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Located in historic downtown Wapakoneta, Ohio, FNGi has been instrumental in developing and supporting Internet Networks across the U.S. since 1993. The FNGi team can assist you with all phases of your Internet Network from initial planning through long-term support.

[www.network1.net](http://www.network1.net)  
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In this FNGi Focus we take a walk in the clouds and find that without proper planning, it's not all sunshine up top. Then we take a look at the next cord you will be using at home, work and in the car with the announcement of USB Type-C. From clouds and cords we find out the name of Microsoft's next Windows Operating System, more info about FNGi's new optical transceivers and how the DHCPatriot aligns with the security brought forth in modern browsers.



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YOUR CONNECTION TO FIRST NETWORK GROUP NEWS

January— March 2015

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## FORECAST: CLOUD-Y WITH A CHANCE OF PAIN

With so much recent buzz about “The Cloud”, one might think that cloud storage or cloud computing is a relatively new invention in the wonderful world of the Internet. Actually, like the Internet itself, cloud computing has its roots in ARPANET and goes back to the 1960s. (At least one source attributes the concept of cloud computing to a Vonnegut novel from 1959.) “The Cloud” may be nearly as old as I am, but it is here to stay and consumer use of content provider cloud storage will continue to radically expand in the coming years.

What does this mean for you the ISP and for your relationship to your customers?

CLOUD STORAGE is becoming more mainstream as Amazon, Apple, Google and Microsoft are encouraging their customers to buy content (movies, music, etc.) and leave it in the Cloud, so they can access it on multiple devices from multiple locations. Amazon has recently added Prime Music to its Prime Video offering. Amazon Prime customers pay an annual fee to receive upgraded shipping and promotional offers and now have access to massive video and music libraries at no additional charge. This fall, Amazon expanded its Photo storage to include customer photos that were not taken on Amazon devices – enticing customers to choose Amazon as their primary cloud storage.

BANDWIDTH will be at the center of your customer's experience. Telecompetitor recently reported (11/11/2014) that the Apple iPad accounts for 80% of all North American Web traffic generated by media tablets. An article in the NTCA New Edge (11/10/2014) estimates that home bandwidth needs are about to rise 31% to a new peak of 7.3 Mbps -

driven by the increase in video streaming. Streaming a single Netflix video requires 5.0 Mbps for HD resolution. Net Neutrality will certainly play a role in your customer's online experience and in their perception of your product's performance as it will affect their downloads. Monitoring your network performance and responding to prevent bottlenecks remains your best measure of meeting your customer's needs.

SECURITY will continue to be a sensitive topic for cloud computing and cloud storage. In August 2014, an estimated 500 private photographs of various celebrities were procured from Apple's iCloud platform and published on the Web. Even though the security breach was rooted in account holders divulging their information to Phishing schemes and poorly constructed, insecure passwords, the media succeeded in creating doubt about cloud security. Staying informed and promoting solid security practices to your customers continues to yield public relations dividends.

E-MAIL once drove your customers' Internet usage. Today's killer apps are audio-video and the user devices don't need massive memory because the content is stored in the Cloud. The Internet service you provide is delivering audio and video to devices from smartphones to smart TVs and everything in between. Beginning with a solid approach to your IP Network engineering, deployment and monitoring, combined with customer education in your customer outreach will help keep your customers happy despite their increase in Cloud content.

Stephen C. (Steve) Walter  
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## One Cable to Rule Them All

If you spent time with a few different cell phones, a switch to an HD TV, various laptops, tablets, etc over the years you are familiar with the multitude of cables and wires you've had to deal with.

Years ago it became common place to make sure you had 4 or 5 different wires with you at any given time to make sure you could charge or connect your various devices. More recently we've seen the cellular phone industry and others solidify around the Micro-USB cable.

The Micro-USB (Type B) cable now meant that all phones (except for Apple products) used one connection and only one cable or charger was needed for most of your devices. That is until USB 3.0 cables came out. A change had to be made to the connection to allow for better power and data management and we received a cobbled together mess of a plug that was unlike anything we've had before. Thankfully it was backwards compatible with the USB 2.0 Micro USB cables, so in a pinch you really still needed just the one cord.

All of this craziness is soon to come to an end, as the USB Group has announced the USB Type-C connector. Their goal is to make one plug, with one connection type to work in all scenarios and have enough future proofing that it will be around for a good long while for our gadgets and devices.

### TWO WAYS TO PLUG IN



### TAKES THREE TRIES

So no more fumbling in the dark trying to plug your phone into the charger or always seeming to get the orientation wrong when connecting your ThumbDrive to your laptop.

This new cable and connector will support USB performance at SuperSpeed USB 10 Gbps (USB 3.1) and USB Power Delivery up to 100W. It will be small enough to work on phones, but be robust enough to use on laptops, computers and tablets. While the new "Type-C" plug wont work with an existing "Micro USB" port, a simple passive adapter on the cable will see you thru until your next device features the connection. Look for USB Type-C connectors and cables to start showing up on new devices later this year.



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## FNGi Branded Optics



First Network Group, Inc. now offers our own line of FNGi-branded optics. This includes the common SFP optical transceivers, as well as SFP+, XFP, CFP, and more. These are sourced from major manufacturers (the same ones that make the OEM-labeled products) and programmed and tested by one of the leading suppliers in the industry.

Custom programming allows these modules to appear the same as OEM models to switches and routers. No more having to issue special commands to get non-original SFPs to function.

We can provide direct replacements for existing OEM models. In some cases, we can offer similar models that exceed the distance specifications, or use different wavelengths. Examples include 100+km distance support, Bi-directional optics that use only 1 fiber, and DWDM models. Our optical transceivers have a lifetime warranty.

We also provide a full catalog of optical cabling, as well. A variety of lengths, fiber types, and connectors are available.

Contact Randy Carpenter for more details and for a custom quote.

[rcarpen@network1.net](mailto:rcarpen@network1.net) or 1-800-578-6381, option 2



## 7 Ate 9, Windows 10

Microsoft has announced that their next major PC Operating System release will be called Windows 10. This left many folks scratching their heads since their latest OS is called Windows 8. So what happened to Windows 9?

At the Windows 10 Tech Preview announcement Microsoft's Terry Myerson stated, "We know, based on the product that's coming, and just how different our approach will be overall, it wouldn't be right to call it Windows 9." And continued that their recent branding of "ONE", wouldn't work either, "but unfortunately Windows 1 has been done by the giants that came before us."

## 404 Not Found

A new challenge has appeared within the past six months relating to using the Captive Portal on the DHCPatriot when the user has a secure site set as their home page, such as <https://www.yahoo.com>.

Modern browsers are increasing user warnings when a secure site is loaded that has invalid certificates or other issues. Browsers may now provide more information to the user, in the form of a warning page, for websites that load that do not match the expected security certificate. Any Captive Portal page will have an issue with this. The browser is expecting to load content from Yahoo.com that matches the secure certificate that is already known to the browser but instead of Yahoo.com, they receive the captive portal page.

Recently, many sites, including Google sites, have begun defaulting to secure web (HTTPS) instead of non-secure web (HTTP). The customer, when being redirected to the Captive Portal page on the DHCPatriot, may have a secure page as their home page such as: <https://mail.google.com> for Gmail. In the latest release of Google Chrome, the user may be presented with the error screen shown at the right.

When encountering this page, it is not possible to continue. A user could attempt to visit another page, and that would then potentially produce the Captive Portal page. However, this often results in calls to technical support for assistance instead. This is the case for many very popular sites as well such as eBay, Yahoo, Hotmail, Facebook, etc.

So they wanted to make it very distinct from the outset that this version of Windows will not be an evolutionary step along what was laid out in Windows 8, but a complete departure. And due to the very underwhelming sales, adoption and feedback, distancing themselves from Windows 8 is a very good idea.

Another prevailing theory why Microsoft chose "10" is that there is a lot of old code laying around that checks Windows version numbers. Specifically checking if the Operating System is Windows 95 or 98. That code normally stopped the check at the number 9 and assumed then it was either Windows 95 or 98. If they did list the OS name as Windows 9, then this code would assume it was 95 or 98 and misbehaving in some very unpredictable ways.

In any case, Windows 10 is where Microsoft is going on the PC and they are looking to make great strides to correct the errors in Windows 8 and overcome the mountain of negativity associated with this maligned OS before time slips away and Windows 7 is no longer supported like Windows XP is today. Main-stream support for Windows 7 ends January 13, 2015 and the product's final support will end January 14, 2020.

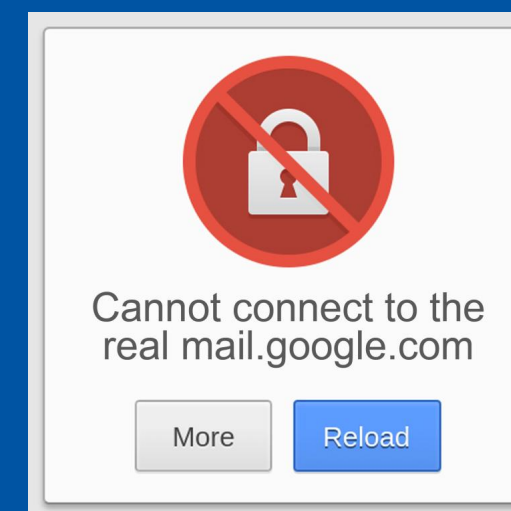
While the very rough, Tech Preview for Windows 10 is out now and timelines always shift a bit, Microsoft is expected to release a more polished Release Preview around February and go for a full launch in Q3 2015.



Since the condition that would create this behavior for Captive Portal pages is so close to a genuine attack vector, modern browsers will always error on the side of caution. Luckily, the latest versions of Google Chrome, Microsoft's Internet Explorer and Mozilla Firefox have improved their ability to hook into the Operating System's ability to sense if it's on a Captive Portal network in a pre-authenticated mode.

When visiting any secure site when you should get the captive portal, the browser will look to the OS for this state and provide the user with an option to authenticate. Sometimes even opening the Captive Portal page in an additional tab. Google Chrome specifically uses their domain <http://www.gstatic.com/> in the address bar, displays the Captive Portal page.

Customers who were having trouble logging in with the DHCPatriot system's Captive Portal using Google Chrome should no longer be having any issues with that process. Microsoft's Internet Explorer and Mozilla Firefox still provide a way to continue to the site as a "Not Recommended" action or displays the Captive Portal page if the system's Operating System has correctly guessed it's on a Captive network and based on their own built in checks.



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