FNGi
First Network Group Inc

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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.

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FOCUS Newsletter

In this first issue of 2019 we look at the new Wi-Fi naming convention change with the introduction of Wi-Fi 6 and even faster wireless technology is in store for us as well with WiGig (Wireless Gigabit) this year.

We take a brief but important look your backup needs and how a multi-tiered approach is important for a higher degree of safety and security.

Finally, we go thru an example of the DHCPatriot's robust API platform showing you how to integrate user account and device management with your billing or CRM software.

FOCUS

Wi-Fi 6 is on the Way!

Does your laptop support 802.11n, 802.11ac, or 802.11a10? If you don't know you're in luck and if you didn't realize one of those protocols was not real, your life is about to get better.

The Wi-Fi Alliance, the body that sets all the standards and protocols for each for of Wi-Fi technology is finally going to drop the archaic numbering and lettering scheme. The next revision of Wi-Fi will be known as Wi-Fi 6 (technically 802.11ax).

"For nearly two decades, Wi-Fi users have had to sort through technical naming conventions to determine if their devices support the latest Wi-Fi," said Edgar Figueroa, president and CEO of Wi-Fi Alliance. "Wi-Fi Alliance is excited to introduce Wi-Fi 6, and present a new naming scheme to help industry and Wi-Fi users easily understand the Wi-Fi generation supported by their device or connection."

The Wi-Fi Alliance certification process is meant to maintain interoperability and backward compatibility and the new naming scheme will go backwards as well.

- Wi-Fi 6 to identify devices that support 802.11ax technology
- Wi-Fi 5 to identify devices that support 802.11ac technology
- Wi-Fi 4 to identify devices that support 802.11n technology

The Wi-Fi alliance will approve new logos and descriptions of the new naming system to be deployed by anyone meeting the standard (basically everyone).

Once this is complete, when you go to the store, you can leave your Wi-Fi decoder ring at home and know that the biggest number is the newest and easily identify what works with it since the great thing about Wi-Fi is that it will always work with the previous versions.

WiGig Wireless Technology

The FCC has recently freed up more of the radio spectrum for use in different applications and to alleviate some congestion on the 2.4GHz and 5GHz bands currently used by today's Wi-Fi technology. WiGig uses the new 60GHz frequency for more capacity and less congestion to achieve speeds of up 5Gbps in real world tests and a 10Gbps capacity is coming out.

WiGig has less range than the 2.4Ghz and 5Ghz bands and cannot penetrate objects or walls. It's current best working range is roughly 30 feet. The technology is not meant to replace Wi-Fi 6 or any future Wi-Fi technology based on the current frequency bands. It's meant to supplement a more robust connection for nearby devices. You would be able to dock a smartphone wirelessly to your computer or connect 4k monitors with this technology. And all the future Virtual Reality headsets can finally start losing their awkward cabling that leads back to the computer powering the device. There would be enough bandwidth to transmit this data wirelessly. Some routers are out right now that are supporting the 1st generation of this technology, but very few consumer devices have the capability.

Be sure to look for this tech to ramp up into more devices throughout 2019 and beyond.

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From the Desk of *"The Network Guy"*

In this, our first newsletter of 2019, we extend our hopes that you and yours had a safe and wonderful holiday season. Along with my First Network Group leadership team, I would like to welcome our new clients and thank you along with our continuing clients who helped make 2018 another successful year serving you.

2019 promises to be another great year while meeting industry challenges.

- In our continuing commitment to maintain continuity with a comprehensive "crash plan", we have contracted colocation in another Western Ohio community to house a new secure backup system. This new system is in addition to the cloned systems that are housed locally in the Central Office of our Local Exchange Carrier - Telephone Service Company. This new remote location features hardware and software separate from our primary remote primary NAS/SAN cloud backup and is based on our new backup service available to customers now.

- The recent announcement about the IBM purchase of Red Hat has raised questions and concerns about the future of this premium preferred platform. Our Randy Carpenter, VP of IT Services is your resource for staying current on any changes regarding Red Hat. Randy runs an expert team to service all of your server and network needs, including Red Hat.

- Our Customer Service department has had a customer inquiry about providing Spanish language service for their customers. We have discussed this service in-house before and it looks like 2019 will be the year we roll out our first Customer Service and eventually Technical Support services in Spanish. Please stay tuned as we make announcements on availability later this year. Meanwhile, if you are interested in Spanish language service for your customers, please touch base with VP Cory Lykins and let him know.

- Starting in October, we saw price increases from our hardware vendors prompted by the change in import tariffs. This will result in a rare price increase in the DHCPatriot user management and accounting platform in 2019. Please contact VP Darren Ankney or Mike Wulfhorst for pricing specifics.

Again, I thank you for your support and all of us at First Network Group wish you a very merry 2019.

Sincerely,

Stephen C. Walter

Stephen C. Walter
The Network Guy
Founder and President, First Network Group, Inc.

Multi-tier Backup Solutions

Server systems have become more consolidated with virtualization. For many small and medium-sized providers, what used to be numerous servers has been condensed down to only a couple of physical servers and a NAS/SAN solution for storage. This has provided significant cost savings and reduction in management costs. It also provides great high availability features, particularly if you have a secondary remote site with mirrored storage.

However, these same consolidations can put all of your data eggs in one basket. Storage systems like NetApp are great for providing the features useful for virtualization. Snapshots and data mirroring are crucial for recovering from hardware or site failures. But, to provide complete data protection, it is important to also have a separate tier for data backups. By having a separate backup application storing the data on separate storage from the primary NAS/SAN, you gain significant protection against file corruption and other issues. By adding another remote site or cloud backups, you can have the ultimate data protection.

First Network Group is now offering standard backup storage systems featuring the FreeNAS operating system. This gives great functionality for backups at a lower cost. By using standard commodity hardware, the cost is further reduced.

These storage systems are not meant to replace standard primary storage systems like NetApp, but are a great supplement to existing high-end systems to enable a robust multi-tier backup solution.

— Randy Carpenter
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DHCP... simple, fast, intelligent.

API Example: User Account / Device Management

This is article is the first in a series about the API functionality available in the DHCPatriot and how it can make the management of your subscribers more streamlined. The DHCPatriot system has a rather extensive API system for automated remote management. Our API documentation is available in the DHCPatriot manual at our website http://www.network1.net.

This article is going to focus on a few of the API calls that enable automatically keeping subscribers updated when subscriber parameters are changed in your billing or CRM software. This example will take from subscriber sign-up through suspension and reactivation and finally service cancelation showing how the API could be used to control all facets from a billing system or CRM software.

This article assumes that the DHCPatriot system is configured for authenticated DHCP using the built-in authentication (rather than an external RADIUS server). It further assumes that the customer premise router is provided by the ISP. You can mix and match here based on your situation.

A subscriber, we will call him Jim, signs up with the service. During the process of adding the subscriber to the billing system, a username and password are created for the subscriber. The billing system uses the API call "Add Customer" (page 86 of the manual) to add the subscriber username and password to the DHCPatriot system's Built-in Authentication interface. Also during this process, a modem is assigned to the customer. The billing system uses the API call "Authenticate Device" (page 81) to add the device to the DHCPatriot system using the MAC address of the modem and the subscriber's username and password. Once the service is installed, the modem will automatically come online with no need to interact with the Captive Portal page—completely plug-and-play!

A few months later, Jim fails to pay his bill on time. The billing system uses the API call "Suspend Customer" (page 87) to suspend Jim's subscriber account. It then uses the API call "Suspend Device" (page 81) to suspend the device leaving a note to contact the billing office.

The next time Jim tries to use the internet, he receives the captive portal screen and the notice to contact the billing office regarding his account and all internet service is blocked. After he has paid his bill and the billing system uses "Enable Customer" (page 87) followed by "Enable Device" (page 83) to restore his service. Jim doesn't need to authenticate at the captive portal screen to get back online.

Several years later, Jim is moving out of the area and cancels his service. The billing system uses "Suspend Customer" (page 87) followed by "Delete Customer" (page 88) to remove Jim's subscriber account. Then it uses "Suspend Device" (page 81) to disable the modem in the DHCPatriot system preparing it for use with a future subscriber.

Throughout the entire period of service neither Jim nor the customer service representatives needed to interact directly with the DHCPatriot system. Jim's account was able to be totally maintained directly from the billing system. Jim never needed to input his username and password on the captive portal screen. Yet the link between allocated IP addresses and Jim's modem was maintained so that abuse complaints could be serviced.

— Darren Ankney
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