

Operator Captive Portals and Related Portals/Communications

CAPPORT WG

IETF 95

April 2016



Captive Portal Operator Examples

Traditional Captive Portal Examples

1. Service activation
2. Non-payment
3. Abuse
4. WiFi roaming activation
5. WiFi day pass

Non-Service-Interrupting Notification Examples (a form of captive portal)

1. Malware alert
2. Device-to-Product Enforcement (DPE) alert
3. Copyright Alert System (CAS) alert
4. Usage Based Billing alert

Captive Portal Operator Design Goals

Traditional Captive Portal Examples

1. Work wired or wireless
2. Work in any web browser (i.e. PC *and* mobile/tablet)

Non-Service-Interrupting Notification Examples

1. Not interrupt non-browser applications (i.e. IPTV, VoIP, gaming)
2. Easy to dismiss, minimally intrusive

Service Signup / Self-Service Activation



English | Español

Welcome to **XFINITY** Activation!

You're just a few steps away from activating your devices and experiencing entertainment like never before.

Continue

Please ensure that all the devices you wish to activate are:

1. Unpacked



2. Connected



3. Powered up



Service Signup / Self-Service Activation



1. Authenticate

2. Connect

3. Activate

Hi Mark! **Set up your username and password.**

 Transferring services to a new address? [Sign in with your existing username](#)

Username 

Must be between 3 - 32 characters. Your username will also be your Comcast email address.

Password 

Must be between 8 - 16 characters, include letters, numbers and special characters. Do not include spaces. Password is case sensitive

Password strength:

Confirm password

Choose security question

What is your favorite pet's name? 

Answer security question

Must be between 3 - 25 characters. Answers are case sensitive.



Access all your account settings and much more:

- Watch thousands of movies and entire past seasons of your favorite shows
- Find your nearest XFINITY WiFi hotspot and connect your devices
- Download XFINITY apps for all your devices and enhance your experience

Service Signup / Self-Service Activation



✓ Authenticate

2. Connect

3. Activate



Connection established! You're almost done.
Please choose your customization options below, and click continue to save your selections and finish your activation.

Optimize your experience with XFINITY.com as your browser homepage.

You'll be prompted to download and run our installer, which is certified safe and will not harm your computer.

Continue

Optimize your experience

Watch TV right from your browser, and get one-click access to your email, voicemail, news and headlines with XFINITY.com as your browser homepage.



Service Signup / Self-Service Activation

 ✓ Authenticate ✓ Connect 3. Activate



Thanks Mark! Your devices are activated.

You can now start using your new XFINITY services. Please note that it may take up to 15 minutes to view all TV channels & guide information.

 **Device Reset**

- Please wait as the device is being reset and the latest configuration updates are being applied. This may take up to 15 minutes. If you ordered XFINITY High Speed Internet, please open another browser window to start using your services once the device's flashing lights have stabilized. If the XFINITY service is not available after the allotted time, please manually reset the device.

Choose a destination and get started using XFINITY!

My Account

Access all your entertainment, view your upcoming appointments, pay your bill online, and much more.



Go to [My Account](#)

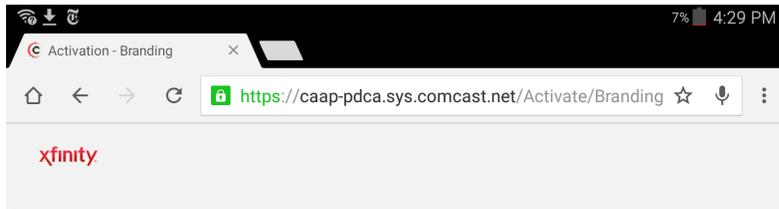
XFINITY.com

Get breaking news from around the world, and local weather and TV listings, on a custom homepage just for you.



Go to [XFINITY.com](#)

Service Signup / Self-Service Activation



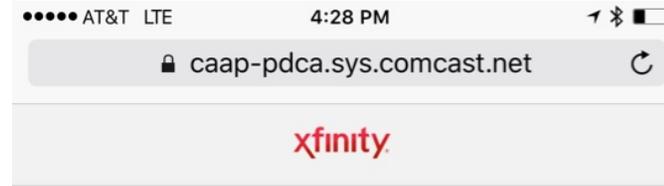
 **Thanks COMCAST! Your devices are activated.**
 You can now start using your new XFINITY services.

Device Reset

- Please wait as the device is being reset and the latest configuration updates are being applied. This may take up to 15 minutes. If you ordered XFINITY High Speed Internet, please open another browser window to start using your services once the device's flashing lights have stabilized. If the XFINITY service is not available after the allotted time, please manually reset the device.

Choose a destination and get started using **XFINITY!**

<p>My Account</p> <p>Access all your entertainment, view your upcoming appointments, pay your bill online, and much more.</p> <p>Go to customer.comcast.com</p>	<p>XFINITY.com</p> <p>Get breaking news from around the world, and local weather and TV listings, on a custom homepage just for you.</p> <p>Go to XFINITY.com</p>
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Thanks COMCAST! Your device is activated.

You can now start using your new XFINITY services.

Device Reset

- Please wait as the device is being reset and the latest configuration updates are being applied. This may take up to 15 minutes. If you ordered XFINITY High Speed Internet, please open another browser window to start using your services once the device's flashing lights have stabilized. If the XFINITY service is not available after the allotted time, please manually reset the device.

Choose a destination and get started using **XFINITY!**



Non-Payment Walled Garden



**Your account is past due.
Reactivate your service in a few easy steps!**

You can do it online now and no technician is required.

[Reactivate now](#)

There are no fees for reactivating online. Telephone payment may incur a late fee.

Non-Payment Walled Garden



Cancel

✓ Thank you! Your payment has been submitted.



Your services are being restored!

TV and Internet may take up to 1 hour to restore. Phone service may take up to 4 hours.

Submitted on Jan 16, 2013

\$4,684.46

Comcast account number
7761219561201

Credit card billing address
106 Drddp51049res S
Dover, DE 19904

Payment Confirmation Number
1000100503

VISA

Card number	Expires
XXXXXXXXXXXX4448	6/17

Card holder's name
Pradeep N



[Print confirmation](#)

Abuse Walled Garden



XFINITY Internet®

We're sorry for the service interruption! While performing a service quality check, we were unable to identify the access point for your XFINITY Internet® service. This information is required to continue your service.

Fortunately, we can quickly return your internet service with a little help from you.

[Click here to live chat with a representative](#) or call us toll free at 855-271-5646.

The only information needed is your XFINITY Internet device information. If you don't know or can't locate it, our representative will help you.

We apologize for any inconvenience and look forward to hearing from you soon. We'll have you back enjoying your XFINITY Internet® service in minutes!



WiFi Activation

Septa:

Sign in to XFINITY WiFi

Sign in to XFINITY WiFi

SEPTA

Getting online is easy.
Surf, stream, or share from millions of XFINITY WiFi hotspots.

Awesome is having it all —
Your way

Keep up with your favorite shows and hit movies—all while streaming to your laptop, tablet or smartphone.
[Learn more about XFINITY WiFi](#)

Get started here!

XFINITY Internet or Comcast Business customers sign in here

Email or username

Don't know your email or username?

Password

[Forgot your password?](#)

Name device e.g., Jen's Tablet

Sign in

Not an XFINITY Internet Customer?

XFINITY WiFi Sponsored Access is available here.

Email

Zip code

I have read and agree to the [Terms of Service](#) and to receive promotional emails from Comcast.

Start Session

For username & password help, call:
1-800-XFINITY

Comcast Business customers, call:
1-800-391-3000

Not an XFINITY customer? Call:

WiFi Activation

Weather

The screenshot shows a web browser window with the URL `wifilogin.xfinity.com`. The page features a satellite-style background image of Earth. At the top center, there is a logo for XFINITY WiFi. On the left side, a text box reads: "Check the weather. We've enabled open WiFi access due to severe weather in your area. Please stay informed and safe." Below this, another text box says: "Wherever you go, find Free WiFi. Conserve usage on your wireless data plan over millions of hotspots." To the right of this text is an image of a smartphone displaying a map with red location markers. On the right side of the page, there is a sign-in form titled "Get started here!". The form has two sections: "XFINITY Internet or Comcast Business customers sign in here" and "Not an XFINITY Internet Customer?". The first section includes fields for "Email or username", "Password", and "Name device e.g., Jen's Tablet", along with a "Sign in" button. The second section includes an "Email" field, a "Zip code" field, a checkbox for "I have read and agree to the Terms of Service and to receive promotional emails from Comcast.", and a "Start Session" button. At the bottom of the page, there is contact information: "For username & password help, call: 1-800-XFINITY" and "Comcast Business customers, call: 1-800-391-3000".

Sign in to XFINITY WiFi

(((XFINITY WiFi)))

Check the weather.
We've enabled open WiFi access due to severe weather in your area.
Please stay informed and safe.

Wherever you go, find
Free WiFi
Conserve usage on your wireless data plan over
millions of hotspots.

Get started here!

**XFINITY Internet or Comcast
Business customers sign in here**

Email or username

Don't know your email or username?

Password

Forgot your password?

Name device e.g., Jen's Tablet

Sign in

**Not an XFINITY Internet
Customer?**

XFINITY WiFi Sponsored Access is
available here until the condition has
passed.

Email

Zip code

I have read and agree to the
Terms of Service and to receive
promotional emails from
Comcast.

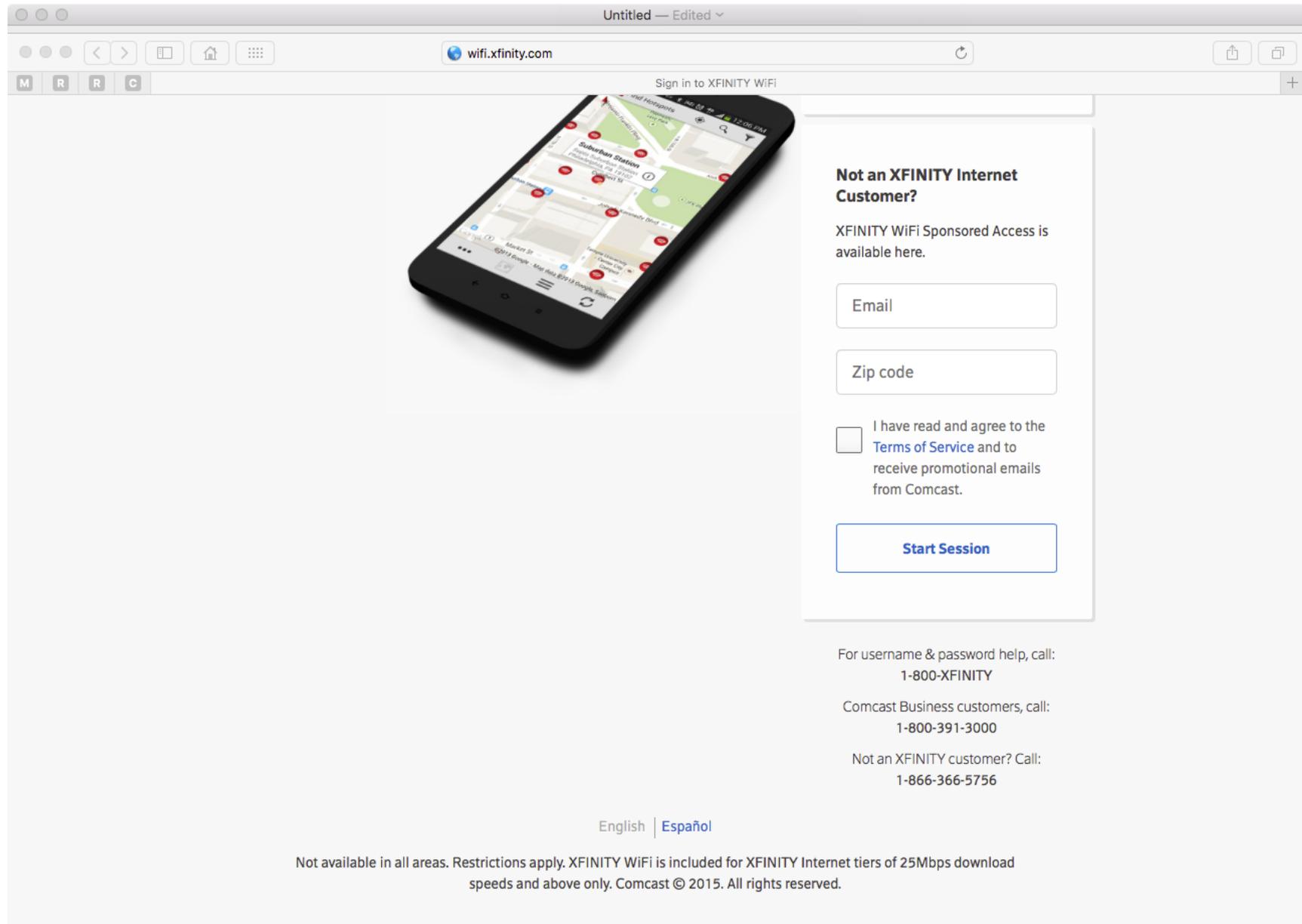
Start Session

For username & password help, call:
1-800-XFINITY

Comcast Business customers, call:
1-800-391-3000

WiFi Activation

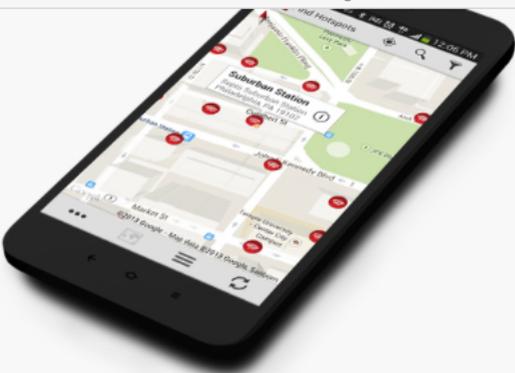
PPU Pay Per Use:



Untitled — Edited ▾

wifi.xfinity.com

Sign in to XFINITY WiFi



Not an XFINITY Internet Customer?

XFINITY WiFi Sponsored Access is available here.

Email

Zip code

I have read and agree to the [Terms of Service](#) and to receive promotional emails from Comcast.

Start Session

For username & password help, call:
1-800-XFINITY

Comcast Business customers, call:
1-800-391-3000

Not an XFINITY customer? Call:
1-866-366-5756

English | Español

Not available in all areas. Restrictions apply. XFINITY WiFi is included for XFINITY Internet tiers of 25Mbps download speeds and above only. Comcast © 2015. All rights reserved.

Browser Notification Platform

Bot / Malware

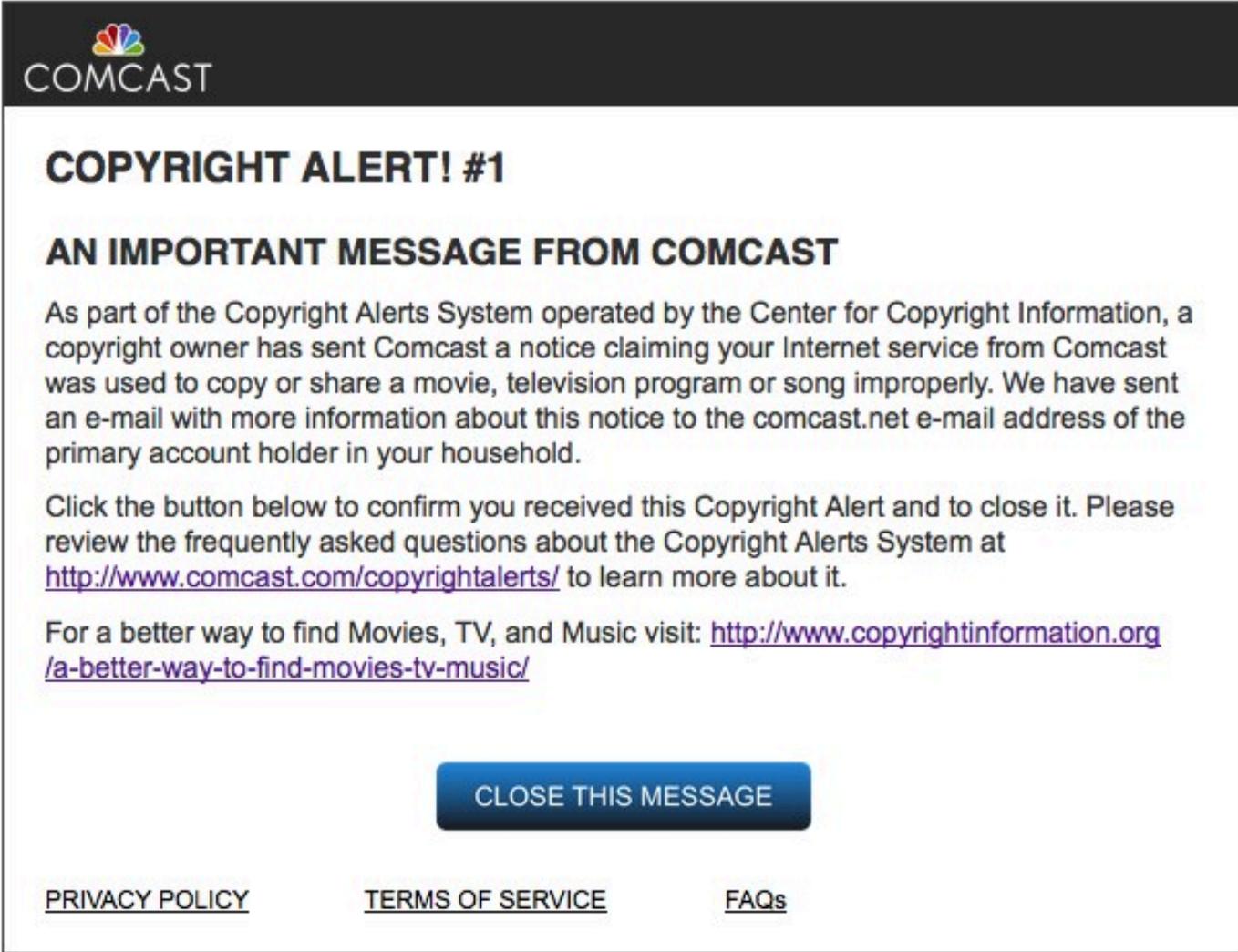
The screenshot shows a browser notification from Xfinity. At the top left is the Xfinity logo in red, and at the top right is a close button (X) in a circle. The main heading is "ConstantGuard Bot Alert". Below it, the text reads: "Dear XFINITY Customer, Constant Guard® from XFINITY has detected a bot on your computer(s). Click the 'TAKE ACTION NOW' button to get important information on next steps." A prominent blue button with the text "TAKE ACTION NOW" is centered. At the bottom, there are three links: "PRIVACY POLICY", "FAQs", and "TERMS OF SERVICE". The Comcast logo is in the bottom right corner.

Device to Product Enforcement

The screenshot shows a browser notification from Xfinity. At the top left is the Xfinity logo in red, and at the top right is a close button (X) in a circle. The main heading is "XFINITY Internet Service: Action Needed". Below it, the text reads: "Dear Comcast Customer, Recently we've increased the speeds of two of our popular Internet tiers and your current modem is **not equipped to handle this increased speed.** To ensure you're receiving the full benefits of your XFINITY Internet service, we'll replace your modem with our Wireless Gateway at no additional cost to you. Please visit us at <https://www.comcast.com/deviceupgrade> and follow the instructions to have your replacement modem shipped to you. Thank you." At the bottom, there are two links: "PRIVACY POLICY" and "TERMS OF SERVICE". The Comcast logo is in the bottom right corner.

Browser Notification Platform

Copyright Alerts



The screenshot shows a Comcast notification window. At the top left is the Comcast logo. The main heading is "COPYRIGHT ALERT! #1". Below that is a sub-heading "AN IMPORTANT MESSAGE FROM COMCAST". The body text explains that a copyright owner has sent a notice claiming the user's Internet service was used to copy or share a movie, television program, or song improperly. It mentions that an email with more information was sent to the user's Comcast.net email address. There are two paragraphs of text, followed by a blue button labeled "CLOSE THIS MESSAGE". At the bottom, there are three links: "PRIVACY POLICY", "TERMS OF SERVICE", and "FAQs".

 **COMCAST**

COPYRIGHT ALERT! #1

AN IMPORTANT MESSAGE FROM COMCAST

As part of the Copyright Alerts System operated by the Center for Copyright Information, a copyright owner has sent Comcast a notice claiming your Internet service from Comcast was used to copy or share a movie, television program or song improperly. We have sent an e-mail with more information about this notice to the comcast.net e-mail address of the primary account holder in your household.

Click the button below to confirm you received this Copyright Alert and to close it. Please review the frequently asked questions about the Copyright Alerts System at <http://www.comcast.com/copyrightalerts/> to learn more about it.

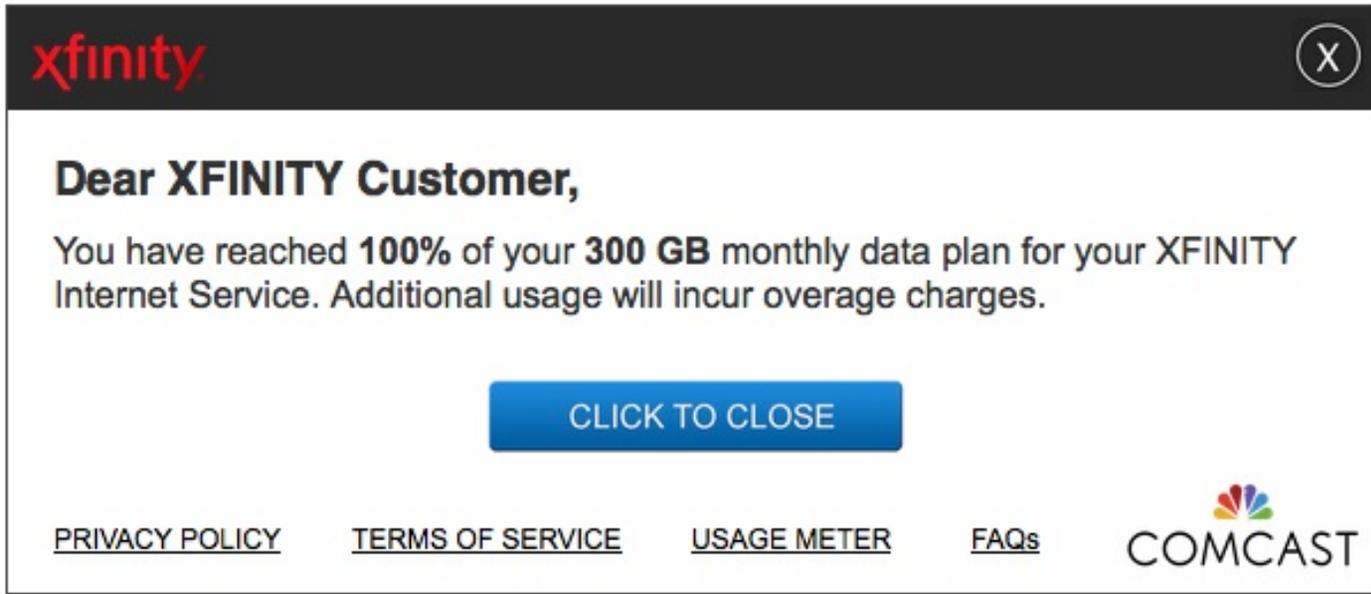
For a better way to find Movies, TV, and Music visit: <http://www.copyrightinformation.org/a-better-way-to-find-movies-tv-music/>

CLOSE THIS MESSAGE

[PRIVACY POLICY](#) [TERMS OF SERVICE](#) [FAQs](#)

Browser Notification Platform

Usage Based Billing



A browser notification from Xfinity. The notification has a dark header with the Xfinity logo in red and a close button (X) in a white circle. The main content area is white and contains the text: "Dear XFINITY Customer, You have reached 100% of your 300 GB monthly data plan for your XFINITY Internet Service. Additional usage will incur overage charges." Below the text is a blue button with the text "CLICK TO CLOSE". At the bottom of the notification, there are four links: "PRIVACY POLICY", "TERMS OF SERVICE", "USAGE METER", and "FAQs", followed by the Comcast logo and the word "COMCAST".

xfinity ⓧ

Dear XFINITY Customer,

You have reached **100%** of your **300 GB** monthly data plan for your XFINITY Internet Service. Additional usage will incur overage charges.

[CLICK TO CLOSE](#)

[PRIVACY POLICY](#) [TERMS OF SERVICE](#) [USAGE METER](#) [FAQs](#)  **COMCAST**

Concluding Thoughts

- Very broadly define “captive portal”
 - No access without interactive with captive portal
 - Uninterrupted access during captive portal interaction
 - Emergency Alert System for IP networks?
- Work across many devices types and software clients
 - It’s not just about HTTP-based portals, some devices may lack a web browser (or using it may be impractical or not preferred)
- Consider an OS-level or other special messaging channel
 - Refer to work by Steve Bauer, MIT (net.info)