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16. ABSTRACT

This project developed a web-based application that addresses the problem of identifying the value of the TMC in managing disruptions to the transportation system by quantifying the delay savings that can be attributed directly to TMC actions. Using event data from TMC activity logs and traffic state data from the PeMS database, the system identifies the time-space impact of events in the activity database using a mathematical-programming formulation to match evidence of disruption to computed time-space bounds. Given this boundary, the actual delay associated with the impacted region is calculated. To compute the savings attributable to the TMC, the activity logs are used to identify when the direct disruption by the event is removed (e.g., when an accident is cleared) and models the increased delay that would occur if this clearance was delayed. Given these calculations, the system allows TMC managers to evaluate the performance of various bundles of TMC technologies and operational policies by mapping their effects onto events in the system that can be measured using existing surveillance systems and daily activity logs. The system is deployed atop the CTMLabs service-oriented architecture and is available as a application on the CTMLabs website for use by authenticated users.

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