

Dynamic scheduling as a security tool

September 11 2015

The European Commission is supporting an innovative project, known as SAFEPOST, which will increase security in postal and parcel supply chains. SAFEPOST will introduce new technologies for detecting security threats in the supply chain. A highly innovative approach has been developed which uses real-time logistics optimisation software to detect suspicious behaviour that might threaten security.

Postal and parcel logistics operators already implement a wide range of measures to increase the [security](#) of their operations. For example GPS tracking of vehicles is widely used. However the problem with current technologies is that it is often not possible to distinguish between legitimate deviations from the expected route and suspicious ones. This means that a lot of false alarms are generated, which is costly in terms of security personnel effort, and leads to a lot of "noise" which could mask a genuine security problem.

The SAFEPOST project has developed an innovative solution for tackling this problem. MJC², one of the technology partners in the project, has developed a real-time logistics optimisation system that automatically reads GPS tracking data and updates the logistics plan accordingly. It is important to clarify that this is more than simply updating the ETA of the vehicle – the MJC² system also fixes resulting logistics problems automatically using intelligent optimisation algorithms. For example, if a vehicle is delayed so that it will not arrive at its destination in time to undertake the next planned work then the system automatically reassigns the work to the next best resource available.

The real-time rescheduling means that the logistics plan is constantly updated (working within operational constraints and rules) so that at any point in time the system "knows" what should be happening next, even if this is now different from the original plan at the start of the day. This means that when the system next receives an update from the GPS tracking about what the vehicle is actually doing, it is comparing it against the current plan, taking into account any legitimate reasons for this being different. Therefore it will only alert the security team if the vehicle really is doing something unexpected, greatly reducing the number of false alarms, and therefore allowing the sensitivity of the system to be increased.

The system is highly innovative and has had to overcome some massive technological hurdles. The main stumbling block is dealing with large operations that might operate 100s or 1000s of vehicles. Conventional logistics planning systems often take hours to recalculate a logistics plan – no use for cases where the situation is changing every few minutes. MJC²'s optimisation systems can replan even very large operations in seconds, making the idea feasible. The solution has been tested and evaluated by a number of postal and parcel operators in the SAFEPOST project and has been shown to cope with the large scale, complex datasets that occur in the real world.

The primary benefit is the increased security resulting from a much more sensitive and intelligent tracking system. However the real-time scheduling capability means that the operation runs much more efficiently and can respond more effectively to issues such as delays, traffic problems, etc. resulting in lower costs and reduced environmental impact, making it a win-win for all stakeholders.

More information: For more information, see www.mjc2.com/

Provided by CORDIS

Citation: Dynamic scheduling as a security tool (2015, September 11) retrieved 11 May 2024 from <https://phys.org/news/2015-09-dynamic-tool.html>

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