

Name:

Information Assurance: Homework 2

Due September 9, 2009 on compass.

1. Critique the University's Access Control Policy
http://www.obfs.uillinois.edu/manual/central_p/sec19-5.html#ff
 - a) Identify references to other policies.
 - b) Is the policy stating implementation requirements?
 - c) Does the policy explicitly defer implementation details?
 - d) Who are the responsible agents in this policy?
 - e) Identify one assumption made by the policy.
 - f) Suggest an improvement to one aspect of the policy. Why is this an improvement?

2. Policy or mechanism. For each item below, is it a policy or an enforcing mechanism? If it is a policy, identify a mechanism that could enforce it. If it is a mechanism, identify a policy it could be enforcing.
 - a) The multimedia equipment in each classroom of the Siebel Center must be only accessible to individuals responsible for teaching in that classroom.
 - b) Only registered students of UIUC may use the online services offered by the Engineering Career Services.
 - c) A system based on port numbers and traffic analysis should be deployed in the CS department network infrastructure to identify and terminate accesses to online peer-to-peer file-sharing networks.
 - d) All individuals attending the UIUC career fairs should be asked to present valid UIUC IDs upon entrance.

The VPN service offered by the university can be used by individuals that are (1) university affiliates and (2) in the United States at the time of use.

3. You own an online store that sells and ships flowers in the Champaign-Urbana area. Your sales average \$600 per day. You are worried about being targeted by a distributed denial of service (DDOS) attacker with the aim of extortion. Such an attack would completely bring down your website, and you do not have any alternative way of doing business. You've heard that the attacker will require on average \$1,500 to stop the attack. Once the money is received, the attack will stop within a day. Otherwise, it will continue for 7 days. Based on past data, you expect that the DDOS attackers have a 1% probability of targeting your small site

Name:

any particular week. The company Akamai offers you a distributed hosting service that reduces the chances of success for such attacks to 20% (otherwise the attackers definitely succeed). Akamai requires an annual premium of \$500 for this service.

- a) Compute the annual loss expectancy for the DDOS attack (assuming you do nothing).
- b) Suppose you aim to choose one of the following strategies (controls) for year 2010: (1) pay money to the attackers (you don't care about legal consequences), or (2) buy the Akamai service (but in case an attack succeeds, do not pay attackers any money). Provide a risk leverage calculation for each of the above controls.

4. Consider Vigenere cipher:

- a) Use the Vigenere tableau at the end to encrypt the phrase "Be secure" with the key "safe".
- b) Use the Vigenere tableau to decrypt "TONNFRCFMED" with the key "ball".
- c) Determine the key and decode the Vigenere encrypted text posted at <http://www.cs.illinois.edu/class/fa09/cs461/assignments/cipher.txt>
- d) Describe how you determined the period. You may use automated tools such as the applet discussed in class <http://math.ucsd.edu/~crypto/java/EARLYCIPHERS/Vigenere.html>.

Name:

| a b c d e f g h i j k l m n o p q r s t u v w x y z

A | a b c d e f g h i j k l m n o p q r s t u v w x y z

B | b c d e f g h i j k l m n o p q r s t u v w x y z a

C | c d e f g h i j k l m n o p q r s t u v w x y z a b

D | d e f g h i j k l m n o p q r s t u v w x y z a b c

E | e f g h i j k l m n o p q r s t u v w x y z a b c d

F | f g h i j k l m n o p q r s t u v w x y z a b c d e

G | g h i j k l m n o p q r s t u v w x y z a b c d e f

H | h i j k l m n o p q r s t u v w x y z a b c d e f g

I | i j k l m n o p q r s t u v w x y z a b c d e f g h

J | j k l m n o p q r s t u v w x y z a b c d e f g h i

K | k l m n o p q r s t u v w x y z a b c d e f g h i j

L | l m n o p q r s t u v w x y z a b c d e f g h i j k

M | m n o p q r s t u v w x y z a b c d e f g h i j k l

N | n o p q r s t u v w x y z a b c d e f g h i j k l m

O | o p q r s t u v w x y z a b c d e f g h i j k l m n

P | p q r s t u v w x y z a b c d e f g h i j k l m n o

Q | q r s t u v w x y z a b c d e f g h i j k l m n o p

R | r s t u v w x y z a b c d e f g h i j k l m n o p q

S | s t u v w x y z a b c d e f g h i j k l m n o p q r

T | t u v w x y z a b c d e f g h i j k l m n o p q r s

U | u v w x y z a b c d e f g h i j k l m n o p q r s t

V | v w x y z a b c d e f g h i j k l m n o p q r s t u

W | w x y z a b c d e f g h i j k l m n o p q r s t u v

X | x y z a b c d e f g h i j k l m n o p q r s t u v w

Y | y z a b c d e f g h i j k l m n o p q r s t u v w x

Z | z a b c d e f g h i j k l m n o p q r s t u v w x y