

Networking 101

West Virginia Network (WVNET)



Powered by **WVNET**

Booker T. Walton, III, Data Center Manager for WVNET in Morgantown, spoke to an audience at the *WVDE Spring Network Design and TSS workshop* about a product that WVNET is helping to implement in WV schools called URcast. In presenting the product, he outlined some tremendous statistics to show why a product like this could be needed and an improvement to our students' success. Contact Booker Walton at 304-293-5192 x221 or btwiii@mail.wvnet.edu



Booker Walton, III

Here are those statistics:

Homework Gap

- 50% of all students said they have been unable to complete their homework because they didn't have access to the Internet or a computer
- 42% of all students said they received a lower grade on an assignment because they didn't have Internet access
- 50% of teachers in low-income areas said their students' lack of online access at home presents major challenges to working technology into their teaching
- 92% of these teachers say the Internet has a "major impact" on their ability to access content, resources, and materials for their teaching
- 68% say the Internet has a "major impact" on their ability to share ideas with other teachers
- 67% say the Internet has a "major impact" on their ability to interact with parents
- 57% say it has had such an impact on enabling their interaction with students

West Virginia Broadband

- 57% of West Virginia's population have access to wired broadband
- 28% of West Virginia's population have access to less than two wired providers

URcast enables content to be delivered through caching servers at local sites. This negates the need for the students to have an internet connection at home to access the content, materials, and assignments. When the student returns back to the school, their work syncs automatically back to the caching server for the teacher to access. The big goal is to diminish the digital divide that exists for many students due to their lack of access to the internet or the ability to afford that access.

Excerpted and reprinted with permission from Randall Black, TSS, TIS, Educator and EdTech Consultant, <http://RandallBlack.com>; <http://www.randallblack.com/2017/04/wvde-spring-network-designs-and-tss-workshop-fairmont-wv-april-4-5-2017/>

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May 2017

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FROM THE DIRECTOR



Dan O'Hanlon, Director

As I write these words, WVNET is awaiting, along with everyone else, the action of the legislature to pass a budget and then for the governor to sign it. Like all state employees, we worry about a shutdown. We wonder if a compromise will be reached and if WVNET will have some of its budget restored.

These are trying times for our state, our schools and our employees. We hope our leaders find a way to do the right thing by us all.

CUSTOMER SATISFACTION SURVEY WINNER

April showers are supposed to turn into May flowers...well, I don't know what's going on so far this May. In all seriousness, though, congratulations to our new college graduates at various institutions of higher learning around West Virginia. It's always rewarding for everyone involved in higher education to see West Virginia's youth achieve their degrees and move into the workforce as a successful graduate. We hope we have served you well here at WVNET, helping you meet your educational goals.



Booker Walton, III

Each month, WVNET recognizes a customer who took the time to complete our Customer Satisfaction Survey to tell us how we are doing. We thank everyone who takes that extra time to give us advice, kudos, or criticisms that will help us improve our service.

This month we'd like to congratulate our winner, *Deborah Kennemar from Sharpe Hospital*. Ms. Kennemar reached out to the Help Desk and was greeted by Network Operator Tony Masi, who was able to assist her in giving her access back to her system and into her work shift.

Deborah was pleased with Tony's service, mentioning that the *"Technician immediately knew what the problem was and solved it."* While it is his job, Deborah, we still take great pride in the fact that we are able to greatly assist customers and get back into the business of keeping the citizens of West Virginia well cared for.

As always, at the end of every month, we will draw a winner, contact them by email and send WVNET memorabilia in appreciation. Please complete our survey by looking within the incident email of any interaction that you have had with us. All comments are taken seriously and help to improve what we do on a daily basis.

Thank you, *Deborah*, and thanks again to all customers who continue to shape and improve WVNET.

(Guest article by WVNET staff member Booker Walton, III)

PHISHING ATTACK VULNERABILITY FOR WEB BROWSERS CHROME, FIREFOX & EMAIL CLIENT THUNDERBIRD



There's a vulnerability with the web browsers Chrome and Firefox that is related to "[punycode](#)."

In short, vulnerable browsers will see this URL (a site to test browser vulnerability):

<https://www.xn--e1awd7f.com/>

the same as this URL (and phishing attackers are making use of this flaw):

<http://www.epic.com/>

You can read more about this in detail here:

<https://www.wordfence.com/blog/2017/04/chrome-firefox-unicode-phishing/>

The fix for Firefox is to:

In your Firefox location bar, type 'about:config' without quotes.
Do a search for 'punycode' without quotes.
You should see a parameter titled: network.IDN_show_punycode
Change the value from false to true.

The fix for Thunderbird is to:

In your Thunderbird email client, choose Tools/Options.
In the Options dialogue box, click the Advanced tab.
In Advanced, click the Config Editor button.
In the Config Editor, search for 'puny'.
Change the setting for network.IDN_show_punycode from false to true.

The fix for Chrome is to update to version 58.0.3029.81.

(Guest article by WVNET staff members Steven White and Randall Long)

ANTI-SPOOFING

Spoofed email messages appear to come from someone trusted, but in actuality, they are from an unknown third party (replies to these messages look like they are going to someone trusted, but actually go to this third party instead).

When a questionable message is detected, the display name shown to users as the **From:** address is modified to include a special character that can be used for quick reference by the recipient. *Please note that the red and green boxes around the images below are for illustrative purposes only. The **only** indicator that you will see will be in the text of the **From:** line.*

Normal e-mail should show just the person's display name or the name with a STAR next to it. The star indicates that the message was received through an encrypted connection.

[Continued on Next Page...](#)

Examples

Good email, received through unencrypted connection:

i This message was sent with High importance.
From: Gloria Elliott
To: John Doe
Cc:
Subject: Important information needed

Good email, received through encrypted connection:

i This message was sent with High importance.
From: Gloria Elliott [*]
To: John Doe
Cc:
Subject: Important information needed

Bad/questionable e-mail will be modified in one of two ways. If the message sender doesn't match the host that sent the message, then the person's display name is modified with an EXCLAMATION mark (not a STAR). This is a common case where a user claims to be from one email system but is sending from another. Spoofed messages (where the address the message appears to be from is not true), will have the **From:** line modified heavily.

Examples

Bad email was sent from a host that didn't match the sender's e-mail address:

i This message was sent with High importance.
From: Gloria Elliott [!]
To: John Doe
Cc:
Subject: Important information needed

Bad email, spoofed message:

i This message was sent with High importance.
From: <crook@crime.org> on behalf of <gloria.elliott@h
To: John Doe
Cc:
Subject: Important information needed

NOTE: None of these changes will affect the recipient's ability to reply to the message. It is purely for display purposes.

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Click Whitelisting

Another new feature is 'click whitelisting'. Click whitelisting is a false-positive avoidance system. It will provide a link in a bounced messages response received by a sender when their mail is rejected by WVNET's anti-spam solution. The sender can then whitelist themselves by clicking the link and solving a Google ReCAPTCHA, after which they can **resend** their message and it will be accepted.

This is an example of the body of a bounced message:

Date/Time : Mon, 11 Jul 2016 14:25:49 GMT

ID : 4064DB9E-FF87-4D84-ABEA-91C93132C7DB.1

Host/IP : [undefined]

Auth User: :

Sender : <>

Recipient(s): postmaster@mgwrk01-mgw.wvnet.edu

Detail : Error: Some recipients failed: [<postmaster@mgwrk01-mgw.wvnet.edu>](mailto:postmaster@mgwrk01-mgw.wvnet.edu)

postmaster@mgwrk01-mgw.wvnet.edu: 550 Poor GBUdb reputation for [129.71.2.214]; for whitelisting click: <http://whitelist> URL

Adding '[SPAM]' To the Subject Line

WVNET's email filtering solution works on an industry standard spam scoring of 0 to 10. A number of factors within the application determines these scores. By default, WVNET's email filtering solution considers a message to be Spam if it scores ≥ 5 . If a message matches this value, it will tag the subject with [SPAM] and sets a message header value of X-Spam-Flag: to YES. This header value can then be used by the email service, such as exchange, to place the message in the appropriate location (such as a Junk mail folder) as determined by the recipient's email administrator. Unless the message scores higher than the reject score, it will still be delivered. The reason for this is that messages between 5 and our reject threshold are considered 'low scoring' and have a high probability of being valid email.

Forward Suspected Spam for Inspection

WVNET email filter customers may manually submit suspected Spam for inspection by forwarding the message to spamsample@fsl.com. This is an account that is monitored by the manufacturers of the email filtering product used by WVNET. It's **crucial** that the message is forwarded with full headers.

Here are instructions for two common email clients (Outlook 2013 and Thunderbird) to forward a message with full headers

How do I forward an email with full headers in Outlook 2013?

Start a new message.

Select Attach Item from the toolbar.

Select Outlook Item.

Browse to the message you are inquiring about, and select it to attach it.

Or

Start a new message.

Move and resize the window so you can see your messages list.

Select the email that you want to forward.

Drag it and drop it into the body of your new message

How do I forward an email with full headers in Thunderbird?

Thunderbird users have it easy: Just right-click on the spam message in their message pane and then select "Forward -> As Attachment.

How do I forward an email with full headers for other clients?

For issues with other clients, please contact your IT staff for assistance.

(Guest article by WVNET staff members Steven White and Randall Long)

IMPROVING OUR DATA CENTER FOR YOU!



In late April, WVNET installed a new Computer Room Air Conditioning (CRAC) condenser unit for Unit 5 within the data center. This improvement will allow us to continue to provide a proper computer room environment for the systems hosted there. This is the first of several improvements that will be coming over the course of the summer to our data center. We will chronicle the changes within the newsletter.



(Guest article by WVNET staff member Booker Walton, III)

FAREWELL WVNET INTERN COURTNI HELMICK



WVNET's latest intern has just graduated with her Masters in Public Administration and is looking forward to beginning her professional career.

Courtnei Helmick completed her internship on May 6th and is receiving her Masters from WVU on May 14th. She worked with her intern mentor, Booker Walton, to help distribute information about URcast Network around the State of West Virginia, gaining buy-in from the K-12 educational community.

We wish Courtnei the best of luck in her future endeavors and thank her for her contributions at WVNET. *(Guest article by WVNET staff member Booker Walton, III)*

WHALE OF AN AWARD

Networking Operations Center staff members are the latest recipients of WVNET's Moby award. The Moby is presented from one staff member to another for "doing a whale of a good job."

In passing the whale on to Network Operations Center staff, Bob Burton (in picture on left; Mike McDonald, NOC, on right) remarked, "I haven't been here long, so I have not had a chance to work with many others outside of Systems. But I have worked with NOC/network operators. I appreciate that they head off many calls and get user problem info before the call makes it to Systems. And, also, that they keep us aware of after hours server issues before they become more severe server problems. It's nice to wake up and not come in to servers crashing and applications failing."



(Guest article by WVNET staff member Fran Barnes)

AWARD WINNING STAFF MEMBER



Dianne Sisler

WVNET Applications staff member Dianne Sisler attended the West Virginia Association of Student Financial Aid Administrators (WVASFAA) 2017 Spring Conference, April 26-28, at Canaan Valley Resort. The big topic on the minds of financial aid professionals was Course in Program of Study (CPOS). It has always been a requirement to only pay federal and state aid to students for courses that will count in their program of study. A student taking a non-program course can lose some of their funding if those credit hours cause a change in enrollment status (full time, half-time, etc.). While this has always been the law, and some schools have attempted to manually review every course schedule, technology to feasibly enforce it is just now becoming available. In addition to the logistics of degree audits and Banner solutions to gather and use the information, discussion revolved around how schools plan to notify students in time to modify their course schedules to prevent the loss of aid. We much prefer that the student receive a warning while they are registering rather than

finding out when it's too late to make a course adjustment. Current releases of Banner and DegreeWorks should put us on that path.

WVASFAA was formed fifty years ago to allow professionals at the schools to share ideas and to provide training opportunities. In recent years, we have become involved in credentialing through a program offered by the National Association of Student Financial Aid Administrators (NASFAA). NASFAA University currently offers credentials in seventeen different areas of financial aid administration. A large number of financial aid officers in West Virginia have earned at least one, and many have more than one, making us the third most credentialed state in the U.S. Our association celebrates every fourth credential with a karate belt. Dianne Sisler has received her black belt for having sixteen credentials so far.

Since the theme of this conference was to celebrate the 50th anniversary of WVASFAA, there was a celebratory dinner with past presidents in attendance. Dianne remarks, *"It was a pleasure to visit with so many who had an impact on me personally or professionally."*

Dianne also received a more official reminder that she has a 30-year history with financial aid and with WVASFAA in the form of the beautiful plaque pictured. In conclusion, Dianne comments, *"I couldn't be prouder to represent an association whose reason for being is to help college and university professionals better serve their students."*

(Guest article by WVNET staff member Fran Barnes)





West Virginia Statewide Technology Conference 2017 will be held at the Morgantown Marriott at Waterfront Place and the Morgantown Event Center in Morgantown, West Virginia, on July 18-20, 2017. Visit the conference website for additional information: wvstc.com

Vendor and attendee registration are now open:

<http://mgr.wvstc.com/register/vendor> and <http://mgr.wvstc.com/register/attendee>

WVSTC 2017 Call for Proposals may be viewed here:

<http://mgr.wvstc.com/conferencesoftware/call-for-prop/#/form/introduction>

The WVSTC 2017 conference committee welcomes proposals for presentations on a wide range of topics including those of interest to K-12 education, higher education, and state agency personnel. Presenters should plan for 40 minute presentations with an additional 5-10 minutes of questions and answers. *All proposals must be submitted via the conference website no later than April 29, 2017. Conference presenters may attend WVSTC 2017 for a discount if the proposal you submit is accepted by the Conference Committee. Pre-conference fees are not discounted. You will receive an email notice if your proposal is accepted (limit one discounted admission per presentation).*



Shannon McClintock Miller

Opening Keynote on Tuesday, July 18, 2017 at 1:00pm is Shannon McClintock Miller whose topic of discussion is *"Let Them Be Heard, Giving Our Students a Voice."*

Closing Keynote on Thursday, July 20, 2017 at 11:30am is Robbie Melton, PhD, whose topic of discussion is *"The Emergence of The Internet of Everything (IoE) Smart Connected Devices and EduGadgets for Real Time On-Demand Transformation of Education."*



Robbie K. Melton, Ph.D.

This year's conference offers twelve pre-conference sessions to choose from on Monday (all day), Monday afternoon or Tuesday morning: <http://wvstc.com/wp-content/uploads/2017/04/Pre-conference-Descriptions-2.pdf> Space for pre-conference sessions is limited, so register soon.

You may view the tentative program schedule here:

<http://wvstc.com/wp-content/uploads/2017/03/WVSTC-2017-TENTATIVE-Program-Schedule.pdf>

For questions or assistance regarding this conference, contact Karen Saffron, 304-293-5192 x249, or ksaffron@mail.wvnet.edu

(Guest article by WVNET staff member Fran Barnes)



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**ASSISTIVE TECHNOLOGY SHOWCASE —
 POWERFUL EXERCISE FOR EVERYONE!**

The Walk 100 Miles in 100 Days annual walk began on April 17 and ends on July 25. New this year is 'The Ultimate Challenge!' This means that walkers can turn in unlimited miles per day and per week.



WVNET has 7 participants (6 staff members and 1 spouse) who, to date, have walked a whopping 389.9 miles! Walkers are currently in Week 4 of the walk.

The goal of Walk 100 Miles in 100 Days is to get participants excited about exercise and to walk at least 1 mile (about 2000 steps) every day for the next 100 days. Walking is a great form of exercise that is easy to do and can be done almost anywhere.

According to the Mayo Clinic, for most healthy adults, the Department of Health and Human Services guidelines recommend at least 150 minutes of moderate aerobic activity, 75 minutes of vigorous aerobic activity, or an equivalent combination of moderate and vigorous aerobic activity a week. Physical activity can be spread throughout the week. The guidelines also recommend strength training exercises of all the major muscle groups at least twice a week. As a general goal, aim for at least 30 minutes of physical activity a day. If you can't set aside that much time, try several 10-minute sessions throughout the day.

Keeping a record of how many steps you take, the distance you walk and how long it takes can help you see where you started from and serve as a source of inspiration. Group participation, *as in Walk 100 Miles in 100 Days*, is a great morale booster. Record these numbers in a walking journal or log them in a spreadsheet or a physical activity app. Another option is to use an electronic device such as a pedometer to calculate steps and distance.

(Guest article by WVNET staff member Fran Barnes)



Save the date!

WVHETC 2017 — October 2-3, 2017
 Morgantown Marriott at Waterfront Place
 Morgantown Event Center, Morgantown, WV

Vendor Registration is now open:
<http://mgr.wvhetc.com/register/vendor>

Deadline for Concurrent Session Proposals—August 28

Call for Poster Sessions—to be announced

More info: wvhetc.com

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