

### 1.4.3 Real-Time Enterprise GPS Tracking Solution of New Jersey Transit: Scalability and Performance Consideration

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NJ Transit had embarked a GPS demo project with the goal of exploring how the use of GPS in conjunction with GIS can enhance the safety and operation efficiency at the agency. Based on considerable research on the GPS hardware and data transmission services, NJ Transit was looking for a pilot technical solution that would be scalable, flexible, and elegant to display the GPS data.

Michael Baker Jr., Inc. was engaged to provide such a solution with a very restrained schedule. Other challenges included dealing with many divisions within NJ Transit, ranging from IS/IT departments, train operations, GIS department and Transit's GPS consultants. Baker and NJ Transit adopted the Agile Software Development Approach that closely engaged key stakeholders and moved the project from User Requirements to Prototyping quickly. The scalability and performance were the critical design factors. The final solution has a three tiered architecture (J2EE and Oracle/Oracle Spatial) and can scale to capture hundreds of moving objects without requiring heavy investment in expensive hardware and network bandwidth. Web Services and AJAX were heavily used.