SRS 2019

Ransomware Research Project

Author: Nikola Staykov

Supervisor: Yavor Papazov

August 9, 2019

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Abstract

1 Introduction

2 Mathematical model

2.1 The simple one

This model describes the spread and calculates the optimal ransom for a ransomware attack, distributed exclusively via botnets, without the key component of spreading to every computer in the network. This variant of the attack is relatively cheap to initiate, but has low efficiency.

We will treat the act of decrypting the data of a given computer as a service and the ransom, respectively, will be the price of the service. The parameters and distributions in this model will surely differ from standard market Parameters:

1. Realization
2. P-profit
3. s-number of people who received the spam
4. d(s)-coefficient of people who would download the ransomware
5. b-coefficient of people having backups, independent
6. c(r)-coefficient of people willing to pay with respect to the number of infected victims
7. r-ransom, to be optimized
8. E-expenses
9. P_b-price of spam campaign
10. M-Malware price

$$U = ln(R);\ P = s.d(s).b.c(r).r;\ E = P_b.s + M;\ R = P - E$$

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