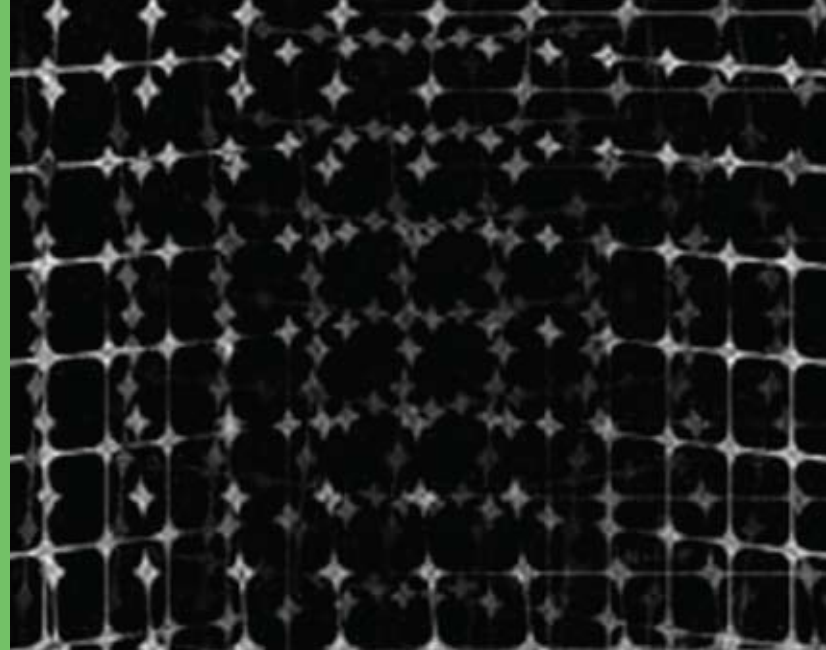


# Platform Symphony

Helping Citigroup meet company goals



## Customer

Citigroup

## Industry

Financial Services

## Challenges

Reduce computing costs and make better use of underutilized computing resources to provide the additional processing power required to improving the performance of complex analytical, pricing and risk management applications.

## Solution

Platform Symphony

## Results

- Computer hardware utilization goes from 20 percent to more than 80 percent, yielding much-needed additional processing power.
- Computing infrastructure management is simplified and additional resources can be added quickly, easily and inexpensively.
- An effective, global utility-computing platform is in place to provide on-demand processing power at significantly reduced cost.

## Deploying a powerful tool to help assess business decisions

Every day, traders in the Capital Markets business unit of Citigroup's Markets & Banking division deal in a wide variety of investment banking products. To stay ahead of competitors and meet the company's financial goals, the Capital Markets staff relies heavily on the use of compute-intensive applications to perform tasks such as market analysis, pricing and risk management.

To improve the performance of these applications to support growing business volume and the introduction of new, more complex products, Citigroup needed additional computing power. Like most companies, however, Citigroup was under pressure to improve processes and cut costs, while still growing the business.

Faced with the prospect of having to buy expensive computers, Citigroup chose instead to implement a computing grid using Platform Symphony software. By making use of underutilized computing resources to provide additional processing power, the Platform grid solution enhanced the capacity and performance of Citigroup's key business applications, while reducing computing costs and real estate requirements. The computing grid is also being used to build a utility computing service that offers Citigroup business units access to on-demand computing power.

## Business Challenge

Citigroup's Capital Markets division deals in the complete lifecycle of modeling, pricing, dealing and the administration for a complete spectrum of products, including money market, foreign exchange and fixed income products, as well as a wide variety of derivative products.

"Along with enabling us to maximize the use of all our available computing resources, the Platform Symphony grid is enabling our IT users to be more creative in how they share computing resources to do their development and testing work, thus helping us achieve our expensive efficiency targets."

John van Uden  
Senior Vice-President, Capital Markets,  
Citigroup Banking Technology

For this business to be profitable, and to outpace its competitors, Citigroup needs to be able to make the best possible decisions in the shortest amount of time, while managing its risk position. Computers play a big role in achieving these goals, and Citigroup uses a lot of computer processing power to execute complex and sophisticated calculations associated with analytical, pricing and risk management applications.

However, with dramatic market growth and increasing competition driving them to add new, more-complex products, Citigroup was finding that its existing computing resources were no longer sufficient to meet their growing needs. Although budgets allowed for the addition of more computers, data center space was at a premium and costs were skyrocketing. In addition, analysis of the existing computing infrastructure revealed that hardware was operating at less than 15 percent utilization. To meet their need for additional computing power, the firm decided to implement a grid computing model that would make better use of existing resources, while helping them reduce costs.

## Solution

After conducting an RFP exercise involving a number of products on the market, Citigroup chose Platform Symphony, a grid solution specifically designed to address the unique needs of financial services organizations.

The first stage of Citigroup's grid deployment was to consolidate all its isolated computing assets into a single, large resource pool, allowing the Capital Markets group to meet its growing processing needs through better utilization of existing equipment – the group has roughly 10,000 CPUs distributed globally – and without incurring additional hardware cost or consuming additional space and power. And when additional resources are required, Citigroup can quickly and easily add low-cost commodity CPUs to the grid instead of having to buy large, complex and expensive servers. This keeps the cost down, makes deployment much easier and greatly simplifies the ongoing management of their overall infrastructure. Now, if a piece of hardware in the grid fails,

there is no impact on application performance and it's a simple and relatively inexpensive matter to fix the problem – the traditional 'break-fix' model is replaced by 'break-replace'. "With Platform Symphony, it has been easy for us to get new applications onto the grid," says van Uden. "This allows us to be more proactive in meeting the needs of our lines of business for new processing capabilities."

Citigroup's four-year grid implementation is expected to be completed in 2007, with as many as 4,000 CPUs connected to the grid. A chargeback model was also developed as part of the grid deployment so that individual business units within Citigroup can be charged for the computing resources they use. Citigroup is creating a shared resource environment in which any group can have on-demand access to the processing power they need based on Service level Agreements met through an enterprise-wide computing grid – the true 'utility' computing model.

## About

Consisting of three main business units – Citigroup Global Consumer Group, Markets and Banking, and Global Wealth Management – New York-based Citi is a leading global financial services company. Its 300,000 employees in more than 100 countries serve some 200 million customer accounts and manage roughly U.S. \$1.5 trillion in assets. Citi provides consumers, corporations, governments and institutions a broad range of financial products and services, including consumer banking and credit, corporate and investment banking, securities brokerage, and wealth management.

Citi Markets and Banking, financial partner to corporations, financial institutions, institutional investors and governments around the world, is a global leader in banking, capital markets, and transaction services, with a presence in many countries dating back more than 100 years.



Platform Computing is the leader in grid and cloud computing software that dynamically connects IT resources to workload demand according to business policies. Over 2,000 of the world's largest organizations rely on our solutions to improve IT productivity and reduce data center costs. Platform has strategic relationships with Cray, Dell™, HP, IBM®, Intel®, Microsoft®, Red Hat®, and SAS®. Building on 17 years of market leadership, Platform continues to help data centers be more efficient, responsive and dynamic. Visit [www.platform.com](http://www.platform.com).

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