What do they think they are doing?

When Security meets Usability…

Do you use Webmail?

msn Hotmail

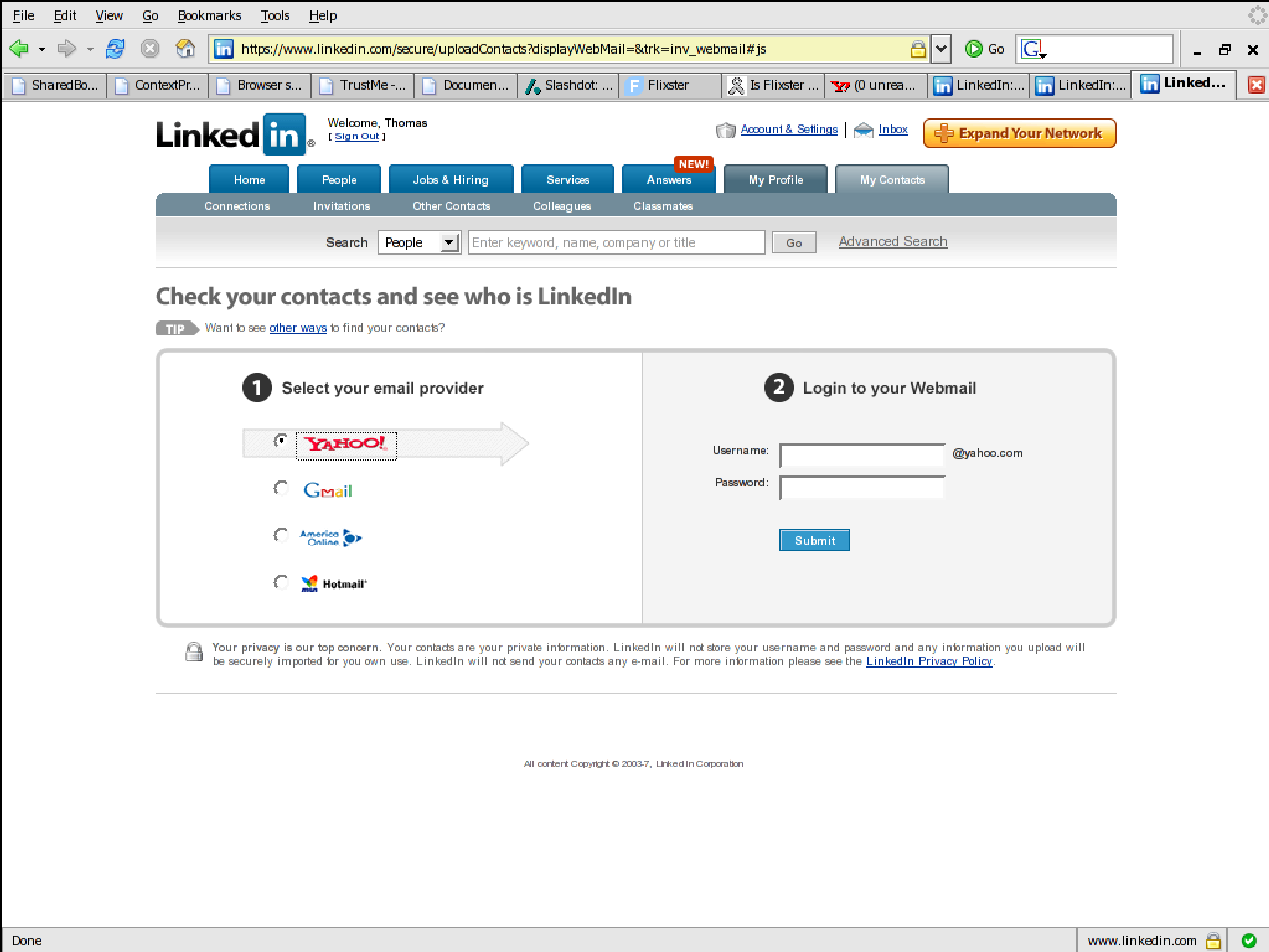
Gmail™ +talk BETA

YAHOO!® MAIL

Do you use E-Mail for private stuff?

Do you use Social Networking sites?

Have you ever downloaded your address book to a Social Networking site?


File Edit View Go Bookmarks Tools Help
https://www.linkedin.com/secure/uploadContacts?displayWebMail=&trk=inv_webmail#js
Go
SharedBo... ContextPr... Browser s... TrustMe -... Documen... Slashdot: ... Flixster Is Flixster ... (0 unrea... LinkedIn:... LinkedIn:... Linked...
Welcome, Thomas
[Sign Out]
Account & Settings | Inbox
Expand Your Network
Home
People
Jobs & Hiring
Services
NEW!
Answers
My Profile
My Contacts
Connections
Invitations
Other Contacts
Colleagues
Classmates
Search
People
Enter keyword, name, company or title
Go
Advanced Search

Check your contacts and see who is LinkedIn

TIP Want to see other ways to find your contacts?

1 Select your email provider

● YAHOO!

○ Gmail

○ America Online

○ Hotmail

2 Login to your Webmail

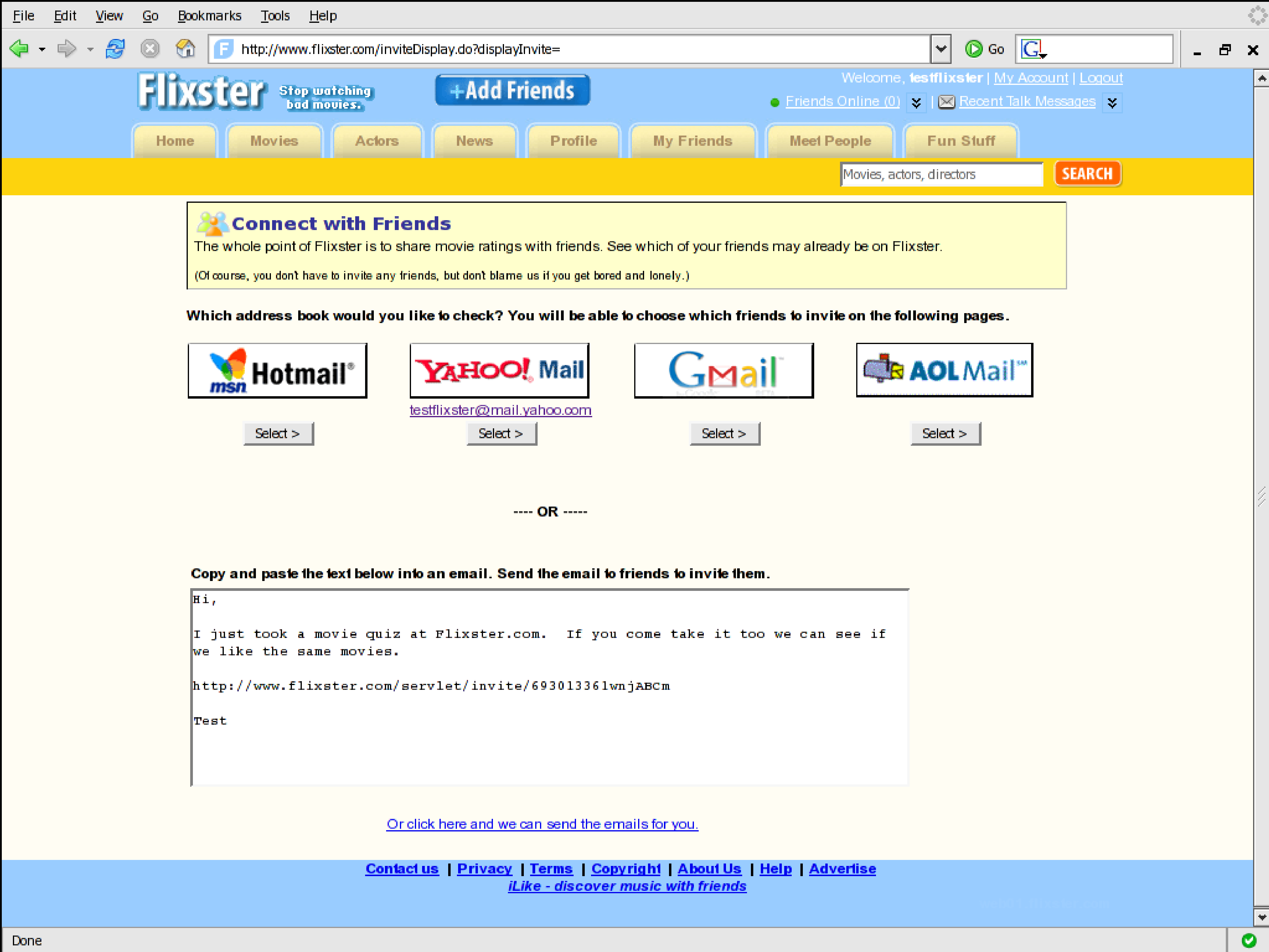
Username: ______ @yahoo.com

Password: ______

Submit

Your privacy is our top concern. Your contacts are your private information. LinkedIn will not store your username and password and any information you upload will be securely imported for you own use. LinkedIn will not send your contacts any e-mail. For more information please see the LinkedIn Privacy Policy.

All content Copyright © 2003-7, LinkedIn Corporation



http://www.flixster.com/inviteDisplay.do?displayInvite=

Welcome, **testflixster** | My Account | Logout

Friends Online (0) | Recent Talk Messages

Movies, actors, directors

Connect with Friends

The whole point of Flixster is to share movie ratings with friends. See which of your friends may already be on Flixster.

(Of course, you dont have to invite any friends, but dont blame us if you get bored and lonely.)

Which address book would you like to check? You will be able to choose which friends to invite on the following pages.

testflixster@mail.yahoo.com

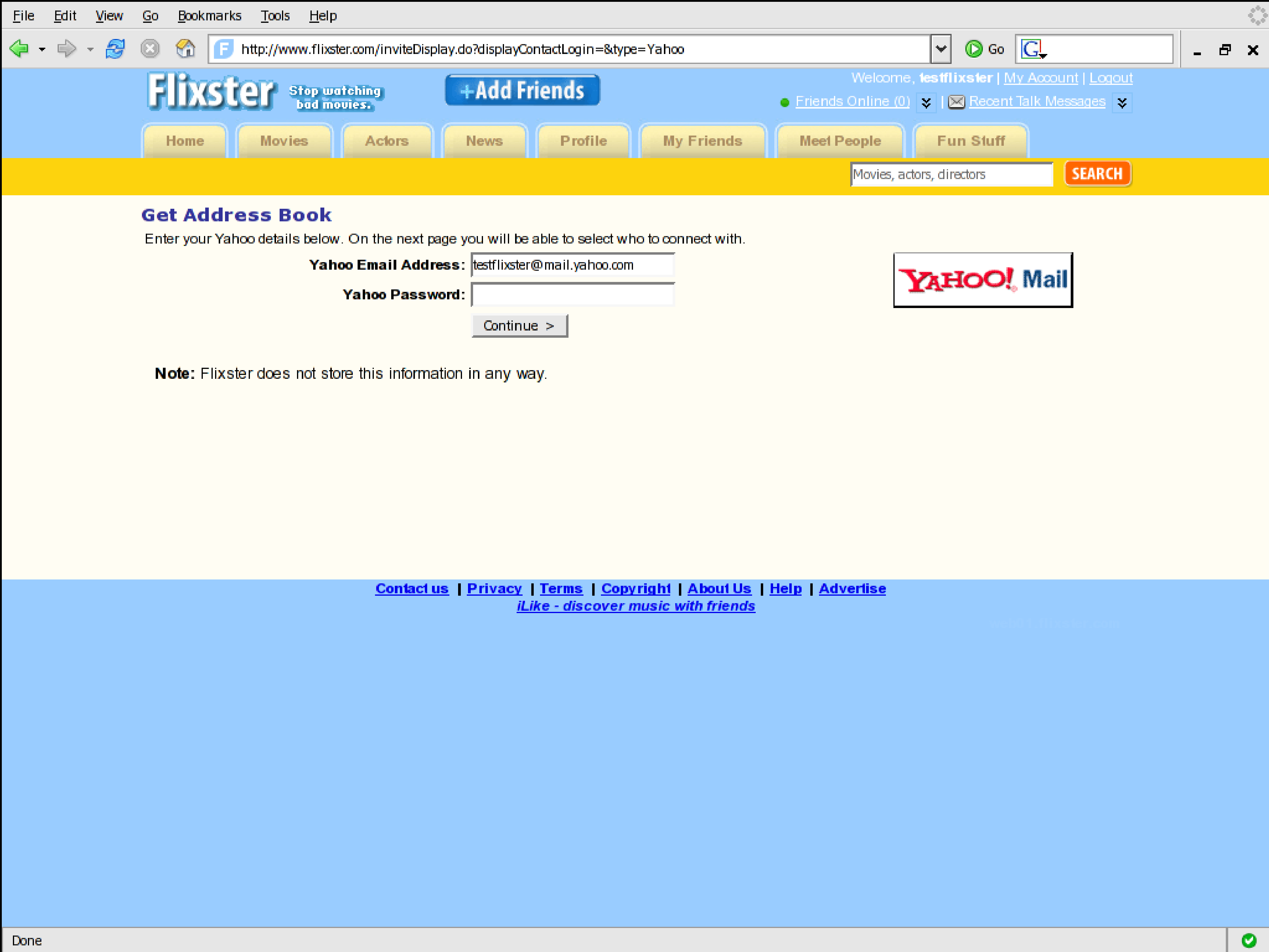
---- OR -----

Copy and paste the text below into an email. Send the email to friends to invite them.

```
Hi,

I just took a movie quiz at Flixster.com.  If you come take it too we can see if
we like the same movies.

http://www.flixster.com/servlet/invite/69301336lwnjABCm

Test
```

Or click here and we can send the emails for you.

Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise
iLike - discover music with friends


File Edit View Go Bookmarks Tools Help
http://www.flixster.com/inviteDisplay.do?displayContactLogin=&type=Yahoo
Go
Flixster
Stop watching bad movies.
+Add Friends
Welcome, testflixster | My Account | Logout
Friends Online (0) | Recent Talk Messages
Home
Movies
Actors
News
Profile
My Friends
Meet People
Fun Stuff
Movies, actors, directors
SEARCH
YAHOO! Mail
Continue >
Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise
iLike - discover music with friends
Done

Get Address Book

Enter your Yahoo details below. On the next page you will be able to select who to connect with.

Yahoo Email Address:	testflixster@mail.yahoo.com
Yahoo Password:	

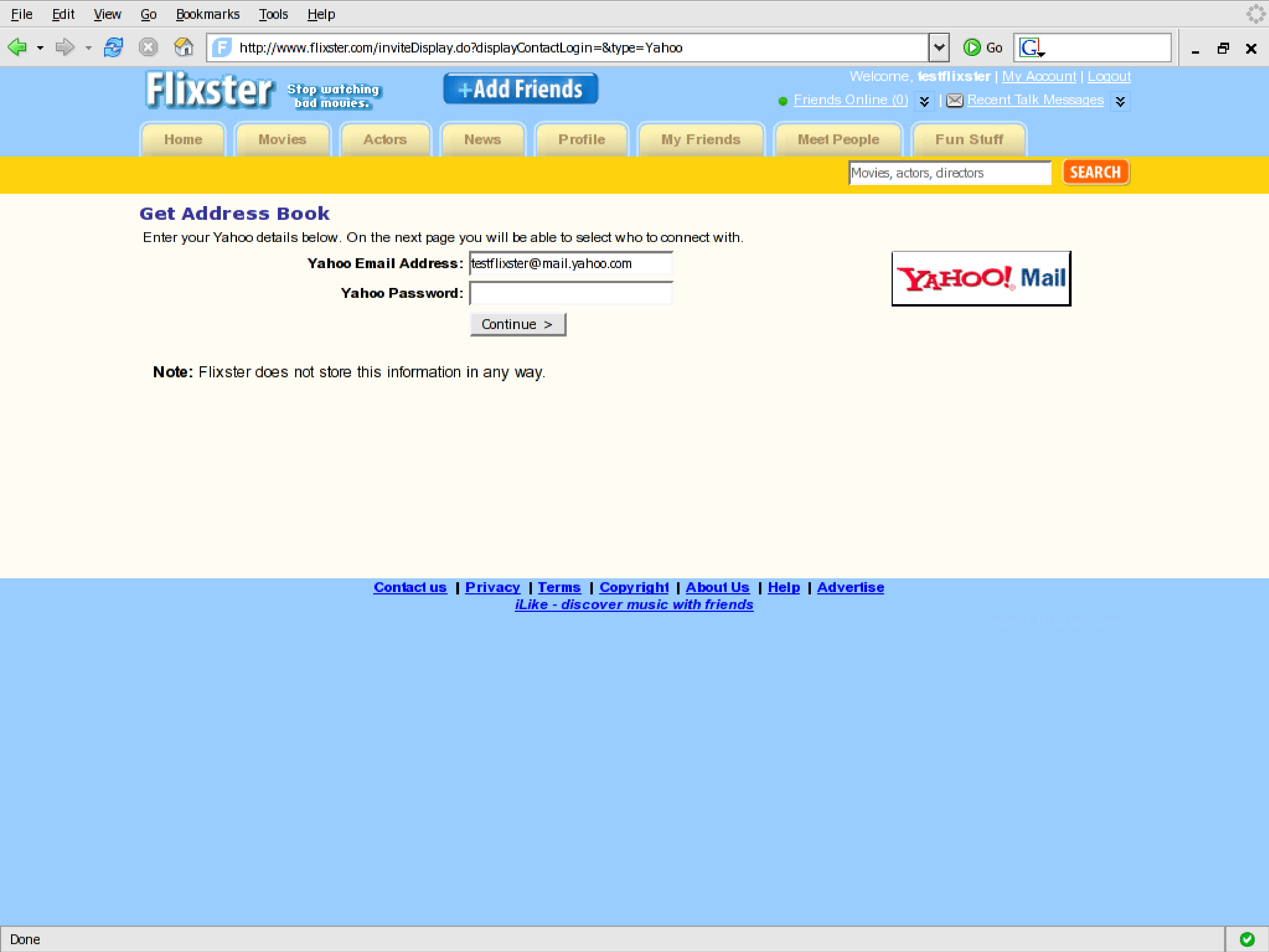
Note: Flixster does not store this information in any way.

unexpected
invitations

/.

<slashdot>

Spamming in plain sight!



File Edit View Go Bookmarks Tools Help
http://www.flixster.com/inviteDisplay.do?displayContactLogin=&type=Yahoo
Go
Flixster
Stop watching bad movies.
+Add Friends
Welcome, testflixster | My Account | Logout
Friends Online (0) | Recent Talk Messages
Home
Movies
Actors
News
Profile
My Friends
Meet People
Fun Stuff
Movies, actors, directors
SEARCH

Get Address Book

Enter your Yahoo details below. On the next page you will be able to select who to connect with.

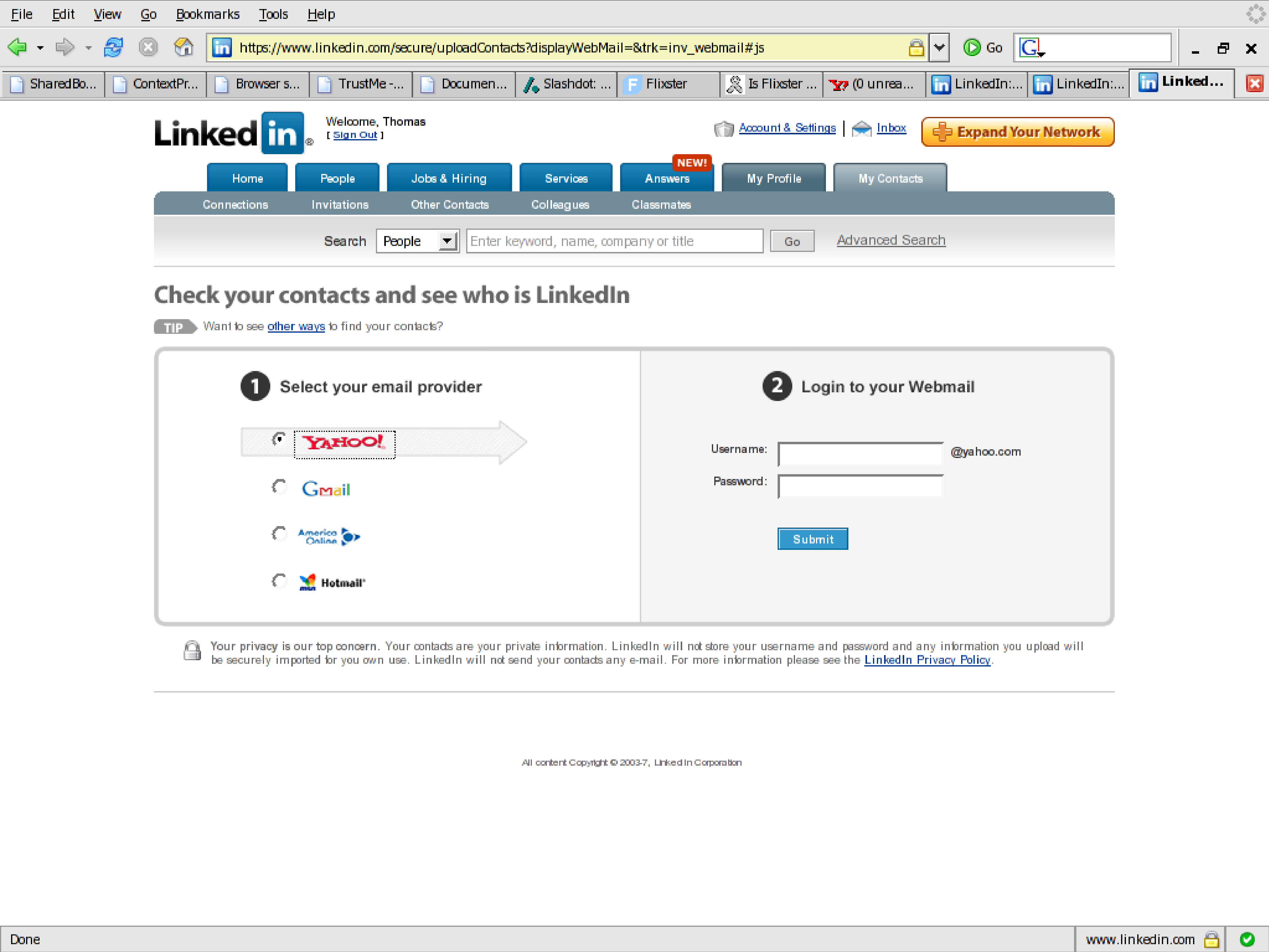
Yahoo Email Address:	testflixster@mail.yahoo.com
Yahoo Password:	

Note: Flixster does not store this information in any way.

Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise
iLike - discover music with friends
Done

Phishing in plain sight!

“But hey, it's **common** practice!”



Check your contacts and see who is LinkedIn

TIP Want to see other ways to find your contacts?

1 Select your email provider

● YAHOO!

○ Gmail

○ America Online

○ Hotmail

2 Login to your Webmail

Username: @yahoo.com

Password:

Submit

Your privacy is our top concern. Your contacts are your private information. LinkedIn will not store your username and password and any information you upload will be securely imported for you own use. LinkedIn will not send your contacts any e-mail. For more information please see the LinkedIn Privacy Policy.

All content Copyright © 2003-7, LinkedIn Corporation

It's all about **trust**.

It's about what people **think** is happening.

“Digital identity systems must be designed so the disclosure of identifying information is limited to parties having a **necessary and justifiable** place in a given identity relationship.”

(Kim Cameron, The Laws Of Identity)

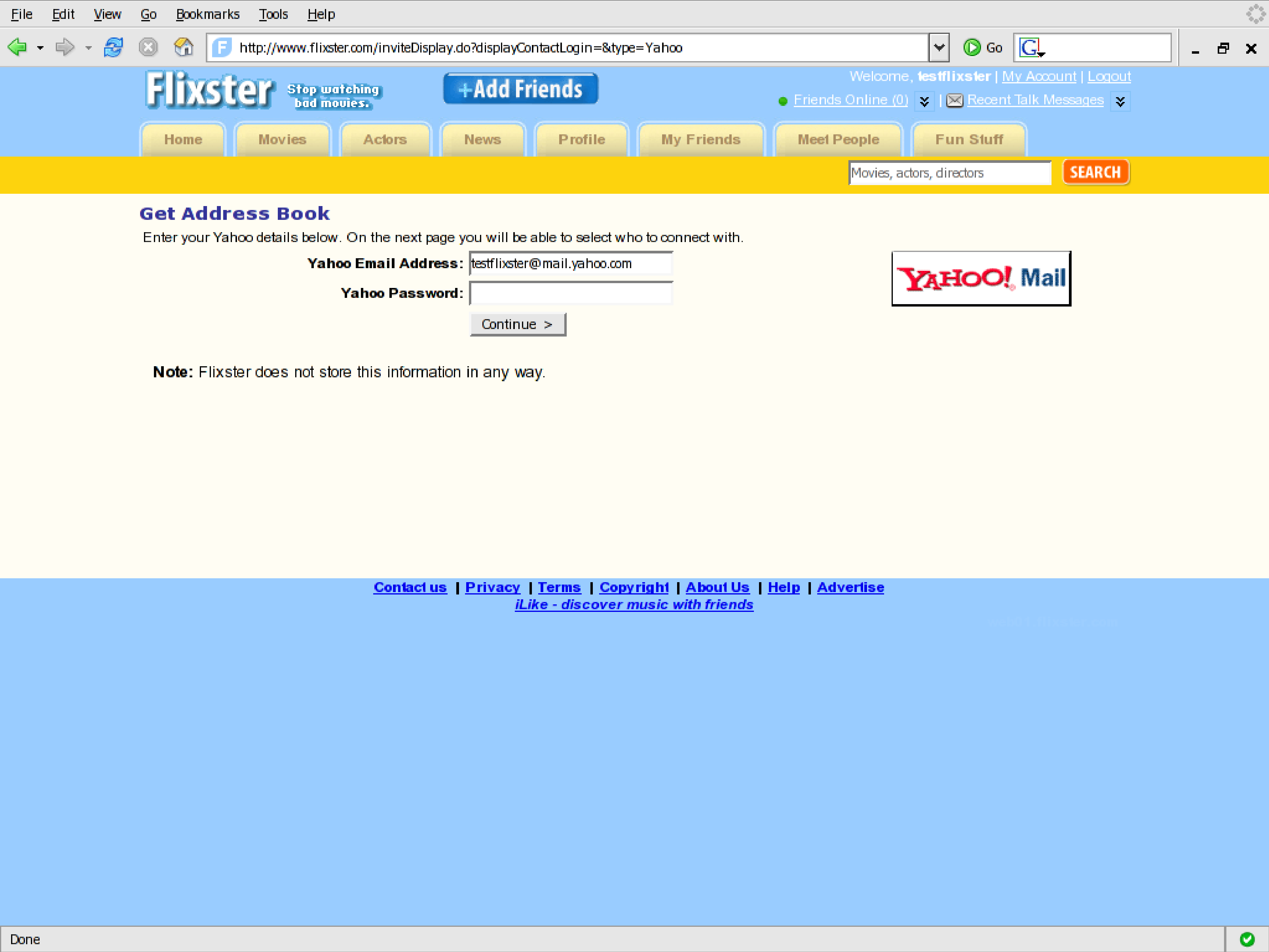
“Nor were users clamoring for a single Microsoft identity service to be aware of all their Internet activities. As a result, Passport failed in its mission of being an identity system for the Internet.”

(Kim Cameron, The Laws Of Identity)

Flixster and LinkedIn?

justifiable!

engineer user **trust**



http://www.flixster.com/inviteDisplay.do?displayContactLogin=&type=Yahoo

Welcome, **testflixster** | My Account | Logout

Friends Online (0) | Recent Talk Messages

Movies, actors, directors

Get Address Book

Enter your Yahoo details below. On the next page you will be able to select who to connect with.

Yahoo Email Address: testflixster@mail.yahoo.com

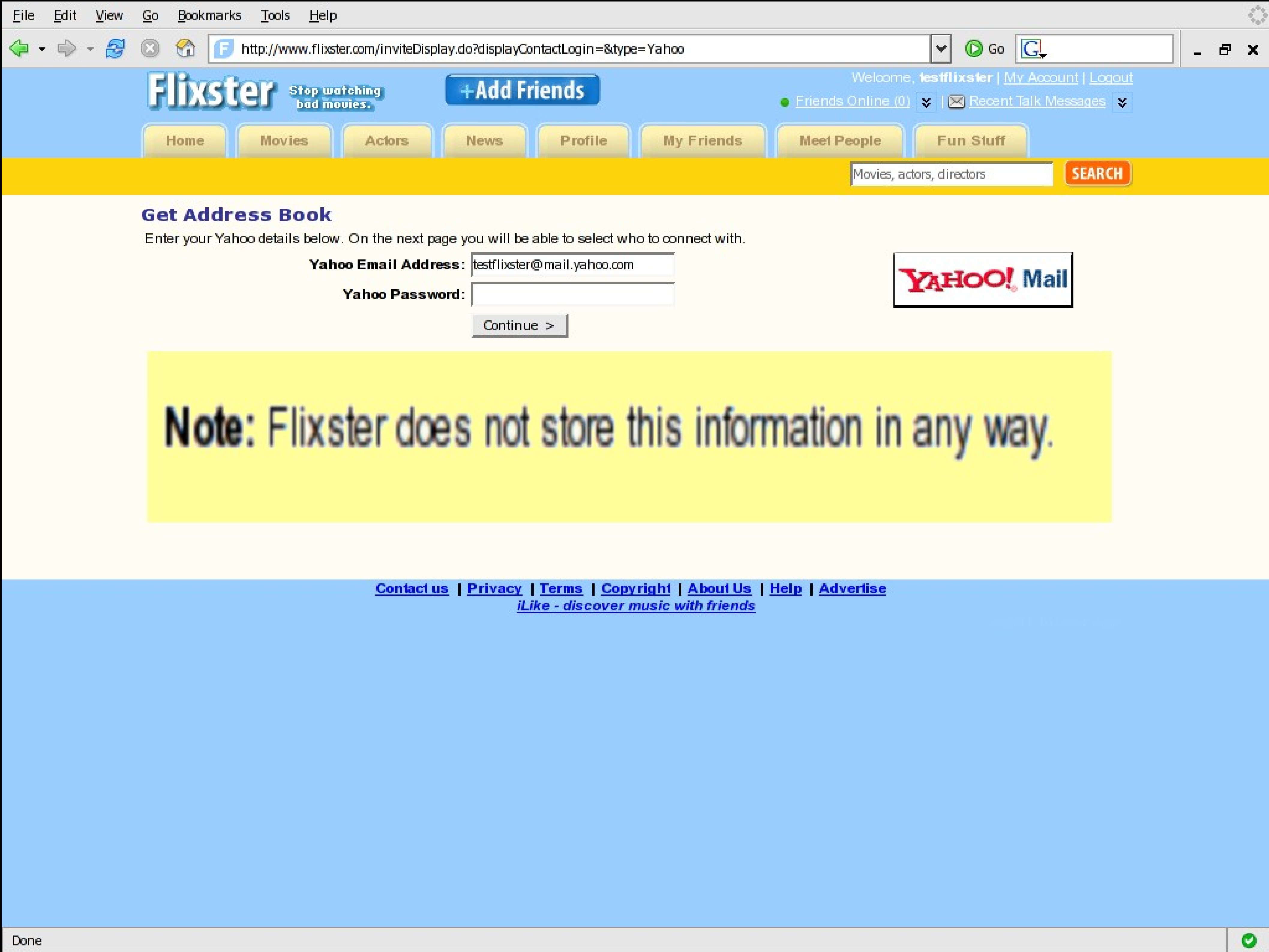
Yahoo Password:

Note: Flixster does not store this information in any way.

Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise

iLike - discover music with friends

<concern>
Will Flixster store my credentials?
</concern>



http://www.flixster.com/inviteDisplay.do?displayContactLogin=&type=Yahoo

Welcome, testflixster | My Account | Logout

Friends Online (0) | Recent Talk Messages

Movies, actors, directors

Get Address Book

Enter your Yahoo details below. On the next page you will be able to select who to connect with.

Yahoo Email Address: testflixster@mail.yahoo.com

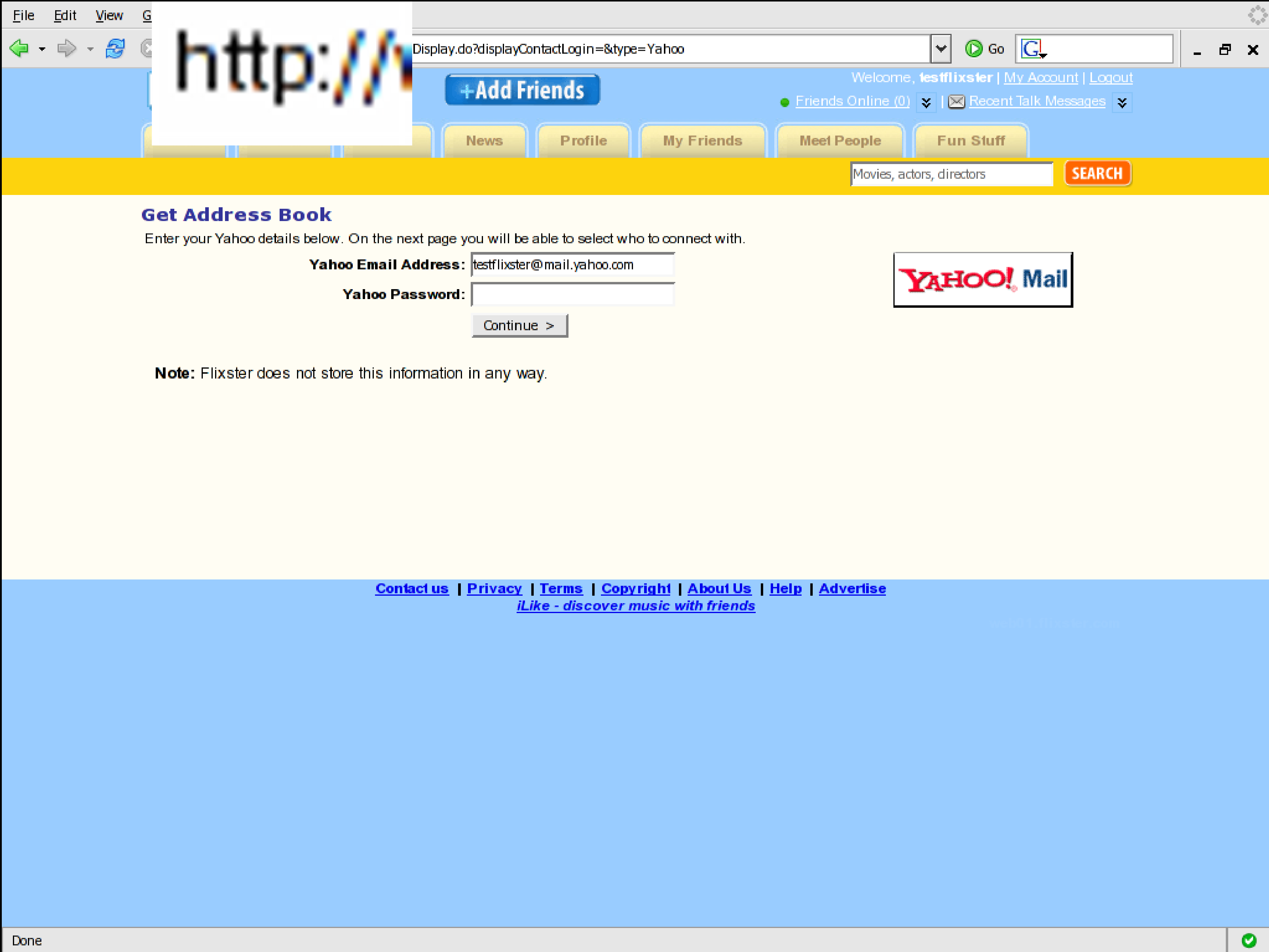
Yahoo Password:

Continue >

Note: Flixster does not store this information in any way.

Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise

iLike - discover music with friends


File
Edit
View
G
http://
Display.do?displayContactLogin=&type=Yahoo
Go
+Add Friends
Welcome, testflixster | My Account | Logout
Friends Online (0) | Recent Talk Messages
News
Profile
My Friends
Meet People
Fun Stuff
Movies, actors, directors
SEARCH
YAHOO! Mail
Continue >
Contact us | Privacy | Terms | Copyright | About Us | Help | Advertise
iLike - discover music with friends
Done

Get Address Book

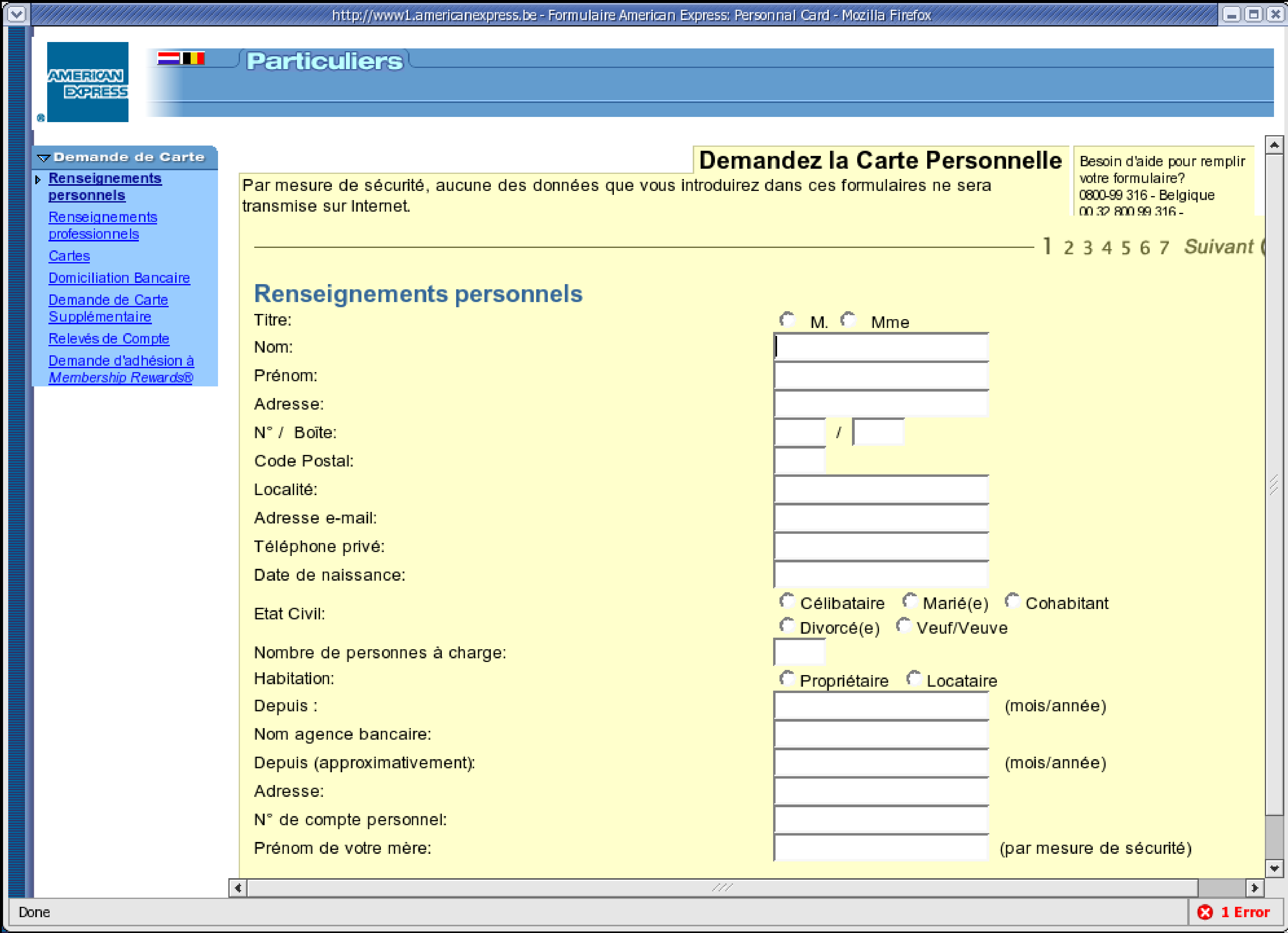
Enter your Yahoo details below. On the next page you will be able to select who to connect with.

Yahoo Email Address: testflixster@mail.yahoo.com

Yahoo Password:

Note: Flixster does not store this information in any way.

http://



http://www1.americanexpress.be - Formulaire American Express: Personnal Card - Mozilla Firefox

▽ Demande de Carte

- Renseignements personnels
- Renseignements professionnels
- Cartes
- Domiciliation Bancaire
- Demande de Carte Supplémentaire
- Relevés de Compte
- Demande d'adhésion à *Membership Rewards®*

Demandez la Carte Personnelle

Besoin d'aide pour remplir votre formulaire?
0800-99 316 - Belgique
00 32 800 99 316 -

Par mesure de sécurité, aucune des données que vous introduirez dans ces formulaires ne sera transmise sur Internet.

1 2 3 4 5 6 7 Suivant (

Renseignements personnels

Titre: ○ M. ○ Mme

Nom:

Prénom:

Adresse:

N° / Boîte: /

Code Postal:

Localité:

Adresse e-mail:

Téléphone privé:

Date de naissance:

Etat Civil: ○ Célibataire ○ Marié(e) ○ Cohabitant ○ Divorcé(e) ○ Veuf/Veuve

Nombre de personnes à charge:

Habitation: ○ Propriétaire ○ Locataire

Depuis : (mois/année)

Nom agence bancaire:

Depuis (approximativement): (mois/année)

Adresse:

N° de compte personnel:

Prénom de votre mère: (par mesure de sécurité)

Done

1 Error

<concern>

That's a lot of financial information. Do I trust the Internet with it?

</concern>

“For security reasons, the information you enter into this Web form will never be transmitted over the Internet.”

http://

users trust **content**

reputable sites **teach**

even if the content is
implausible

“For security reasons, the information you enter into this Web form will never be transmitted over the Internet.”

<idea>

can **content** be an **indicator**?

personalize your bank's appearance!

<teaching>

“If it's **your** photo,
then it's **safe** to
enter your
password!”

WRONG

Schechter, Dhamija, Ozment, Fischer (2007): *The Emperor's New Security Indicators*

reputable sites **teach**

disregard **other**

indicators

users trust **content**

“The photo server will be back up shortly. We're sorry for the inconvenience.”

attack **successful**

<Browsers>

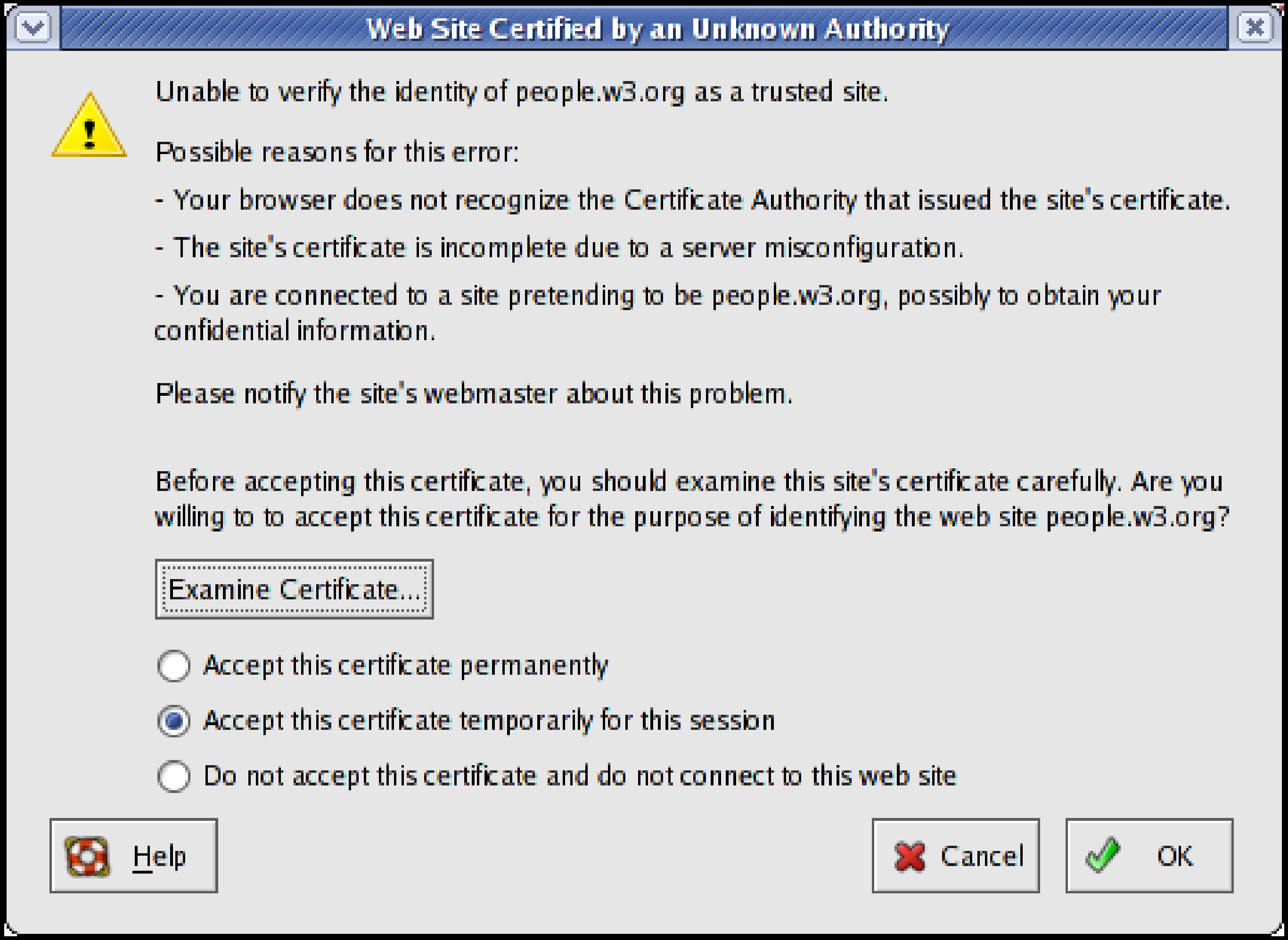
Downs, Holbrook, Cranor (2006): *Decision Strategies and Susceptibility to Phishing*

mental models
meet
# security indicators

“Huh, I'm really not certain, but I'm intrigued by it.”

“Well, I mean, I'm figuring like, based off what it seemed like an encrypted page kind of, I don't know, like walks out or crypts into the circle so that it can't be read.”

<wisdom>



Web Site Certified by an Unknown Authority

Unable to verify the identity of people.w3.org as a trusted site.

Possible reasons for this error:

- Your browser does not recognize the Certificate Authority that issued the site's certificate.

- The site's certificate is incomplete due to a server misconfiguration.

- You are connected to a site pretending to be people.w3.org, possibly to obtain your confidential information.

Please notify the site's webmaster about this problem.

Before accepting this certificate, you should examine this site's certificate carefully. Are you willing to to accept this certificate for the purpose of identifying the web site people.w3.org?

○ Accept this certificate permanently

● Accept this certificate temporarily for this session

○ Do not accept this certificate and do not connect to this web site

<speculation>
“Possible Reasons for this Error”
</speculation>

<jargon>

Certification Authority …
Certificate

</jargon>

<jargon>
server
misconfiguration
</jargon>

<oops>

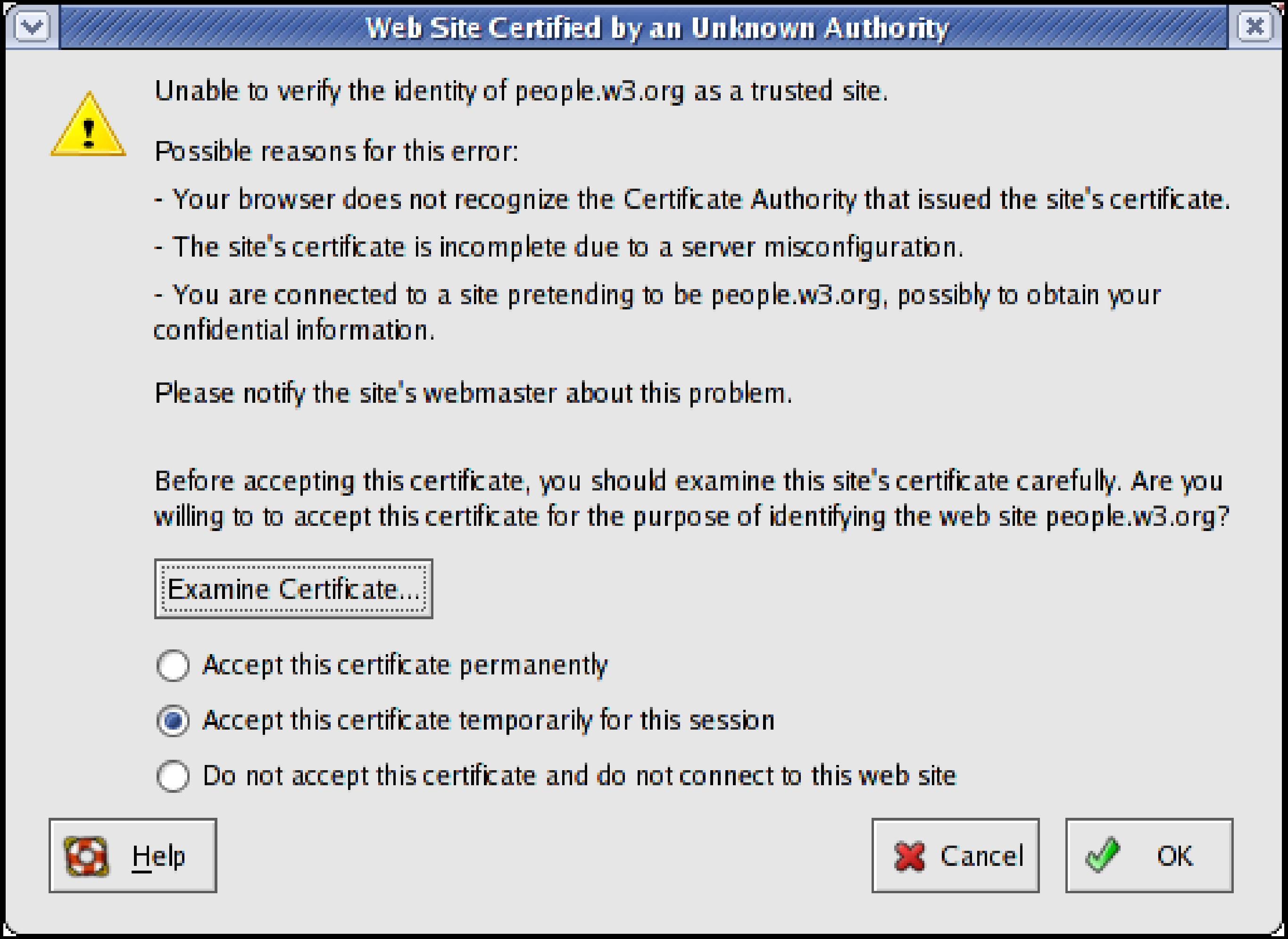
there **might** be an attack, and it is **possibly** malicious

</oops>

(This dialogue might be the last line of defense against an attack.)

<impossible>
Please contact the site's webmaster
</impossible>

<impossible>
you should examine
this certificate
carefully
</impossible>



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Possible reasons for this error:

- Your browser does not recognize the Certificate Authority that issued the site's certificate.

- The site's certificate is incomplete due to a server misconfiguration.

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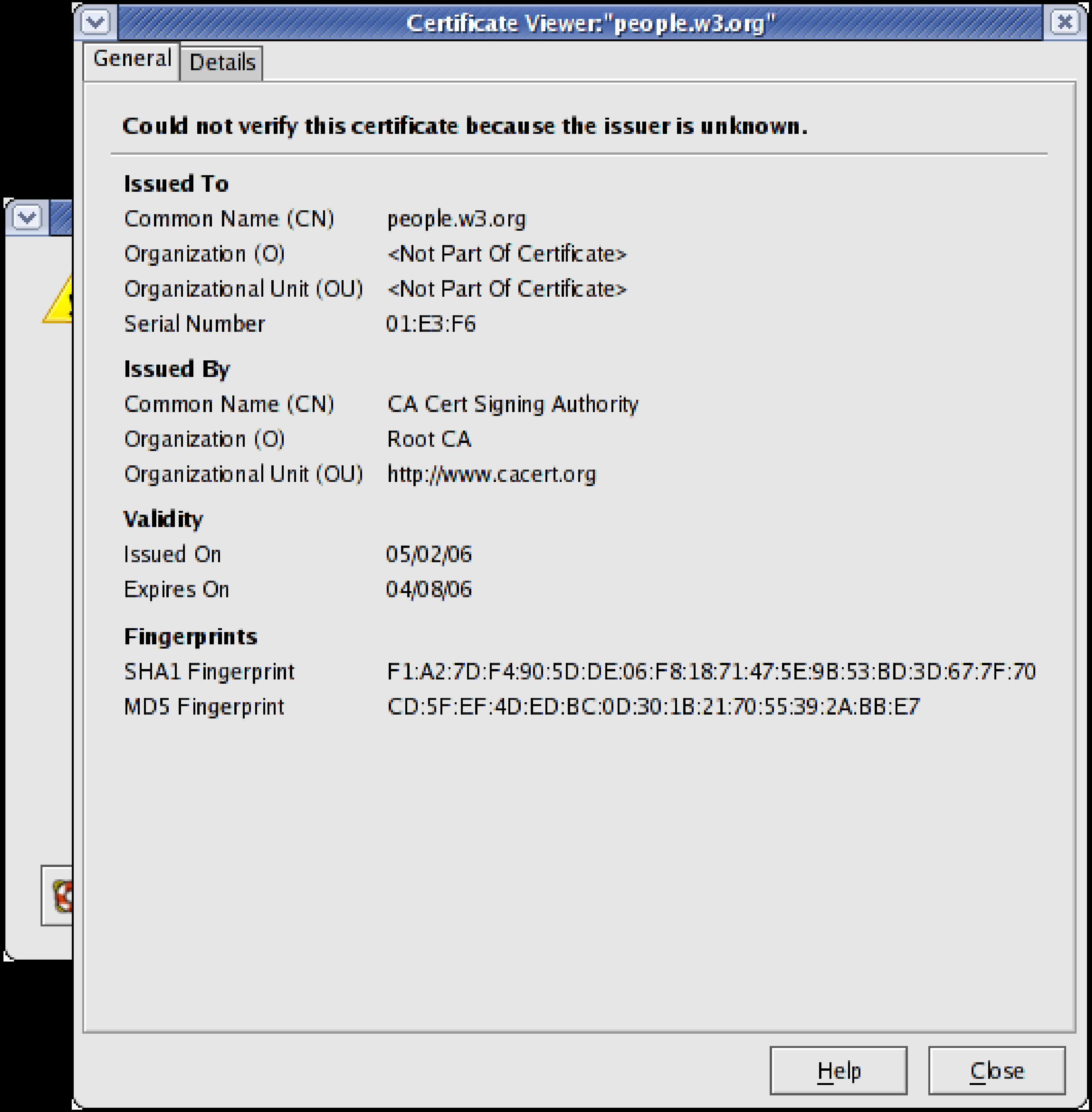
○ Accept this certificate permanently

● Accept this certificate temporarily for this session

○ Do not accept this certificate and do not connect to this web site



Could not verify this certificate because the issuer is unknown.

Issued To

Common Name (CN)	people.w3.org
Organization (O)	<Not Part Of Certificate>
Organizational Unit (OU)	<Not Part Of Certificate>
Serial Number	01:E3:F6

Issued By

Common Name (CN)	CA Cert Signing Authority
Organization (O)	Root CA
Organizational Unit (OU)	http://www.cacert.org

Validity

Issued On	05/02/06
Expires On	04/08/06

Fingerprints

SHA1 Fingerprint	F1:A2:7D:F4:90:5D:DE:06:F8:18:71:47:5E:9B:53:BD:3D:67:7F:70
MD5 Fingerprint	CD:5F:EF:4D:ED:BC:0D:30:1B:21:70:55:39:2A:BB:E7

“Could not verify this certificate because the issuer is unknown.”

“Issued By”

Downs, Holbrook, Cranor (2006): *Decision Strategies and Susceptibility to Phishing*

“Basically that it’s kind of like the **elevator certificate**. For whatever reason, they don’t have it. But at that point sometimes when you go into the elevators you can see if their certificate is up to date or if it’s not current. And that’s kind of what that meant for me.”

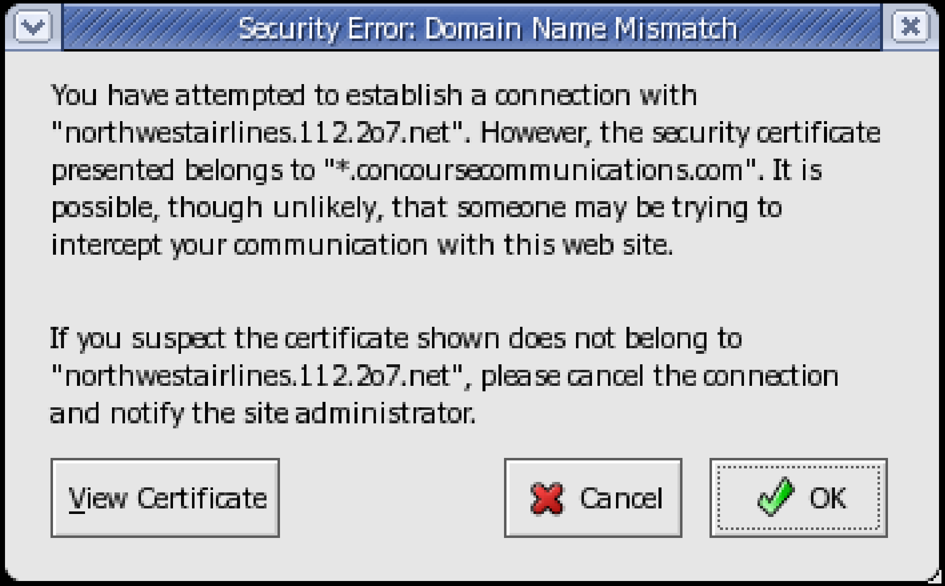
Elevator Certificate: The writing on the wall that you read while your elevator is in free fall.

users trust **content**

useless security
indicators **teach**

disregard advice

<attack>



Security Error: Domain Name Mismatch

You have attempted to establish a connection with "northwestairlines.112.2o7.net". However, the security certificate presented belongs to "*.concoursecommunications.com". It is possible, though unlikely, that someone may be trying to intercept your communication with this web site.

If you suspect the certificate shown does not belong to "northwestairlines.112.2o7.net", please cancel the connection and notify the site administrator.

You have attempted to establish a connection with "northwestairlines.112.2o7.net".

However, the security certificate presented belongs to "*.concoursecommunications.com". It is **possible, though unlikely**, that someone may be trying to intercept your communication with this web site.

“possible, though unlikely”

WRONG

If you suspect the certificate shown does not belong to “northwestairlines.112.2o7.net”, please cancel the connection and notify the site administrator.

good advice!

WRONG

In this case:
“attacked” by a hotspot

“legitimate” attack

“legitimate” attacks

teach

users trust **content**

disregard advice

but **they shouldn't need to**

there is often good information available there is often good advice to be given

<http://www.w3.org/2006/WSC/>

Web Security Context Working Group

What can we tell users to help them make the right decisions?

how?

hard problems

security usability: much research to be done

What decisions should users make at all?

What decisions should we keep away from them?

web user agents are

infrastructure

Whose Web do we change?

Whose Web might we break?

<future>

platform

applications

local

(Widgets)

+

remote

(mash-ups)

ubiquitous

scan
print
find your kids
open your safe
turn off the fridge
divorce

Google™

<security>

RESTRICT!

</security>

been there
done that

e.g.,

same-origin policy

so
Flixster won't get at
your Webmail!

but Flixster got the password!

~~technical defense~~

attack the human!

people want

convenience

features

the **unexpected**

and they'll get it!

help, don't hinder

usability
mental models
metaphors
indicators
best practice

enable flexibility

author
explain
exchange
read
use

strategies

policies

<http://www.w3.org/TR/access-control/>

punching holes into the sandbox

allow https://*.w3.org

read the **address book**

not the **inbox**

first steps!

<challenges>

If TLS confuses people, what will policies do to them?

How do we give flexibility to users?

What does all this really mean to users?

<?>

Thomas Roessler

tlr@w3.org