FACTION®

GENOMICS AND LIFE SCIENCES

Use multi-cloud to unravel the genetic components of complex diseases

Typing the human genome letter-for-letter will result in a stack of paper as tall as the Statue of Liberty. These huge data sets require fast processing to solve complex healthcare issues that can save or improve lives. Cloud solutions can accelerate time-to-insight for a range of applications, including clinical genomic sequencing, drug design, and cancer research. Cloud-based artificial intelligence (AI) and analytics tools can be used to help doctors identify and locate diseases faster by processing and analyzing the genome files.

The flexibility of multi-cloud tools layered over cloud-adjacent big data lakes makes these life-altering analytics possible in shorter amounts of time, with less complexity and reduced management overhead.

Hospitals can store and organize Picture Archiving and Communication System (PACS) data in a centralized location, accessible by all clouds simultaneously. This allows teams to leverage innovative and cutting-edge AI tools of choice to analyze medical images that could lead to early diagnosis of life-threatening issues
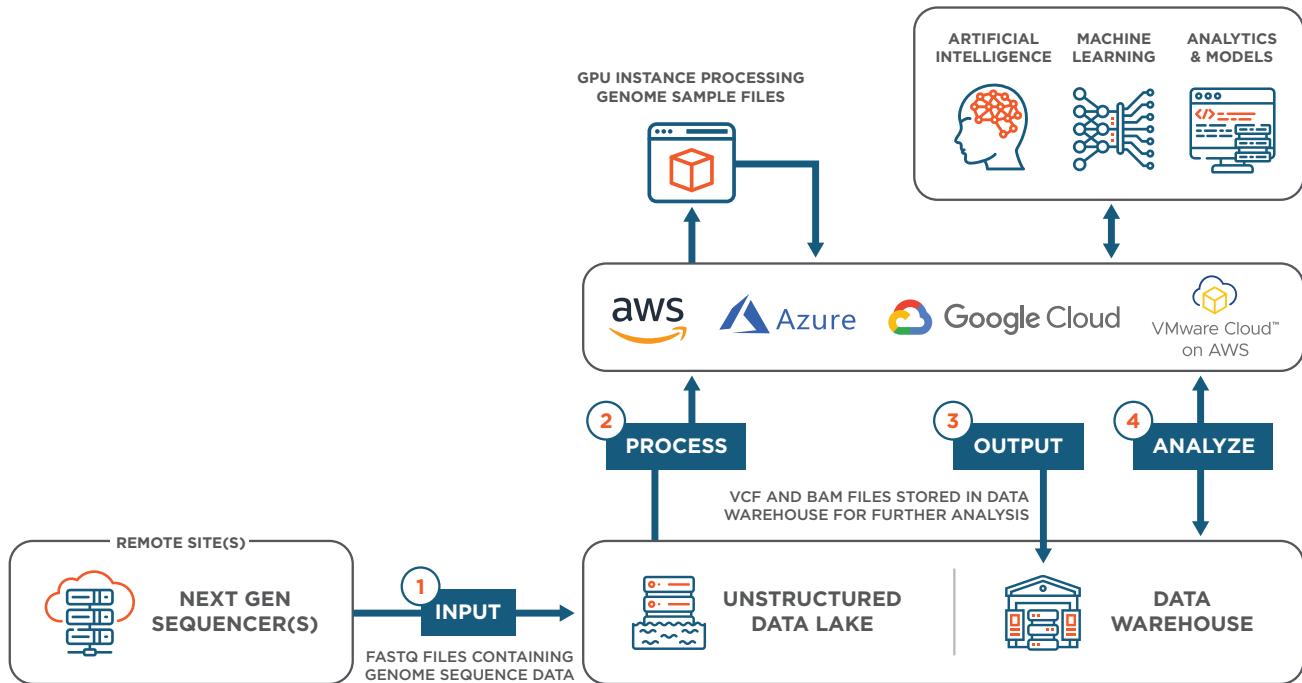
Geographically dispersed researchers around the world can share and access the same datasets with on-demand scalable cloud compute resources, reducing migration time that can quickly evaporate research grants.

Maintaining ownership of data improves regulatory compliance and protects IP, especially as it pertains to personal identifying information (PII), protected health information (PHI), and regulated medical and personal records.

SOLUTION ARCHITECTURE

GPU INSTANCE PROCESSING GENOME SAMPLE FILES

ARTIFICIAL INTELLIGENCE   **MACHINE LEARNING**   **ANALYTICS & MODELS**

aws   Azure   Google Cloud   VMware Cloud™ on AWS

2 **PROCESS**   **3** **OUTPUT**   **4** **ANALYZE**

VCF AND BAM FILES STORED IN DATA WAREHOUSE FOR FURTHER ANALYSIS

REMOTE SITE(S)

NEXT GEN SEQUENCER(S)   **1** **INPUT**

FASTQ FILES CONTAINING GENOME SEQUENCE DATA

UNSTRUCTURED DATA LAKE   **DATA WAREHOUSE**

SOLUTION SCENARIO

- Data is generated by next gen DNA sequencers that run on-premises or in hosted locations around the globe

- Using high-performance GPU instances in the cloud of choice, genome samples are processed to create actionable information

- Data is captured and stored in a scalable data warehouse for further analysis

- Cloud services like AI and Machine Learning from any cloud can now be used to analyze the data warehouse to drive actionable insights

SOLUTION BENEFITS

- Data is stored in a geo-adjacent datacenter, connected to cloud over high speed connections, giving you a centralized data lake

- No need to store multiple copies across clouds. Drive down complexity and cost with a single set of data that is accessible from everywhere on your centralized data lake

- Simultaneous access from any cloud drives a flexible selection of cloud tools that are familiar to your developers or data scientists, compressing time needed to deliver insights

SPEAK WITH A
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