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Modeling Threats to Maryland's Electoral Voting System

In the last three years, the evolving cybersecurity threat has extended to the Nation's voting systems, affecting up to 21 states in the most recent U.S. presidential election. As a result, the voting system security problem has received a considerable amount of attention from practitioners, researchers, and the government. Most previous and ongoing studies, however, examine the cybersecurity problem from either a symmetric, static, or holistic perspective, offering 'best practices' and procedures for mitigating against known vulnerabilities. In contrast, this research considers both the external threat from an adversary and the internal threat posed by human error or subversive actors. Moreover, the threat is modeled over time, so that one may become more aware of how voting system risk changes with respect to one's cybersecurity posture. The study, which specifically investigated a county's election process in Maryland from September 2017 to the present, utilizes mathematical modeling techniques as a basis for further analysis and interpretation. (Received July 10, 2018)