

Spectocor's Telemedicine Solution Never Misses a Beat with ScaleArc

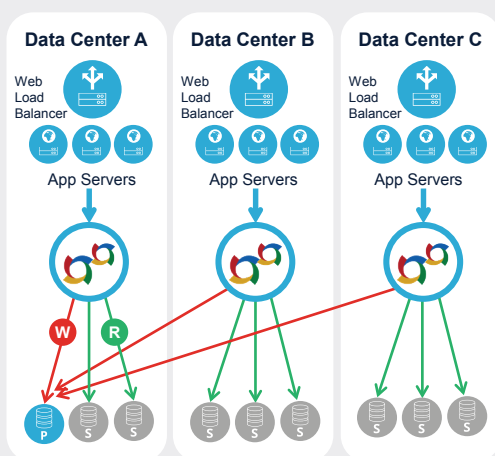
Company: Spectocor

Headquarters: San Francisco, CA

Industry: Healthcare

Database Environment:
SQL Server 2014

About: Spectocor provides industry-leading advanced heart monitoring products and detailed report services. Spectocor works with cardiac physicians to deliver a higher standard of medical insights, ultimately yielding a better patient experience and outcome.



Spectocor is an industry leader in advanced telemedicine, leveraging Internet of Things (IoT) technology to provide cardiac monitoring. Spectocor works with cardiologists who prescribe Spectocor mobile monitoring devices that capture and report every patient heartbeat during the monitoring period. The devices relay this data to Spectocor's systems, where a combination of algorithmic applications and teams of EKG technicians analyze the data to build highly detailed, comprehensive reports. These reports focus on exception data, enabling physicians to quickly identify patients that need immediate attention.

The Spectocor devices distinguish themselves in the field in part because of the enormous amount of data they gather – approximately 500 data points every second. In a typical 30-day study, each patient generates billions of data records. Joe Khan, CIO at Spectocor, stresses the criticality of continuous access to the data. "Doctors have to be able to log in any time to pull down patients' reports, so it's vital that we maintain zero downtime, despite the heavy data load."

As a result of the sophisticated data analysis demanded for this cardiac monitoring, Spectocor is as much a software development company as a healthcare company, so Khan makes it a priority to leverage innovative technologies that allow the company to stay ahead of its industry peers.

Machine learning and data scientists are an increasingly critical component of Spectocor's service offering. Khan notes that agility and scalability at the data tier are essential to Spectocor's success as an IoT healthcare services provider.

Business Challenges

To handle its ever-growing data set, Spectocor relies on scaled out database infrastructure, running SQL Server 2014 with AlwaysOn. The company has deployed SQL Server across multiple data centers and needs data to be served by the location closest to the inquiring doctor. As part of its on-going investment in more agile infrastructure, Spectocor runs its database and other services as a private cloud architecture.

The company is enjoying very high growth and has the following business needs:

- Scale infrastructure to handle 300% to 400% growth year over year
- Deliver zero downtime for its cardiac monitoring application
- Focus application development resources on new functionality and lines of business rather than database optimization
- Adopt technologies that fit within the private cloud architecture, including the ability to support rapid deployment with no disruption to service
- Adhere to HIPAA compliance for patient data

Benefits

- Agility and scalability for analyzing billions of data points
- Integration with SQL Server 2014 for continuous availability
- Zero downtime maintenance
- Auto failover for high availability across data centers
- Fast troubleshooting to identify potential performance issues before they affect performance

“We have exponentially growing patient data and zero tolerance for downtime. The ScaleArc software enables my team to handle our hypergrowth while maintaining continuous availability.”

— Joe Khan
CIO
Spectacor

Solution

With a focus on application availability, Spectacor sought to expand the load balancing architecture it applies at the web tier to its databases. But the TCP load balancers already in place weren't suitable to front-ending its SQL databases. Khan learned about ScaleArc's SQL load balancing capabilities and leverages the ScaleArc software to:

- Deliver zero downtime during database failover, by queueing inbound queries until the database is ready to take traffic again
- Deliver zero downtime during maintenance, by routing around servers that are marked offline for patching or other updates
- Provide cross-data center failover
- Deliver geo-aware load balancing
- Get instant troubleshooting capabilities through ScaleArc's real-time actionable analytics
- Scale the database infrastructure to manage dramatic growth without changing existing application code and simplifying development of new applications

Results

Spectacor is gathering an immense amount of time-sensitive data, experiencing what Khan calls “hypergrowth.” ScaleArc allows Spectacor to meet the increasing demands for agility and scalability as the company contemplates service offerings dependent on other healthcare data, including temperature, blood pressure, blood sugar levels, and brain-wave activity. Spectacor benefits from ScaleArc's help in:

Performance Improvement

Scaled performance to support billions of patient records without any hardware upgrades or application modifications

Zero Downtime

Achieved zero downtime for cardiac monitoring solution with app-transparent database failover and zero downtime maintenance

Regulatory Compliance

Ensured HIPAA regulatory compliance and security of sensitive patient data

Visibility and Analytics

Increased visibility with real-time analytics to reduce troubleshooting times significantly and prevent performance issues



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ScaleArc is the leading provider of database load balancing software. The ScaleArc software inserts transparently between applications and databases, creating an agile data tier that provides continuous availability and increased performance for all apps. With ScaleArc, enterprises also gain instant database scalability and a new level of real-time visibility for their application environments, both on prem and in the cloud. Learn more about ScaleArc, our customers, and our partners at www.scalearc.com.

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04/01/2016