

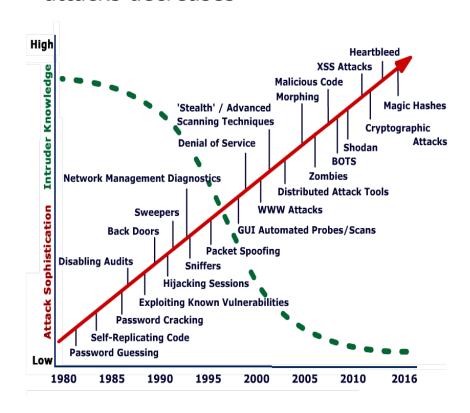
Internet: Easy Target for Cybercriminals



- Billions of entry points to the Internet worldwide
- Millions of interconnected networks
- Many design and configuration errors in the protocols, systems, and applications
- Large number of vulnerabilities and security loopholes
- Easily accessible hacking tools through the Internet
- Simple to use hacking tools

...

Result of a study shows: Attack sophistication increases while the knowledge required to launch the attacks decreases



Internet: How It Started in the 60/70ties Last Century



Initially, the Internet has started as a research project

- Great challenge of organizing communication via a network of heterogeneous and incompatible networks
- Small and familiar research communities

Safety was not a primary consideration when the Internet protocols were developed

Typical sentence in the Internet standards (RFCs):

"Security issues are addressed in this memo, not handled"

Internet is a **network of independent computer networks**

 No central Internet authority or government body can control the entire Internet

Internet: Today



Internet and its communication technologies are the **key technologies of the modern information society**

- Important for industry, economy, society, ...
- Attractive commercial and private applications

Commercial use of the Internet has led to an extreme increase in **cybercrimes** (also called **computer crime**) which have put the following at high risk:

- Computer systems
- Communication links and systems like the Internet
- Closed intranets used in enterprises
- Users
- **...**

Different Attack Points on The Internet



Internet and Internet-based systems have **many risks** and numerous attack points

- The **computer systems**, e.g. PC, laptop, smartphone, tablet, ...
- When connected to the Internet, in the networks, and intermediate systems of the Internet
- Within private networks of companies and institutions that use Internet technologies in their intranets

Attacks via the Internet are

- easy to execute
- have relatively low detection rates
- difficult to trace

Attractiveness and Opportunities of Attacks on the Internet (1/2)



Internet has become the **central infrastructure** of our modern societies

- The complexity of the Internet, its protocols, and applications is constantly increasing
- **Dependence on the Internet** in industry, business, administration, and society is becoming increasingly extensive
- Attackers are well prepared, organized, and have powerful hacking tools at their disposal
- Attack tools are increasingly sophisticated, easier to use, and support even massive attacks

Attractiveness and Opportunities of Attacks on The Internet (2/2)



- Rapid growth in e-commerce, online gaming, streaming video, and audio services, social media, ...
- Absence / lack of
 - awareness of information security
 - qualified personnel for information security,
 system and network administration
 - global Internet is difficult to regulate
 - lack of power to enforce regulations
- Rapid development cycles in computer software and hardware create thousands of new vulnerabilities that can be misused
- The majority of attacks exploit known vulnerabilities for where the countermeasures could have been possible!