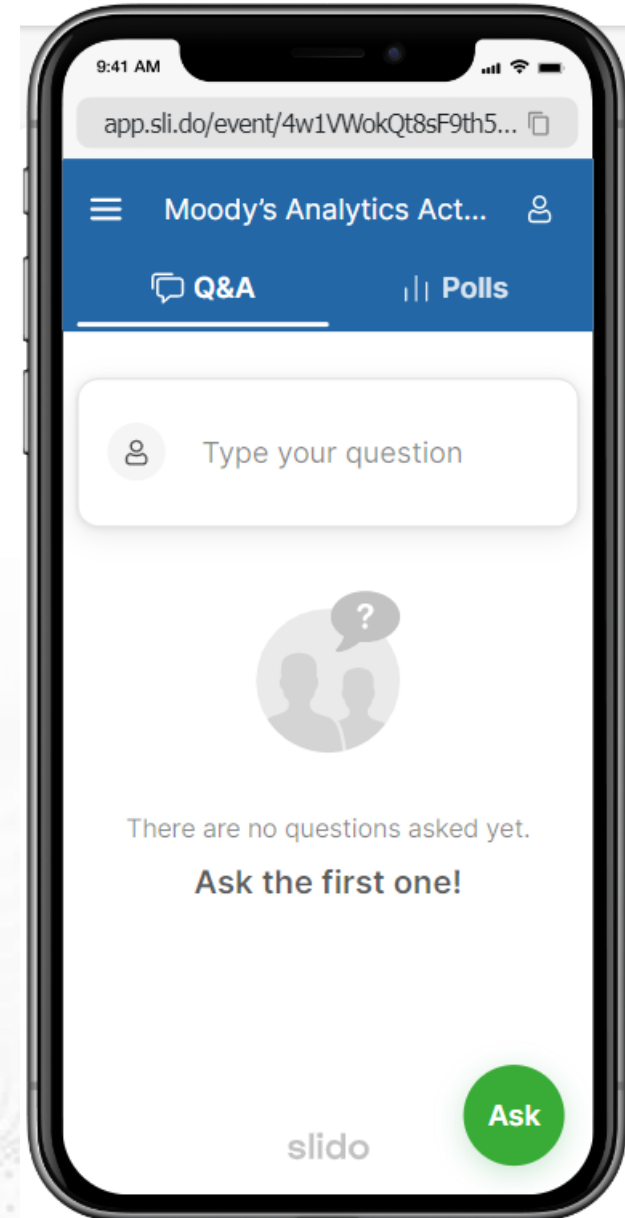


AXIS - Technology, Architecture, Services

Join the Conversation

Go to www.slido.com and insert code or scan the QR code:
#MA102322



Agenda

1. Technology
2. Architecture
3. Services

1

Technology

AXIS – 64-bit

Calculation engine & model data storage

Advantages

- » Access to much larger memory space
- » Eliminate paging during stochastic processing – reduce runtime
- » New storage engine – no size limit for dataset files

Challenges

- » Support legacy import / export options (MS Access format)
- » Massive data conversion
- » Potential for differences in results vs. 32-bit version

GPGPU

- » Research project with NVIDIA completed in 2022
- » Prototype built in AXIS code (450x speed up for pricing simple equity annuity option)
- » Potential applications for VA / Hedging
- » Plan to re-visit in 2023 (pending AXIS 64-bit conversion)

Advanced Optimization Tools

- » Policy Compression
- » Scenario Compression
- » Proxy functions for modeling structured securities
- » Artificial Intelligence - Machine Learning / Neural Networks technology to train / parametrize compression models

Automation

FormulaLink

- » Advanced scripting & programmability for AXIS Formula Tables
- » Referencing .NET DLLs
- » Integration with EnterpriseLink Jobs
- » 3rd party DLLs & data files embedding
- » Full scripting support for GaaS
- » Version Control & Permission Framework

External API's

- » ELinkTask DLL
- » GaaS API's (available via GaaSPublicLibrary.dll)
- » Planning to introduce Web API's for hosted environments

2

Architecture

Model Development & Governance

Super Dataset

- » Develop and hydrate models in parallel streams
- » Centralize common objects
- » No need to merge data
- » Aggregate results from multiple datasets
- » Fully version controlled

<https://www.ggy.com/kb/article/2360>

Basis Reference

- » Externalize assumptions, manage outside of the cells
- » Fast switching of the assumptions basis without rebuilding the model
- » Easy audit / reporting

<https://www.ggy.com/Basis-Reference-Technique/Webinar-2021-03-11>

User Interface & User Experience Initiative

Look & Feel	Input Control	Information	Documentation
<p>Modernize AXIS User Interface</p>	<p>Give better control to the user & reduce learning time</p>	<p>Provide more informative content</p>	<p>Redesign AXIS Help system.</p>
<ul style="list-style-type: none"> » Improve icons and remove menus clutter » Add color to highlight most important elements on screens » Improve usage of fonts 	<ul style="list-style-type: none"> » More intuitive navigation » Automatic guidance » Auto hide unnecessary objects and UI elements » Add more screen customization options 	<ul style="list-style-type: none"> » Improve search and shortcut features » Add more metadata & tooltips » Add analytics (e.g. model setup completion progress) » Make screen and log messages more informative 	<ul style="list-style-type: none"> » Web based (Moody's InfoWeb) » Context sensitive » Improved search » Versioning » Bookmarks » Favorites

3

Services

Cloud Services

Cloud Compute

GlaaS (GridLink as a Service)

- » SaaS offering for running actuarial calculations in the cloud
- » Multi-region – for capacity & data residence
- » Full automation via scripting
- » Industry standard security

Scenario Generator Cloud

Risk Integrity (SaaS)

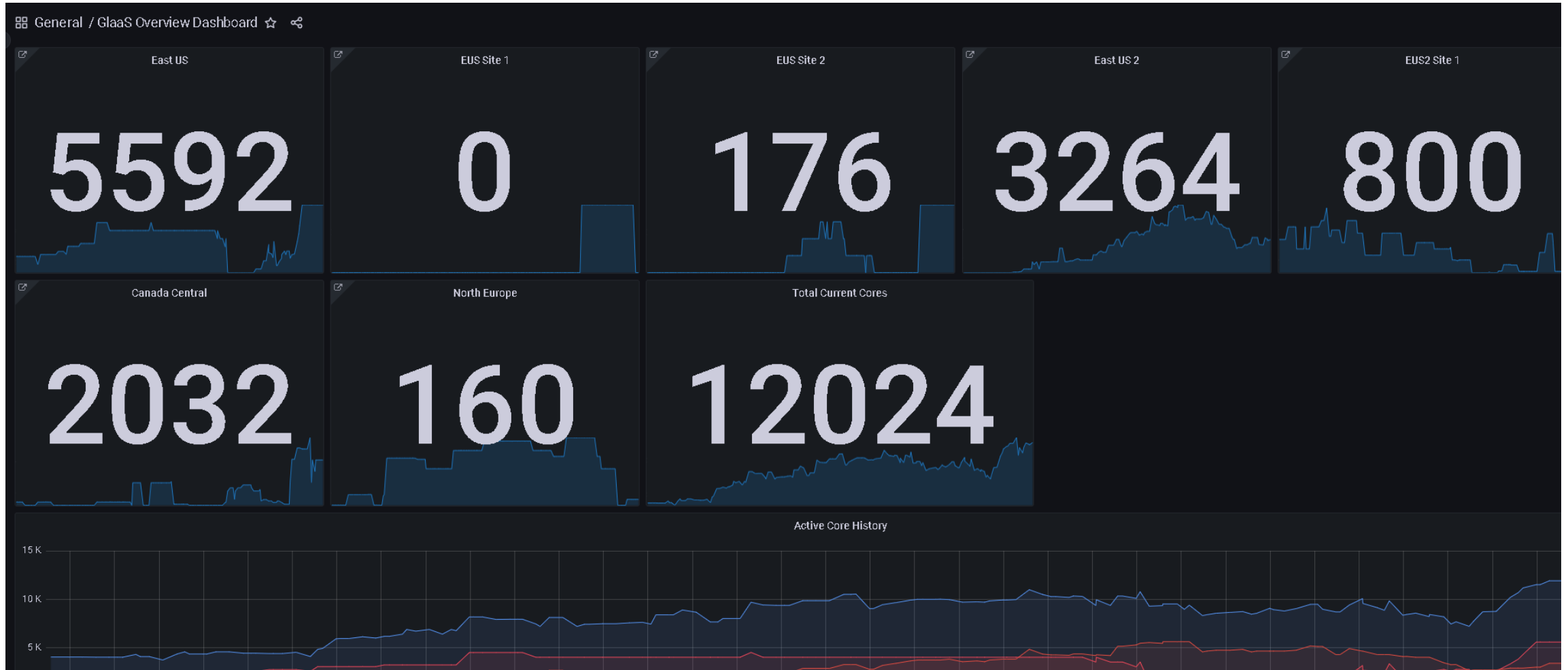
Cloud Hosting

- » Fully managed service
- » Hosting EnterpriseLink, SQL Servers
- » Resizable data storage
- » Fast on-boarding
- » Audit and monitoring

Cloud Operations & Support Team

- » Common Operations Team across all insurance products
- » Common Help Desk
- » Common SLAs & audits

GlaaS Dashboard



New GridLink Licensing and Billing Portal

- » New look & feel
- » All farm types in one portal
- » Consolidated usage reports
- » Role based access control

The screenshot displays the 'GridLink License Administration Internal Portal' interface. On the left is a dark sidebar with navigation options: Company, Contract, Division, Farm, Internal Roles, Users, Report (with a dropdown arrow), All company usages, Farm usage, Company usage, and Bulk package balance. The main content area is titled 'Companies' and includes a '+ New' button and a search bar with 'Search all' and a search icon. Below is a table with the following data:

Company	Active	UGL	Farms	Base Billable Cores	Current Cores
& co	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	0	0
Test Adding Company - 638013445737803376	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013445421076459	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013445098790148	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013444364628969	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013443628154349	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013442914674511	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013441690431101	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013030883115638	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0
Test Adding Company - 638013030568733816	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	288	0

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