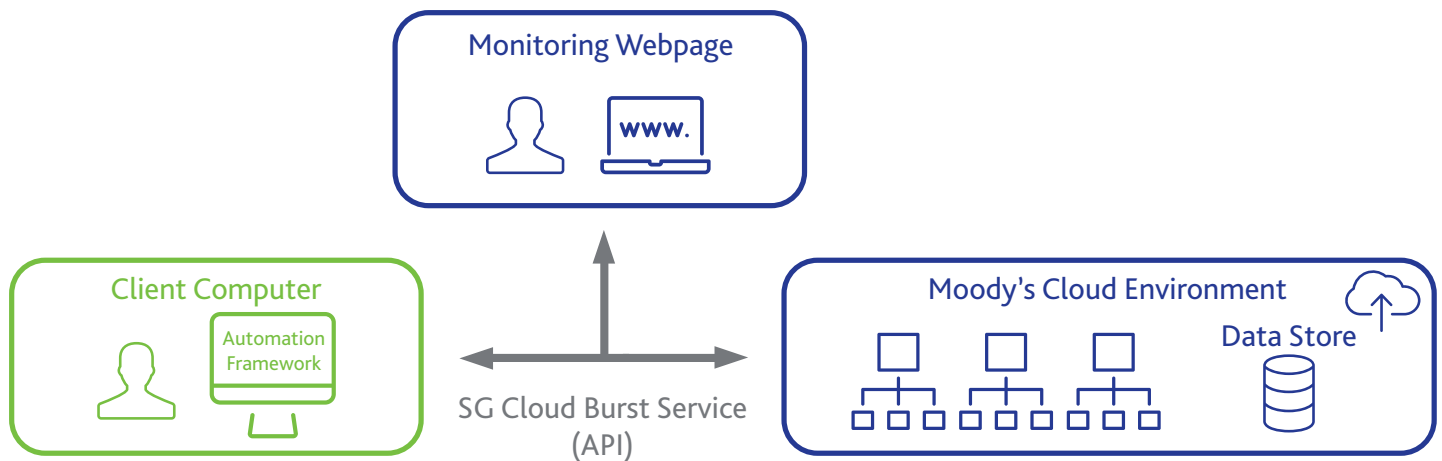


## Scenario Generator Cloud Burst Service

The Scenario Generator Cloud Burst Service allows access to the award winning Moody's Analytics Scenario Generator in a fully scalable cloud environment. The service offers easy access to the power of cloud computing in Moody's Analytics own cloud environment, providing scalable computing and increased performance. Reducing run time for Scenario Generator users and increasing computational capacity. Freeing up valuable time during reporting periods, to meet IFRS 17 timelines or allowing extra analysis to be performed. The Scenario Generator Cloud Burst Service can be accessed standalone or by integration with the automation framework.



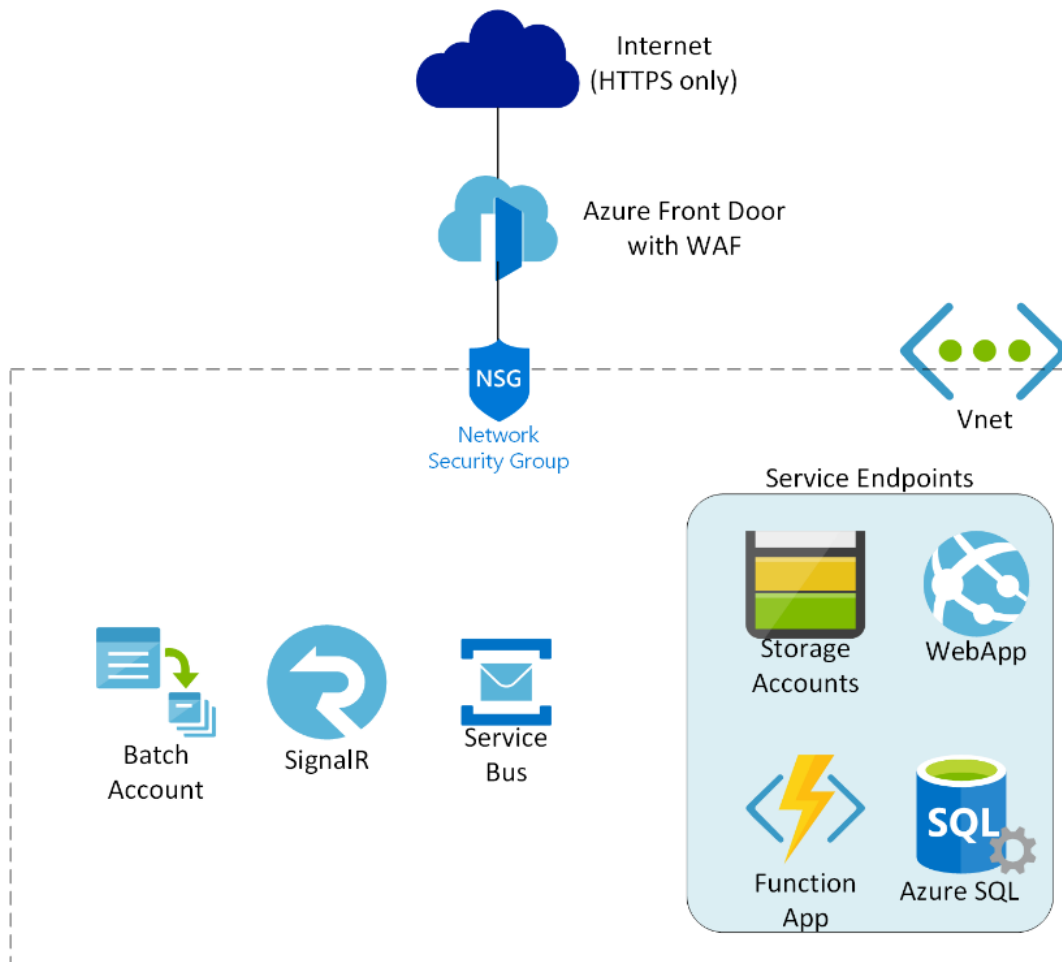
### Access the power of cloud computing with a full vendor-managed service

- » Reduce simulation time compared to running on servers or existing grid infrastructure
- » The automation framework allows users to submit runs directly to the Scenario Generator Cloud Burst Service using their existing configurations
- » 24/7 access to the solution. Scalable compute matches the size of your workload
- » Dedicated resources for each customer to ensure the full allocation of computing power is always available
- » Cloud-to-cloud transfer support keeps your data where it needs to be without unnecessary downloads
- » Monitor the status of runs, resource usage, and submit ad-hoc runs directly on the Scenario Generator Cloud Burst Service website
- » On-going development means that new features and performance increases continue to enhance the service

## Create time for higher value activities and reduce your infrastructure footprint

- » Benefit from reduced runtime to focus on higher value activities, to increase your scenario budget, or to perform additional what-if analysis
- » Reduce your reliance on internally maintained infrastructure and on-premise hardware with a solution managed by Moody's Analytics
- » Scalable computing power to match the peaks of scenario generation requirements which often align with quarter-end reporting periods. In contrast to on-premise hardware, automated scaling of compute means resources are only online when required

## Cloud Burst Service – Infrastructure



## Access from Internet

The Scenario Generator Cloud Burst Service uses a Microsoft® Azure® Front Door as its primary entryway from the public internet. Azure Front Door is a global load balancer and web application firewall (WAF) with distributed denial-of-service (DDoS) prevention.

The WAF is configured to protect against common web threats, including the top 10 categories defined in the Open Source Foundation for Application Security (OWASP). As a managed service, these rules are updated as needed when new attack signatures are detected. The WAF also allows configuration of custom rules, such as allowing or blocking connections based on Internet Protocol (IP) address or geo-location.

Azure Front Door inspects and filters traffic before passing it on to the internal services, which are contained within the Azure Virtual Network (VNet). The associated Network Security Group enables further control on what traffic is allowed into the VNet and associated services.

## Publicly Accessible Services

There are several services within the application that are publicly accessible by default. These include Azure SQL, Azure Storage, Azure App Service, and Azure Function Storage.

To enhance application security, these services are configured to use the service endpoint functionality within Azure. This function restricts public access to these services so that traffic is accepted only from within the VNet. Communication between the services is sent internally through the Azure backbone instead of through the public internet.

To facilitate the ongoing management and updating of the application and services, access restrictions allow access directly to the above-mentioned services from Moody's Analytics IP addresses.

## Traffic Route

All traffic routes through the Azure Front Door, and then to the various infrastructure elements. All access to the platform-as-a-service (PaaS) is through the internal Azure backbone. It does not route out to the internet to reach these services. The only direct access is through Moody's Analytics IP addresses as mentioned previously.

## Data Transfer To and From the Service

All communication with the service, including uploading a simulation to run and downloading output data, occurs through Hypertext Transfer Protocol Secure (HTTPS) using Transport Layer Security (TLS) version 1.2.

Users can also choose to export output data directly from the Cloud Burst platform to other cloud data storage areas. Currently, a client's own Azure blob storage accounts and Amazon S3 buckets are the only export locations supported. This method is faster than downloading the data back to an installed location, and it can be used to feed directly into downstream systems.

Exporting output to Azure blob storage requires submission of a Shared Access Signature to the Cloud Burst platform, which denotes the desired blob location and anytime restrictions on access. In the same way, data export to the Amazon Web Service (AWS) S3 bucket requires specifying the bucket name and location, as well as the corresponding access key and secret.

## Working with our Customers

The Scenario Generator Cloud Burst Service was able to meet all of Admiral's requirements.

*"The software is very easy to use and enables us to get the best out of the economic scenario generator we already licensed. With support from Moody's Analytics, we have been able to both speed up our regular processes and explore alternative scenarios in a greater depth."*

*David Chapman, Head of Investment, Admiral*

## The Outcome

Moody's Analytics worked with Admiral to implement the Scenario Generator Automation Module and Scenario Generator Cloud Burst Service. After a short implementation, Admiral benefits from:

- » Reduced total run time from more than 400 hours per quarter to 10 hours
- » Decreased pressure on the team and generating valuable time for the team to focus on other high-value-add activities
- » A consolidated and streamlined single process of the separate stressing, scenario generation, and validation workstreams
- » Less operational risk
- » An enhanced framework that is easy to update and maintain going forward

The performance exceeded the Admiral team's requirements, enabling them to extend the use of the Scenario Generator and add more value to the business.

Moody's Analytics client-focused, results-based project approach helped the team at Admiral move from gaining access to the solution to becoming self-sufficient in production runs in less than two months.



For more information, please visit [moody's.com](https://www.moody's.com) or alternatively call:

Americas Client Desk  
+1.212.553.1653  
[clientservices@moody's.com](mailto:clientservices@moody's.com)

Europe Sales Queries  
+44.20.7772.5454  
[clientservices@moody's.com](mailto:clientservices@moody's.com)

Asia Client Services Desk  
+852.3551.3077  
[clientservices@moody's.com](mailto:clientservices@moody's.com)

Japan Client Services Desk  
+81.3.5408.4100  
[clientservices@moody's.com](mailto:clientservices@moody's.com)