ISSUE 34 | JANUARY 2010

SOCIETY OF ACTUARIES Technology Section

CompAct

ELECTRONIC NEWSLETTER

CONTENTS

QUICK LINKS

This article originally appeared in the Spring 2009 issue of "Windows In Financial Services"

HPC SERVER REDUCES COSTSOF ACTUARIAL MODELING

by Windows In Financial Services

David Dorfman, a specialist in computational modeling for Microsoft, recently shared his thoughts on using HPC Server to improve performance and reduce actuarial modeling costs.

WFS: Why is the insurance industry facing increasing demands for computational modeling? DD: A number of factors are driving demand... new regulatory requirements, support for equity risk hedging and Enterprise Risk Management (ERM) programs and the increased emphasis on accurately assessing reserve requirements.

WFS: Can you elaborate on the regulatory demands? DD: Sure. Regulatory requirements for a principles-based approach to reserves are about to reach required implementation. The VACARVM actuarial guidelines become effective on December 31, 2009. Large variable annuity providers (VA) writers have been using a principles-based approach for determining capital requirements for several years, and many have invested in hardware to support these computationally intensive valuations. However, reserve calculations have to be done much more frequently and under tighter timelines, so the infrastructure in place in many organizations to support the C3 Phase II capital analysis will not be sufficient to support reserving.

WFS: Can you also give us more information on hedging program demands? DD: I think Ken Mungan, FSA, MAAA, and Principal at the Milliman Financial Risk Management Practice provides the best explanation: Research at Milliman has shown that life insurers hedging programs were 93% effective during the financial crisis. These hedging programs were implemented to offset risk exposures created by guaranteed minimum payments on variable annuities, a popular retirement savings vehicle. Hedge assets, owned by life insurers, are estimated to have generated approximately $40 billion of cash due to market declines. This capital strengthens life insurers at a critical time of financial turbulence. Life insurer hedging programs rely on large scale technology platforms and are extremely computationally intensive.

WFS: What are the demands in ERM programs and financial reporting? DD: The combination of data and programs required to build accurate corporate risk models creates a significant computational challenge. Companies that invested heavily in developing these programs need computational support to effectuate them. As for financial reporting, in today's economic climate, access to capital is a challenge and the need for computational models to accurately assess reserve and capital requirements is more critical than ever.

WFS: How does Microsoft's HPC Server (HPCS) help insurers meet these challenges? DD: HPCS combines previously isolated dedicated compute resources into larger combined compute clusters, efficiently providing support for multiple modeling applications. Hedging, ALM, seriatim valuation, stochastic projections, product pricing, cash flow testing, and other compute–intensive financial projections can all share a single, large cluster.Each application has access to a larger pool of shared resources, providing more flexibility to meet constantly changing business demands for modeling and simulation results at lower cost or faster time to solution than with separate smaller clusters.

WFS: How does HPCS help reduce costs? DD: HPCS can support all the required applications. In the past, typically, three different clusters and schedulers were required to run ALM, Hedging, and Policy Valuation. With industry-wide support for HPCS only one cluster may be required, and in comparison to other commercial schedulers, HPCS reduces software costs significantly. Insurers using HPCS can reduce operating budgets or invest these savings in building and running better models.

WFS: What do you see as the next cost–effective

improvement in risk modeling? DD: Service providers offering compute resources for investigative modeling on a massive scale. For example, Milliman currently offers this option to actuaries with constrained modeling resources. As other insurers gain experience with HPCS, this type of service will become attractive to more insurers.

David Dorfman is a Solution Specialist, High Performance Computing at Microsoft

Actuaries
Risk is Opportunity.®

475 North Martingale Road, Suite 600 Schaumburg, Illinois 60173
Phone: 847.706.3500 Fax: 847.706.3599 www.soa.org