



OPTIMIZATION REVIEW

FIS Insurance Risk Suite Consulting Services

Getting the best out of your models and runtimes

Background

With regulatory changes around Risk Based Capital (such as Solvency II) and IFRS 17, we are seeing ever-increasing demands on reporting timelines and associated requirements for the models themselves. As your business evolves to conform to regulatory or corporate changes and adopts new personnel, the required coding changes or updates to hardware for the FIS® Insurance Risk Suite (formerly Prophet) versions can often lead to divergence from best practices, as changes are made quickly to address the immediate needs.

As actuarial models are continuously developed and moved into production environments, they are also increasingly deployed into Cloud architectures to provide flexibility, scalability and capacity for runtimes. The runtimes themselves have become a key consideration in reducing period end reporting timelines where it is essential to avoid unnecessary delays to your business.

Why review your model?

A good model is structured to produce the required output in the most efficient way and that makes best use of the hardware available.

Optimizing all of this depends on your system's capabilities and the coding features available to you. With rapid technology advances, the options available also change quickly.

Inefficient models may have inherent bottlenecks in the code but could also interact with given hardware in a less than optimal way. It is therefore important to consider both the model code and the way that they are executed within the infrastructure available.

Whilst a model may start off as efficient, a periodic review of their current state is seen as best practice. This will highlight where changes could be made to be able to maintain the models more easily for future developments and how to make them more performant. Moreover, as more companies move to the Cloud, having a tight grip on run-times is vital in managing your on-going costs.

With model runtimes being directly correlated to Cloud running costs, this review is intended to provide insight into the areas that could be improved. These model runtimes are driven by the design of the overall model and its purpose, the type of hardware and technologies that it utilizes, the quality and efficiency of code and the interaction of the code with available hardware.

What is the optimization review?

The actuarial model optimization review provides a health check on the efficiency of your model. It examines your model configuration, the layout of how your variables and products interact and re-examines the principles behind your calculations to provide a breakdown of exactly where your model would most benefit from improvements. By combining this with making the best use of new system features and examining how the models are configured and run in your environment, you can achieve significant performance benefits that alleviate the strain on your systems. This then provides a robust platform for you to focus on growing your business without distraction.

FIS Consulting Services

At FIS, where the Insurance Risk Suite is built and maintained, we know what makes a model tick. Our Consulting Services department are a team of Insurance Risk Suite system experts and library coding specialists who routinely perform reviews on all types of Insurance Risk Suite models, from Solvency II and LDTI/IFRS17 reporting to economic capital and ALM. Through working closely with our software development team, we have unrivalled insight into the best methods of structuring calculations and model designs, and unique access to understanding how best to make your models future proof for upcoming Insurance Risk Suite features and library updates.

Optimization analysis report

The analysis performed during the various reviews will highlight bottlenecks and the areas that could lead to additional efficiency gains.

The deliverable from this exercise will be a report of the findings and recommendations and include a comprehensive impact analysis of cause, recommendations for alleviation, potential effects and associated efforts.

The review itself does not attempt to make all the suggested changes but will indicate estimated improvements in runtime and memory usage if any recommended changes are adopted.

The implementation of the recommended improvements will be under your direction. This and other next steps will be discussed once you have had a chance to examine our report.

- As the vendor, FIS has unparalleled depth and breadth of Insurance Risk Suite knowledge, drawing from a wealth of experience from other model build engagements.
- We will recommend a design that best exploits the software, optimizes runtimes and minimizes maintenance overhead.
- Due to the prior expertise and knowledge, FIS consultants can deliver a faster and mixed resourcing approach to help reduce costs.
- There is a sustained and continued effort in the development of the Insurance Risk Suite libraries and system within FIS. We have a unique insight into how our system and libraries are being developed and work closely with our internal development teams to align with their strategic plans for future releases.
- FIS consultants will ensure that the model solution can better anticipate future changes.
- FIS has a strong principle of actively involving customers in implementations. This ensures customers are enabled and can maintain their models in the future.



Areas of analysis

Our standard Optimization Review focuses on ALL of the following areas:



MODEL CODE OPTIMIZATION

FIS employs our exclusive/internal diagnostic tools to analyse the use of extended formulae, arrays, loops and mechanisms to read data between products. These can frequently cause coding bottlenecks and affect both memory utilisation and runtimes. E.g. often small tweaks to extended formulae can help significantly reduce the number of calculations being performed or indeed the (persistent) memory required.

The code review also considers whether your existing calculations can be fine-tuned to be most efficient with the Insurance Risk Suite calculation engine and sequencer.



MODEL RESOURCE OPTIMIZATION

This analysis is performed jointly between the Technical IT consultants with the Actuarial consultants in the FIS team. It focusses on the way models are being run. This includes a review of machine specification and performance and for FIS Enterprise Manager (formerly Prophet Enterprise), the use of optimal job settings (eg. split types), domains/compartments, machine groups, and other configurations mapped against findings from the actuarial model review. This analysis of the interaction between model and the production hardware configurations is key, in assessing whether the machine composition is optimal for memory usage and runtime efficiency.



STRUCTURE ANALYSIS

A detailed assessment of the objects (products and accumulations) used in the model, as well as the configuration and settings of the Insurance Risk Suite, model points, new business and results. By considering the settings used, the scope of output and aggregation can be reduced to avoid unnecessary calculations, enhancing efficiency without changing the code.



TECHNICAL REVIEW

This thorough technical review reports the results of the current state assessment of infrastructure and use of technical hardware against FIS best practices. An analysis is performed on the network, storage setup, all Insurance Risk Suite related servers and their configurations. The review also includes a recommended future state for Model Developer (formerly "Prophet Professional") and/or Enterprise Manager taking into consideration requirements from the business. The analysis complements the review of the Actuarial models and provides recommendations for potential environment tuning and optimizations that aim to improve model runtimes overall.

DURATION 3-4 weeks



About FIS

FIS is a leading provider of technology solutions for financial institutions and businesses of all sizes and across any industry globally. We enable the movement of commerce by unlocking the financial technology that powers the world's economy. Our employees are dedicated to advancing the way the world pays, banks and invests through our trusted innovation, system performance and flexible architecture. We help our clients use technology in innovative ways to solve business-critical challenges and deliver superior experiences for their customers. Headquartered in Jacksonville, Florida, FIS is a member of the Fortune 500® and the Standard & Poor's 500® Index.



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