# AWS Cloud infrastructure modernization

## About Customer:

Transport Hi-Tech Consultants (THTC) is a leading technology firm in the Middle East that specializes in Digital Maps, Navigation, GIS, Telematics, ITS, Smart Mobility, and related solutions. The firm was established in Dubai, UAE in 1999, with another office in Khobar, Saudi Arabia.

## Challenges:

THTC old cloud infrastructure was using a monolithic architecture which has a limited flexibility and scalability, making it challenging to accommodate the growing user base and traffic spikes, Security Concerns with a public IP and a direct connection between the public users and the application with no security layers used in front of the public traffic and coupled resources as the application, the search APIs and the database were all hosted on the same server.

## Solution:

- Comprehensive Assessment: Intel-CS conducted a thorough assessment of the existing infrastructure, identifying bottlenecks, vulnerabilities, and areas for improvement.

- Architectural Redesign: We proposed a modern, cloud-native architecture that embraced Auto scaling groups for scalability, introduced multiple networking layers for security and used application load balancers to balance the traffic and for better security and make no direct connection between the public users and the application servers. The solution will introduce EC2 instances behind application load balancers to host the search APIs, the MAPs solution, and the Routes solution, will introduce Route53 as DNS service and CloudFront as a CDN.

- Database Solution: as the customer has a huge number of connections on the database reader, we have introduced Aroura Database for PostgreSQL with RDS proxy and GIS Extension installed on the database

as the perfect solution for a great performance and scalability on the level of the reader.

## Results & Benefits:

- Improved and High Availability: Intel-CS witnessed a significant improvement in system availability. Downtime was minimized, ensuring uninterrupted services to customers by using the concept of the autoscaling groups along with Multi AZ deployments behind an application load balancers and Aurora Database.
- Enhanced Security: The upgraded security measures not only safeguarded sensitive data but also ensured compliance with industry standards, making sure of following the best security practices and compliances.
- Scalability and Performance: The newly designed architecture adeptly managed traffic spikes, ensuring a smooth and uninterrupted user experience.
  Utilizing autoscaling EC2 instance groups in conjunction with ALBs and Aurora Databases, we established a highly scalable infrastructure at both the application and database levels, resulting in significantly improved performance.
- Streamlined Operations: With a modern, cloud-native architecture, Intel-CS could streamline its operations and reduce the time required for routine tasks.