

Domain based Security for Mobile Agents

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Abstract—Mobile agent technology has many benefits but it suffers from the possibility of security breaches by agent platforms. In this paper, an infrastructure is proposed to secure mobile agents from the agent platform they reside on, which is especially suited for industrial automation devices having low computational resources. In this infrastructure, a Security Guider Bank (SGB) serves a group of agent platforms (AP), which is called a domain. The SGB maintains information about the domain, which is used by mobile agents to decide whether it is safe to visit the domain or not. This information is represented as vulnerability levels and reputation values. With this domainbased approach the turnaround time of agents is considerably reduced. Instead of collecting reputation information from each platform, the agent can use the cumulative history at the SGB. The SGB also maintains a copy of mobile agents during their visit of a domain, so that they can be renewed if altered by any AP during their journey. It recalculates vulnerability levels and reputation values after a specified amount of time or after the execution of a mobile agent at each agent platform. This scheme is able to detect as well as prevent - to some extent - malicious changes of mobile agents.