Honeypots

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Outline

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2. History
3. Types of honeypots
4. Deception techniques using Honeypots
5. Honeyd
6. Service-specific honeypots
7. Deployment strategies
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9. Real life uses
10. Improvements
11. Conclusion

Introduction

1. What is a honeypot?

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2. What are the uses for a honeypot?

Introduction

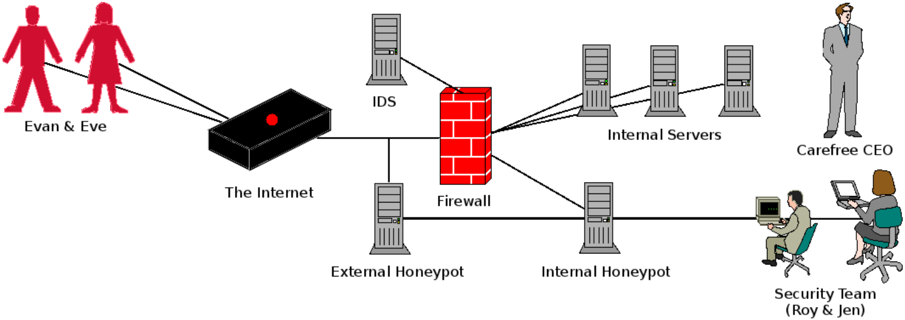

Figure: The key characters in our drama.

Introduction

1. Example of a logged attack: `http://goo.gl/phnI3`

History

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3. Cheswick at AT&T Bell
   "*I wanted to watch the cracker's keystrokes, to trace him, learn his techniques, and warn his victims. The best solution was to lure him to a sacrificial machine and tap the connection. ... Though the Jail was an interesting and educational exercise, it was not worth the effort. It is too hard to get it right, and never quite secure. A better arrangement involves a throwaway machine with real security holes, and a monitoring machine on the same Ethernet to capture the bytes.*"

History

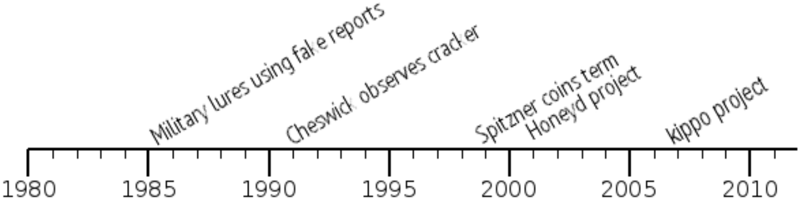

Figure: Honeypot development milestones.

Types of honeypots

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3. Other ways are by looking at the data collected and whether or not more than one honeypot is being used

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Interactive

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1. **Low-interaction** Emulates a single service; must be simple
2. **Medium-interaction** Emulates a group of services that could be expected on a server
3. **High-interaction** Full OS is presented to attacker; most useful, but also most risky

Types of honeypots

Type of data collected

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Type of data collected

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4. Intrusions

Types of honeypots

System configuration

1. Stand alone

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1. Stand alone
2. Honeyfarm presenting a unified appearance to attacker

Uses of honeypots

1. Production environments to provide information and warning

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2. Security research trying to keep a step ahead of new attacks

Uses of honeypots

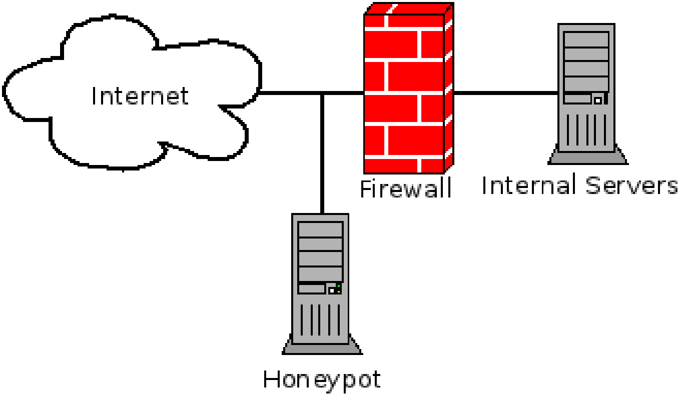

Figure: A example of an exposed honeypot.

Honeypots as mobile code throttlers

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3. Prevents a virus from spreading across the network, but cannot save the system

Honeypots as mobile code throttlers

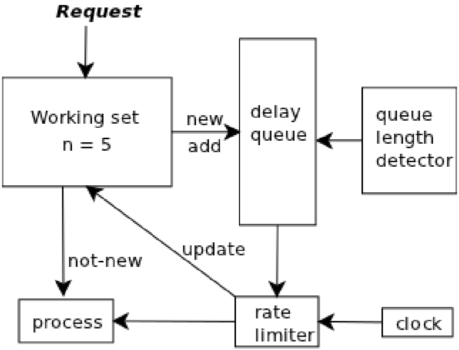

Figure: Virus throttling

Honeytokens (cost-effective honeypots)

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2. Honeytoken is a Honeypot which is not a computer, but a digital entity.
3. Hospital DB example

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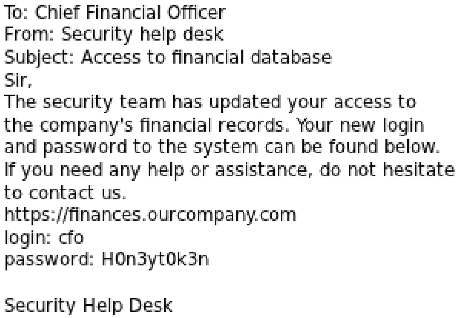

To: Chief Financial Officer
From: Security help desk
Subject: Access to financial database
Sir,
The security team has updated your access to the company's financial records. Your new login and password to the system can be found below. If you need any help or assistance, do not hesitate to contact us.
https://finances.ourcompany.com
login: cfo
password: H0n3yt0k3n

Security Help Desk

Figure: Honeytoken

Honeyd - Introduction

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2. Deception through simulation of network stack

Honeyd - Architecture

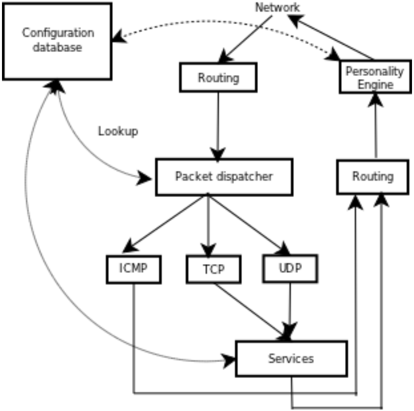

Figure: Honeyd architecture.

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4. Fairly safe to run on a computer, even if not dedicated
5. This idea can be applied to other services as well

Deployment strategies

1. Sacrificial lamb

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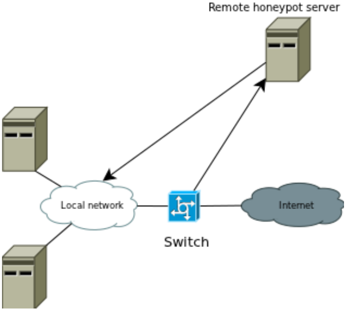
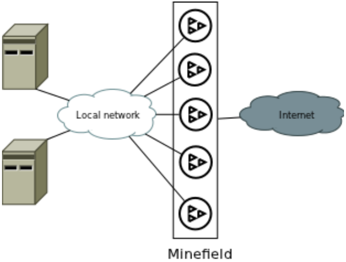


Figure: Redirection shield.



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Honeypot Pros

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3. Limit risk to real data

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1. At best, just a copy of the real target
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3. Additional time required to develop and maintain, in addition to real servers

Real life uses

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2. At Utah State University as part of protecting their SSH servers: "*[Honeypots] make it easy to automate blocking SSH attackers, with virtually no chance of false positives.*"

Improvements

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2. Honeypots need to be updated to emulate newer servers and fix implementation bugs

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3. Versatile: many possible uses

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Questions?