Nasdaq

Nasdaq Puts Stock in DevGraph's ScaleArc to Enable a Zero Downtime Environment.

Nasdaq is a leading provider of trading, clearing, exchange technology, listing, information and public company services across six continents.

Company

Nasdaq

Headquarters

New York, NY

Industry

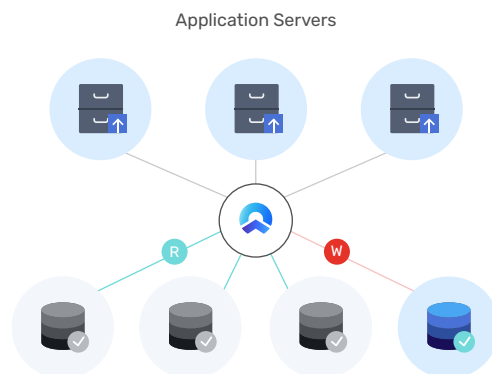Financial

Database Type

SQL Server and Oracle

Overview

As the creator of the world's first electronic stock market, Nasdaq and its technology power more than 70 marketplaces in 50 countries. The exchange also drives 1 of every 10 securities transactions around the globe. Nasdaq is home to more than 3,600 listed companies with a market value of approximately $9.6 trillion and more than 10,000 corporate clients. As Nasdaq continues to expand globally and through acquisitions, the IT team is responsible for delivering and maintaining an infrastructure that is resilient, scales on demand, and delivers high performance 24x7.

Business Challenges

- Migrate thousands of databases and applications from a legacy network to a new network infrastructure in six months

- Maintain zero downtime during the network migration and at all times

Application Servers

SCALEARC

The Solution

Risk mitigation was paramount during the migration. Prasad Parvathaneni, team lead for DBAs at Nasdaq, and his team developed both a strategy that would allow his team to migrate the thousands of databases without disrupting day-to-day operations and a contingency plan to seamlessly switch back to the legacy infrastructure if any unforeseen problems arose during the migration.

Because there could be no maintenance window while stocks were trading, Parvathaneni decided to move the application servers on the front end and the database servers on the back end separately. To achieve this separation, the team needed to abstract the apps from the databases, freeing the apps from a 1:1 application-to-database relationship and enabling an agile data tier.

Parvathaneni engaged ScaleArc specifically for its ability to easily create an abstraction layer between Nasdaq's apps and databases and allow for the migration of the infrastructure in phases. Because ScaleArc is completely transparent to both the applications and the databases, the team was able to deploy it with no code changes. "Having apps and databases abstracted from each other enabled us to migrate our infrastructure without bringing down any services," stated Parvathaneni. "It gave us zero downtime."

Because the applications connect to ScaleArc instead of directly to the database layer, the ScaleArc software shields the applications from any outages or changes at the database tier. Nasdaq has also been able to leverage functionality like query response caching with no application changes. Parvathaneni envisions that this approach will provide beneficial uptime and performance implications well beyond the migration project.

"The checking of stock prices at the end of the trading day is a perfect candidate for caching. Using ScaleArc's caching capability, we were able to see a steep drop off in traffic directly hitting our database servers. The beauty is that we didn't have to make any code changes to benefit from this boost in application performance."

Prasad Parvathaneni

Team Lead, DBAs
Nasdaq

Results

With ScaleArc in place, the team completed migrating the legacy network to the new infrastructure in six months without delays or downtime. Beyond the migration project, ScaleArc is delivering many other on-going benefits in uptime and performance, including capabilities to decrease traffic load through caching and to identify non-optimized queries through logging and analytics.

- **Successful migration** to new infrastructure without any interruption in services

- **Zero downtime for critical applications** by enabling an agile data tier that separates the application layer from the database layer

- **Better performance** with caching capabilities that steeply decrease the traffic load that hits the database servers directly

- **Increased website performance** by identifying non-optimized queries

DEV GRAPH

SCALEARC

Benefits

- Simplify the migration process

- Maintain, upgrade and transition services with zero application downtime

- Boost website performance

- Enable resiliency and app-transparent failover

About DevGraph

The DevGraph family of products was developed by DevFactory. DevFactory was founded in 2008. The company's solution suite enables developers to reduce, outsource or automate things that cause undifferentiated heavy lifting to focus on building great software. DevFactory has taken IT software services out of the dark ages of custom scripts and manual processes to today's NoOps, low code, highly automated paradigm – yet delivering fundamentally higher-quality products.

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Nasdaq

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- CODEREVIEW
- CODEFIX

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