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**Paper Summary 10 - Automated Discovery of Denial-of-Service Vulnerabilities in Connected Vehicle Protocols**

In automotive engineering, some vehicles (especially autonomous ones) are able to communicate with a group of other vehicles. This concept is known as a “Connected Vehicle Protocol,” where a pack of vehicles are led by a platoon leader. In this paper, the researchers attempt to exploit this protocol using a DDoS attack, thus preventing communication and potentially hampering the vehicle’s computational abilities.

Their contribution consists of several attack forms, particularly with the abuse of request/response thresholds and exploiting the PMP protocol. First, by creating fake certificates to interfere with the request/responses of the victim, the attacker can heavily block the vehicle to make connections, thus issuing a DDoS attack. Second, by sending “wrong” LEAVE\_REQs to lower depth vehicles, the attacker can repeatedly get victims to merge and split, thus damaging their speed stability. The ultimate goal of these attacks were to decelerate the victim vehicle, subsequently leading to crashes with the connected vehicles behind them.

I have certainly stated this about other papers, but this paper was incredibly difficult to read. The jargon was dense, and the acronyms were plastered everywhere. The pseudocode was riddled with confusing notation, and the mathematics were poorly explained. I tried my best to understand the whole paper, but I am simply too inexperienced to fully wrap my head around all these niche protocols and technologies.

Other than the technical writing difficulties, I am unsure about any of the research’s true weaknesses. They provide methods of attacks, their success rates/results, and their plausible defenses. It seems that they accomplished everything that they wanted to accomplish. In future editions, they should probably focus more on the specific defenses for these attacks. I would also like to see the methods and systems used as to replicate their results, as I could not find the CVAnalyzer code on GitHub.