

Computer Science E-1



Understanding Computers and the Internet

Lecture 8: Security

Wednesday, 8 November 2006

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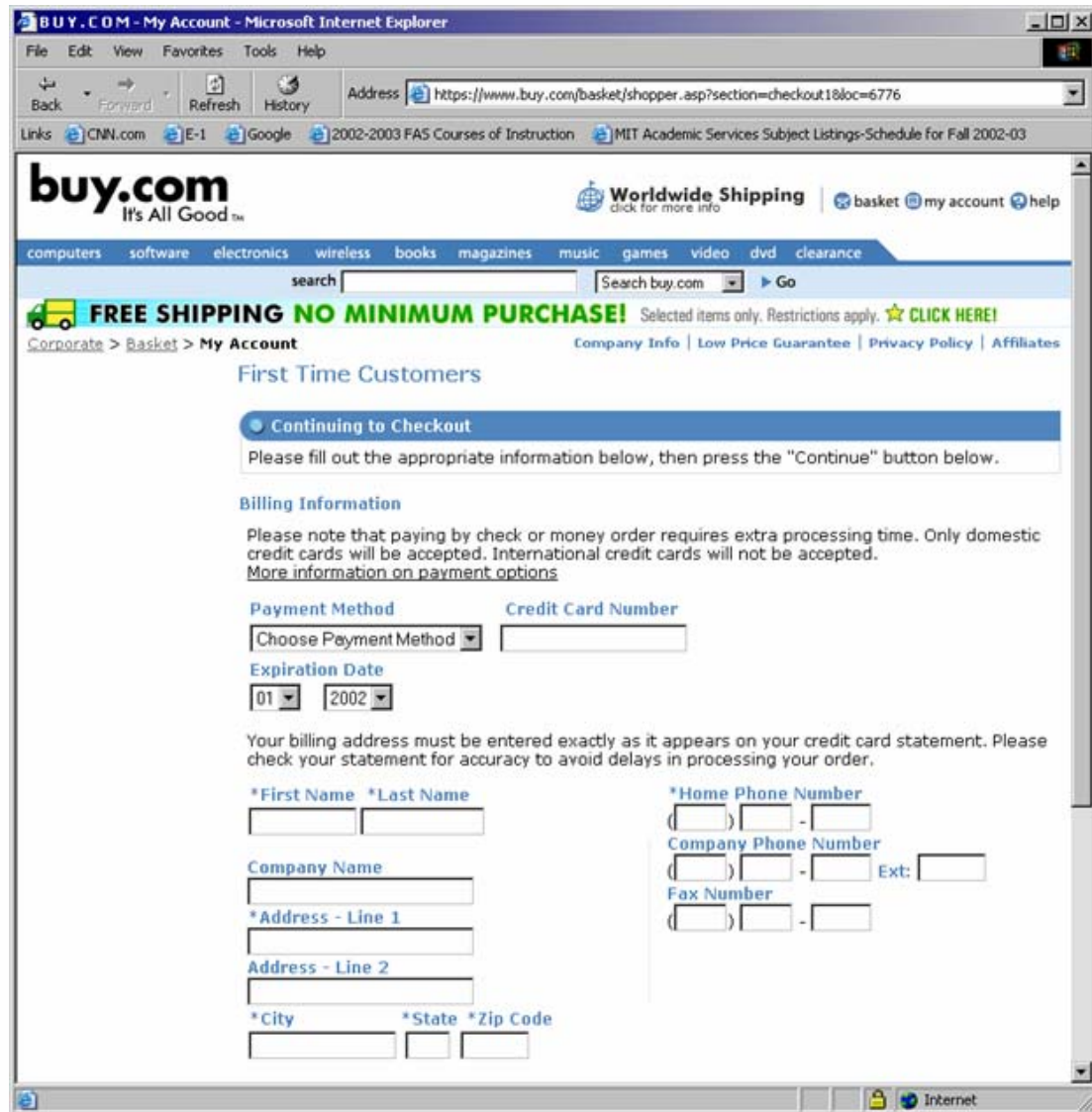
Agenda



- Threats to Privacy
 - Forms
 - Cookies
 - Logs
- Security Risks
 - Passwords
 - Packet Sniffing
 - Phishing
 - Hacking
 - Viruses and Worms
- Piracy
 - WaReZ
 - Cracking

Threats to Privacy

Forms



The screenshot shows a Microsoft Internet Explorer browser window displaying the buy.com checkout page. The address bar shows the URL: <https://www.buy.com/basket/shopper.asp?section=checkout1&loc=6776>. The page header includes the buy.com logo, navigation links for various product categories, and a search bar. A banner for "FREE SHIPPING NO MINIMUM PURCHASE!" is visible. The main content area is titled "First Time Customers" and "Continuing to Checkout". It contains a "Billing Information" section with a note about payment methods and a form for entering payment details. The form includes fields for "Payment Method", "Credit Card Number", "Expiration Date", "First Name", "Last Name", "Home Phone Number", "Company Phone Number", "Fax Number", "Company Name", "Address - Line 1", "Address - Line 2", "City", "State", and "Zip Code".

buy.com
It's All Good™

Worldwide Shipping
click for more info

basket my account help

computers software electronics wireless books magazines music games video dvd clearance

search [] Search buy.com Go

FREE SHIPPING NO MINIMUM PURCHASE! Selected items only. Restrictions apply. [CLICK HERE!](#)

[Corporate](#) > [Basket](#) > [My Account](#) [Company Info](#) | [Low Price Guarantee](#) | [Privacy Policy](#) | [Affiliates](#)

First Time Customers

Continuing to Checkout

Please fill out the appropriate information below, then press the "Continue" button below.

Billing Information

Please note that paying by check or money order requires extra processing time. Only domestic credit cards will be accepted. International credit cards will not be accepted.
[More information on payment options](#)

Payment Method **Credit Card Number**

Choose Payment Method [] []

Expiration Date

[01] [2002]

Your billing address must be entered exactly as it appears on your credit card statement. Please check your statement for accuracy to avoid delays in processing your order.

***First Name** ***Last Name**

[] []

***Home Phone Number**

[] [] - []

Company Phone Number

[] [] - [] Ext: []

Fax Number

[] [] - []

Company Name

[]

***Address - Line 1**

[]

Address - Line 2

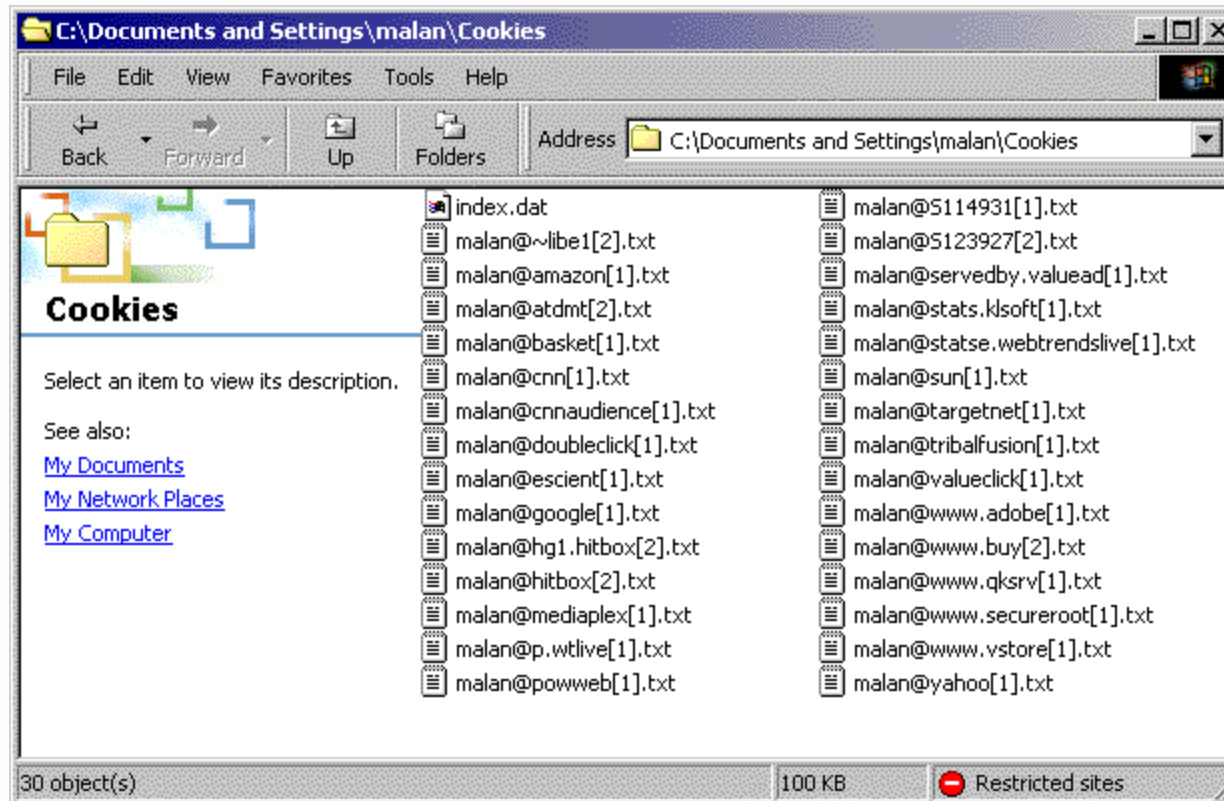
[]

***City** ***State** ***Zip Code**

[] [] []

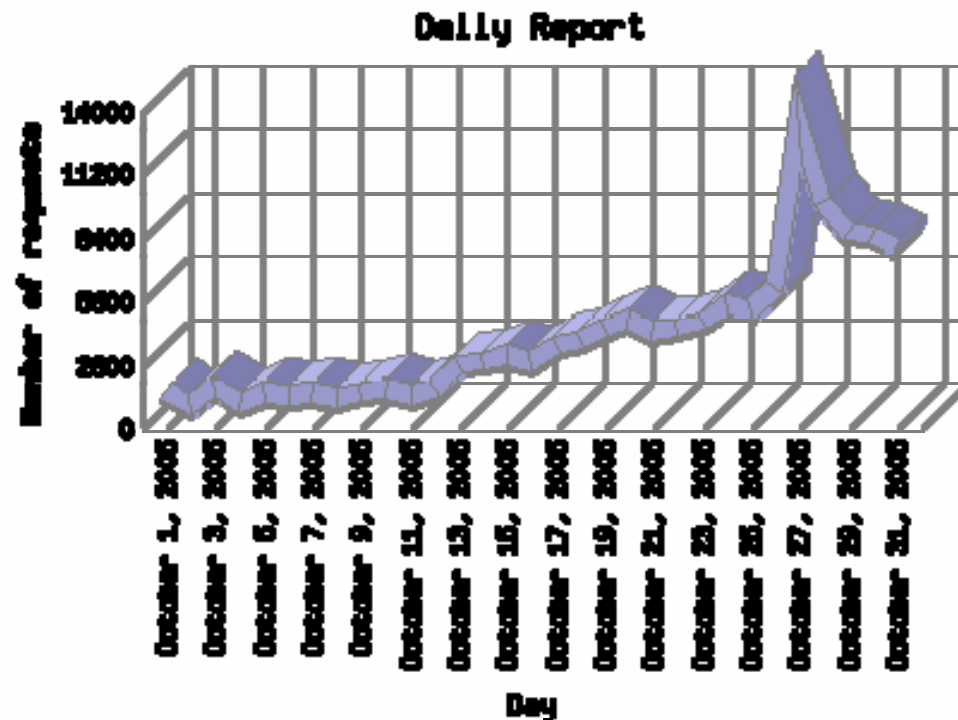
Threats to Privacy

Cookies



Threats to Privacy

Logs



Threats to Privacy

Data Recovery



Security Risks



Passwords

ROLAND No, wait, wait. I'll tell. I'll tell.

HELMET I knew it would work.

HELMET and SANDURZ go closer to the screen. SANDURZ is going to write the combination down.

HELMET All right, give to me.

ROLAND The combination is (hesitates) one.

HELMET One.

SANDURZ One. (writes)

ROLAND Two.

HELMET Two.

SANDURZ Two. (writes)

ROLAND Three.

HELMET Three.

SANDURZ Three (writes)

ROLAND Four.

HELMET Four.

SANDURZ Four. (writes)

ROLAND (hesitates) Five.

HELMET Five.

SANDURZ Five. (writes)

HELMET So the combination is one, two, three, four, five. (lifts mask) That's the stupidest combination I've ever heard in my life. That's the kinda thing an idiot would have on his luggage.

SKROOB Well, did it work? Where's the king?

HELMET It worked, sir. We have the combination.

SKROOB Great. Now we can take every last breath fresh air from planet Druidia. What's the combination?

SANDURZ One, two, three, four, five.

SKROOB One, two, three, four, five?

SANDURZ That's amazing. I've got the same combination on my luggage.

Excerpted from the script for *Spaceballs*, 1997.

Security Risks

Packet Sniffing



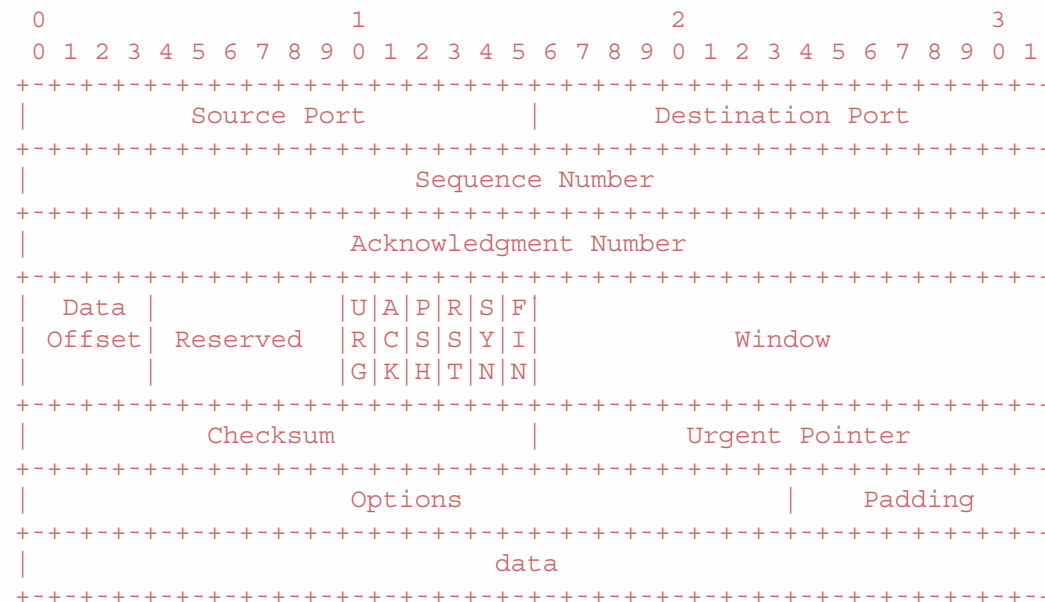
Image from http://oufent5.open.ac.uk/~steve_hall_4/t171sg2sec4.html.

Security Risks



Packet Sniffing

TCP Header Format



TCP Header Format

Note that one tick mark represents one bit position.

Figure from <http://www.ietf.org/rfc/rfc0793.txt?number=793>.

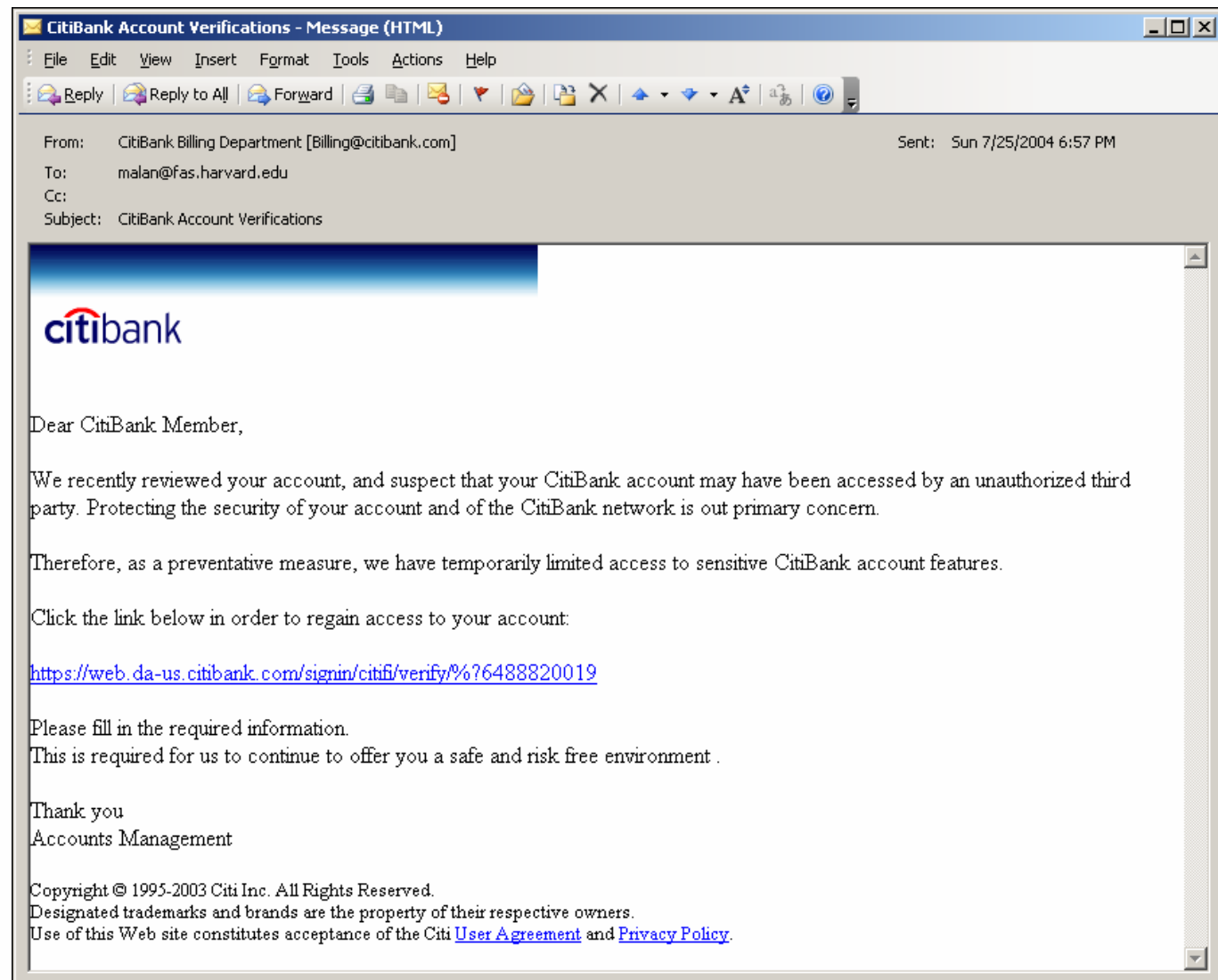
Security Risks

Hacking



Security Risks

Phishing



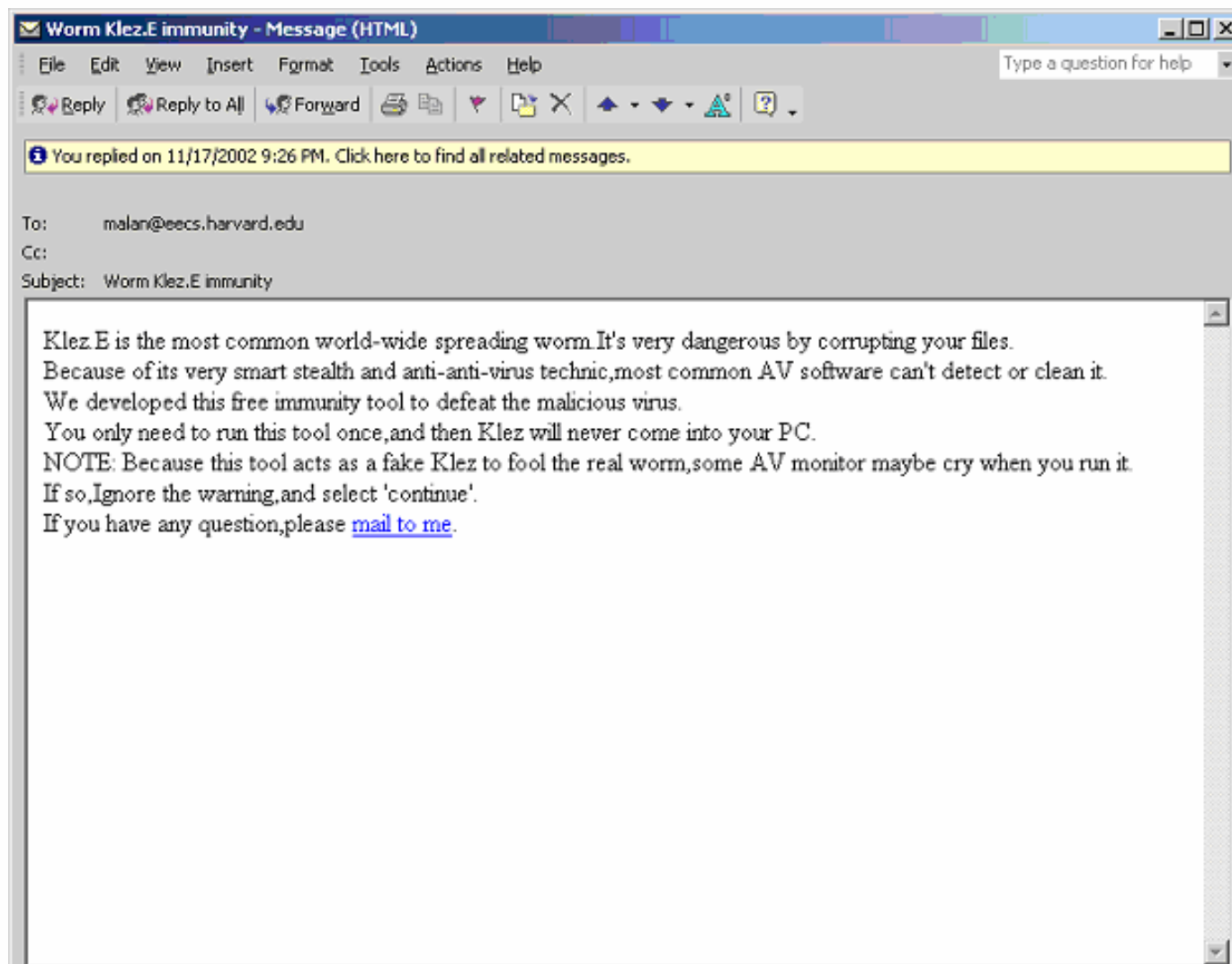
Security Risks

Viruses and Worms



Security Risks

Viruses and Worms



Security Risks

Viruses and Worms



“There may be a virus loose on the internet.”
Andy Sudduth of Harvard, 34 minutes after midnight, Nov. 3, 1988

Image and quote from <http://www.software.com.pl/newarchive/misc/Worm/darbyt/pages/what.html>.

Security Risks



Viruses and Worms

To: malan@post.harvard.edu
Subject: !!!

Happy Chanukah everyone, and be careful out there. There is a virus on America Online being sent by E-Mail. If you get anything called "Good Times", DON'T read it or download it. It is a virus that will erase your hard drive. Forward this to all your friends. It may help them a lot.

Piracy

WaReZ



Piracy

Cracking



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