

Fast Transfer of Genomics Data for Clinical Applications

AT A GLANCE

Industry

Life Sciences

Products

Aspera Application Platform
on Demand

Aspera Enterprise Server

Aspera Embedded Client

Challenge

BlueBee customers needed a platform running on cloud infrastructure that could rapidly transfer NGS data and scale up as data volumes increased, avoiding sequence waiting lists and delayed diagnosis and research, while also enabling BlueBee to comply with the genomics industry's strict security standards.

Solution

BlueBee deployed Aspera On Demand, Aspera Enterprise Server and the Embedded Client and tightly integrated the Aspera FASP transfer technology into the BlueBee platform. Customers can easily access the platform and upload huge NGS data through the BlueBee Service Connector to seamlessly manage the secure data transfers from the sequencing lab to the BlueBee Compute Center.

BlueBee's unique cloud-based accelerated genomics analysis platform combines best-in-class tools with a high-performance computational engine to enable efficient processing and fast, affordable diagnostics for hospitals, research centers and other clients. It's platform is designed to allow customers to easily migrate their bioinformatics applications and pipelines, set-up projects, view results and start collaborating in a highly secured environment.

With the integration of Aspera's fast, flexible and highly scalable Aspera On Demand (AOD) software, BlueBee's users can transfer large genomic data sets directly into BlueBee's cloud-based platform using Aspera's patented FASP® transfer technology.

Aspera's high-speed, reliable and resilient transfers reduce the end-to-end turnaround time of computational data analysis, enabling BlueBee to deliver results to clients significantly faster and more efficiently than was previously possible.

CHALLENGE

As the volume of Next Generation Sequencing (NGS) data being generated has exploded in recent years, BlueBee has continued to expand their services to meet growing demand. BlueBee now offers high


performance NGS data analysis solutions in 22 datacenters across the globe.

BlueBee's clients submit samples of all sizes, the largest coming from cancer centers, which typically submit 2-3 tumor cell samples along with a control sample for each patient, bringing the total volume of NGS data to upwards of 360 GB per patient that must be uploaded to the platform.

BlueBee's customers faced problems caused by the on-site infrastructure's inability to rapidly scale up as data volumes increased, inevitably forming sequence waiting lists, hampering the speed of diagnosis and delaying research.

Additionally, it was essential for the transfer solution to allow BlueBee to comply with the strict security standards within the genomics industry.

“Together the solutions significantly accelerate the turnaround time for data processing while at the same time solving the data throughput issue.”

 Kurt Florus
CTO, BlueBee

Results

- Transfer speed increases of up to 35% on even the slowest networks.
- Bulletproof security provides necessary credibility to acquire and distribute high-value content.
- Software-only solution on commodity hardware eliminates costs.
- Web-based content deliveries replace costly physical media shipments.

BENEFITS

Fast transfers

With high-speed FASP transfers, Aspera maximizes bandwidth and enables Bluebee customers to upload NGS data at the fastest speeds possible, regardless of file size, transfer distance, or network conditions.

On demand model

Aspera On Demand complements Bluebee's on demand business model with its usage based service model and ability to scale fluidly on demand.

Strong security

Aspera's enterprise-grade security plan features built-in SSH authentication, encryption in transit and at rest, and data integrity verification for each transmitted block, protecting customers' business-critical media files throughout the transfer process.



ABOUT BLUEBEE

Bluebee provides high performance genomics solutions, enabling genomic labs to substantially reduce cost and time-to-diagnosis. Bluebee's unique cloud-based accelerated genomics platform enables fast, efficient and affordable processing of large volumes of genomics data. With Bluebee's private-cloud based solutions, labs can run their pipelines orders of magnitude faster without compromising the algorithms and methods used, nor the flexibility required to provide quality, sensitivity and reliability. Please visit www.bluebee.com and follow us on Twitter @bluebeegenomics for more information.

SOLUTION

After investigation of several file transfer tools, Bluebee found that most of the solutions were either too slow or too complicated to setup and maintain. This discovery stage revealed several positive remarks about Aspera's high-speed file transfer offerings, Bluebee began an evaluation of the technology. Initial tests comparing FTPS and Aspera found that transfer speeds for a 10GB file sent over the same network have increased by a factor of 6 with Aspera.

Bluebee deployed Aspera's Application Platform On Demand, Aspera Enterprise Server and the Embedded Client and tightly integrated the transfer technology into the Bluebee platform. Customers simply access the platform to upload data through the Bluebee Service Connector, which seamlessly manages the secure data transfer from the sequencing lab to the Bluebee Compute Center.

Using this integrated solution, tumor and other samples are collected, are prepped and sequenced in a Wet Lab, and the resulting data is then transferred to Bluebee's Silicon Lab for secondary analysis. Whole genomes, cancer sequencing data, agricultural data and other large files are transferred while sequencing is ongoing to save time, while smaller samples are uploaded in batches once sequencing is complete.

"We strongly believe in the value Aspera brings to our customers and in the competitive advantage the collaboration gives us."

 Valerie Morel
CMO, Bluebee

RESULTS

The fusion of technologies pairing Bluebee's advanced genome analytics application and Aspera's unrivaled FASP high-speed transfer technology supports fast, efficient and affordable diagnosis, providing significant implications for clinical settings. By enabling hospitals, diagnostic test providers, research centers and other clients to securely transfer large volumes of genomics data with significantly greater speed and reliability, Bluebee can shorten data analysis turnaround times so data can be interpreted and patients can be diagnosed and treated as soon as possible.

Aspera On Demand's pay-as-you-go model offering aligns nicely with Bluebee's usage-based billing to eliminate the burdens of managing and maintaining in-house infrastructure that would require much more time and capital expenditure.

"The speed and resiliency of the Aspera solution allows our clients to transfer huge data sets" said Valerie Morel, CMO at Bluebee. "We strongly believe in the value Aspera brings to our customers and in the competitive advantage the collaboration gives us."

"When on-site infrastructure is not able to scale up with increasing mass data volumes, sequence waiting lists are inevitably formed. This seriously hampers the speed of diagnosis and delays research. Bluebee addresses this genome analysis challenge by providing a highly scalable private cloud platform for accelerated processing of mass volumes of NGS data, and the speed and resiliency of the Aspera solution allows our clients to transfer huge data sets directly to the platform," said Kurt Florus, CTO at Bluebee. "Together the solutions significantly accelerate the turnaround time for data processing while at the same time solving the data throughput issue."

About Aspera

Aspera, an IBM Company, is the creator of next-generation transport technologies that move the world's data at maximum speed regardless of file size, transfer distance and network conditions. Based on its patented, Emmy® award-winning FASP® protocol, Aspera software fully utilizes existing infrastructures to deliver the fastest, most predictable file-transfer experience. Aspera's core technology delivers unprecedented control over bandwidth, complete security and uncompromising reliability. Organizations across a variety of industries on six continents rely on Aspera software for the business-critical transport of their digital assets.

Learn more at www.asperasoft.com and follow us on Twitter @asperasoft for more information.