



Sentieon



MemVerge

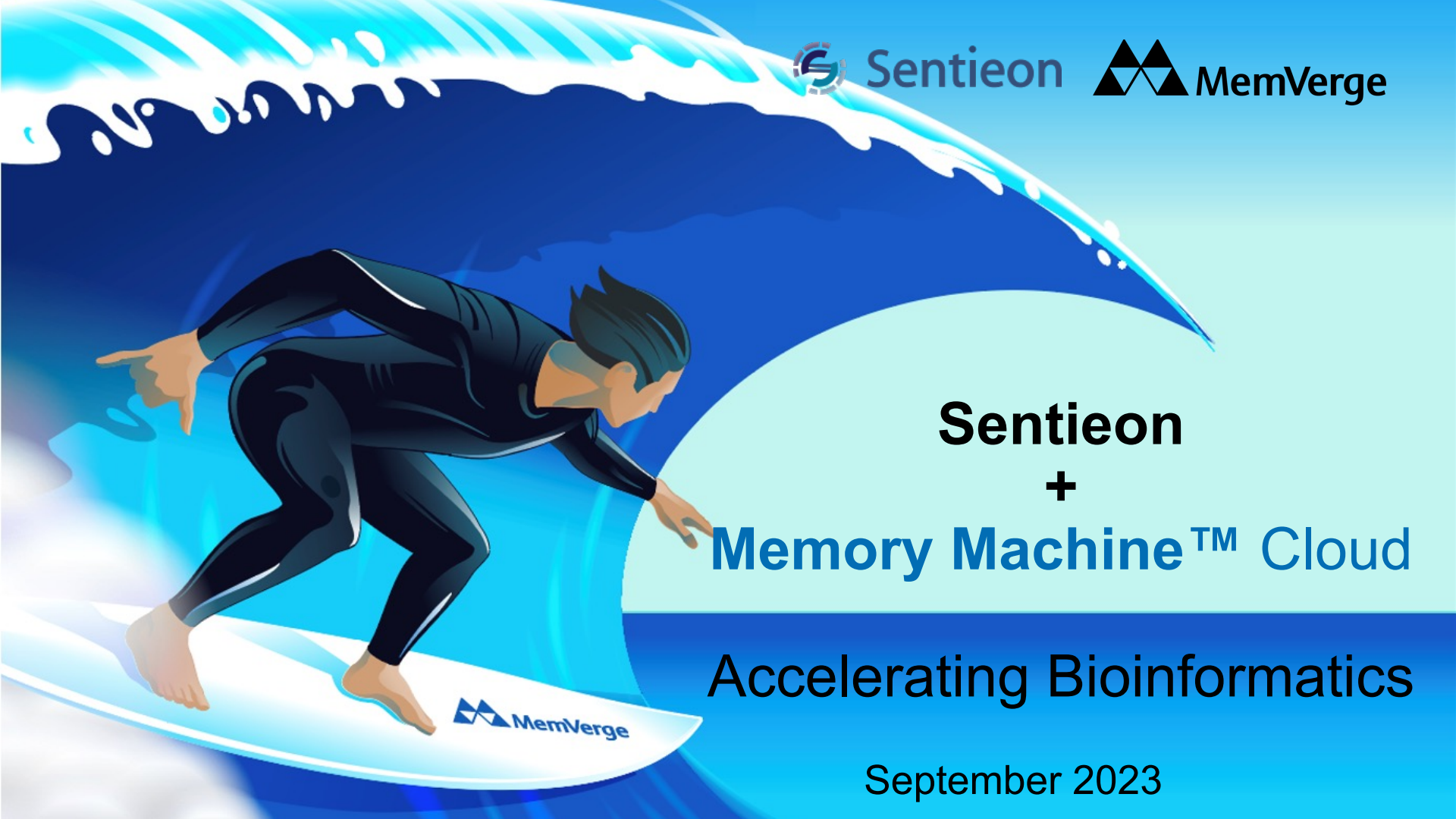
Sentieon

+

Memory Machine™ Cloud

Accelerating Bioinformatics

September 2023





Memory Machine™ Cloud

World's most advanced
genomics software engine

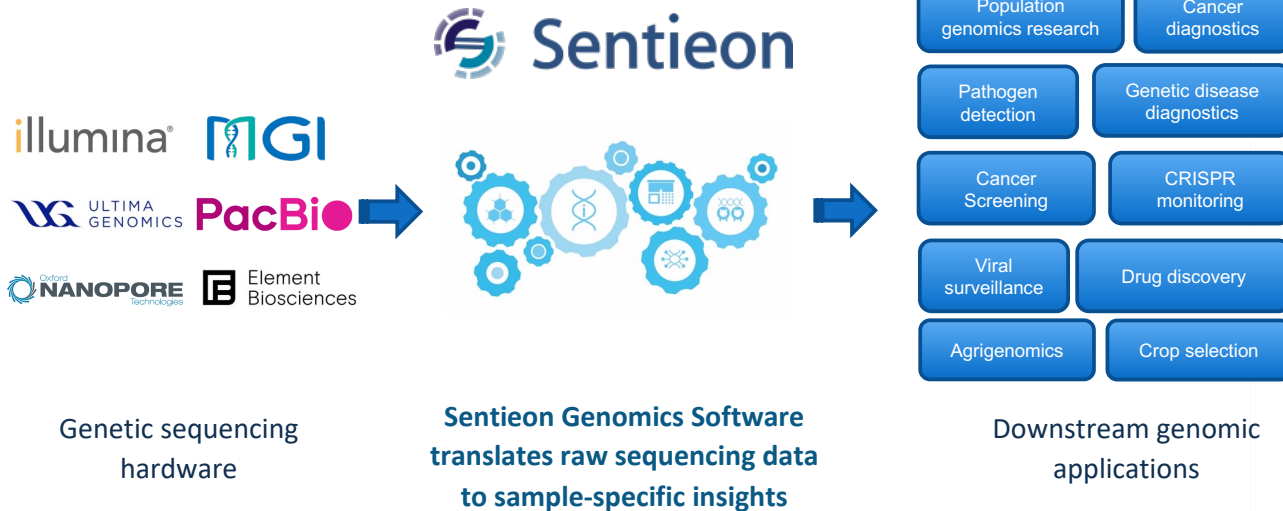
World's most efficient
cloud computing platform



**World's Fastest & Most Efficient
Genomics Analysis Engine on Public Cloud**

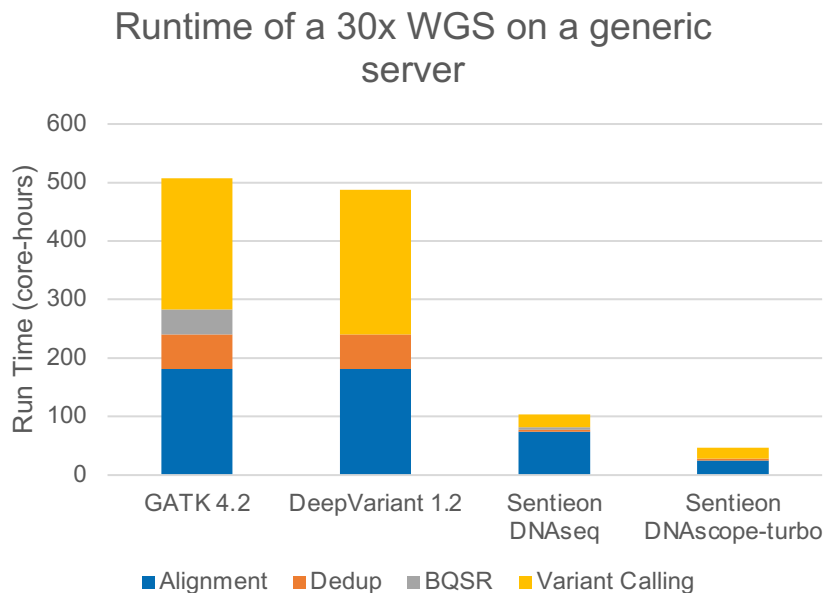
What does Sentieon do?

Sentieon Genomics Software Engine

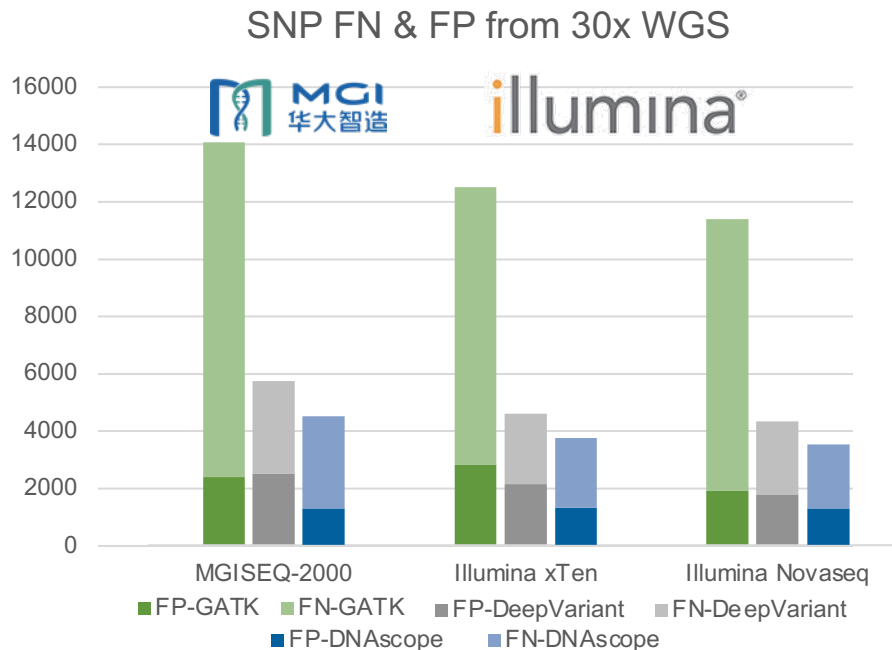


Sentieon Performance – Faster and Higher Accuracy

5-10x faster than BWA/GATK,
significantly lower compute cost;



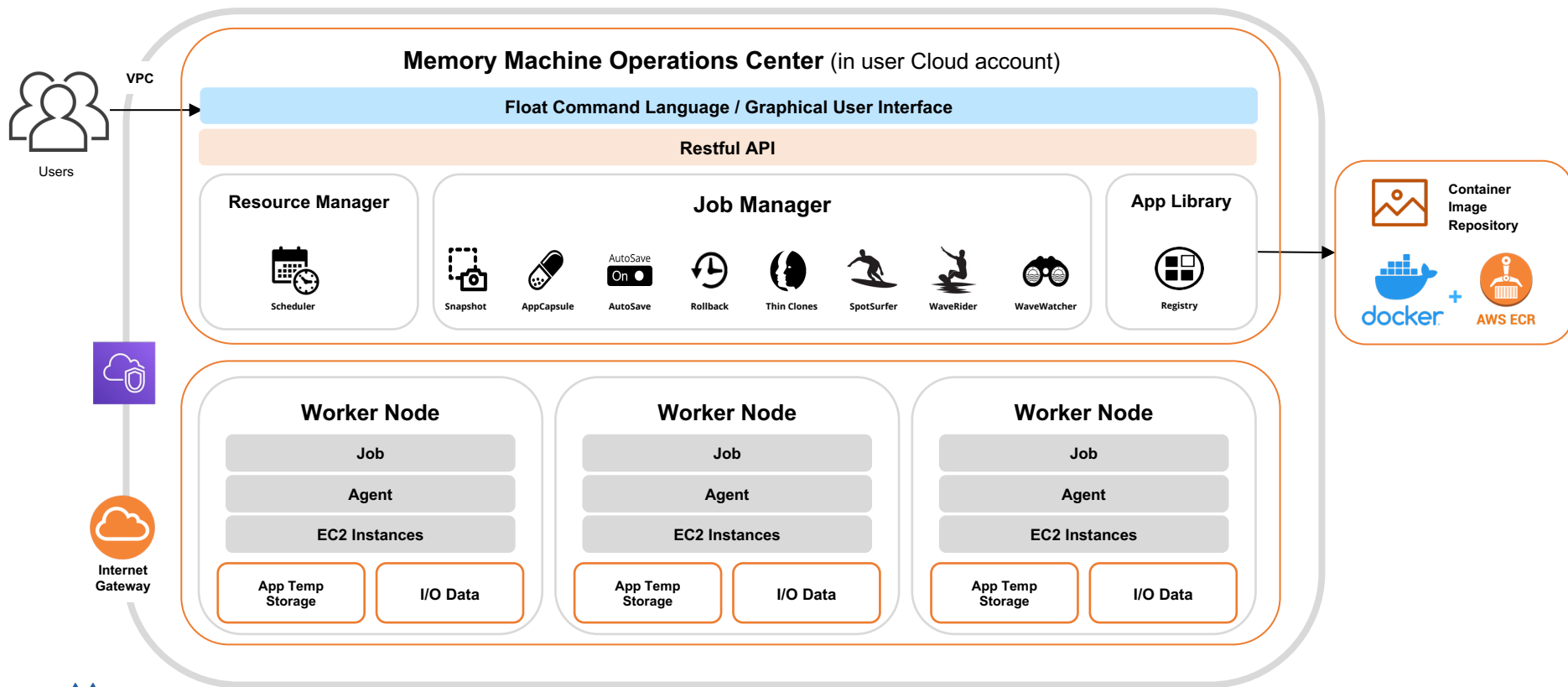
Most accurate variant calling for
multiple sequencing platforms;



Memory Machine™ Cloud (mmcloud)

A next-gen cloud automation platform that allows application users to focus on their expertise by removing the complexities of using and optimizing the cloud

Memory Machine Cloud Architecture



Memory Machine Cloud: AppCapsule Technology

AppCapsule Checkpoint/Restore

Checkpoint
Application

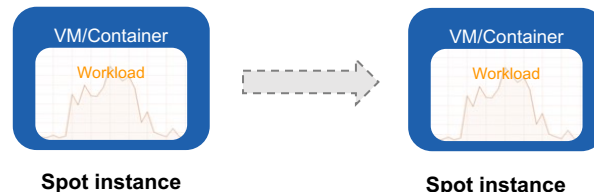
Coordinate
with cloud

Resume
Execution

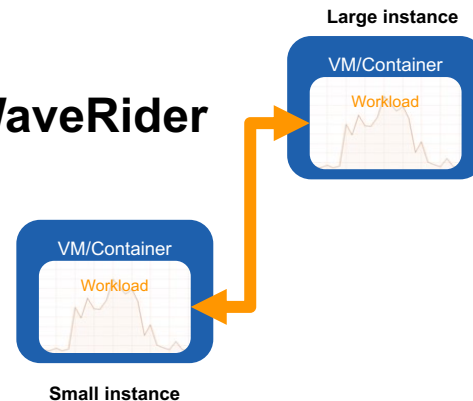


Automated

SpotSurfer



WaveRider

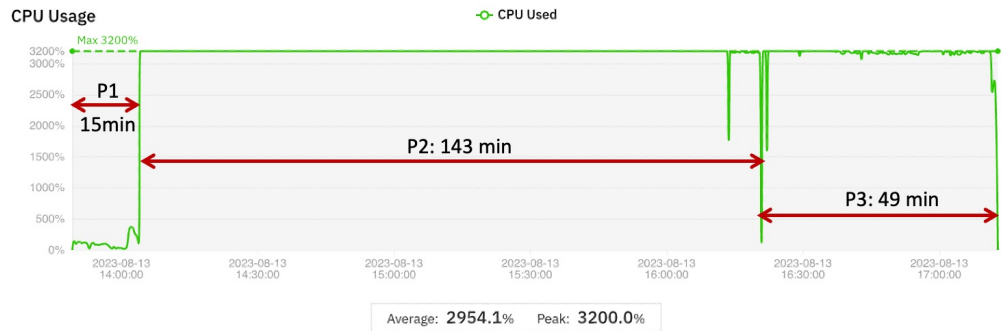


Sentieon + mmcloud Solution

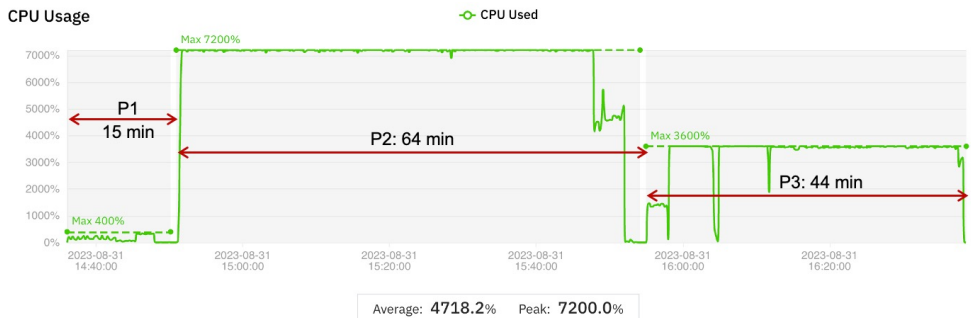
- One-click automated job deployment in AWS / GCP
- Unprecedented performance/price by leveraging WaveRider
 - Adaptive VM instance rightsizing based on workload resource needs
 - Take maximum advantage of Sentieon multi-threading
- Leverage spot instance to maximize cost savings
 - No restart required if spot instance reclaimed
- User benefits
 - Further accelerate Sentieon's stellar performance
 - Reduce cloud cost due to resource efficiency
 - WGS Benchmark results: 41% performance gain + 33% cost savings

WGS Benchmarking Results

Baseline



WaveRider



	Phase 1	Phase 2	Phase 3	Complete run
VM instance	r5.xlarge	c5.18xlarge	c5.9xlarge	
vCPUs	4	72	36	
Memory	32	144	72	
Running Time (min)	15	64	44	123
Delta (%)	0	-55.2	-10.2	-40.5
Cost (USD)	0.09	3.41	1.19	4.69
Delta (%)	-82.4	-30.0	-28.7	-33.6

MMCloud-Sentieon Program

Essentials	Pro	Enterprise
Free	\$500/Month	Tailored
500 Core-Hours / Month	50,000 Core-Hours	Negotiated
500 Core-Hours of Sentieon / Month	5,000 Core-Hours of Sentieon / Month	Negotiated
Community Support	Dedicated Support	Enterprise Support

About Sentieon

The World's Most Awarded Bioinformatics Software Team

precisionFDA Consistency Challenge



precisionFDA Truth Challenge V1



precisionFDA Truth Challenge V2



precisionFDA Brain Cancer Predictive Modeling and Biomarker Discovery Challenge

TEAM NAME	MODEL ROBUSTNESS Specificity more than 0.9 and/or using advanced modeling techniques	EXTRA CREDIT 1 Based on what kind of features are selected and in biomarker research	EXTRA CREDIT 2 Based on utilization of domain knowledge in clinical and/or biological or phenotypic interpretation	OVERALL Performance, usability, and overall presentation of results
Sentieon	●	●	●	●
Swiss Biologics Genomics	●	●		
Genics DA	●		●	
AgPrime-AmyoDx-MSD		●		●
Witru Kalam		●		

precisionFDA COVID-19 Risk Factor Modeling Challenge

Hidden Treasures - Warm Up

NCI-CPTAC Multi-omics Enabled Sample Mislabeling Correction Challenge -



- Founded in 2014
- HQ in SF Bay Area
- Customers have processed
 - ~2,734 PB data,
 - ~475 Million Core hours,
 (equivalent to ~5 million 30x WGS-equivalent samples)

About MemVerge

2022
Best of Show
Bio-IT World
Europe



2022
Best of Show
Bio-IT World
North America



2022
People's Choice
Bio-IT World
North America



2022
Most Innovative
Memory Technology



2022
Big Memory Software
Market Leader



2022
Cool Flash
Storage Product



- Founded in 2017
- HQ in SF Bay Area
- Launched mmcloud in 2022
 - Deployed in 3 continents
 - Partnerships with world's largest CSPs

Tech 10
2021



Industry First
Big Memory
Software



2020
Top 5 HPC
Products or Technologies



2020/21
Market Leader
Big Memory Software



2020
Tech Trailblazer
Big Data



2020
Big Innovation



2020
Technical Innovation
of the Year



2020
Startup of the Year
IT Software



2020
Golden Bridge
IT Software



Top 10 Hottest
Storage Start-ups
of 2020



2020
Tech Trailblazer
AI



2020/21
Great Place
To Work





Sentieon



MemVerge



Thank you

