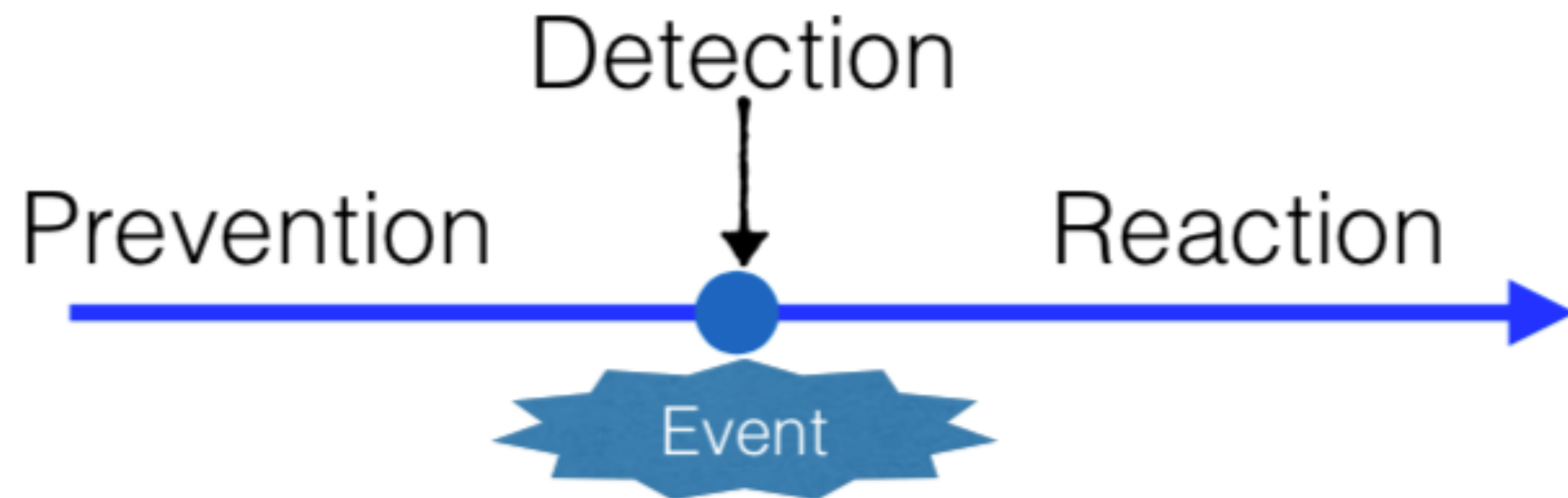# Module 7
# Introduction to Network Security

# Contents

- What is Security
- Threat
- Protection
- Email Security
- Cloud Security
- Software Security
- Secure Web Browsing
- Secure HTTP

# What is Security

- Definition

  - Security is protection of assets

- Protection

# What is Security

- **Computer Security**

  - Computer Security concern with the protection and detection the unauthorised user in computer system

  - The objectives is to protect resources and data

  - Almost occurs in time-sharing OS
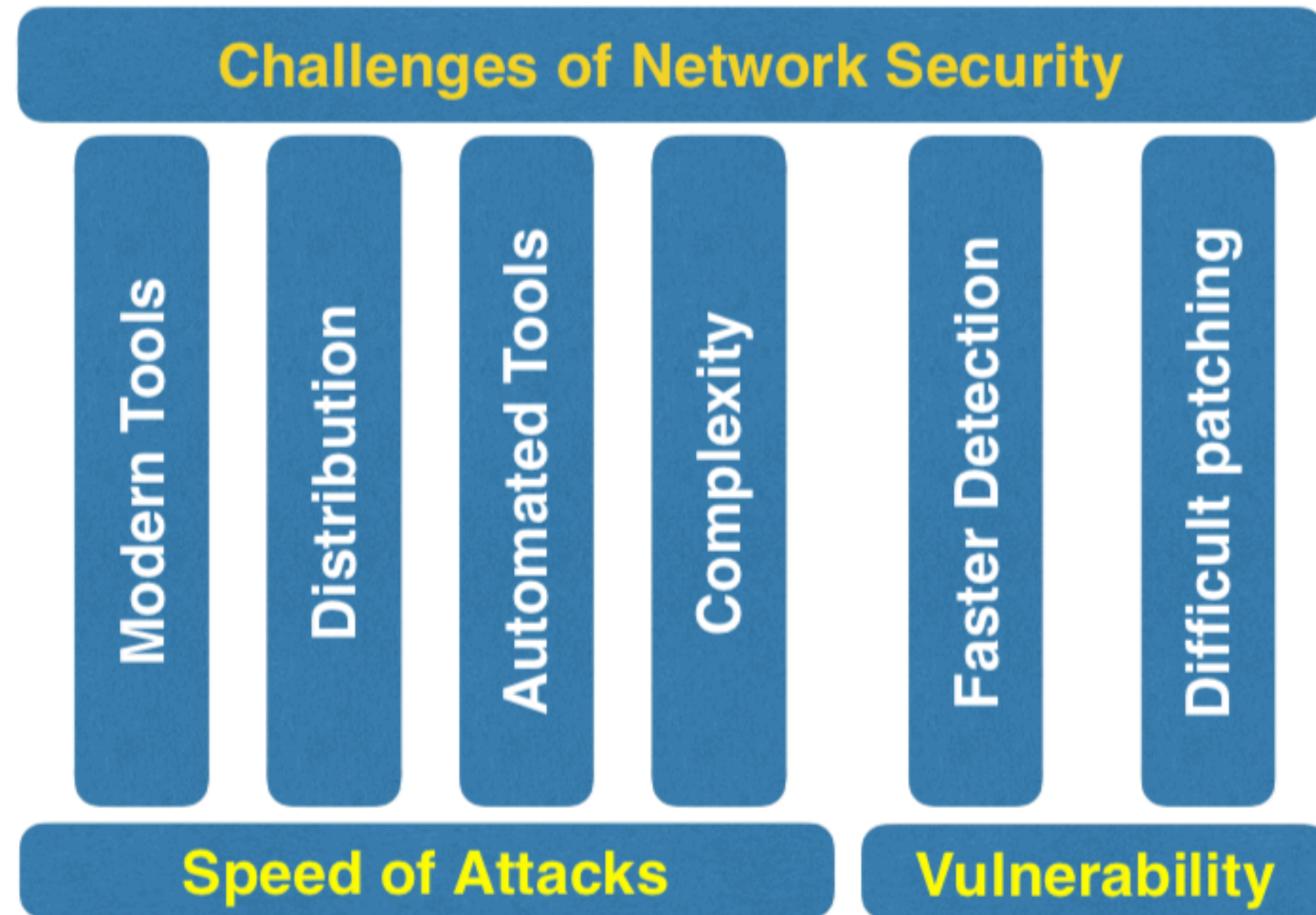
- **NO GLOBAL SOLUTION**

# What is Security

- **Network Security**
  - It is the security of communications exclude computer
    - Network link
    - Store-and-Forward Node
      - such as Router and Switch
    - End point
      - such as files email or hardcopy

# What is Security

- **Network Security is more than computer security**
  - The intruder come from any time any where
  - Automatic attacking
  - The physical security mechanism is not enough
  - There are many condition and objectives
    - Application, Service, Protocol, File  etc.
  - Many administrators

# Challenges

**Challenges of Network Security**

Modern Tools

Distribution

Automated Tools

Complexity

Faster Detection

Difficult patching

**Speed of Attacks**

**Vulnerability**

# Security Objectives

Internet Technology

http://cjundang.ubines.info

# Threats: Hacker

*Hackers* and *attackers* are related terms for individuals who have the skills to gain access to computer systems through unauthorized or unapproved means. Originally, a hacker was a neutral term for a user who excelled at computer programming and computer system administration. Hacking into a system was a sign of technical skill and creativity that also became associated with illegal or malicious system intrusions. Attacker is a term that always represents a malicious system intruder.

# Threats: Malware
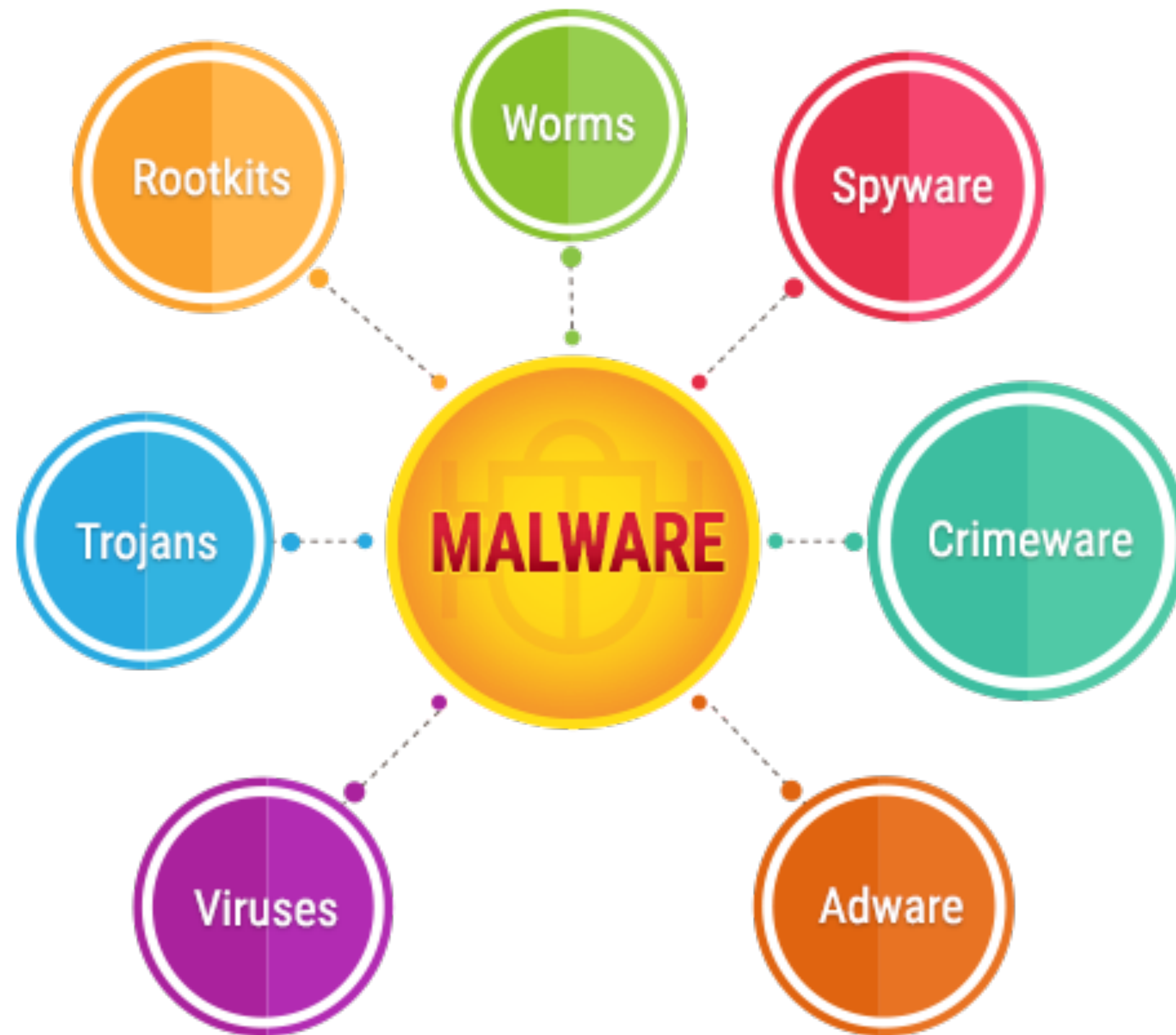
# Threats: Social Engierring
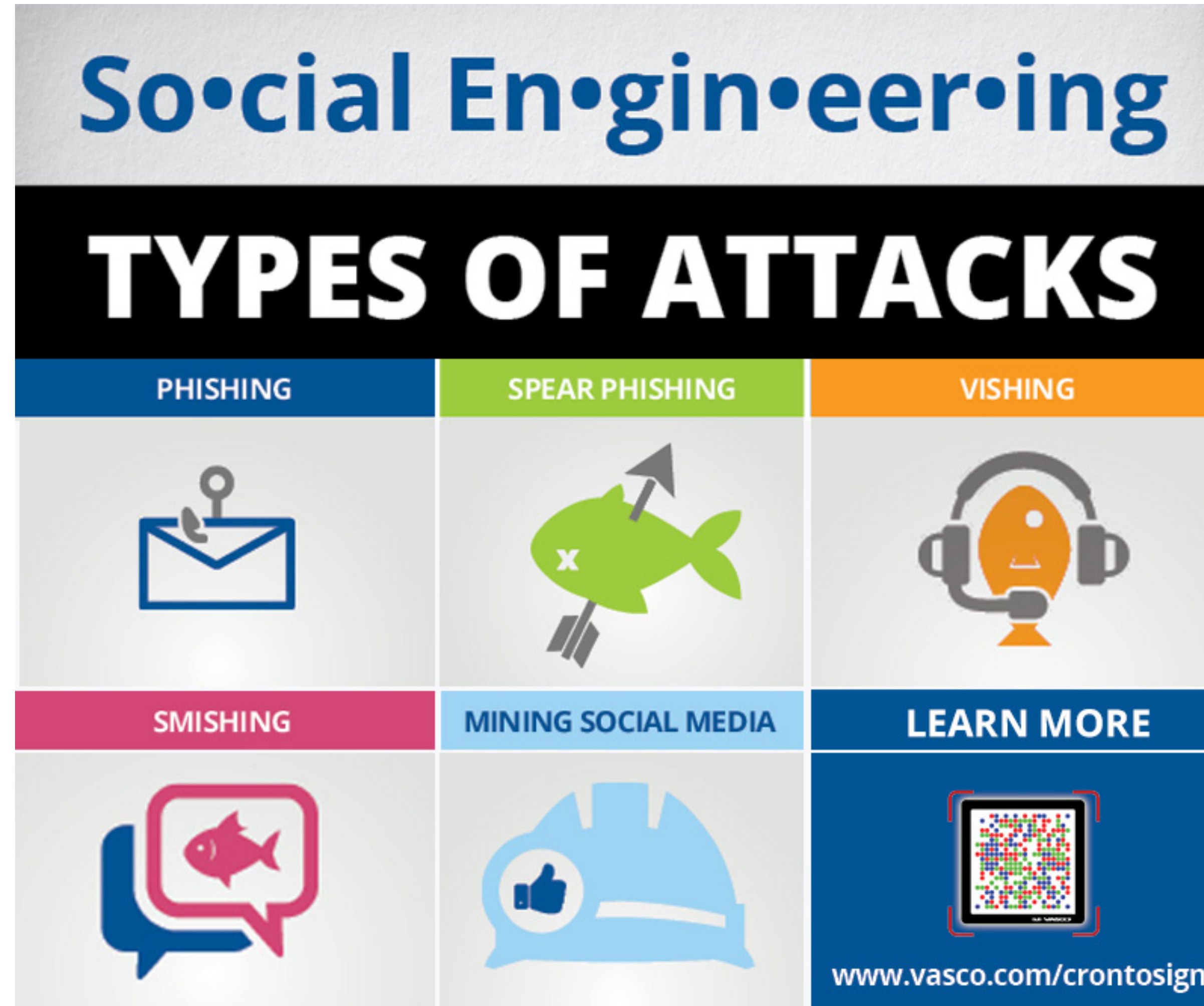
# Threats: Password

```
[Mon May 21 03:58:46] maldev@maldev: ~/ssh_brute_force (master)
$ ./sshbrute -t 127.0.0.1 -uf username.txt -pf password.txt


[*] Username: username
  [+] Password: toor          -> Incorrect Password
  [+] Password: root          -> Incorrect Password
  [+] Password: password      -> Incorrect Password
  [+] Password: maldev        -> Incorrect Password
  [+] Password: correctpwd    -> Incorrect Password


[*] Username: print
  [+] Password: toor          -> Incorrect Password
  [+] Password: root          -> Incorrect Password
  [+] Password: password      -> Incorrect Password
  [+] Password: maldev        -> Incorrect Password
  [+] Password: correctpwd    -> Incorrect Password


[*] Username: maldev
  [+] Password: toor          -> Incorrect Password
  [+] Password: root          -> Incorrect Password
  [+] Password: password      -> Incorrect Password
  [+] Password: maldev        -> Correct Password

[#] Connected.
        [#]Username: maldev
        [#]Password: maldev
```
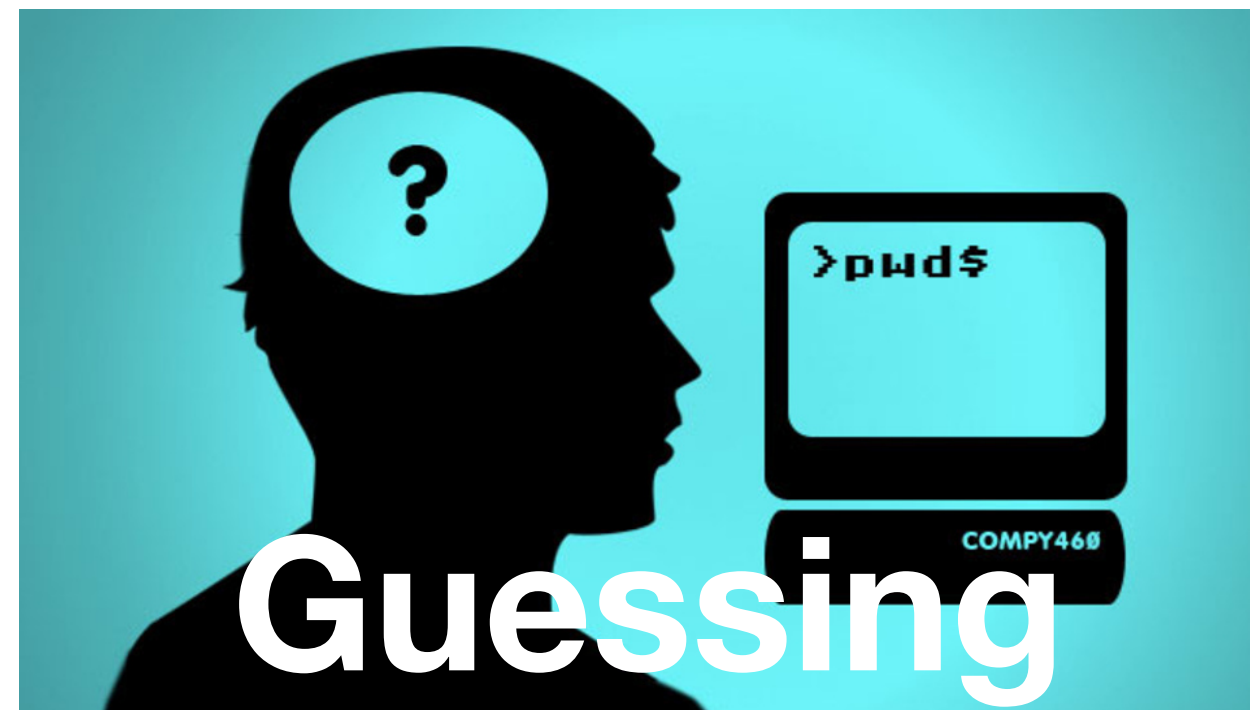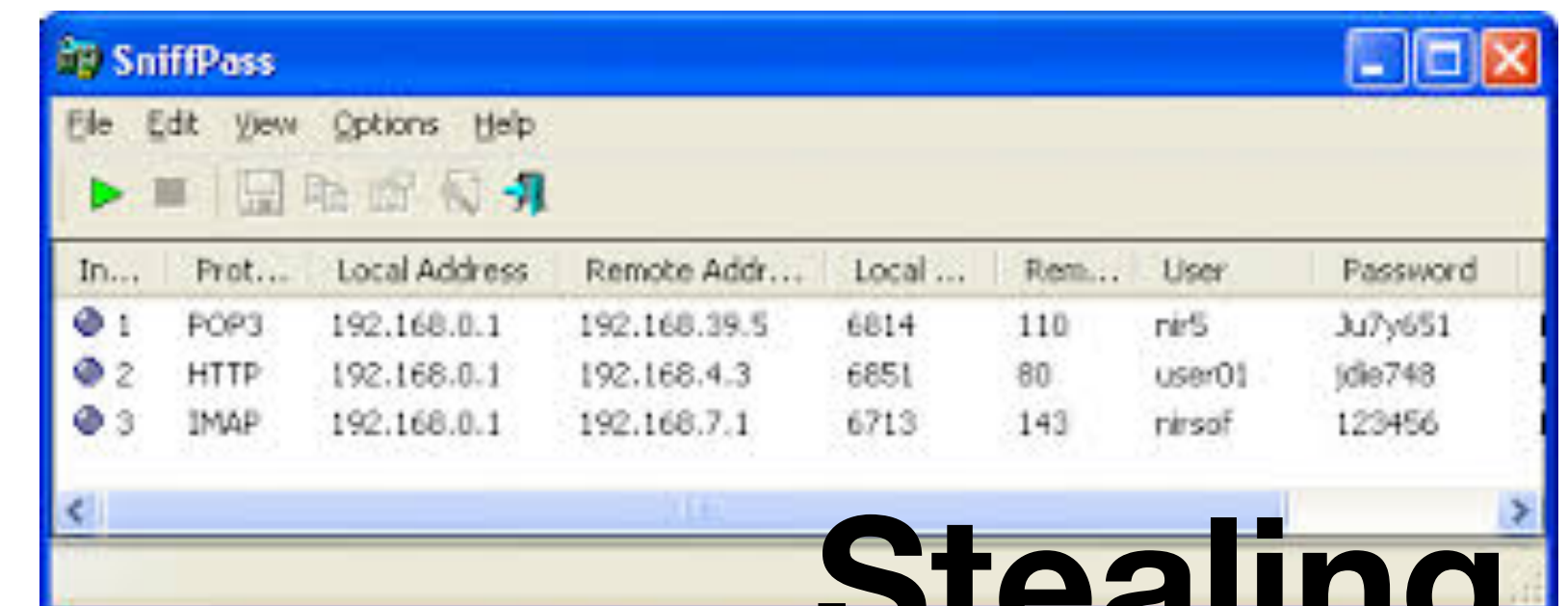
**Brute Forces**

| Rank | Password | # of Users |
|------|----------|-----------|
| 1 | 123456 | 290,731 |
| 2 | 12345 | 79,078 |
| 3 | 123456789 | 76,790 |
| 4 | password | 61,958 |
| 5 | iloveyou | 51,622 |
| 6 | princess | 35,231 |
| 7 | rockyou | 22,588 |
| 8 | 1234567 | 21,726 |
| 9 | 12345678 | 20,553 |
| 10 | abc123 | 17,542 |

| Rank | Password | # of Users |
|------|----------|-----------|
| 11 | nicole | 17,168 |
| 12 | daniel | 16,409 |
| 13 | babygirl | 16,094 |
| 14 | monkey | 15,294 |
| 15 | jessica | 15,162 |
| 16 | Lovely | 14,950 |
| 17 | michael | 14,898 |
| 18 | ashley | 14,329 |
| 19 | | |
| 20 | qwerty | 13,856 |

**Dictionary**

**Guessing**

>pwd$
COMPY468

**Stealing**

SniffPass
File  Edit  View  Options  Help

| In... | Prot... | Local Address | Remote Addr... | Local ... | Rem... | User | Password |
|-------|---------|---------------|----------------|-----------|--------|------|----------|
| 1 | POP3 | 192.168.0.1 | 192.168.39.5 | 6814 | 110 | nir5 | 3u7y651 |
| 2 | HTTP | 192.168.0.1 | 192.168.4.3 | 6851 | 80 | user01 | jdie748 |
| 3 | IMAP | 192.168.0.1 | 192.168.7.1 | 6713 | 143 | nirsof | 123456 |

# Threats: Nature/Environment



Solutions for the extreme Environment

# Protect: Account Level

**Internet Technology**

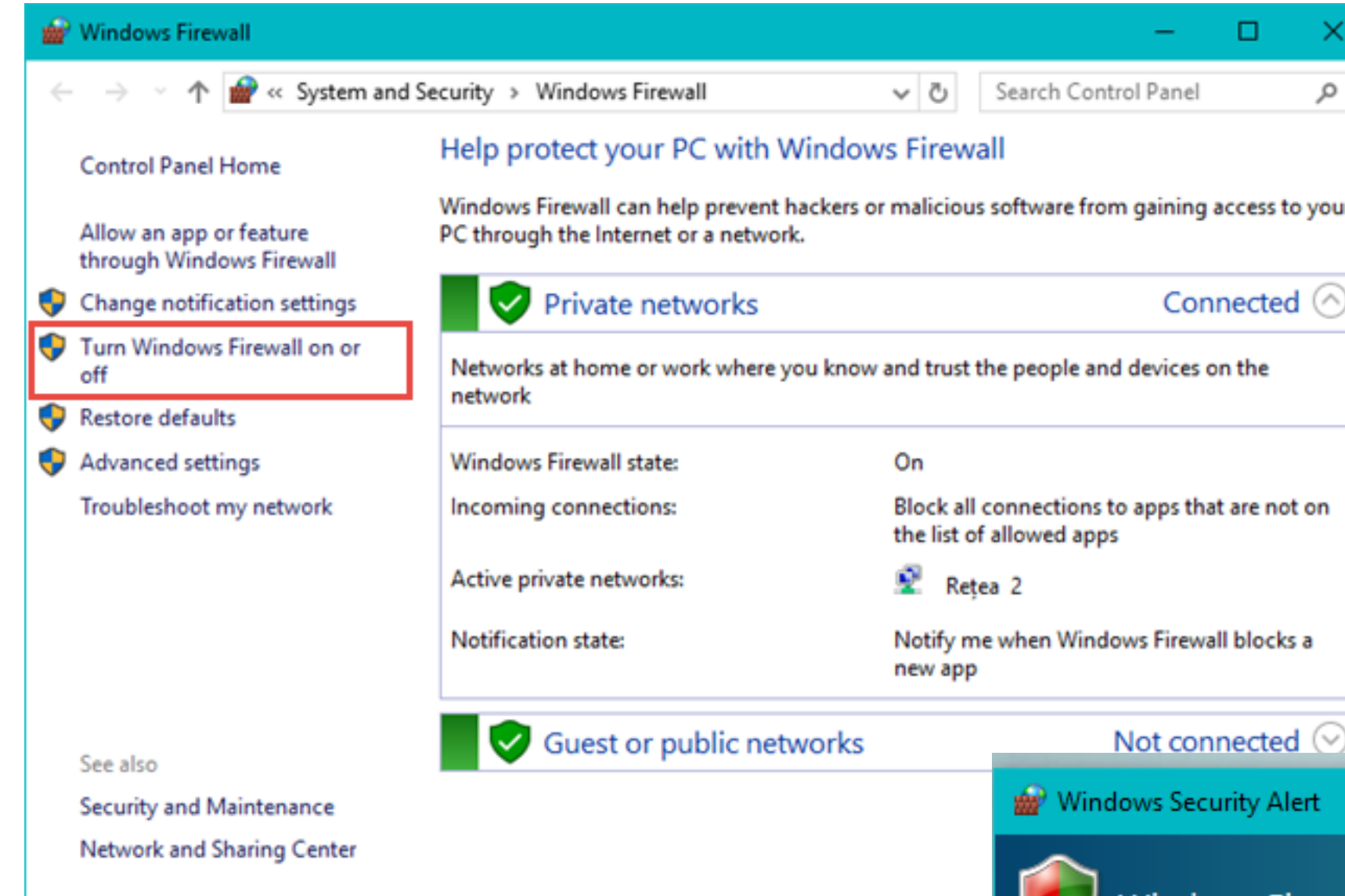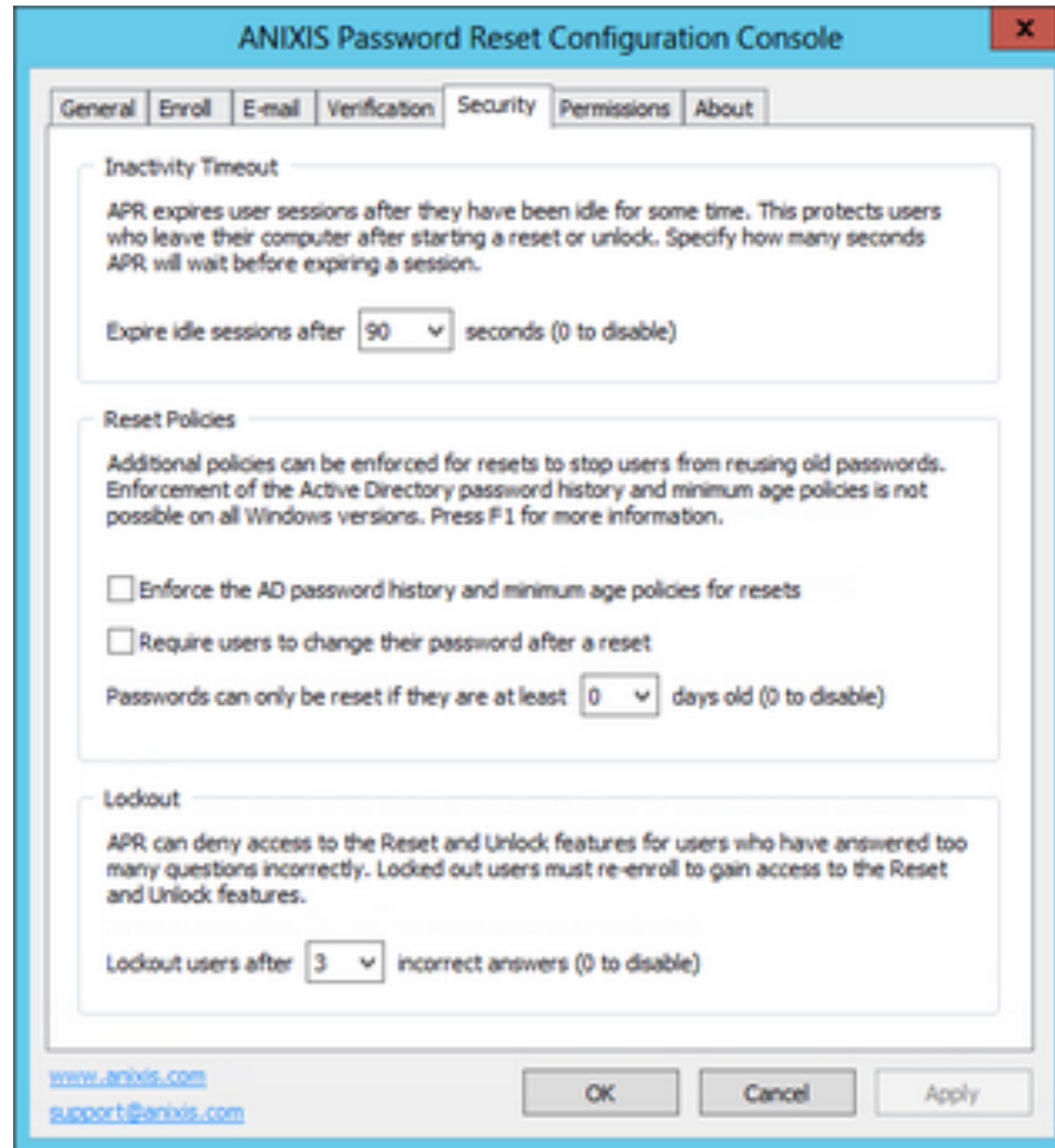http://cjundang.ubines.info
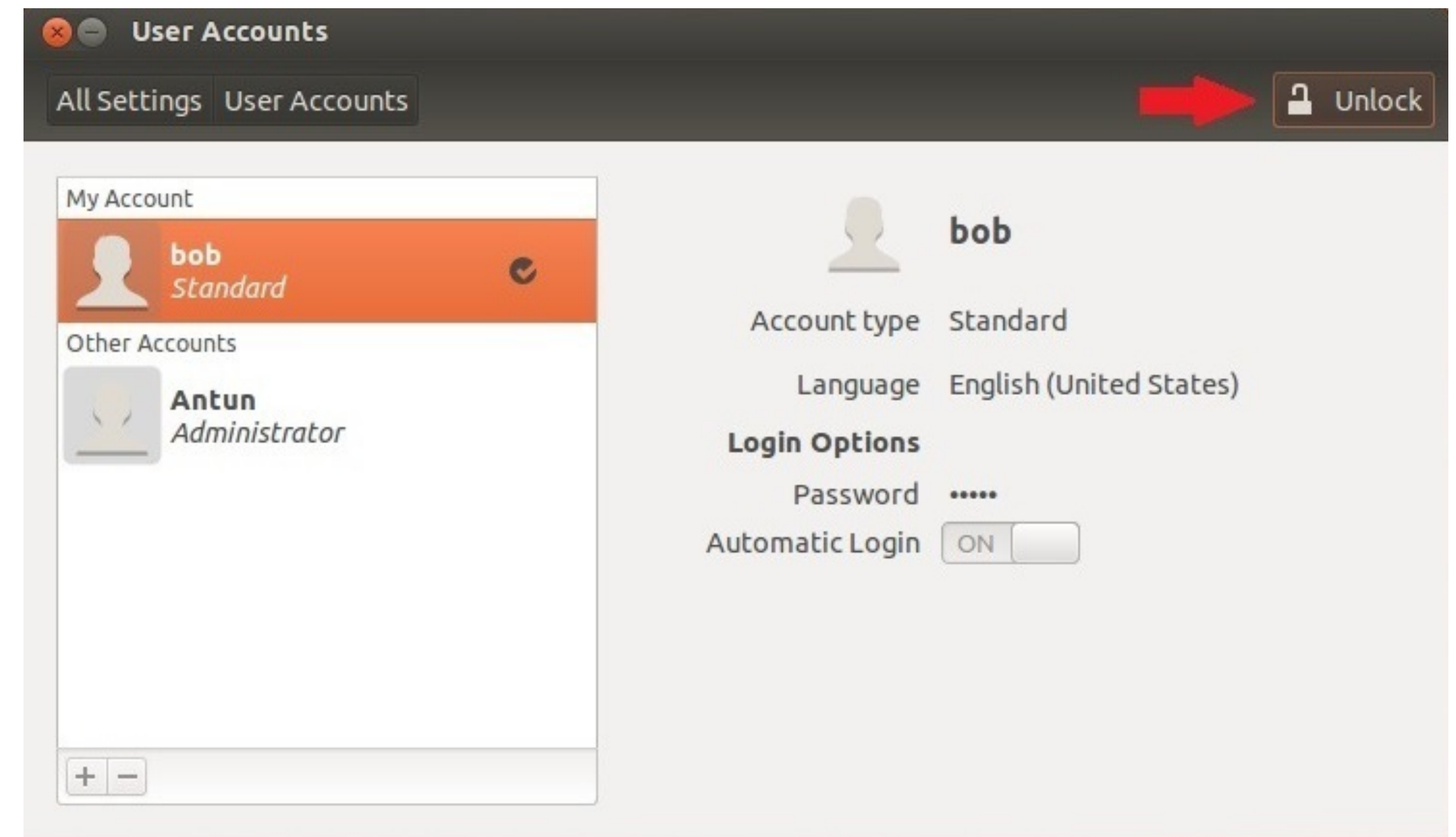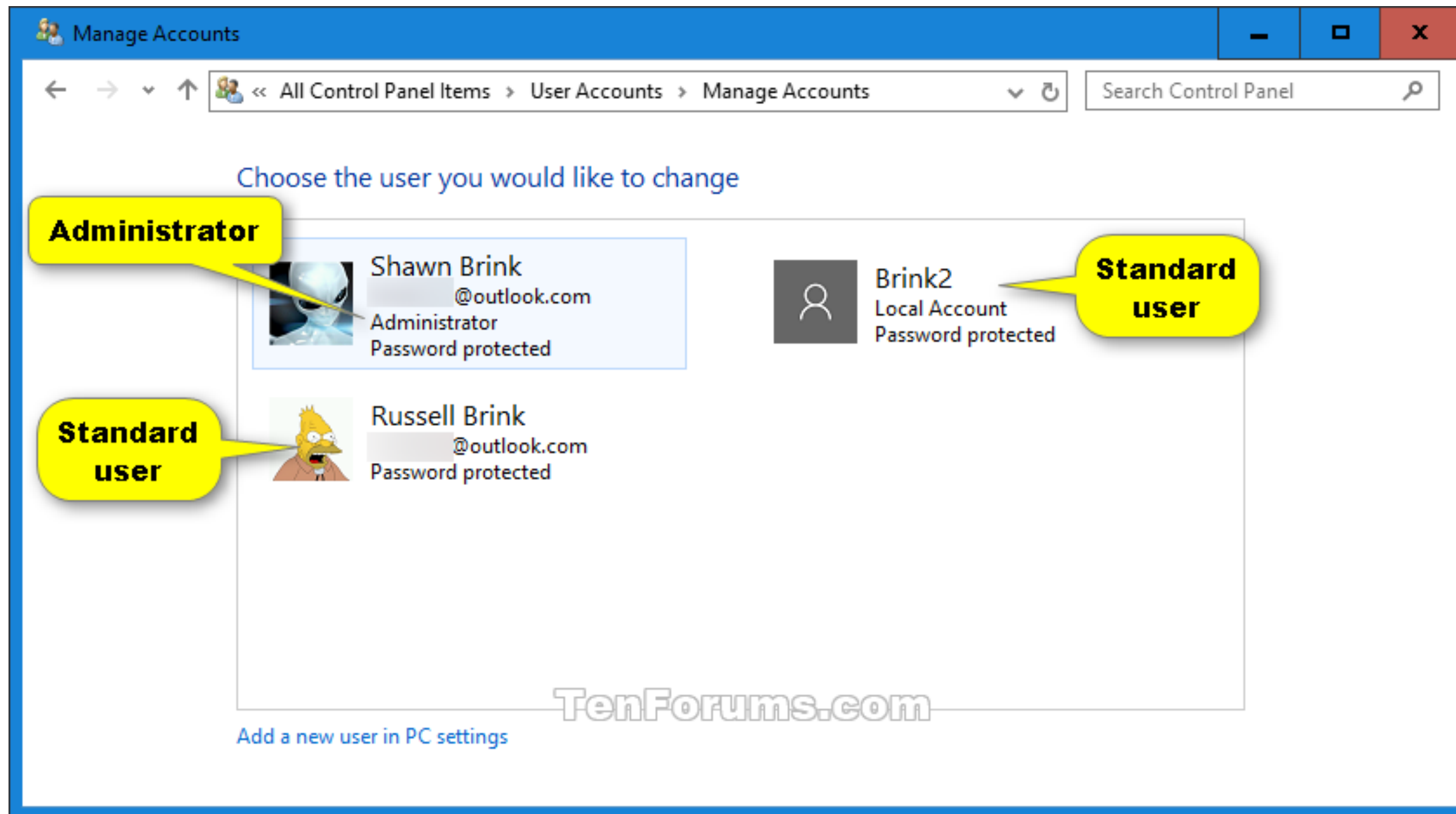
# Protect: Authentication

# Protect: Single Sign On

# Protect: Password Protection

# Protect: Device Hardening



**S/W Firewall**

**Timeout & Logout**

**UbiN3$**
Ubiquitous Networked Embedded System
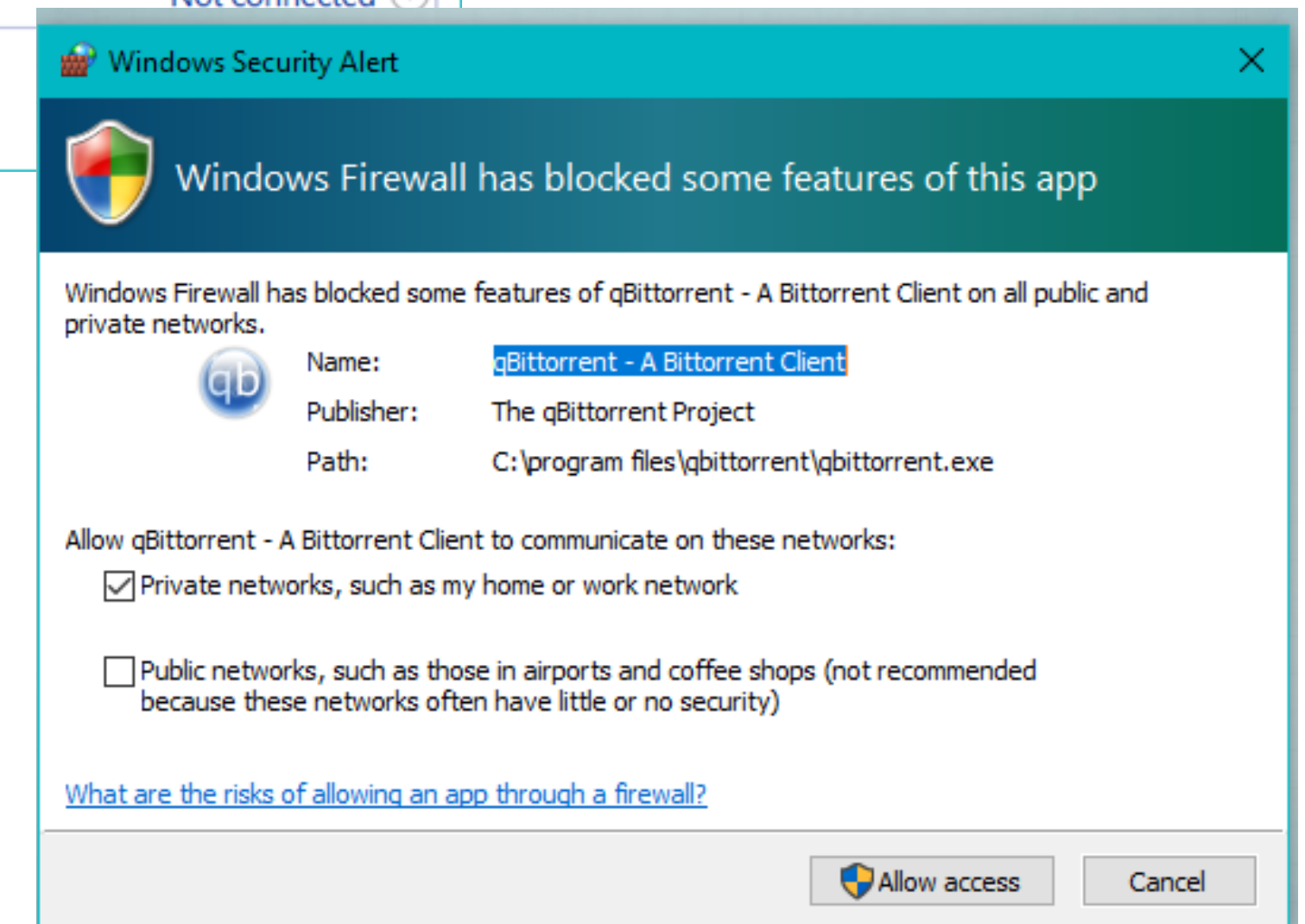
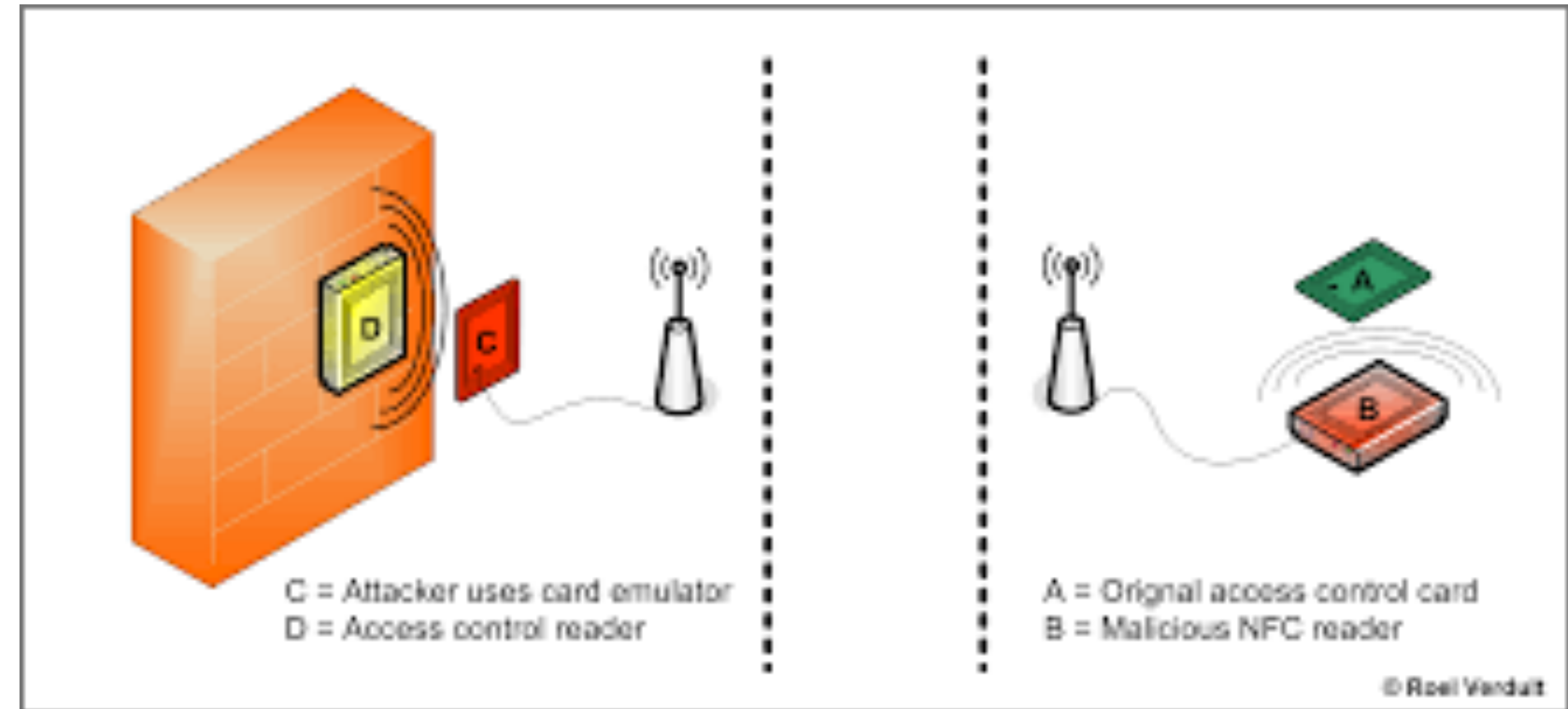## Bluejacking
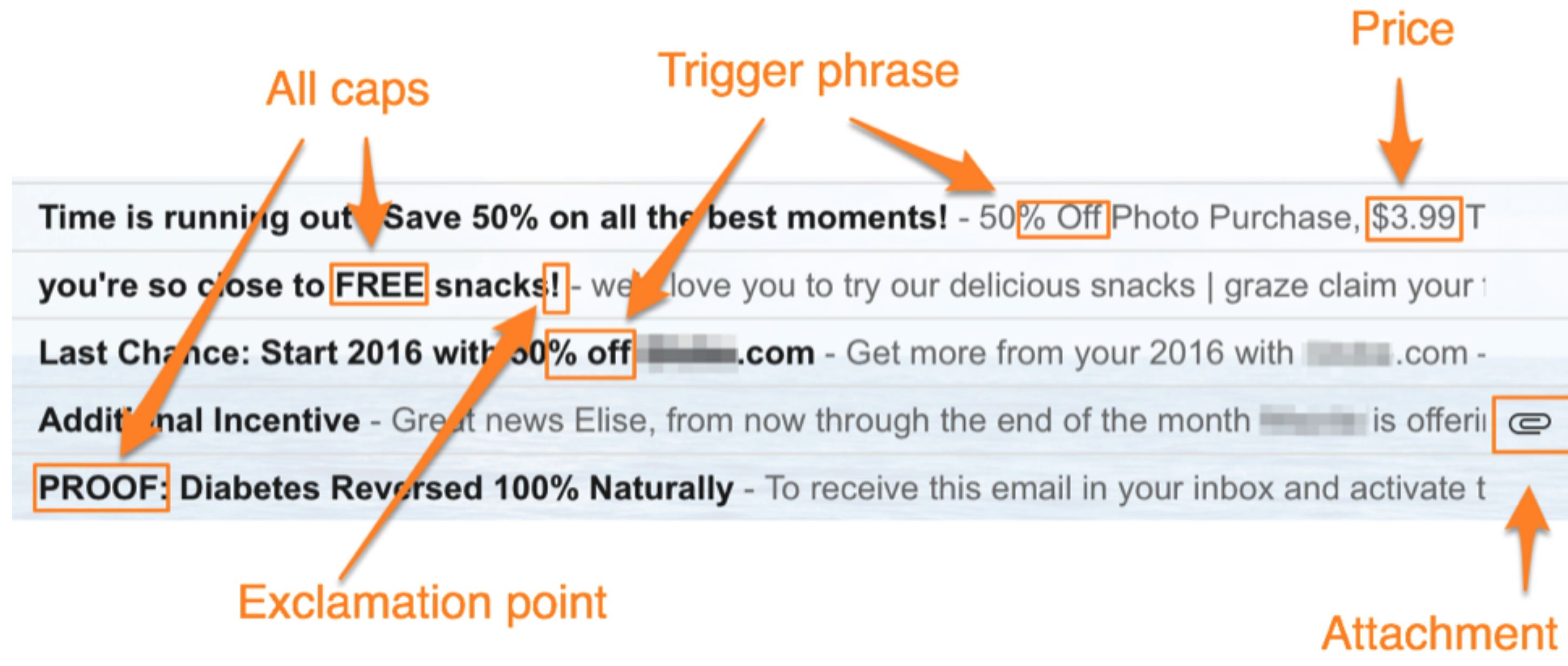
## Bluesnafing



https://www.youtube.com/watch?v=eyR2LofIKKI

# Protect: Device Hardening



**NFC : Near Field Communication**

# Email Security

## Spam

## Hijacked Email



All caps

Trigger phrase

Price

Time is running out, Save 50% on all the best moments! - 50% Off Photo Purchase, $3.99 T

you're so close to FREE snacks! - we love you to try our delicious snacks | graze claim your

Last Chance: Start 2016 with 50% off ██████.com - Get more from your 2016 with ██████.com -

Additional Incentive - Great news Elise, from now through the end of the month ██████ is offeri...

PROOF: Diabetes Reversed 100% Naturally - To receive this email in your inbox and activate t

Exclamation point

Attachment

# Cloud Security

# Security Software Alert

## We've got an update for you

Windows is a service and updates are a normal part of keeping it running smoothly. We need your help installing this one.
Ready? Restart now. Not ready? Pick a time that works for you.

**Restart now**   **Pick a time**   **Snooze**

---

**Windows Update**

⚠ Restart your computer to finish installing important updates

Windows can't update important files and services while the system is using them. Make sure to save your files before restarting.

**Restarting in: 14 min, 37 sec**

Remind me in:  10 minutes ▼

Restart now   Postpone

**Internet Technology**                    **http://cjundang.ubines.info**

## Cookies



Cookie file stored on a computer's hard drive

# Secure Web Browsing

**UbiN3$**
Ubiquitous Networked Embedded System

## Internet Cache

**Internet Technology**

# Secure Web Browsing

## Plugin

# Digital Certificate

**Internet Technology**

http://cjundang.ubines.info
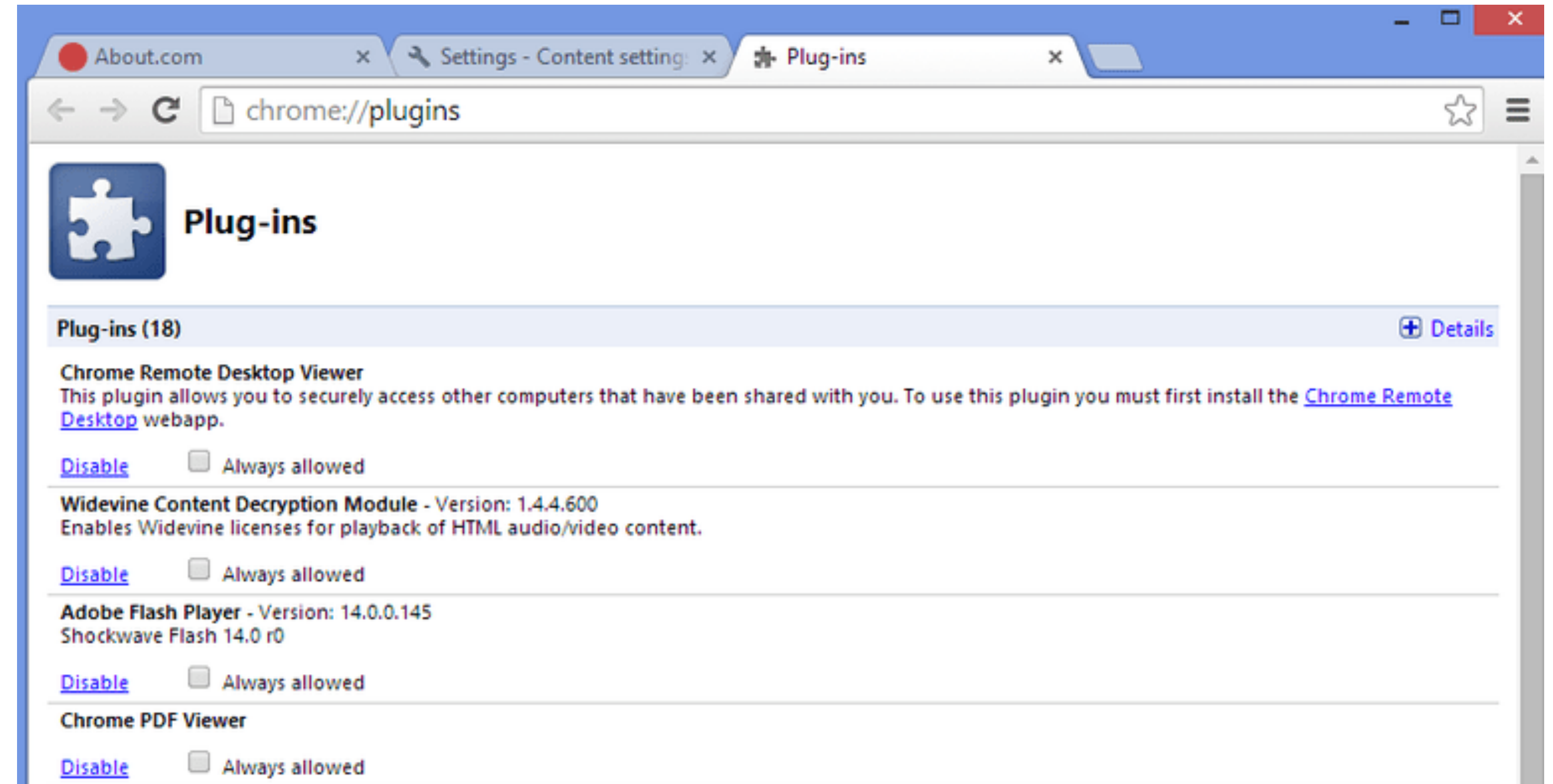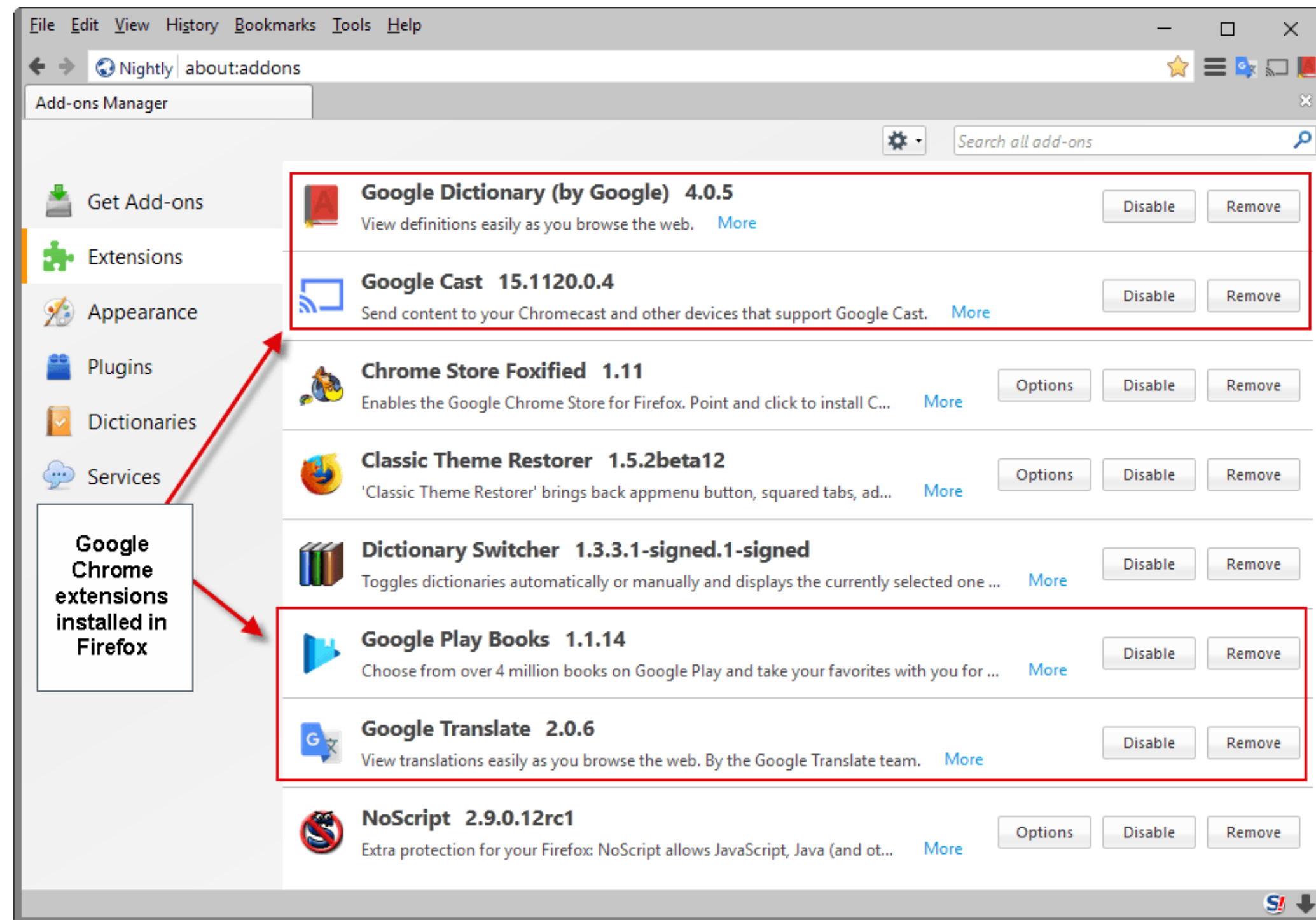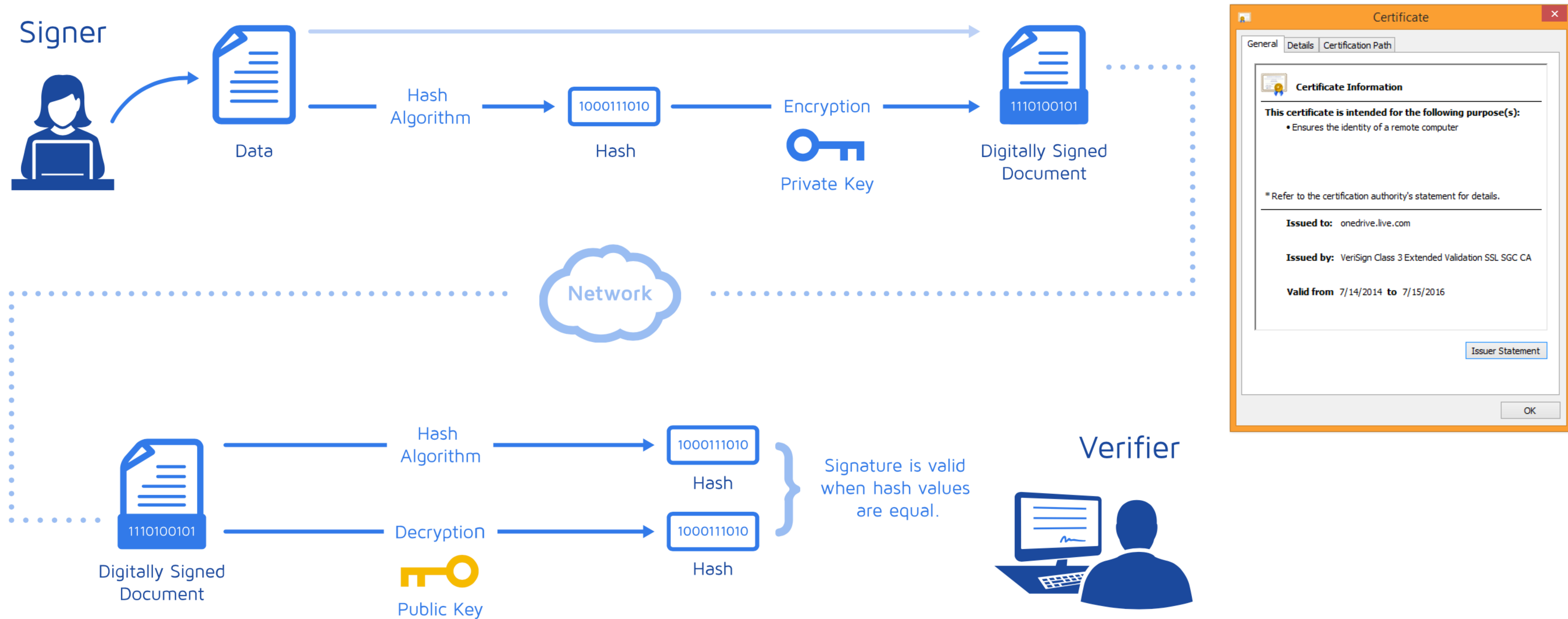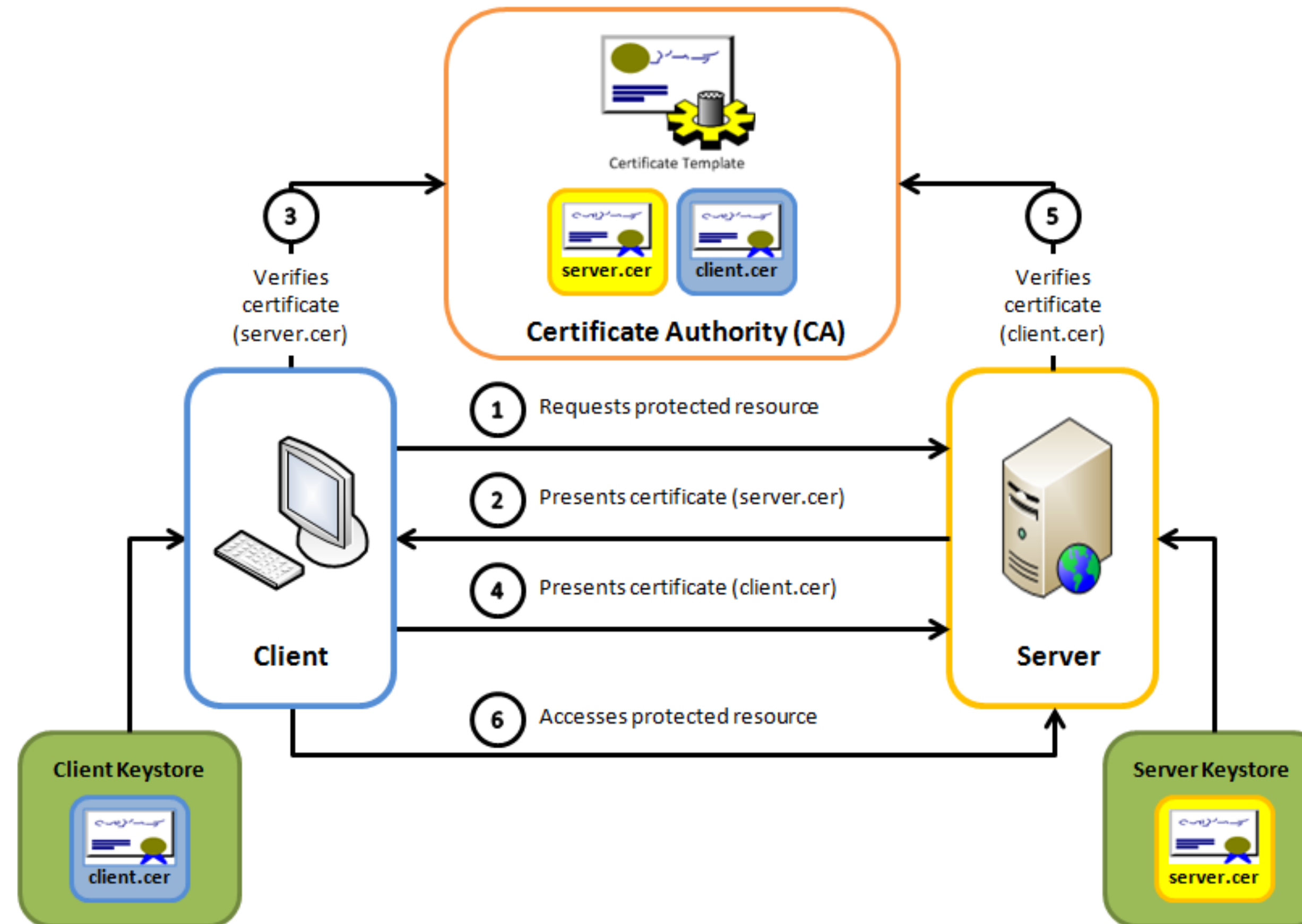
# Secure HTTP



Mutual SSL authentication / Certificate based mutual authentication