



Understanding Customers Better, Faster with Real-Time Analytics

Neudesic helped Pandora know users better, increase ad revenue, and scale for long-term growth



TECHNOLOGIES IN FOCUS

- BigQuery
- Cloud Dataproc
- Cloud Dataflow



The Challenge

- Improve analytics speed to offer real-time, targeted advertising
- Streamline workflows and remove analytics roadblocks
- Increase efficiency and overcome sluggish on-premise Hadoop processing
- Tap full value of human capital, empowering employees with higher level work
- Offer innovative advertising options for marketers and publishers



The Solution

- Partner with Neudesic, a Premier Google Cloud Solutions and Services Partner
- Engage critical Google Cloud Platform technologies to modernize architecture
- Transform predictive data enterprise from on-premise Hadoop to a cloud-based solution
- Improve performance and operational efficiency with fully managed, on-demand services



The Benefits

- Significant increase in analytics speed to market
- Excellent real-time data availability improved customer experience
- Increased ad revenue from better targeting capabilities
- Poised for long-term, scalable growth
- Technical teams more strategic rather than focused on maintenance work

“Partnering with Neudesic has added immense value to our data modernization initiative. With their GCP expertise, we’re moving faster, smarter, and more productively on Google Cloud Platform. This was a significant improvement over on-premise performance.”

– Brett Uyeshiro, VP Platform Services, Pandora

The Client

Pandora is a leading digital audio streaming service provider looking to advance its analytics capabilities with faster, scalable solutions to fuel market growth and market leadership. Music streaming accounted for nearly 75 percent of overall music industry revenue in 2018, according to the Recording Industry of America. Streaming audio audiences represent a valuable customer base for content providers and targeted advertising in this increasingly competitive services market.

The Challenge

Streaming music providers serve millions of listeners, generating revenue from subscription music services as well as targeted advertising to customers. Pandora wanted to improve its customers' listening experience and offer more dynamic advertising options by tapping into real-time analytics. Faster access to user data would allow them to deliver a better user experience and drive long-term growth in ad revenue.

Pandora needed to overcome processing roadblocks inherent to its on-premise Hadoop cluster, one of the largest in the industry at ~2500 nodes and nine petabytes. The analytics workstream took about 30 minutes to produce results – far too long to serve ads effectively to audiences that are mobile or used to a more responsive experience. While their existing solution offered great processing power, analytics queries were sluggish, and the existing architecture would be costly to upgrade and maintain.

Pandora recognized that a changing, competitive business environment requires ongoing digital evolution, giving users an optimal experience and offering marketers effective advertising vehicles. Pandora also wanted its technical teams to focus on high-value work rather than be bogged down with the constant maintenance of a large, on-premise infrastructure.

“ Neudesic demonstrated a cloud solution that increased query performance within seconds, optimized the batch workload with 35% fewer resources, and consolidated all sources into a singular table. Our engineers no longer have to focus on data at rest and can do their best work to drive our strategy and growth.”

**– Brett Uyeshiro, VP Platform Services
Pandora**



The Solution

Pandora was referred to Neudesic, a Premier Google Cloud Platform Partner, by the Google Cloud Platform (GCP) team. With Neudesic, Pandora found collaborative GCP experts adept at implementing cloud solutions and guiding effective digital transformation. Neudesic's expertise convinced them that the Google Cloud Platform was the answer to achieving the speed, flexibility, and efficiency Pandora needed to maintain its competitive position and offer new capabilities for users and advertisers. The goal was to guide Pandora's change from on-premise servers to a fully-managed, cloud solution leveraging the broad GCP toolset.

“ Google Cloud Platform was a good fit for us because of their rich history with distributed computing and their focus on AI & Machine Learning. Neudesic gave a modern approach to help our business achieve better, faster, leaner, and more productive data consumption and management. ”

– Brett Uyeshiro, VP Platform Services, Pandora

Working side by side with Pandora's subject matter experts, Neudesic's development team examined how their clickstream, mobile, and web application data flowed, and how it affected user experiences and ad targeting. Tapping into agile methodologies and significant GCP expertise, Neudesic then engaged a series of cloud services to optimize each facet of Pandora's objectives.

Google BigQuery delivered the critical analytics speed they were seeking, reducing query times from 30 minutes to as fast as 15 seconds. Dataproc provided a fully-managed cloud service for running Hadoop clusters faster and more efficiently with Pandora's existing Spark code base. The final piece of the digital modernization was to evolve the data capture architecture with Dataflow, a cloud service for efficient streaming and batch data management.



The Benefits

After transitioning their data management to the Google Cloud Platform, Pandora experienced immediate gains in analytics speed and agility. Near real-time analytics are providing their data scientists with new user insights - driving opportunities to create better experiences, deliver more personalized content, and offer innovative advertising products to strengthen revenue.

Moving to the cloud has also freed Pandora from the limitations and maintenance inherent to a large on-premise Hadoop cluster, as well as the resource requirements of maintaining infrastructure and managing data at rest. The efficiencies of fully-managed cloud services - where all backups, failovers, redundancies, and disaster recovery are built into the solution and they only pay for usage - are also delivering significant cost savings.

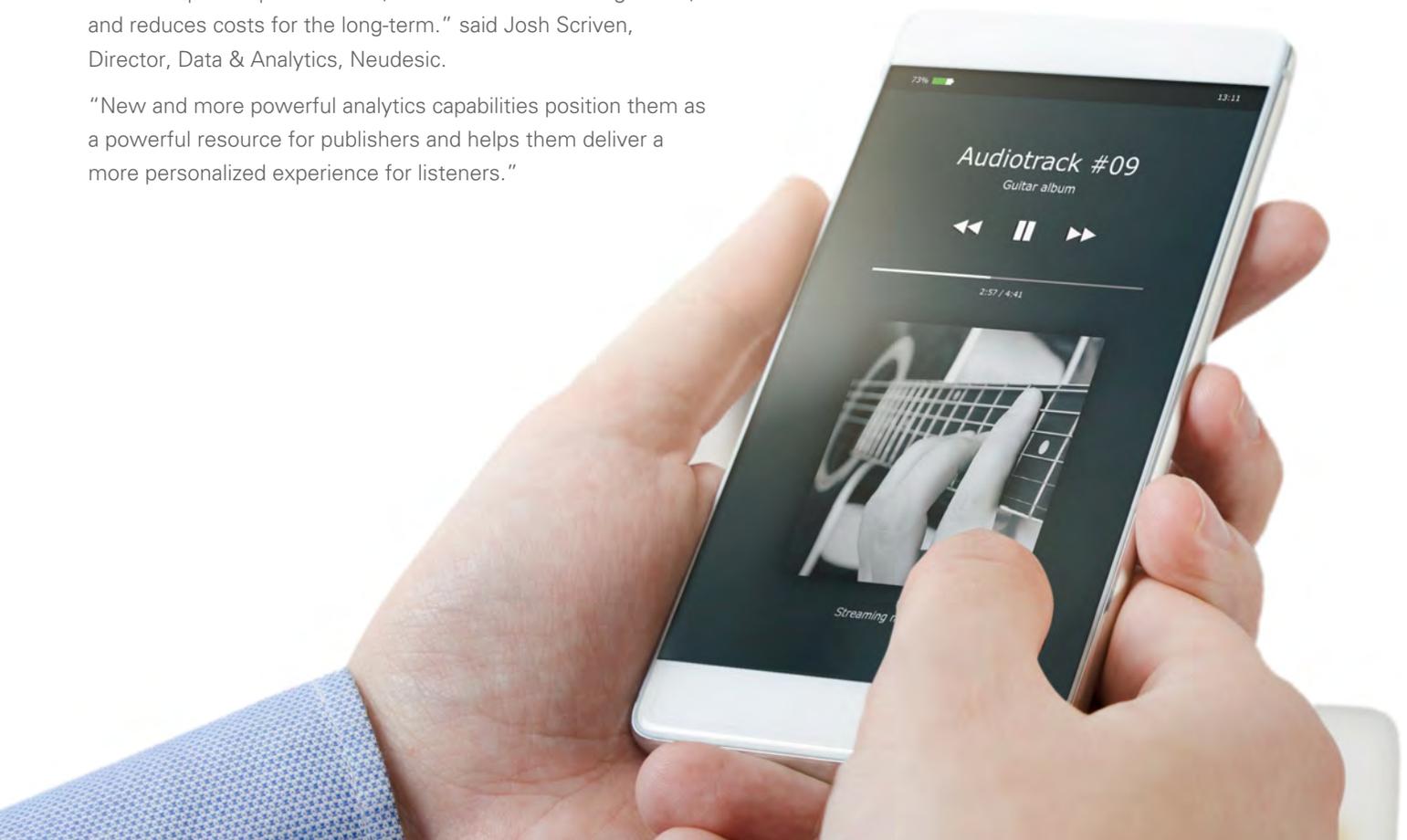
"Fast data access is everything - Pandora's cloud managed service improves performance, streamlines data management, and reduces costs for the long-term." said Josh Scriven, Director, Data & Analytics, Neudesic.

"New and more powerful analytics capabilities position them as a powerful resource for publishers and helps them deliver a more personalized experience for listeners."

Transitioning to a cloud architecture allows Pandora's engineers and developers to shift their focus from tactical, maintenance processes to more strategic, high-value projects. As Pandora shifts additional work streams to the cloud, they will continue to reduce their on-premise hardware, further streamline maintenance, and realize additional savings.

"The Neudesic team is built to work hand-in-hand with Pandora's developers and drive their transformation," said Blake DuBois, Big Data & Analytics Architect, Google Cloud.

"Pandora's objectives resonate with our focus on customer centricity, understanding markets and competitors, and how to optimize for the best user experience. It's a great partnership."



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