Problems of Information Protection When Using Information Technology

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Abstract

Information plays an important role not only in production processes, but also underlies the activities of management organizations, insurance companies, banks, public organizations, etc. In many of these cases, information is of great interest to criminal elements. All crimes begin with information leakage.

Introduction

The problem of information security from its inception to its present state has undergone a long and largely contradictory path of development. Initially, there were two ways of solving the problem of preserving confidentiality: the use of cryptographic methods of protecting information in data transmission and storage environments and the software and hardware delimitation of access to data and computer system resources.

Methods and materials

In the early 1980s, a number of protection models emerged, based on the division of an automated information processing system into subjects and objects. In 1996 the classical work by A.A. Grusho and E.E. Timonina "Theoretical foundations of information protection" formulated and substantiated the thesis that guaranteed security in an automated system should be understood as a guaranteed execution of a priori set security policy. Previously, the conditions of security policy guarantees were formulated in the form of standards (without evidence). The mathematical model of security policy considers the security system in a certain stationary state, when the security mechanisms are active and the description of allowed or forbidden actions does not change.

Results and discussion

Graph 1 shows the number of cyber-attacks with damage exceeding one million dollars. And Table 1 shows the possible consequences of cyber-attacks.

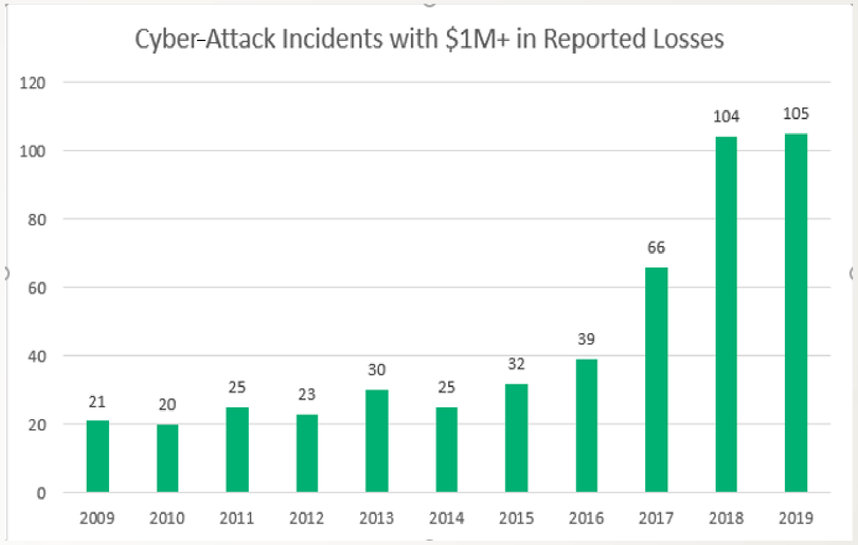
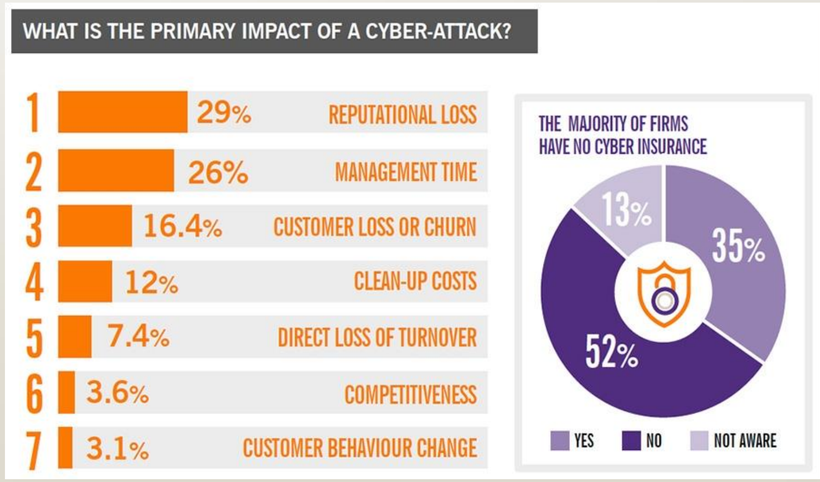


Figure 1: Cyber-attacks and losses from them.

Conclusion

The promise of the information age can only be realized if individuals, businesses, and other entities with increasingly sensitive or highly sensitive information can adequately protect their assets from all types of threats by choosing a level of protection that meets their security requirements based on a threat level analysis and the value of the stored assets.

Table 1. Consequences of cyber-attacks.



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