SSA Unit 1

Initial Post

Attack-Defence Trees are beneficial in quantifying the costs imposed on attackers and defenders in security systems (Kordy et al., 2011). As Ali (2021) suggests, AD Trees offer all stakeholders a transparent image of all possible threats whilst offering simplified solutions to protecting the asset (Ali, 2021). In this case, we consider the security scenario of a mobile phone device. The domain used was considering the probability of success. It was evaluated to be more valuable than just a minimal cost domain as cost, experience, and time would provide a multifaceted approach contributing to the probability of success.

Probability of success of the attack

No cost, no experience needed, success higher

Some experience needed but no cost / Some cost and no experience, medium-level success

Costly and experience needed, success lower

Probability of success for the user

No cost, no experience for the user, success higher

Some cost, some expertise, medium success level

High cost, more experience needed, success lower

As we can see in Figure 1, the simpler and easier attack method usually requires limited experience and can be solved simply by the asset's end user. The

countermeasures are simple and easy to set up. The complex attack methods may need more knowledge or cost by the end user to fully secure the system. Attacks involving technical skills could have disastrous consequences for the user (Fila and Wideł, 2019). Therefore to support the user, the consideration of usability of the device must be balanced against a secure system so that too much cognitive load is not placed on the user. Higher loads may over-complicate and mean the user may not make the best decisions related to their device security.

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Fila, B. & Wideł, W. Efficient Attack-Defense Tree Analysis using Pareto Attribute Domains. 2019 IEEE 32nd Computer Security Foundations Symposium (CSF), 25-28 June 2019 2019. 200-20015.

Kordy, B., Mauw, S., Radomirović, S. & Schweitzer, P. 2011. Foundations of Attack–Defense Trees. Springer Berlin Heidelberg.