

Our Winter 2024 Newsletter

February 14, 2024



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WVNET OFFICES CLOSED

Washington's Birthday - February 19, 2024

For over 45 years, WVNET has strived to connect the people of West Virginia. For decades we've worked hard to stay at the forefront of bringing fast, reliable internet across the state. We take pride in managing the networks that link West Virginia's

schools, universities, agencies and non-profits.

In this winter newsletter, we're excited to update you on new strides we're making to expand connectivity in the Mountain State. We've outlined major infrastructure upgrades that will increase available bandwidth and accelerate speeds – critical advances to meet our state's growing digital needs. As our Executive Director Steven White explained, "Our continuous network evolution showcases our enduring commitment to the students, educators, agencies and residents who rely on us."

However, greater connectivity also brings greater vulnerability. We're working hand-in-hand with state and national cybersecurity leaders to anticipate emerging threats and harden defenses. As threats like phishing and ransomware attacks grow in scale and sophistication globally, we urge our customers to join us in remaining vigilant. Please consider implementing protocols like DKIM and DMARC to secure email domains, conduct phishing awareness training, and require multifactor authentication. Together we can keep West Virginia safe.

We're also excited to share the work our development team is doing to make our online systems more accessible across generations. As more services and learning shift digital, we aim to ensure all Mountaineers can stay connected.

The past four decades have seen immense technological change. But our mission remains the same – serving the people of West Virginia through technology. We at WVNET take pride in the pivotal role we play in empowering education, powering government, and connecting communities across the Mountain State.



UPDATE FROM THE EXECUTIVE DIRECTOR!

A major focus area constantly under review is continuing to be cybersecurity diligent. WVNET continues to work with multiple agencies to ensure that information is shared. This is being achieved by working with Chief Information

Officers (CIO's) across the state and Cybersecurity and Infrastructure Security Agency (CISA) representatives to collaborate and provide cybersecurity reports, especially for those threats that have been actively seen across the state. This sharing among peers helps to ensure we all learn from each other and grow stronger.

This year is also looking promising for continued upgrades. In January, thanks to congressional funding, we were able to install a new uninterruptable power supply for the WVNET datacenter which ensures that systems remain operational in the event of power loss. We are also in the process of finalizing upgrades to our network connectivity that will provide an exponential increase over the current configuration. As we start the new year, it is important that we continue to embrace new goals and strive to ensure that WVNET is providing the best possible services for our customers.

And on a final note, communication is a vital key to daily operations. This includes conversations occurring at every level within our organizations. We all rely heavily on email for communication. This year, several entities (Google, Yahoo) are working to ensure emails are not being hijacked by implementing DomainKeys Identified Mail (DKIM) and Domain-based Message Authentication (DMARC) as requirements for email domains. WVNET has been deploying these requirements for multiple domains and we recommend our customers consider implementing them as well for applicable systems.

JOIN OUR TEAM!

WVNET is seeking to hire a new [TELECOMMUNICATIONS NETWORK SPECIALIST 3](#) (*on-site work required, hybrid eligible*) to analyze, design, configure, install, deploy and troubleshoot LAN, WAN, Campus networks (mainly Cisco routers, switches, firewalls), associated wireless infrastructure (Extreme, Meraki), VOIP solutions

(CUCM, SIP trunks, UCaaS), System Monitoring (SolarWinds NPM) and remote access (VPN ASA, AAA, TACACS, RADIUS), cloud (OCI, Azure, AWS) and associated ongoing maintenance and updating of related hardware and software. Salary range is \$70,000 – \$80,000 and commensurate with experience. For full job details, qualifications, etc. and to apply, visit: <https://wvnet.edu/news/careers/telecommunications-network-specialist-3/>

SCHEDULE OF RATES

Effective July 2023, WVNET has a new schedule of rates.

Visit <https://wvnet.edu/resources/schedule-of-rates/> to find out more.

DEPARTMENT UPDATES

CLIENT SERVICES

How Are We Doing?

The Client Services department at WVNET is here to help you with Banner, DegreeWorks, Brightspace, Web and Development services. Our dedicated staff is here to answer questions, as well as to solve problems. We strive to provide a high level of service. To ensure we are doing our best, we have a survey available to enable you to share your experience with us and let us know what we are doing well and what we could be doing better.



Your satisfaction is very important to us. WVNET has implemented a customer satisfaction survey link in our OZ ticketing system. When a help ticket is closed, the reporter will receive an email update with a link to allow customers to fill out the survey, and, if desired, request a call from a manager. To access the form in the OZ email, click on the link.

If you're not using OZ and you wish to take the survey, please feel free to complete the survey at <https://wvnet.edu/satisfaction-survey/>. We look forward to hearing from you. Have questions? Contact Harmony Garletts at **hgarletts@staff.wvnet.edu**.

[Customer Satisfaction Survey](#)

Brightspace Creator+

As the new year gets under way, the Distance Learning team is launching a new tool in Brightspace called Creator +. This tool is a seamless add-in to the Brightspace Learning Management System (LMS). As many of our Brightspace schools prepare for this implementation, we are excited for the opportunity to work with our customers to transform course content into dynamic content that will boost student

engagement. Between now and June 30th, we will be holding working sessions for faculty to learn to use the new tools included in Creator +. For additional information, please contact Harmony Garletts at hgarletts@staff.wvnet.edu.

DEVELOPMENT UPDATE

Serving Older Users: Why Web Accessibility Matters for Education and Government

When providing online services and web-based learning, education and government institutions must ensure they don't exclude older adults. Age-related declines in vision, hearing, dexterity, and cognition can pose barriers to accessing digital content, and the 65+ demographic continues to grow rapidly as people live longer.

Following web accessibility standards proactively makes websites, applications, and authoring tools usable for more people.

It is vital for public services like healthcare, taxes, and social welfare, to consider these segments of the population in digital systems design. All taxpayers should be able to utilize government resources online regardless of ability or age.

Similarly, education strives for inclusion. Distance learning continues to expand and offer greater opportunities throughout the state; however, ensuring learning management systems and online content follow accessibility principles enables older students to participate fully. Designing accessible websites and authoring tools allows older guest lecturers, teachers, and professors to contribute their expertise and remain professionally active.

Age diversity strengthens industries and communities. Following web accessibility guidelines helps education and government sectors live up to commitments to serve all citizens, making communities richer. Prioritizing accessibility for older users isn't just considerate – it's sound policy and practice.

Here are some helpful tips tailored for assisting age-related disabilities:

Support Aging Vision

- Allow font size customization up to 200% without loss of content or function
- Use high contrast colors and avoid purely visual cues
- Provide adequate color contrast (WCAG conformant)
- Design simple, clean page layouts that reduce visual clutter

Accommodate Declining Dexterity

- Make clickable elements large and spaced apart
- Ensure forms and other functionality work with keyboard access
- Provide adequate time limits and ways to request more time

Compensate for Reduced Hearing

- Allow audio and multimedia content volume control up to 200%
- Provide transcripts for prerecorded audio content
- Don't rely solely on audio cues; use captioning and other redundancies

Address Cognitive Changes

- Avoid long paragraphs and blocks of text
- Break up complex processes into clear, logical steps
- Use plain language and provide guidance within text
- Minimize distractions and avoid crowding pages
- Remind users of previous steps to aid memory

The Web Accessibility Initiative's (WAI) guidelines address functional limitations associated with both disabilities and aging. Implementing criteria from Web Content Accessibility Guidelines (WCAG), User Agent Accessibility Guidelines (UAAG), and

Authoring Tool Accessibility Guidelines (ATAG) improves access for older cohorts.

WCAG compliance tackles many barriers introduced by age-related disability. But consciously addressing common vision, motor, hearing and memory issues older adults face takes websites a step further in accessibility, ensuring education and government sites don't leave them behind.

Reference: <https://www.w3.org/WAI/older-users/>

TELECOM UPDATE

Internet Speeds through the Years

Since 1975, WVNET has played a pivotal role in providing centralized computing services to all public higher education campuses throughout West Virginia. Later expanding to support K12, state and local government bodies as well as non-profits; the evolution of WVNET Telecommunications continues to mirror the broader advancements in networking technologies.

In the 1970s, the landscape of networking underwent a significant transformation with the proliferation of Local Area Network (LAN) and Wide Area Network (WAN) technologies utilizing packet-switched methodologies.
https://en.wikipedia.org/wiki/Packet_switching

LANs were initially designed to interconnect computers and peripherals within confined areas like schools, offices, or campuses. The subsequent connection of LANs through WAN technologies paved the way for the integration of these networks into the burgeoning Internet.

During this period, various LAN technologies vied for standardization, but Ethernet, developed around the same time as the Internet in 1973-74 at Xerox PARC, emerged as the dominant and ubiquitous LAN standard.
<https://en.wikipedia.org/wiki/Ethernet>

For nearly 50 years, as technology advanced, WVNET Telecommunications adapted to the changing landscape and escalating data transmission speeds. In the early days, bandwidth and throughput was measured in bits per second (bps), and typical home and small office modems operated at speeds ranging from 300 to 56,000 bps. To serve WV's rural communities, WVNET established a distributed statewide dialup modem pool, accessible to anyone with a telephone land line. At its height this modem service had over 18,000 customers. K12, College and University staff and students were, for the first time in history, able to access the Internet and school/work-related resources. This was truly the beginning of The Information Age for most West Virginians.

Technologies such as T1 through T5 (1.544 to 400Mbit/s) were created to push more and faster data across telephone lines, with DSL (Digital Subscriber Line) allowing up to 140 Megabit per second to home users. Channeling and multiplexing were introduced as methods to send multiple signals or streams of information over a single, shared medium. Eventually, phone lines were abandoned for dedicated point-to-point circuits using coaxial cables and fiber optics.

Today, the average WVNET customer typically connects via a 1 Gigabit per second (Gbps) connection (1,000,000,000 bps), with some utilizing multiple 10 Gbps (10,000,000,000 bps) connections.

To meet the ever-growing demand for bandwidth and improved throughput, WVNET is on the verge of completing its Transit Ring upgrade. This upgrade signifies a shift from multiple bundles of 10 Gbps circuits to multiple 100 Gbps circuits. This enhancement will ensure more bandwidth availability and faster throughput for data transmission. Having these larger data 'pipes' available will also mean increasing bandwidth to and from our dual upstream ISPs will take just hours instead of weeks.

The continuous evolution of WVNET's infrastructure showcases its commitment to meeting the ever-expanding connectivity needs of its customers in West Virginia.

Systems Update

Cybersecurity Awareness

Phishing continues to be the top choice for cyber attackers.

Phishing involves deceiving people online to gain access to information. It tricks them into giving sensitive details using fake messages, often pretending to be important people or falsifying urgent situations. There are many different types of phishing but here are some top threats to look out for:

- **Spear Phishing:** Spear phishing targets a specific group or type of individual such as a company's Human Resources department.
- **Whaling:** Whaling is like spear phishing but is an even more targeted type of phishing that goes after the "whales" of an organization such as the CEO, CFO, or any other CXX employee.
- **Smishing:** Smishing is an attack that uses text messaging to execute the attack.
- **Search Engine Optimization Poisoning:** With this method, hackers work to become the top result on a search engine. Clicking the link within the search engine then directs you to the hacker's website where they can then steal your information as you interact with the site and/or enter sensitive information.

Some ways you can protect yourself:

- Don't rush to click on links or files. Review all links and files carefully.
- Double-check messages with another means of verification such as contacting the supposed sender via another means of communication.
- Don't post too much information online.
- Be very careful with emails you believe are suspicious.
- Visit websites directly instead of clicking links received by email.
- Use multi-factor authentication wherever possible.
- Use a password manager for generating and storing unique passwords.

At WVNET we utilize a few additional methods for helping to keep ourselves protected from phishing attacks such as a robust email filtering system as well as doing regular simulated phishing attacks and training for all staff.
