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GLOBAL FINANCE



October 2012

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AND THE WINNERS ARE...

Global Finance presents
its annual list of the
World's Best Banks 2012

GLOBAL WINNERS

CORPORATE BANK

Deutsche Bank

CONSUMER BANK

HSBC

PRIVATE BANK

Julius Baer

EMERGING MARKETS

Standard Chartered

ISLAMIC FINANCIAL INSTITUTION

Al Baraka Bank

ASSET MANAGEMENT

BlackRock

CUSTODY

BNY Mellon

INVESTMENT BANK

Goldman Sachs

CASH MANAGEMENT

Citi

TRADE FINANCE

Citi

FOREIGN EXCHANGE

Deutsche Bank

SUBCUSTODY

Citi

Accelerating Financial Applications With High Performance Computing

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High Performance Computing (HPC) has significantly changed the complex landscape of financial services, promising to rapidly speed up operations and equip firms to stay competitive in an ever-changing market.

By **Srinivas Prabhala**, Unit Technology Officer of Financial Services and Insurance Practice, Infosys and **Raghu Kishore Vempati**, Technology Architect, Infosys Labs

An uncertain market environment and regulatory pressures have pushed financial services firms to increasingly focus on analyzing data better and faster to arrive at smarter decisions, conduct real-time risk analysis and deliver services more quickly to customers. Be it complex calculations associated with pricing—to make crucial buying/selling decisions in capital markets; actuarial/risk modeling by insurers; or faster analytics in retail banking, generating and processing huge amounts of data is an integral part of operations. In addition, customers demand ever-shorter turnaround times, thus necessitating greater speed in operations.

High performance computing (HPC) offers solutions for these needs. Primarily based on the concept of parallelism, HPC provides predictability and speed, to further optimize resources. The landscape of HPC technologies has been evolving. Innovations in hardware such as multicore processors, graphics processing units (GPU) and field programmable gate arrays (FPGA) enable a high degree of parallelism. Since many complex systems require huge processing capacity, distributed computing is being adopted—where a group of machines are provisioned with required processors. The cloud provides elastic scalability for distributed computing and pay-per-use models deliver an opportunity to accelerate solutions as needed.

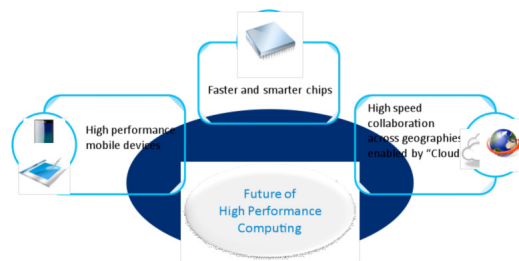
HOW DO THEY HELP?

Accelerated solutions/Faster decision cycles

Financial services, with its enormous size and scale of operations, has complex models that are used to simulate and measure products, offerings and risks. Typically, these models are run using spreadsheets and can take hours or even days to execute. With regulatory pressures on the rise and the emergence of new directives such as Solvency II, it is crucial for institutions to assess risk in a timely, accurate, and continuous way.

In financial services, risk monitoring and measurement is a key function. The Basel II Accord put forth an idea for the requirements of stress and shock testing on portfolios to be done in real time. The Basel III Accord reinforces this idea with a stiffer capital reserve requirement. Hence, continuous monitoring of key risk indicators in real-time becomes a need rather than an option. Continuous access to financial data and the ability to analyze and react to it is a key requirement in financial services. Actuaries, who help develop policy pricing; rely on huge historical data sets, apply empirical mathematical models and arrive at premium rates to determine the price of an insurer's products. Multiple economic constraints are applied and these models have to be run many times to get accurate and reliable pricing.

In banking, analytics play an important role in understanding and engaging customers by providing insight into the patterns of billions of transactions and customer interactions and helps determine relevant products or offers. Predictive analytical models provide richer intelligence so that banks can up-sell and cross-sell products. Adopting an HPC platform can help firms rapidly churn data and continuously run analytics. Time to execute can be reduced to an hour or even less



than a minute, depending on the problem, the infrastructure and the solution adopted. Continuous execution offers error reduction and the ability to make well-informed decisions.

Reduction in costs/Sustainability

By reducing execution time to compute risk by almost half it reduces costs and speeds up time-to-market on new services,

while enhancing performance. Complex chip technologies such as GPUs or FPGAs, have cut total systems costs by half.

Managing data center costs is a key priority for IT managers. Increasing costs for power, cooling, real estate and others are constantly adding to the costs incurred by system management for data centers. With the growing need for storage and data management for financial services firms, optimizing processes and reducing their impact on the environment is a key focus for CIOs. The hardware consolidation and reduced power usage inherent in an HPC platform can significantly aid enterprise sustainability programs.

WHAT DOES THE FUTURE OFFER?

The innovation cycle in the financial services industry has become shorter and provides institutions with an opportunity to add significant business value. Chip manufacturers are innovating faster to bring out hybrid processors that blend typical CPUs and GPUs. These new classes of processors could provide immense processing power, making the trace of an HPC infrastructure relatively smaller.

Mobile computing has gained traction in the financial services, with the adoption of smart phones and tablets. Mobile devices are already being equipped with dual and quad-core processors. Imagine if some small or medium size quantitative models could be executed “on the move”. HPC in the “Cloud” can also enable financial analysts distributed across various geographies to perform complex analysis collaboratively.

CONCLUSION

Embracing an HPC infrastructure helps build an agile organization. By experimenting and evaluating HPC solutions firms can establish exact customer benefits. In addition, it provides an opportunity to assess the resources required for real-time or near-real-time applications. The HPC community is presently unable to meet the demands of the industry. It is important to invest in and engage people with knowledge and skills in this space. When HPC solutions are used in conjunction with other evolving technologies, it provides an opportunity to build next-generation solutions for the financial services industry.