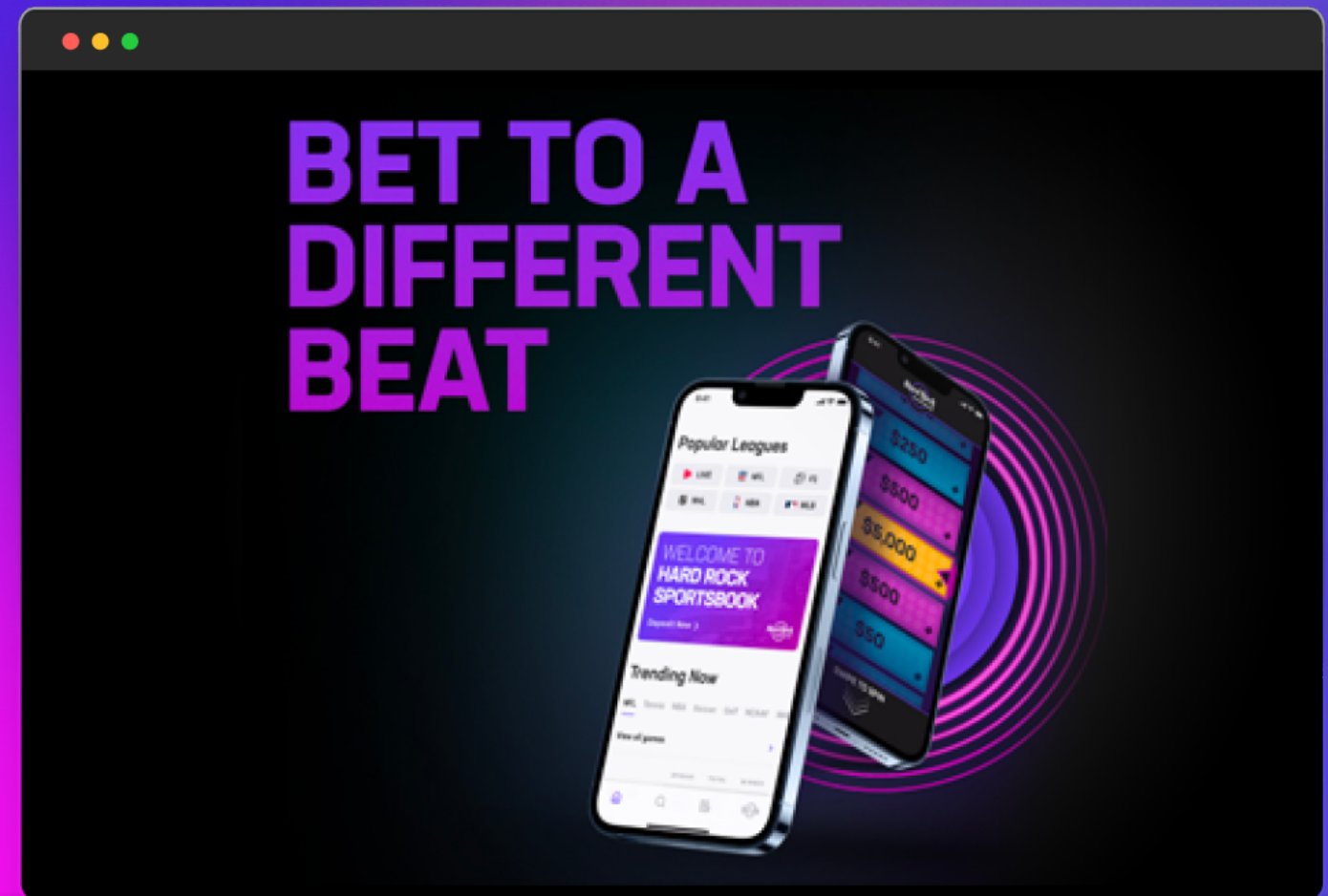


[CASE STUDY]



Hard Rock, anytime, anywhere:
scaling a performant, compliant
and entertaining experience





How Hard Rock Digital is using CockroachDB to become a top sports betting and interactive gaming platform

INDUSTRY :
Online Sports Betting

CHALLENGES :
Building a complex, performant sportsbook app that could run across multiple regions.

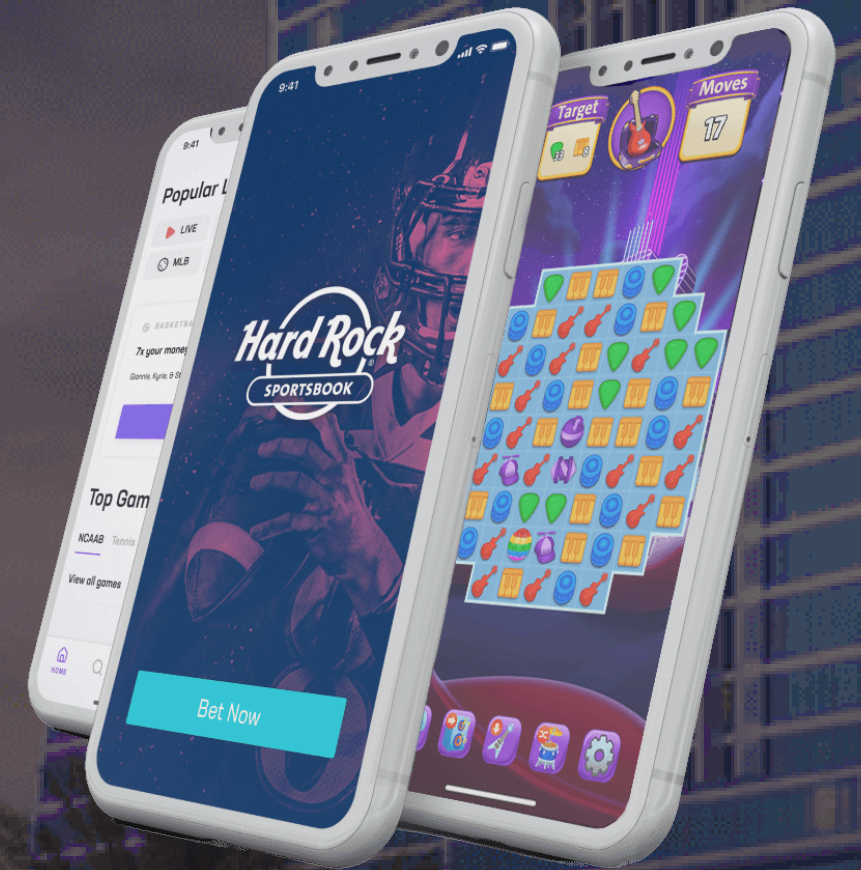
SOLUTION :
A multi-region betting app built on CockroachDB that delivers flexibility, stability, consistency, and performance required.

About Hard Rock Digital

A visit to a Hard Rock property is like no other. From dining and gaming experiences to concerts and getaways at the brand's 250 music venues, cafes, casinos, and hotels, Hard Rock's legendary hospitality and entertainment is well known worldwide. With a presence in 76 countries and a worldwide database, Hard Rock also wanted to entertain and engage its loyal fans in between property visits and in 2020, Hard Rock International and Seminole Gaming officially placed their bet that they could deliver their legendary experience to players anytime, anywhere with the formation of Hard Rock Digital.

A wave of legislation created a digital evolution of gaming in the United States, where iGaming and online sports betting operators combined to produce \$8 billion in revenue in 2021. Hard Rock recognized the opportunity to serve its fans and carve out its unique niche in a category known for its sea of sameness and transactional marketing. The company's first product, Hard Rock Sportsbook, was built to be frictionless and easy-to-use and – just like a visit to one of its properties – entertain its players like no one else can.

With Hard Rock Sportsbook's growth plans, the platform would have to be capable of scaling rapidly to new states, available 24/7, performant, trustworthy, able to support a high volume of concurrent users, and compliant with a web of local and federal regulations. When presented with immense obstacles and opportunities turning its vision for Hard Rock Sportsbook into a reality, Hard Rock Digital turned to CockroachDB.



Don't lose to compliance

Prior to releasing Hard Rock Sportsbook into the wild, the Hard Rock Digital team had to navigate many challenges. Sports betting in the U.S. must comply with The Wire Act legislation that mandates that betting data must be processed within the state lines in which the bet was placed. They needed to build a compliant, multi-region application which required the help of a distributed database that eliminated the need for frequent performance, downtime, and operational issues.

The team at Hard Rock Digital had experience with PostgreSQL and happily uses it for other applications. However, they knew that it wasn't going to be the right solution for a complex, performant sportsbook app that needed to run across multiple regions.

Hard Rock Digital needed a database that would deliver:

- ✓ High availability & eliminate risk of downtime/outages
- ✓ Ability to pin data to a location to help aid with state & federal regulations
- ✓ A centralized, shared location for data
- ✓ Ability to scale horizontally to support hundreds of thousands of concurrent users
- ✓ Guaranteed consistency for a high volume of transactions
- ✓ Automated tasks to reduce operations
- ✓ Ability to scale across regions and environments (on-premise & cloud)

There was only one database on the market that could deliver on all their requirements: CockroachDB. CockroachDB would deliver the flexibility, stability, consistency, and performance Hard Rock Digital needed to support a multi-region application with users across the United States.

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STATES & REGIONS

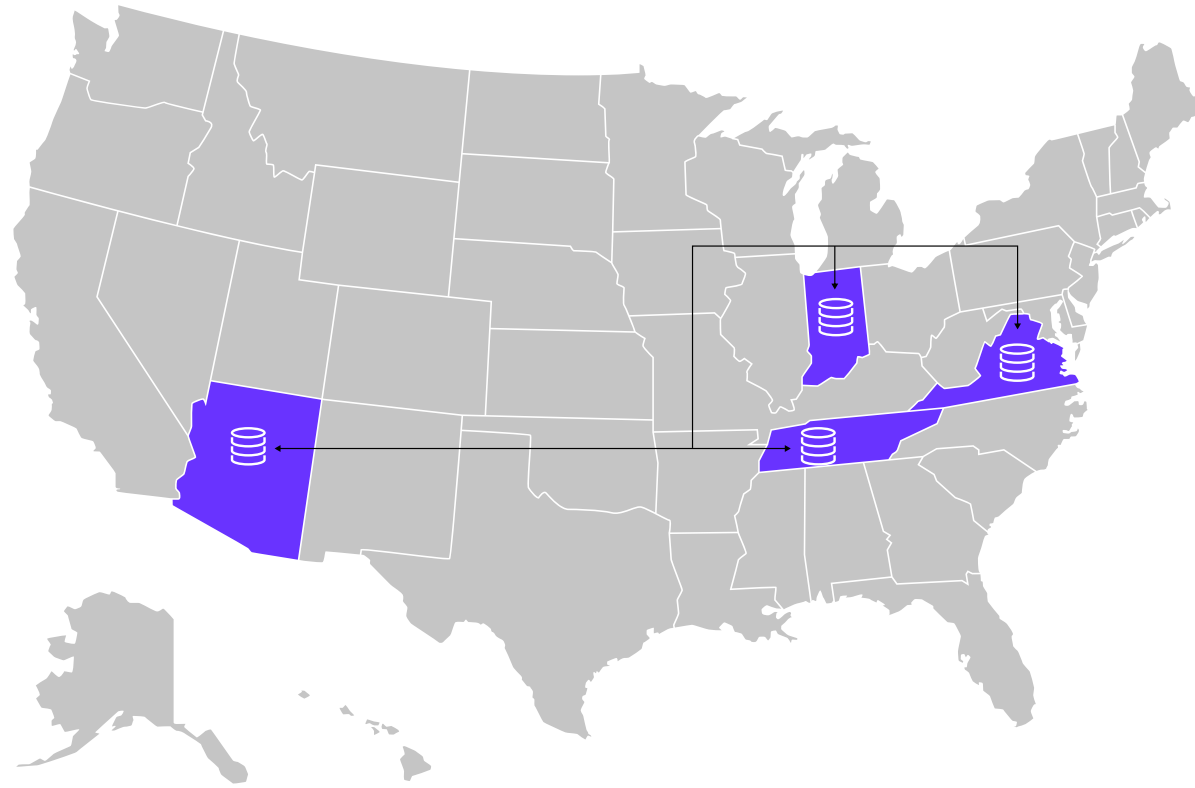
30,000+

TRANSACTIONS PER

35

NODES





Place your bet on CockroachDB

Hard Rock Digital's betting platform foundation comes from an application that is Java based and written for Postgres. They are AWS customers and wanted to run on AWS Outposts so that the infrastructure for each state they support would physically be running in that state.

In order to meet compliance regulations, they would have a database gateway node in each state. Because CockroachDB functions as a single logical database, the application could talk to nodes in each respective state. CockroachDB can extend across a hybrid infrastructure (i.e. AWS cloud regions and Outposts servers) and is Postgres-wire compatible.

Given the nature of a sports betting application, Hard Rock Digital also had stringent high availability (HA) requirements and needed to be able to survive the loss of a single Outpost or AWS availability zone (AZ) so that they would never lose data. With CockroachDB, you can customize your survival goals to fit your use case.

They are running CockroachDB across AWS Outposts and AWS US-East-1. They have deployments set up in the states Sportsbook is currently available in including Arizona, Indiana, Tennessee and Virginia.

Because CockroachDB provides simple, horizontal scale, it can handle the influx of transactions from high-demand events like the Super Bowl without taking a hit to performance. And the ease of operations of a single database cluster with online upgrades, and online schema changes helps the team focus on improving the application instead of maintaining the database.

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“This is the first time I’ve been excited about a database. Right out of the box, CockroachDB solves a lot of challenges for us as a national sportsbook.”

– **Mick Giles**

SVP & Head of Technology



Getting to the top[ology] of the leaderboard

Hard Rock Digital has heterogeneous workloads running on CockroachDB which includes data generated from many use cases including placing bets, settling bets, user account management, cache-loading on app startup, and importing metadata on a huge number of sports events.

Because Hard Rock Sportsbook is a multi-region betting application deployed on-prem and in the cloud, the Hard Rock Digital team had to create a topology pattern that would support different localities and use cases.

CockroachDB uses the Raft consensus protocol. In CockroachDB, when a range receives a write, a quorum of nodes containing replicas of the range acknowledge the write. This means data is safely stored and a majority of nodes agree on the database's current state, even if some of the nodes are offline.

Whenever an application runs across multiple geographies, it's important to deploy clusters across regions properly and carefully choose the right survival goal for each database (as discussed above), and table locality for each table. In the case of Hard Rock Digital, it did a thorough analysis to determine the best topology and customized locality for each state.

While a complicated process, the Cockroach Labs team helps customers with setup and provides support as businesses expand and grow into new regions.

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“When it comes to TCO, we are saving a tremendous amount of money and manpower by using CockroachDB. It takes care of all the heavy lifting for our team, and allows us to focus on aggressively entering new markets and reaching our goals.”

– **Mick Giles**

SVP & Head of Technology



What's Next

Hard Rock Digital's goal remains the same: to build the best products in the market and deliver an online Hard Rock experience to its fans anytime, anywhere. Less than a year after launching in its first state, Hard Rock Sportsbook's mobile app is available in Arizona, Indiana, Tennessee and Virginia with plans to launch in Ohio and additional states in the near future, providing its players with integrated experiences online and at its local entertainment properties.

The use of CockroachDB coupled with a premier tech stack built by a talented team and a 'fight to win' mentality, has Hard Rock Sportsbook well prepared to continue to scale rapidly and continue to entertain its players like no one else can.

Ready to get started?

Go hands-on with 100% free CockroachDB Serverless. Spin up your first cluster in just a few clicks.

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“We’ve been so impressed with the Cockroach Labs team and the support they’ve delivered. They helped us set up the environment we required for our complicated, specific use case and have been here to guide us every step of the way.”

– **Mick Giles**

SVP & Head of Technology

