



**A LEADING HEALTHCARE SOFTWARE
PROVIDER ACHIEVES OVER 70%
PERFORMANCE BOOST WITH
HIGH-AVAILABILITY DATABASE
ARCHITECTURE AND ENVIRONMENT
MODERNIZATION**



Ensuring high system availability is essential for technology platforms that power healthcare operations. Even brief disruptions in backend infrastructure can impact hospital workflows, patient data access, and care coordination. In this case, a healthcare solutions provider experienced a complete database outage that interrupted services across its hospital network.

This case study explores how Ahana helped the client overcome infrastructure limitations by implementing a high-availability PostgreSQL setup with streaming replication and performance tuning. By segmenting applications across environments and upgrading to the latest database version, the solution delivered a 70% improvement in performance and restored confidence in system reliability.

Client Profile

Our client is a healthcare technology company serving hospitals and insurance networks across India. The organization provides AI-powered solutions for revenue optimization, operational analytics, and data-driven decision-making, empowering healthcare institutions to manage patient operations, billing, and compliance efficiently.

Challenge

The client's core database environment experienced a critical failure, resulting in prolonged downtime that affected multiple hospitals connected through its healthcare platform. While a basic failover setup existed, it was insufficient to maintain continuity for high-availability workloads. The infrastructure lacked optimization, and multiple applications were running on the same server, creating resource contention and degrading performance. Additionally, the setup relied heavily on default PostgreSQL configurations, which limited scalability and responsiveness during peak usage. These gaps in architecture and load management exposed the client to operational risk and underscored the need for a more resilient, production-grade solution.



Ahana's Solution

To address the instability and performance gaps in the client's database environment, Ahana implemented a combination of high-availability design and infrastructure optimization. The following steps were taken:

- **HA Setup Using Streaming Replication:** A high-availability architecture was deployed using PostgreSQL streaming replication, allowing one database to instantly take over if the primary fails, ensuring uninterrupted service and zero data loss.
- **Configuration Optimization:** The default database settings were analyzed and tuned to eliminate bottlenecks. Fine-tuning improved database response time and system stability across critical healthcare operations.
- **Environment Upgrade:** A new environment was built using the latest PostgreSQL version. This allowed the client to leverage improved performance, enhanced features, and better compatibility.
- **Application Segmentation:** Applications that previously ran on the same server were split across environments in consultation with the application teams. This reduced load on the original system and boosted performance significantly, by over 70% in specific use cases.
- **Migration Support:** Selected workloads were migrated from the legacy server to the newly provisioned environment, improving resource utilization and ensuring smoother operation under peak loads.



Impact

The implementation of a high-availability architecture and optimized environment delivered measurable benefits for the healthcare platform:

- 1) Performance Improvement:** Fine-tuning of PostgreSQL parameters and redistribution of application workloads led to a significant increase in system responsiveness and stability, with performance gains exceeding 70%.
- 2) Zero Data Loss with Seamless Failover:** The streaming replication-based HA setup enabled instant recovery during outages, ensuring continuous data availability for critical hospital operations.
- 3) Reduced Server Load:** Segregating applications across environments alleviated pressure on the primary system, improving reliability and processing speed.
- 4) Improved Operational Continuity:** The solution enabled uninterrupted access to backend systems across hospitals, helping the client maintain consistent service levels during peak demand.

Conclusion

By redesigning the database architecture and introducing a high-availability setup, Ahana enabled the client to eliminate service disruptions and enhance performance across its healthcare platform. This transformation not only resolved immediate operational challenges but also positioned the organization for long-term scalability and resilience. With improved uptime, optimized load distribution, and seamless failover, the client can now deliver consistent digital services to its partner hospitals, regardless of demand spikes or infrastructure events.

About Ahana Systems and Solutions

Ahana Systems & Solutions is a leading IT Infrastructure Management Services and Digital Transformation company based in Bengaluru, India. Our capabilities span Cloud, RPA, Database & EDW, BI & Analytics, and Application Development. With a proven track record of supporting over 100 clients across India, Europe, and the USA, Ahana delivers future-ready, cost-effective technology solutions through deep domain expertise, a skilled resource base, and partnerships with top technology providers.

Contact Us:

sales@ahanait.com | info@ahanait.com | +91 9148724605