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Article 1 – Security Risk Management

Using Incentives

Summary

This article is about how to use incentives to control access to files and other systems. The system works by taking each request and evaluating the risk of processing the request. Risk is calculated by taking into account the user's security clearance, roles, and other factors in the user's profile. If the risk is too high the request is denied and if it is low enough the request is allowed. But there will be times when someone needs access to something that the risk calculated is high enough to be denied. When that happens, the user can bypass the system and still get access to the data with the penalty of increasing the risk number generated for the rest of their requests. This way the user can still get to something that they need access to while not having to bother with other ways of lowering the risk number. It will also limit how much a user can bypass the access controls and identify users who abuse the system to their advantage. One of the things that goes into determining the risk is things such as is a hard copy being requested or a soft copy. A hard copy would have more risk so it would be harder to obtain. But some things that can help is if a user checks for viruses before opening a file or completing certain educations this would allow them a high risk before the system would deny the request. While this helps with mitigating risks, this is one of the only ways to do Risk Management if the system cannot see the requests but knows the outcome of a request.

When the system cannot see user's actions but can verify the outcome they use a Consequence-Based Contract instead of an Effort Based Contract described in the paragraph before. Consequence Based Contract works by view how a user uses the system. If the user chooses lower risk outcomes, the

system rewards them for that, but if they choose higher risk outcomes the system penalizes them for it. Overall there are many different ways to manage risk.

This system allows for an organization to control access to their data while maintaining their security of data. The system allows for people to access the data they need to while helping keep the system secure. From this the organization can also see who abuses the system. This is what is called Incentive based access control.

How it will help me

This system will help me in the future with software development when I am trying to create a secure system. From this I can design a system that will allow me to keep the system secure while allowing everyone access to what they need in order to complete their jobs. Also it will allow me to be able to keep track of who abuses the system and how they abuse the system. First and foremost in security is the user. You could have very good software implementations but with just one user your system could be compromised.

Bibliography

Debin Liu, Ninghui Li, XiaoFeng Wang, L. Jean Camp, "Security Risk Management Using Incentives," *IEEE Security and Privacy*, vol. 9, no. 6, pp. 20-28, Nov./Dec. 2011, doi:10.1109/MSP.2011.99