

Oasis: Performance and Reliability

OASIS | INSIGHT

Background

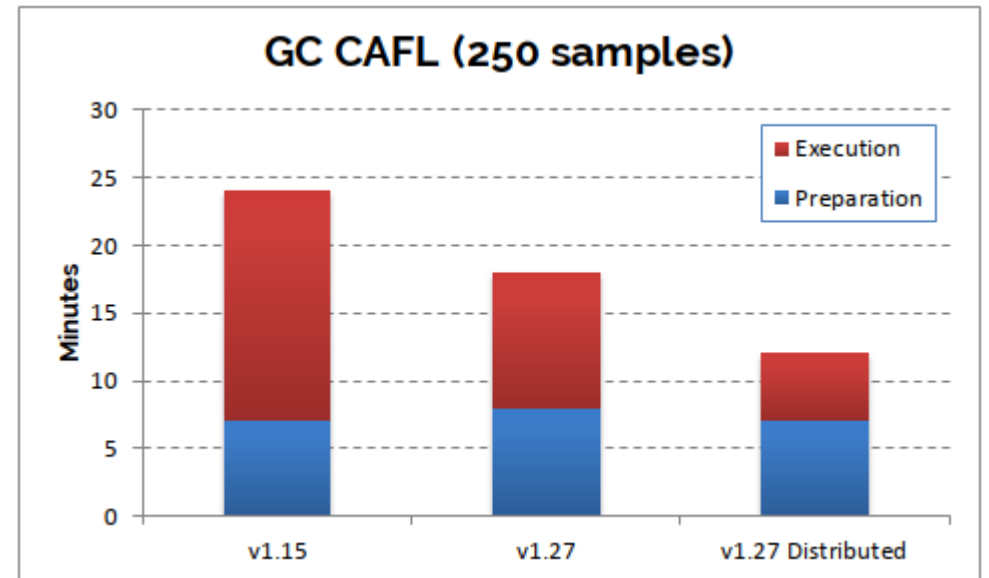
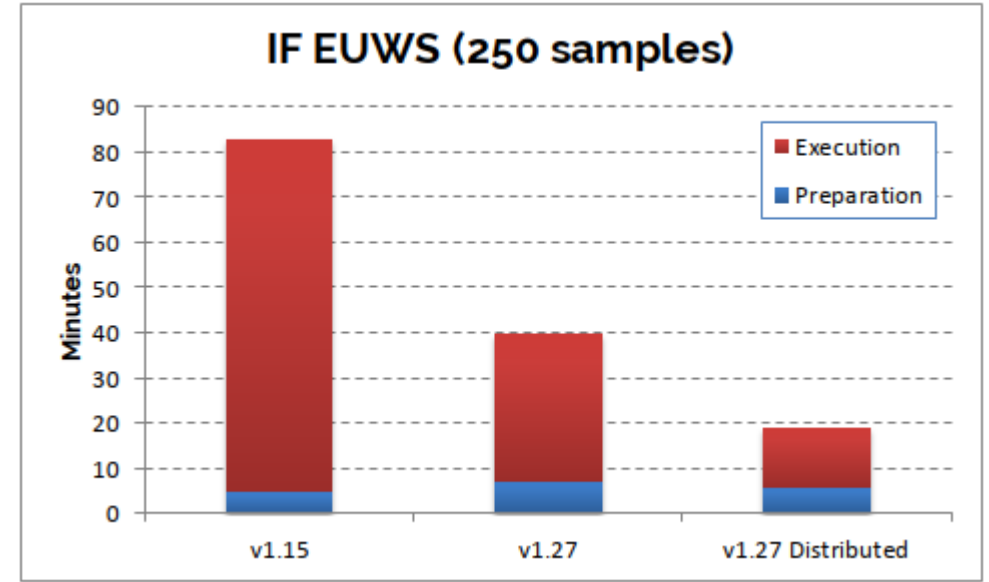
Oasis at Scale

- Project started May 2021
- Defined by Technical Steering Group (TSG)
 - Made up of Oasis members
- Revisit all “Core Oasis” functions to improve
 - Performance
 - Reliability
 - Functionality
- Design a new platform
 - Utilise a modern, distributed architecture
 - Open up data and analytics (Lot 3)

Performance Measurements

Standard Oasis Models

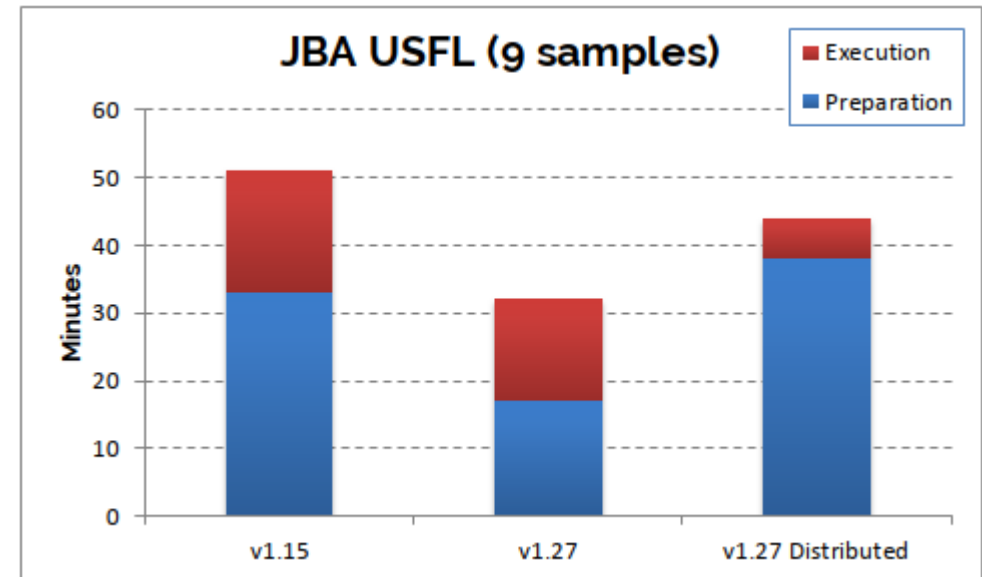
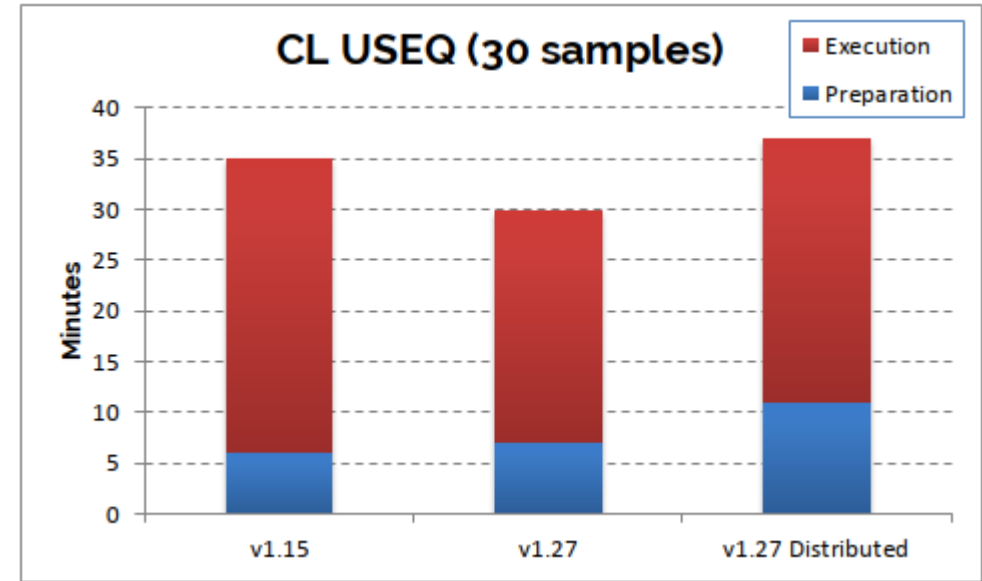
- Benchmark exercise
 - 258,518 location real portfolio
 - 4 production models
 - 2 standard Oasis Models
 - 2 Complex Model implementations
 - GUL, Gross and Reinsurance ELTs
 - Sampled losses
- Comparisons
 - V1.15 (May 2021) vs. V1.27 (Apr 2023)
 - Single server - 1 x 64 core instance
 - Distributed platform - 8 x 32 core instance



Performance Measurements

Complex Model Implementations

- Complex models don't use Oasis standard data formats.
- Less pronounced improvements seen.
- More model-specific work required to optimise performance.
 - CL USEQ
 - model runs limited to ~110 chunks.
 - JBA USFL
 - Significant improvement in execution (18m -> 6m).
 - Large data read speed an issue in distributed platform.
 - Lot 3 aims to address this.



Reliability

Key metrics from Guy Carpenter Oasis Usage 2022

2,613

- Number of analyses completed

60

- Number of users

14 million

- Average number of locations modelled per week

96%

- 1st time success rate

Reliability

Further Improvements...



Majority of the 4% errors due to incorrectly coded OED files

OED Validation

Input files are now validated on presentation to catch errors early



New tool built to quickly build Oasis environments

Camel

Configurable by model and software version

Allows for rapid deployment of environments for testing & recreating issues



Oasis service to host commercial models and automatically test against new versions of the software

Continuous Integration



Ensures that all models work with all versions of Oasis

Being rolled out to all models throughout 2023

Conclusions


- Oasis allows multiple models and views of risk (commercial & in-house) on one platform
- Development driven by the Oasis members, via the TSG
- Focus on Performance and Reliability (and Functionality)
- Oasis is the fastest available platform for multi-model use (and getting faster)
- Fully distributed architecture is now available
- Oasis Platform Lot 3 will enable more efficient access to large data

NRMC
James Lay



Nasdaq Risk Modelling for
Catastrophes Platform

Oasis Insight 2023



James Lay
Senior Director, Nasdaq Risk Modelling