

USING WEBCAMS TO SPY ON SOMETHING

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**Web location for this
presentation**

<http://aztcs.org>

Click on "Meeting Notes"

SUMMARY

- You can use various models of Webcams to spy on your home(s), business(es), and pets. They can alert your cell phone and/or your computer when they detect motion.

SUMMARY (continued)

- In addition to these basic functions, the Internet cloud can now provide you with:
A means of communicating with a Webcam from points unknown
and
cloud storage for saving snapshots and video clips either automatically when motion is detected by your Webcam or on-demand.

TOPICS

- Webcam Basics
- History of Webcams
- Legal Issues Regarding Webcams
- Security Issues Regarding Webcams
- Wired USB Webcams
- Wi-Fi Webcams
- Cloud-based Webcams
- A Universal Camera Stand
- Powerline Ethernet Extensions

WEBCAM BASICS

- According to <https://en.wikipedia.org/wiki/Webcam>

<start of quote>

A webcam is a video camera that feeds or streams its image in real time to or through a computer to (a) computer network.

When "captured" by the computer, the video stream may be saved, viewed or sent on to other networks via systems such as the internet, and email as an attachment.

<end of quote>

WEBCAM BASICS (continued)

- The term "Webcam" is sometimes used for wired USB-connected cameras only.
- The term "Webcam" is more commonly used to refer to
wired USB-connected cameras,
wired IP cameras (IP=Internet Protocol),
and
Wi-Fi cameras

WEBCAM BASICS (continued)

- Some Webcam manufacturers refer to their Wi-Fi cameras as "IP cameras"
- Other Webcam manufacturers use the term "IP camera" to refer to Webcams that are connected directly to your local network by means of a regular Ethernet cable or a "Power Over Ethernet" cable

WEBCAM BASICS (continued)

- Details about Webcams:

See

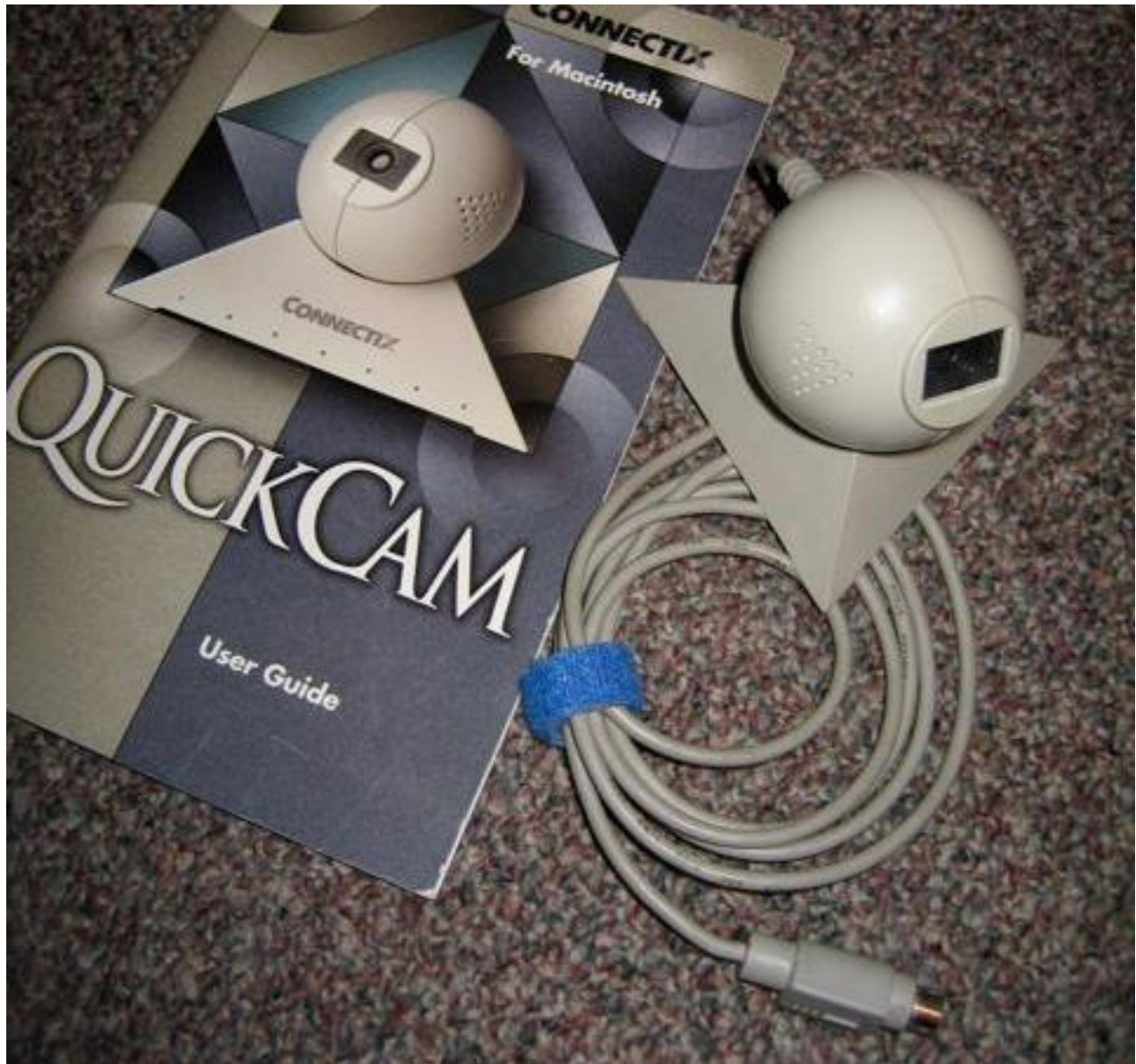
[http://www.ebay.com/gds/5-Types-of-IP-Cameras-
/10000000178450438/g.html](http://www.ebay.com/gds/5-Types-of-IP-Cameras-/10000000178450438/g.html)

and

[http://webcam-review.toptenreviews.com/1080p-
2.0-mega-pixels-understanding-webcam-technical-
terms.html](http://webcam-review.toptenreviews.com/1080p-2.0-mega-pixels-understanding-webcam-technical-terms.html)

HISTORY OF WEBCAMS

- 1994: Connectix's "Quickcam" for Macintosh (serial port and parallel port models).
The very first model had a "mini DIN" serial plug:





Pair of female Mini DIN-8 connectors used for RS-422 serial ports on a Macintosh LC computer



HISTORY OF WEBCAMS (continued)

- 1996: Wired IP Webcams with a Cat 5 jack
- 1998: Logitech's "Quickcam Home" and "Quickcam Pro" (USB 1 and parallel port models)
- 2000: Webcams integral to laptops and some monitors
- 2001: Webcams with a wired USB 2 cable

HISTORY OF WEBCAMS (continued)

- 2005: Wi-Fi wireless cameras
- 2006: HD Webcams (HD = "High definition")
- 2012: "Drop Cam" Wi-Fi Internet Webcam
- 2014: "Drop Cam" evolved into "Nest Cam"

HISTORY OF WEBCAMS (continued)

- 2015: Netgear "Arlo Wire-Free" (= first battery-powered, totally-wireless camera; cannot detect motion when pointed through a clear glass window)
- 2016: Netgear "Arlo Q" (= only AC-powered Webcam that we tested that can detect motion when pointed through a clear glass window)

LEGAL ISSUES REGARDING WEBCAMS

Legalities for you to be aware of:

- Most Federal and state laws regarding video surveillance pertain to recording audio, so a Webcam that does not record audio (or turning off the audio-recording capability of a Webcam that does record audio) may be safer for you to use from a legal standpoint

LEGAL ISSUES REGARDING WEBCAMS (continued)

Legalities for you to be aware of (continued):

- Every state of the U.S.A. and every country has different laws pertaining to the use of Web cams
- "Reasonable expectation of privacy" is a legal precedent that keeps lawyers employed
- Different laws apply to hidden cameras versus cameras that are in plain sight

LEGAL ISSUES REGARDING WEBCAMS (continued)

Legalities for you to be aware of (continued):

- See

<http://www.supercircuits.com/resources/blog/hidden-cameras-and-the-law>

and

<http://science.opposingviews.com/rules-legal-use-video-surveillance-1801.html>

and

<http://www.securityoptions.com/an-easy-guide-to-video-surveillance-laws/>

LEGAL ISSUES REGARDING WEBCAMS (continued)

Legalities for you to be aware of (continued):

- See also

[http://www.brickhousesecurity.com/category/
hidden+cameras/hidden+spy+camera+laws.d](http://www.brickhousesecurity.com/category/hidden+cameras/hidden+spy+camera+laws.d)

o

and

[https://www.care.com/a/nanny-cam-yes-or-
no-1209271139](https://www.care.com/a/nanny-cam-yes-or-no-1209271139)

LEGAL ISSUES REGARDING WEBCAMS (continued)

Legalities for you to be aware of (continued):

- For video surveillance laws listed by states of the United States of America, see <http://www.backstreet-surveillance.com/security-cameras-made-easy-1/state-video-audio-surveillance-laws-regulations.html>

SECURITY ISSUES REGARDING WEBCAMS

Hacker attacks on Web cams:

- According to <https://en.wikipedia.org/wiki/Camfecting>
Camfecting.. is the fraudulent process of attempting to hack into a person's webcam and activate it without the webcam owner's permission. The remotely activated webcam can be used to watch anything within the webcam's field of vision...

SECURITY ISSUES REGARDING WEBCAMS (continued)

Hacker attacks on Web cams (continued):

- According to https://en.wikipedia.org/wiki/Remote_administration_software

"A **remote administration tool (RAT)** is a piece of software that allows a remote "operator" to control a system as if he has physical access to that system." One of the results of using a "RAT" might be screen/camera capture or image control.." 22

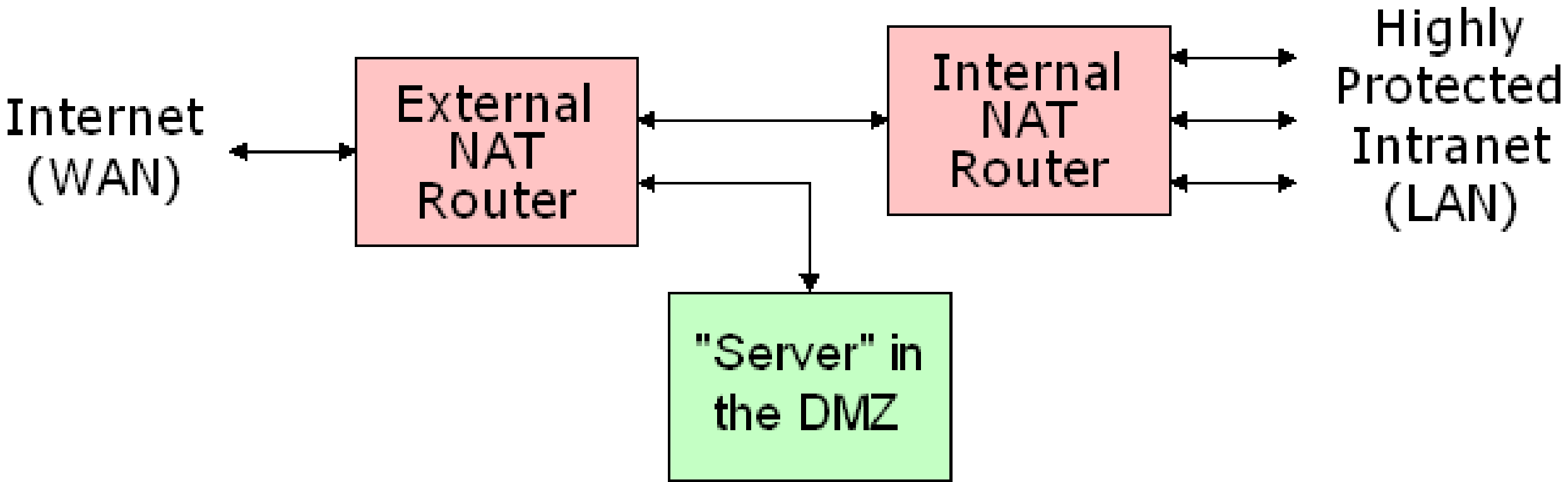
SECURITY ISSUES REGARDING WEBCAMS (continued)

Hacker attacks on Web cams (continued):

- A **two-router "Demilitarized Zone"** is an effective way to block "camfecting" and "RAT" hacks.

See

http://aztcs.org/meeting_notes/winhardsig/secureWeb/secureWeb.pdf

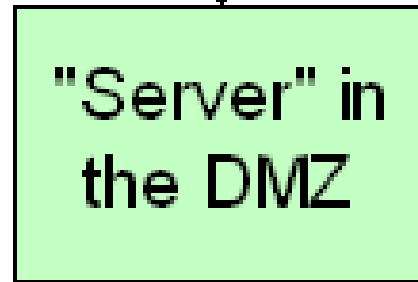
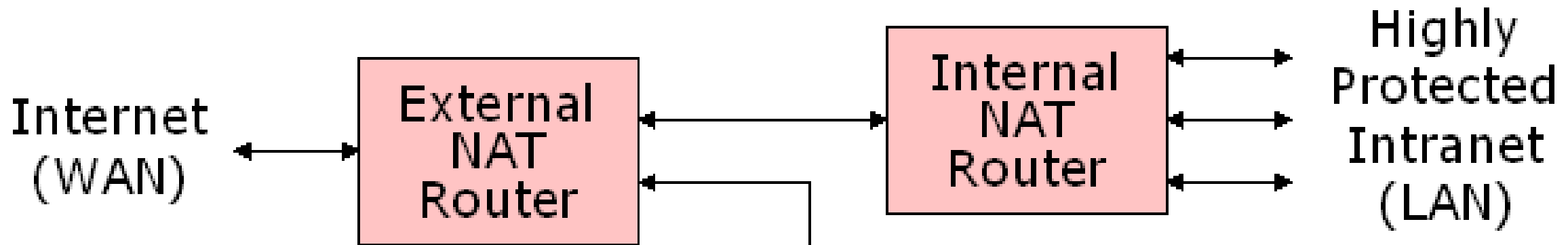


Reference:
<https://www.grc.com/nat/nat.htm>

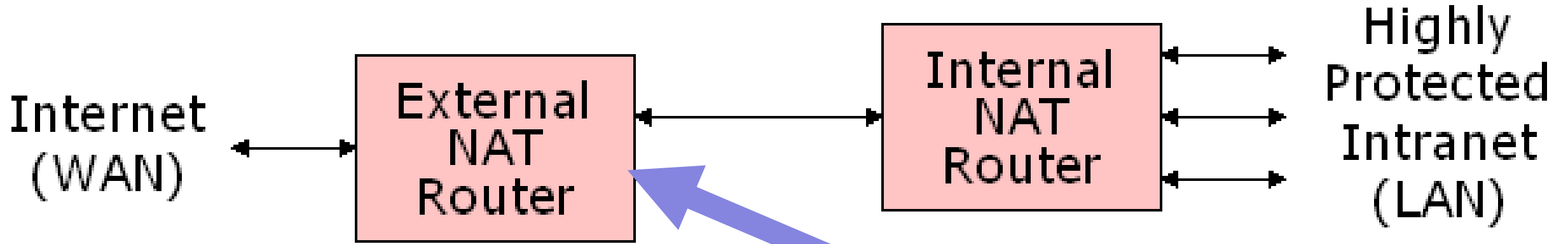
SECURITY ISSUES REGARDING WEBCAMS (continued)

Hacker attacks on Web cams (continued):

- To protect against **Camfecting** and **Remote Administration Tool (RAT)** attacks from hackers on the Internet, you can connect a Webcam to a computer or a router in the DMZ area of a two-router DMZ configuration.



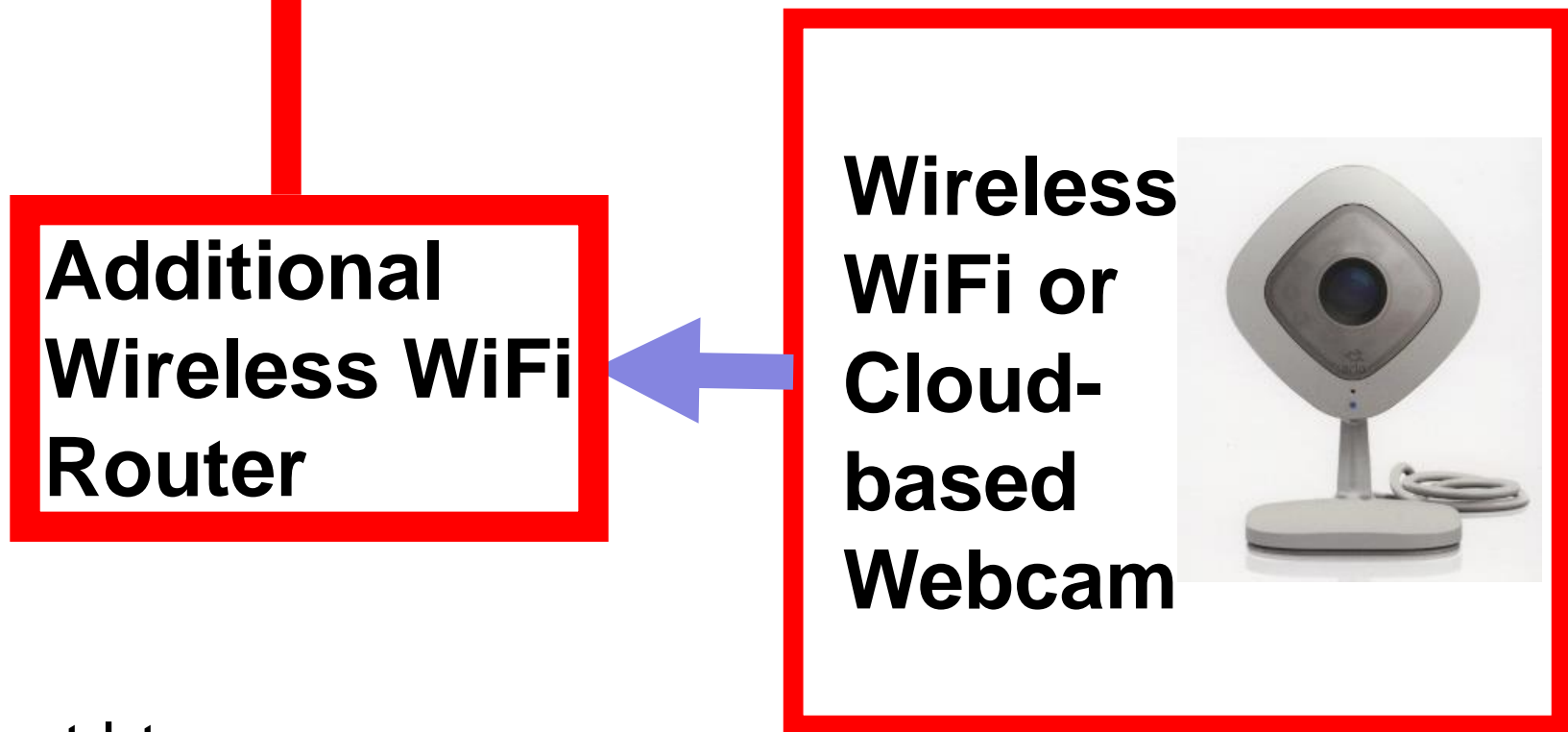
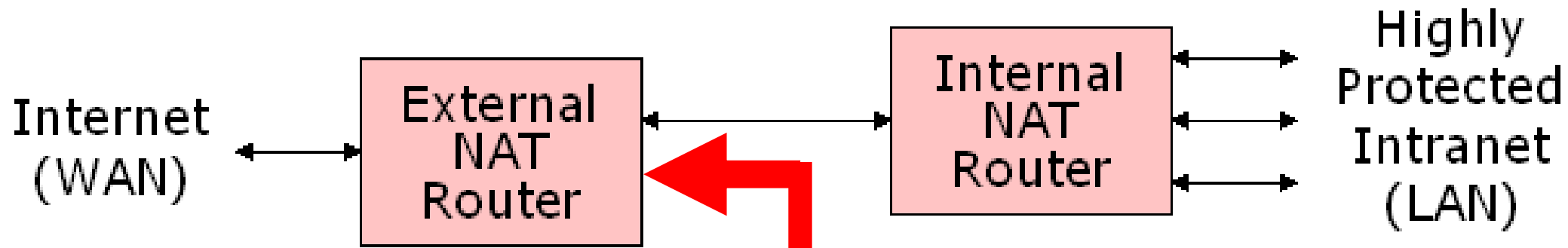
Reference:
<https://www.grc.com/nat/nat.htm>



Reference:
<https://www.grc.com/nat/nat.htm>

Wireless WiFi or Cloud-based Webcam





Reference:

<https://www.grc.com/nat/nat.htm>

WIRED USB WEBCAMS

- See http://aztcs.org/meeting_notes/winhardsig/webcams/parts/surveillance1-usb-webcams.pdf

WI-FI WEBCAMS

- See

http://aztcs.org/meeting_notes/winhardsig/webcams/parts/surveillance2-WiFi-webcams.pdf

CLOUD-BASED WEBCAMS

- See

http://aztcs.org/meeting_notes/winhardsig/webcams/parts/surveillance3-cloud-webcams.pdf

A UNIVERSAL CAMERA STAND

- If your Webcam has a standardized threaded tripod hole, the **Vidosecu** company provides a versatile stand for it:



Click to open expanded view

VideoSecu 2 Pack 2-6 inch Adjustable Security Camera Metal Brackets Pan Tilt Wall Ceiling Mounts for CCTV CCD Box Body Camera Home Surveillance System 1SH

by [VideoSecu](#)

★★★★☆ ▾ [136 customer reviews](#) | [14 answered questions](#)

List Price: ~~\$84.95~~

Price: **\$16.99** & **FREE Shipping** on orders over \$35. [Details](#)

You Save: **\$67.96 (80%)**

In Stock.

Want it tomorrow, Feb. 8? Order within **9 hrs 29 mins** and choose **One-Day Shipping** at checkout. [Details](#)

Sold by [Warehouseseller](#) and [Fulfilled by Amazon](#). Gift-wrap available.

- VideoSecu brand. If you did not see VideoSecu logo on box, please report to Amazon.com
- 360 degrees turn and rotation, 90 degrees tilt
- All parts interchangeable, all metal construction
- Base plate 2 3/8" diameter, 1/4" / 20 threads throughout
- Each set includes two 2" shafts, one 2" X-base, one 1" base extender, one 2 3/8" round base and one head



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Metal Brackets Pan Tilt Wall Ceiling Mounts for CCTV
CCD Box Body Camera Home Surveillance System
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POWERLINE ETHERNET EXTENSIONS

- The wireless Wi-Fi communications between your WiFi Webcams or your cloud-based Webcams AND your Network base station are subject to the limitations of all Wi-Fi communications

POWERLINE ETHERNET EXTENSIONS (**continued**)

- You can use various wired, wireless, and powerline network technologies to move your Netgear base station or a second wireless Wi-Fi router closer to your wireless Webcams:

D-Link®

PowerLine AV2 2000 Gigabit Starter Kit

Create a PowerLine network with Gigabit speeds



Plug-and-Play feature means creating a PowerLine network is simple and easy

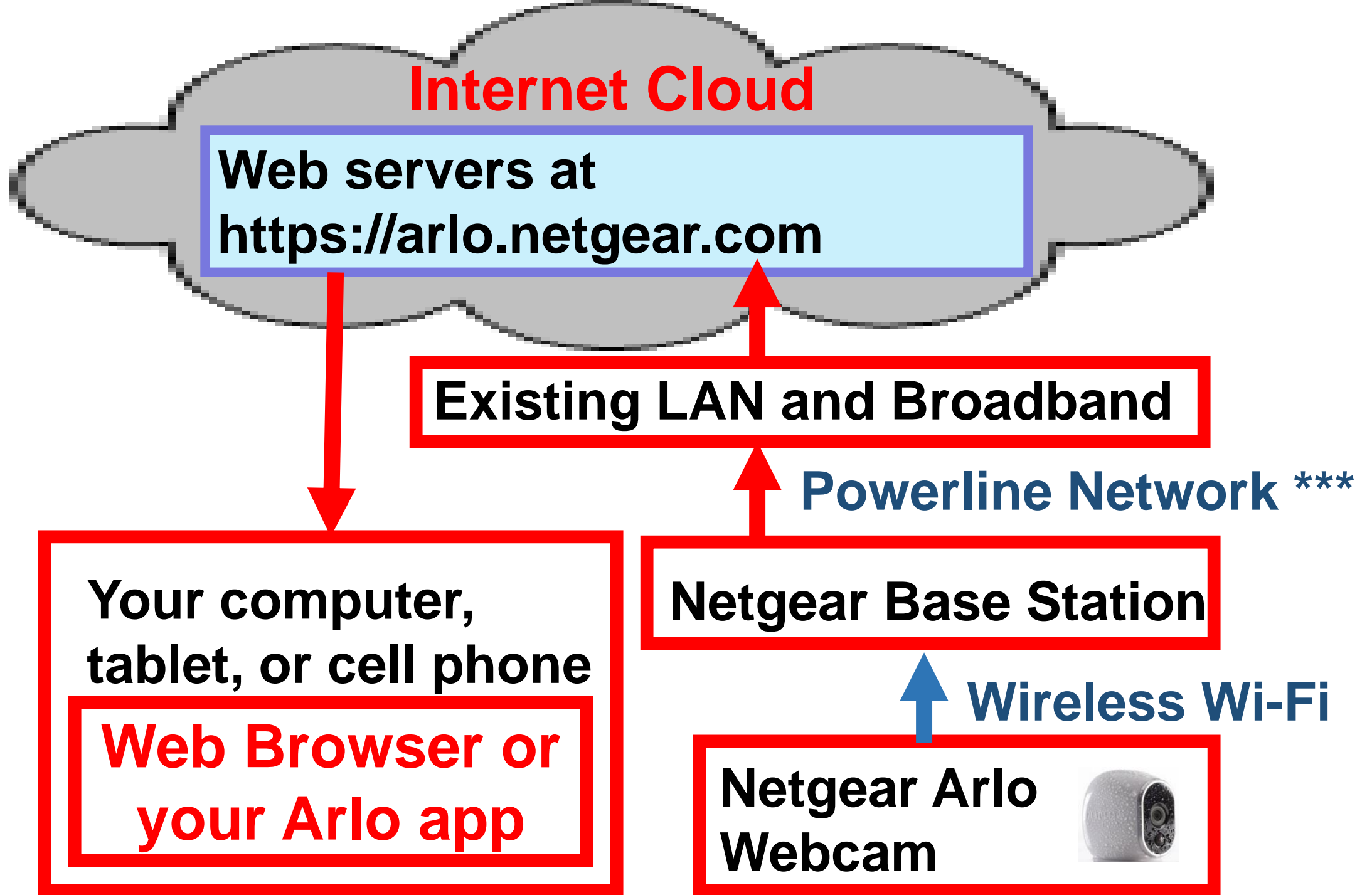


Speeds up to 2000 Mbps¹ using HomePlug AV2 MIMO technology make it ideal for activities like 4K video streaming



MIMO Technology provides better coverage and more stable network

DHP-701AV



Internet Cloud

**Web servers at
https://arlo.netgear.com**

Existing LAN and Broadband

Powerline Network ***

Netgear Base Station

Wireless Wi-Fi

**Netgear Arlo
Webcam**



**Your computer,
tablet, or cell phone**

**Web Browser or
your Arlo app**

POWERLINE ETHERNET EXTENSIONS (**continued**)

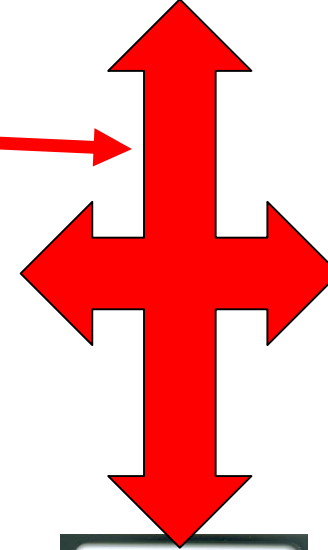
- The use of powerline networking extensions for wired Ethernet that conforms to the "Homeplug AV" "AV2000" standard lets you use existing "live" power cabling (such as existing "Romex) to extend the wired network "reach" of an existing router or cable modem. For a how-to document, see http://aztcs.org/meeting_notes/winhardsig/networks/powerline/powerline.pdf

Existing Broadband Modem and Router

Cat 5/5e/6 Cable



House Electrical Wiring



Netgear Base Station or additional Wireless Wi-Fi Router

Cat 5/5e/6 Cable



Questions

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