



Accelerated analytics deliver banking insights

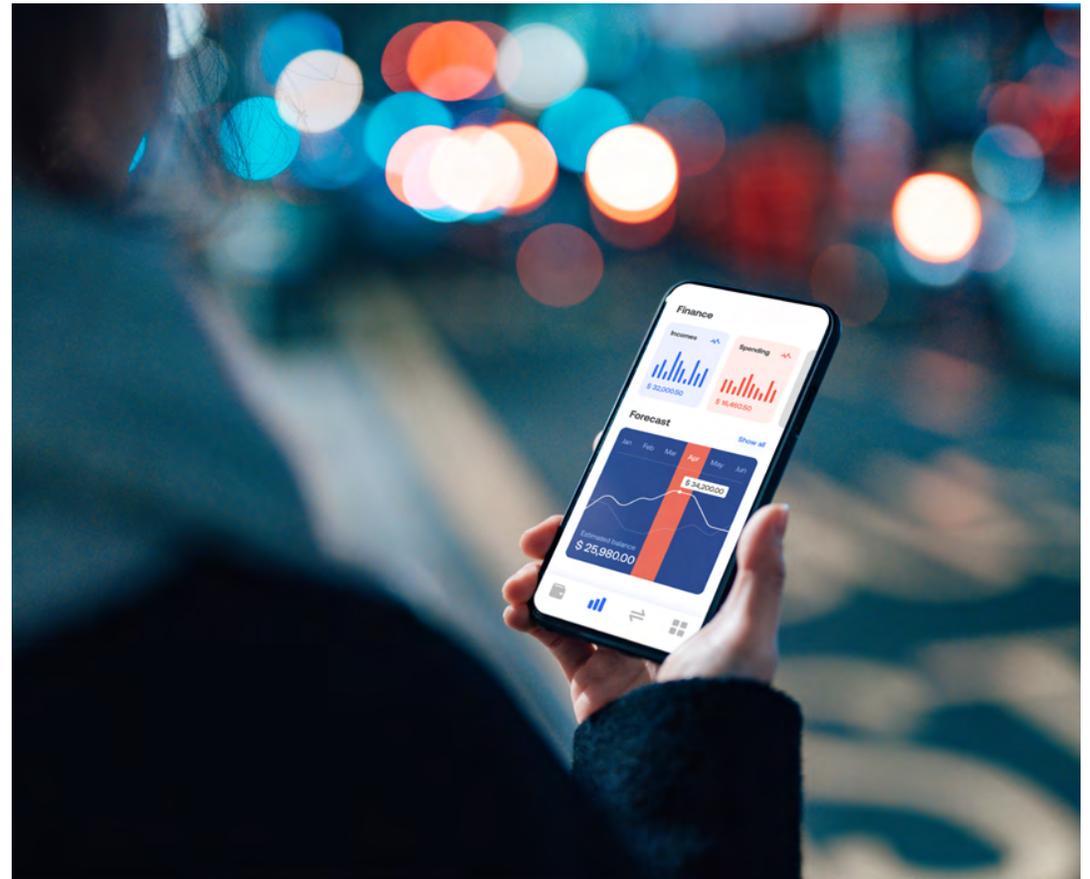
Faster analytical workloads boost
mainframe efficiency

by Tom Farre
7-minute read

As the world goes increasingly digital, the most successful banks embrace digitalization. A prime example is Garanti BBVA, Turkey's second largest public bank. Besides fielding more than 5,000 ATMs and nearly 1,000 branches, the bank deploys innovative technology to deliver a seamless experience to digital customers across web, mobile and social banking channels.

The commitment to digitalization is paying off. The bank has nearly 10 million digital customers who account for 97% of non-cash transactions.

A range of platforms and cloud services power the digital environment, but



production banking applications run on [IBM® z15™](#) mainframes with the [IBM Db2® for z/OS®](#) database. “For our core banking services, we use Db2 for z/OS to make critical business decisions,” says Ibrahim Parlak, Unit Manager,

Cloud Data Platform Technologies at Garanti BBVA.

The system processes huge volumes of transactional and operational data each day—think billions of transactions and

terabytes of data being prepped for analytical insights. The insights benefit both business and IT functions.

For instance, how can marketers know which services to offer mobile customers based on their banking histories? Are accounting processes in compliance with government regulations? And on the IT side, do terabyte-class performance logs indicate application errors and what time is best to take apps offline for maintenance?

The database team processes tens of thousands of batch jobs on the IBM Z® platform overnight, jobs that prepare historical data for downstream analytics, machine learning, reports and systems of insight. But this workload can consume too much CPU power, potentially interfering with production applications and requiring costly upgrades.

Garanti BBVA uses the IBM Db2 Analytics Accelerator for z/OS to process

300+

batch jobs each night

The accelerator reduces CPU consumption on the IBM z15 mainframe by

45

hours every day

A compliance report that used to take 2 days to run on the z15 now takes

1

minute

In addition, complex analytical queries across large datasets on the mainframe may deliver results too late for the business. And nightly batch processing only deals with static data, not dynamic data that changes every time a mobile customer logs on. Yet analyzing live data on the fly can generate the most valuable insights.

Thus, Garanti BBVA's database team faced a dual challenge: how could it accelerate mainframe analysis of historical data in a cost-effective and secure manner; and how could it gain the ability to analyze dynamic customer data in real time?

"My department manages the mainframe platform that performs our most critical banking transactions," explains Parlak. "Our main responsibilities are to make it faster and more secure, and to implement new technology to meet upcoming requirements."

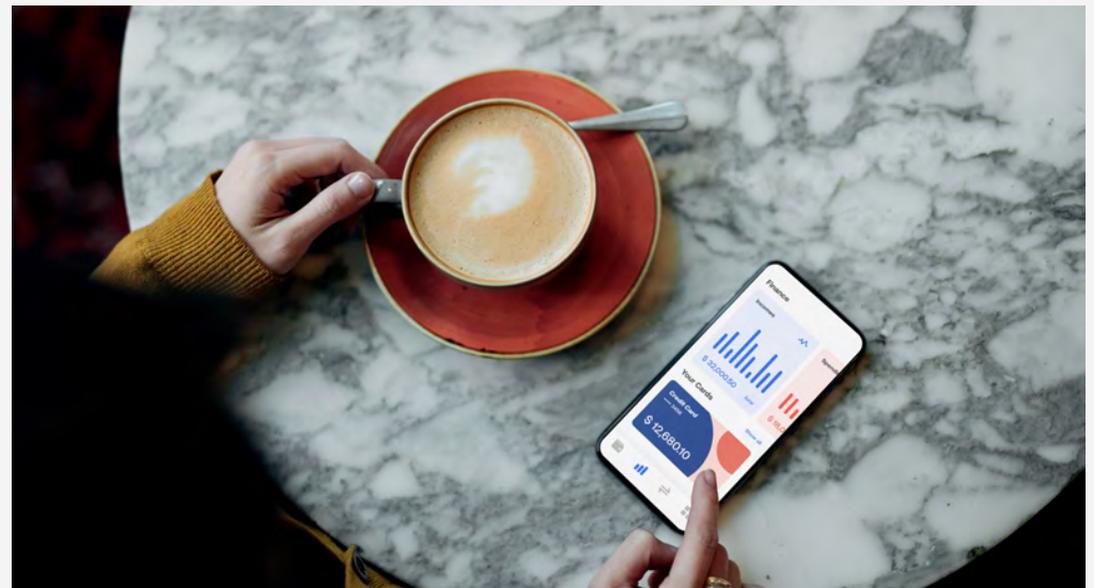
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Deploying the analytics accelerator

Garanti BBVA's solution was to deploy [IBM Db2 Analytics Accelerator for z/OS](#), a high-speed query engine that logically extends Db2 for z/OS. The technology enables Hybrid Transaction Analytical Processing (HTAP), which efficiently and cost-effectively processes analytics workloads on the accelerator and transaction workloads on the IBM Z platform. As an integrated back-end component of Db2 for z/OS, the accelerator is similarly designed for high availability, resilience and information security.

The bank's database team began deploying Db2 Analytics Accelerator



for z/OS version 5 in July 2019 in collaboration with IBM, and continues with updates to gain advanced features. “We appreciate the support we get from

IBM,” says Parlak. “We are confident that if we have a problem, IBM will be there to support their critical products and services.”

From the start, the accelerator has improved the batch cycle by processing analytics workloads offloaded from the z15. The jobs are broad in scope. More than 300 database tables are accelerated to prepare data for analysis by the business units. The analytics draw from 33 TB of data residing on the appliance and 44 TB remaining compressed in Db2 for z/OS.

Db2 Analytics Accelerator for z/OS creates reports related to credit cards, customer accounts, risk management and regulatory compliance. The accelerator also performs ETL functions in prepping data for the data warehouse and AI, and analyzes new applications for errors during quality assurance testing.

In addition, the accelerator helps automate database troubleshooting through periodic analysis of CPU consumption and performance logs from the bank's 300,000 applications and millions of SQL statements. When the analyses detect an error, the accelerator automatically analyzes a 10-year history of user access to identify the best maintenance window.

Besides running batch jobs, the accelerator analyzes a small number of online transactions. The database team wants to greatly expand this to analyze account access by mobile users and other dynamic data. That's why it deployed Db2 Analytics Accelerator for z/OS version 7.5, which features the IBM Integrated Synchronization capability.

This data replication protocol enables incremental updates of dynamic data to the accelerator in near-real time while keeping the data in place. Then, analytical queries can run against the latest committed data with reduced mainframe CPU consumption. Integrated Synchronization takes advantage of IBM Z Integrated Information Processor (zIIP) technology to further reduce costs.

"Right now, we are mostly benefitting from the accelerator within our batch window," says Parlak. "But with the latest version, we are focused on rooting our online transactions to that powerful machine. We expect to get there soon."

Accelerating business-critical analytics

With the Db2 Analytics Accelerator for z/OS, Garanti BBVA gains substantial business value. Its analytical processing helps automate business-critical tasks, increase processing speed and conserve mainframe CPU consumption.

The accelerator automatically runs reports and analytics at an impressive pace. In one example, a regulatory compliance report based on a hundred billion accounting records used to take two days to run on the mainframe. Now, it takes just one minute, almost 3,000 times faster. “This has been a huge benefit to our teams tasked with preparing such reports,” says Parlak.



Automation of IT management is another advantage. The accelerator can detect errors in applications before they are released to production, a boon to quality control. And the system’s periodic analysis of performance and

user access logs proactively detects database anomalies and pinpoints the best time for maintenance.

“As a major financial company, we have a team monitoring performance of the

database and application environment,” says Parlak. “With the accelerator, we can identify most of the problems before they impact the business.”

Db2 Analytics Accelerator for z/OS also supports the z15: thanks to the offloaded jobs, it runs at peak performance while reducing costs. The database team calculates that acceleration reduces mainframe CPU consumption by 45 hours each day.

Process automation, faster analytics and a more efficient mainframe—Garanti BBVA executives appreciate these benefits. Plus, the database team expects to soon activate IBM Integrated Synchronization to analyze online data. This will likely generate useful business insights.

What’s the bottom line? “The Db2 Analytics Accelerator for z/OS is a must for a business-critical financial platform,” says Parlak.

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Ibrahim Parlak, Unit Manager, Cloud Data Platform Technologies, Garanti BBVA



About Garanti BBVA

Established in 1946 and headquartered in Istanbul, [Garanti BBVA](#) (external link) is Turkey's second largest private bank. It offers services to 18 million customers in every banking segment, including corporate, commercial, SME, payment systems, retail, private and investment banking. Employing more than 18,000 people, Garanti BBVA had total revenues of TRY 52.3 billion and net income of TRY 6.4 billion in 2020.

Solution components

- IBM® Db2® Analytics Accelerator for z/OS®
- IBM Db2 for z/OS®
- IBM z15™

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