



SGS Health Science – Clinical Research

With Our Heads in the Cloud

ET08



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Agenda



- Introduction
- Current situation
- Moving to the cloud
 - Level of cloud integration
 - Single or multi cloud
 - Cloud services
- Conclusion

Introduction

Moving to the cloud

- CRO Perspective
- Usefulness or uselessness in our business
- There is no one best way to move to the cloud
- Our ongoing cloud project journey
- Different steps we took and explain why we took them





Current situation

Why are we moving to the cloud?

- Our corporate IT strategy
- Solve some challenges with regards to our on-premise solutions for our clinical programming activities



Current situation

Current challenges

- Finding the right people: Clinical Data Programmer
- Lowering learning curve
- Lowering setup time SDTM database
- Performance daily transformations from raw data to SDTM
- Readiness for big data

Level of cloud integration

There are different ways to move to the cloud: things to consider

- White Paper Statistical Computing Environment presented at Phuse US 2021



Level of cloud integration



Lift-and-shift

Move the on-premise applications to the cloud, and make no—or limited—changes to the server setup and the applications
You don't make use of all the advantages of a fully cloud native setup



Deep cloud integration

Create cloud native / agnostic application.

Take advantage of key cloud capabilities: dynamic load balancing, auto scaling, serverless computing

Level of cloud integration

- Just moving our current application to the cloud seems to be the path of the lowest resistance
 - Little impact for the users of your applications
 - IT corporate happy: applications are in the cloud
- It would not address all our current challenges



Conclusion

Rewrite of current set of applications to a cloud native/agnostic solution



Single or multi cloud



Single cloud

Or cloud native architecture:
you choose 1 cloud provider

- + Applications run optimized for that single environment
- Cloud vendor lock



Multi cloud

Or cloud agnostic architecture

- + Use open-source technologies allowing to use multiple cloud providers or easily switch between cloud providers
- More difficult/expensive to build

Single or multi cloud



Conclusion: single cloud

- Our main driver is SGS IT corporate
- At SGS we have a preferred corporate cloud vendor and there are definitely advantages of following the IT preferred solution like security, backup, support, ... As this would all be handled on IT corporate level





Cloud technologies

- Cloud vendors offer lots of cloud services
e.g. Azure, AWS offer more than 200 services
 - No 'one size fits all'-solution
 - Different modules in your application will need different approaches and will use different services
 - For every problem that you like to solve, you need to consider the right cloud service



Cloud technologies

■ Pricing

- Classic way: servers and databases are estimated on the biggest load you are expecting
- Cloud approach: pay as you go
 - Charged based on usage
 - No up-front commitments
 - Dynamically allocate resources



Cloud technologies

- Clinical data programming activity
 - Transform any source data to SDTM
 - Services to consider
 - Storage: data ingestion
 - Analytics: transformation of data

Cloud technologies

Storage

Get secure, massively scalable cloud storage for your data, apps, and workloads



Azure Disk Storage

High-performance, highly durable block storage



Azure Data Lake Storage

Scalable, secure data lake for high-performance analytics



Azure Files

Simple, secure and serverless enterprise-grade cloud file shares



Azure NetApp Files

Enterprise-grade Azure file shares, powered by NetApp



Limitless scale and 16 9s of data durability with automatic geo-replication



Highly secure with flexible mechanisms for protection across data access, encryption, and network-level control



Single storage platform for ingestion, processing, and visualization that supports the most common analytics frameworks



Cost optimization via independent scaling of storage and compute, lifecycle policy management, and object-level tiering

azure.microsoft.com

Cloud technologies

Analytics

Gather, store, process, analyze, and visualize data of any variety, volume, or velocity



Azure Synapse Analytics

Limitless analytics with unmatched time to insight



Azure Databricks

Design AI with Apache Spark™-based analytics



Azure Purview

A unified data governance solution that maximizes the business value of your data



Azure Data Factory

Hybrid data integration at enterprise scale, made easy



Reliable data engineering

Large-scale data processing for batch and streaming workloads



Analytics for all your data

Enable analytics for the most complete and recent data



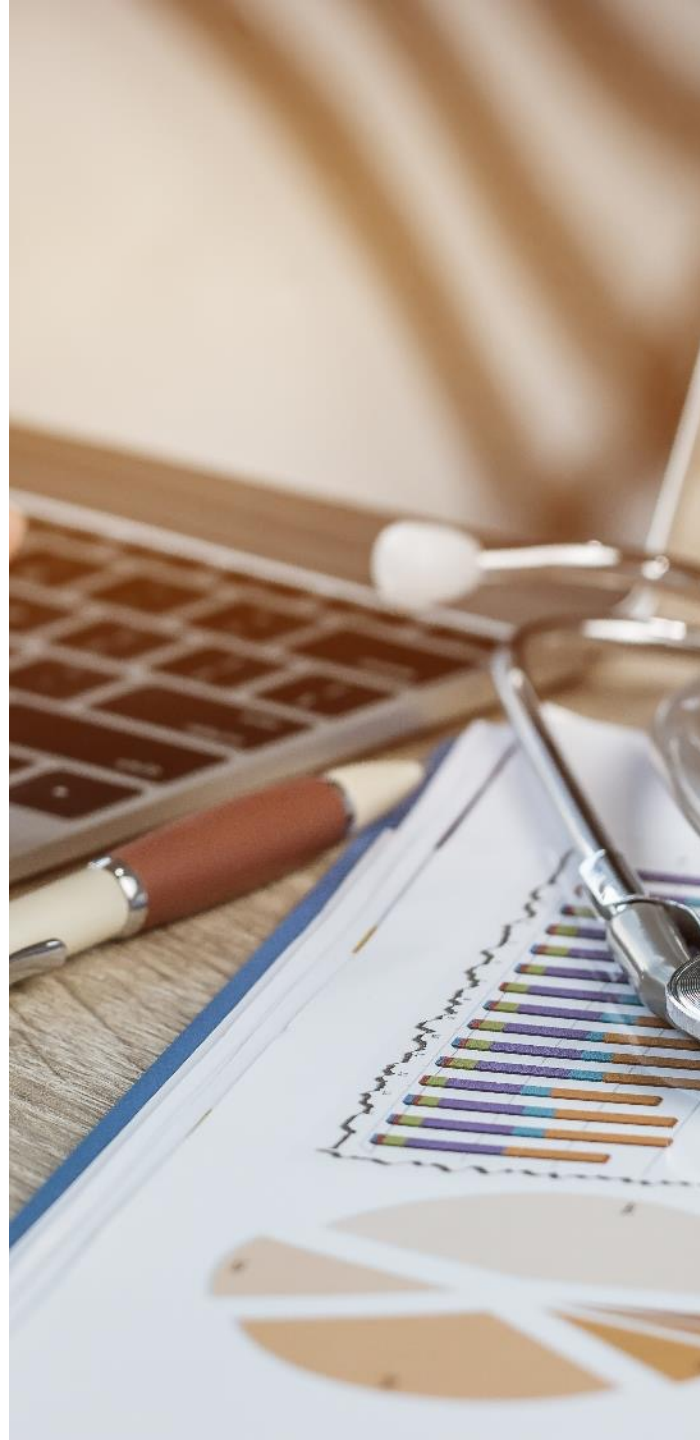
Collaborative data science

Simplify and accelerate data science on large datasets

azure.microsoft.com

Conclusion

- Focused on a small part of a cloud platform for our clinical data management activities
- Many opportunities in the cloud
- More mature SaaS solutions available on the market



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