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A Message from Bobbie
A message from NVTC President & CEO Bobbie Kilberg.

Perspectives
A forum for leaders of NVTC member companies to address colleagues and the business community at large.

Member and Council News
News, developments and events from NVTC and its members.

Updates from the NVTC Veterans Employment Initiative

NVTC Research
NVTC recently published a new data analytics infographic highlighting new growth opportunities and Greater Washington’s data assets.

NVTC’s 2017 General Assembly Session Wrap-Up
A round up of the specific legislation of interest that NVTC advocated for on behalf of the technology community during the Virginia General Assembly Session.

NVTC Hosts Inaugural Capital Data Summit
On Feb. 15, NVTC hosted the inaugural Capital Data Summit to highlight our region’s unmatched set of data analytics assets.

Past is Prologue
Wonder where the cloud, cybersecurity and the Internet of Things are heading? Look to the network that existed before there was an Internet—and to the future of connected tech.

By Mark Toner

Q&A with Congressman Rob Wittman
Congressman Rob Wittman (VA-01) discusses military readiness, technology’s role in defense modernization, his outlook on H1B visas and how to grow the future workforce.
Addressing the Region’s Talent Demands

By Bobbie Kilberg

In conversations with members of the region’s technology community over the last two years, we have heard often about the challenges employers are facing in finding enough qualified talent for the most critical growth areas. In response to this need, NVTC recently launched the NVTC Tech Talent Initiative, an expanded effort to address the workforce challenges of NVTC members and the Greater Washington technology community.

This initiative includes researching the most in-demand positions and skill sets of companies in the local technology community, mapping these skill set needs to academic and training opportunities, and communicating those needs to educators and potential employees. In addition, through the initiative, NVTC will expand connections between technology employers and the academic community and curate workforce development and assistance opportunities that our member companies can leverage in their efforts to recruit, hire, retain and upskill their workforce.

In December 2016, NVTC published the Greater Washington Technology Workforce Needs Assessment (www.nvtc.org/NeedsAssessment), a report that addressed the specific, future workforce needs of regional technology employers. The report outlined the most in-demand functional areas and the skills needed to support occupations within those high-demand areas. We learned that software development and cybersecurity were the two most in-demand functional areas among area technology employers. Perhaps more surprisingly, we learned that the soft skills of “written and verbal communication” and “problem solving and critical thinking” were highlighted as most important in technology employers’ hiring decisions.

We are now convening an Employer Collaborative to serve as the voice of Greater Washington tech employers in interactions with our region’s talent providers. This group, made up of companies of all sizes and markets, will identify shared workforce needs in software development and cybersecurity and will be applying supply chain management best practices to develop a regional workforce that is aligned to businesses’ needs. As the results of this work proceed, NVTC will communicate the needs of technology employers to local talent providers and potential employees.

In addition to the employer collaborative, we are working with national organizations like the Business-Higher Education Forum on cybersecurity competencies and curricula, and with local partners like Northern Virginia Community College and the SkillSource Group to connect companies to programs that will help them recruit, hire, retain and upskill their workforce.

Through the NVTC Tech Talent Initiative and all the activities that are part of this effort, we hope to facilitate the development of a regional talent pool that has the skills and competencies local businesses need and, ultimately, to have a measurable impact on the workforce challenges of the region’s technology community.

There is still an opportunity for your company to help drive the workforce agenda in our region. Contact NTVC Research and Strategic Initiatives Manager John Shaw at jshaw@nvtc.org to learn more.
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Join NVTC at the NVTC CXO Auction on April 20 to win one-on-one meetings with C-level leaders from the region’s technology business community. Auctioned executives are CEOs, CTOs, CIOs, CFOs and CMOs who are looking to meet qualified vendors for future projects. Winning bidders are guaranteed a meeting with their auctioned executive within 12 months.

EXECUTIVES BEING AUCTIONED INCLUDE (as of Mar. 9):

- Brad Antle and Tom Ferrando, SalientCRGT
- Kenneth Asbury, CACI International
- John Backus, NAVVC
- Rodney Blevins, Dominion
- Teresa Carlson, Amazon Web Services
- Kelly Clark, MAXIMUS
- Marilyn Crother, Hewlett Packard Enterprise
- Karen Dahut, Booz Allen Hamilton
- Ted Davies, Altamira Technologies Corporation
- Nelson Ford, LMI
- Timothy Hurlebaus, CGI Federal
- Sudhakar Kesavan, ICF
- Curt Kolcun, Microsoft
- Paul Leslie, Dovel Technologies
- Joe Martore, CALIBRE Systems
- Terri McClements, PwC
- Rich Montoni, MAXIMUS
- Tony Moraco, SAIC
- Dan O’Neill, SunTrust, Inc.
- Carolyn Parent, LiveSafe
- Larry Prior, CSRA
- Jason Providakes, The MITRE Corporation
- Brian Roach, SAP North America
- James Schenck, PenFed Credit Union
- Gary Shapiro and Karen Chupka, CTA
- Todd Stottlemyer, Inova Center for Personalized Health
- John Wood, Telos Corporation

April 20, 2017
6:00 p.m. - 8:00 p.m
The Ritz-Carlton, Tysons Corner

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The EPICENTER of the Data Revolution

By Christopher P. Eldredge, President, Chief Executive Officer and Director, DuPont Fabros Technology (DFT)

When Internet2 was founded 20 years ago, who would have thought that Northern Virginia would one day be at the epicenter of the data revolution that is powering our country’s research and education efforts? Yet here we are, with local universities, businesses, healthcare organizations and other institutions accounting for a vast amount of the country’s Internet traffic and data.

Data is the lifeblood of these organizations, which are consuming more technology and bandwidth and receiving more information, from more places, than ever before. Big data has made it possible for researchers at The George Washington University to dig deeper into genomics research, while other local colleges and universities are operating 100G networks thanks to a Virginia Tech-led consortium that connects regional and federal research networks.

Outside the academic realm, enterprises are using and housing data at astronomical rates to deliver good on technology promises that were once the stuff of science fiction movies. Companies are using big data to do everything from making better customer decisions to fighting cybercrime.

The demand to house this data has sent the market for modern, cloud-ready, highly scalable wholesale data centers skyrocketing. Research firm Research and Markets estimates that the global data center construction market will grow to $22.73 billion by 2019.

Much of this growth is happening right here in our own backyard, particularly in Ashburn, Va. This should come as no surprise; more than 70 percent of the world’s Internet traffic passes through Ashburn. As a result, this extraordinarily connected community has become a logical hub for data centers, and led the Loudoun County Department of Economic Development to dub the region “Data Center Alley.”

The need in Ashburn is readily apparent, which is why DFT Data Centers chose the town as home to six of our largest data centers, with a new one on the way this spring and future builds being planned. The Ashburn centers—as well as those in Reston and Gainesville—are modern, efficient facilities that can be customized to meet organizations’ unique real-time compute and storage needs. All are designed to offer unparalleled reliability, security and power.

Even as we expand our footprint elsewhere in North America, the Washington, D.C. area is where DFT’s roots lie. It’s where we started in 1997 as a small company focused on commercial development, became a publicly traded company in 2007, and grew to become the largest wholesale data center provider in Northern Virginia today. Over the years we’ve benefitted greatly from the competitive power rates and attractive tax incentives for our customers. But we’ve also benefitted from the highly educated workforce and immense amount of talent that this area provides.

Given all of these factors, it’s expected that Northern Virginia will continue to serve as the barometer for data demands in our increasingly cloud-based world. We at DFT are happy to stand with our community and other members of the Northern Virginia Technology Council to ensure that this region continues to play a vital role in the next phase of Internet communications.
NGA Executive Director and CEO Scott Pattison Addresses NVTC Board

National Governors Association (NGA) Executive Director and CEO Scott Pattison made a presentation and engaged in a discussion at the meeting of the NVTC Board of Directors on Jan. 17 at the Inova Center for Personalized Health in Falls Church. Pattison shared updates on the NGA’s cybersecurity initiative.

Virginia Governor Terry McAuliffe is chairman of the NGA and Pattison discussed the Governor’s prioritization of cybersecurity issues as a top NGA initiative, which puts the states and governors at the center of finding solutions to the nation’s expanding cyber threats. Throughout his remarks, Pattison stressed the importance of cybersecurity in protecting the health and safety of citizens and their data and as an economic driver for the states.

Pattison shared how the NGA’s cybersecurity initiative provides a framework for states to develop their cybersecurity strategy. Key components of the framework include creating the strategy, establishing a strong cybersecurity governance structure, developing an incident response framework, addressing cybersecurity workforce development and allocating state cybersecurity budgets to highest risk assets.

NGA Program Director, Homeland Security & Public Safety Division, Tim Blute highlighted additional NGA cybersecurity resources for the states, including the NGA’s cybersecurity summits that offer state teams the opportunity to discuss emerging cybersecurity issues and cybersecurity best practices and to share their accomplishments.

Rolls-Royce North America’s Marion Blakey Discusses Aerospace Advancements at Titans

On Dec. 15, over 380 members of the region’s technology community gathered at The Ritz-Carlton, Tysons Corner for a Titans breakfast featuring Marion Blakey, president and CEO of Rolls-Royce North America, a leader in advanced manufacturing. During the event, Blakey discussed Rolls-Royce’s defense and aerospace expertise, provided her insights into the future of federal defense spending, and highlighted the emerging technologies that are transforming the aerospace industry.

Blakey began her address by sharing her predictions for what the new presidential administration will mean for the federal budget and defense spending. She believes that the administration will focus on eliminating the sequestration budget cuts and implementing common sense defense reforms in order to rebuild the military. She expressed her belief that all government contractors must be good stewards of taxpayer dollars and focus on providing good quality at reasonable prices.

Blakey shared her predictions for the future of federal defense spending and highlighted the emerging technologies that are transforming the aerospace industry. She then turned the podium over to Rolls-Royce North America Executive Vice President and General Counsel Thomas Dale to provide additional insights.

Dale explained how advancements in one field can end up spurring innovation in other industries. He provided updates on Rolls-Royce North America’s work in areas like personal aircraft (small enough to fit in your garage), hybrid electric powered-planes, supersonic travel and autonomous aircraft. He also highlighted work being done by NASA and the FAA to address air traffic management through both technology and regulation.
including a new web-based flight management system that allows drones to communicate with each other and air traffic control.

Big data is another area Dale emphasized as crucial to advancements in aerospace. He shared how Rolls-Royce is collaborating with Microsoft to leverage the use of advanced analytics, cloud computing and the Internet of Things to collect and analyze data from airline engines to reduce costs, improve performance and provide better value. Dale closed the presentation with a discussion on the importance of STEM education in addressing the talent needs of the aerospace industry.

During a Q&A session with the audience, Blakey discussed how Rolls-Royce relies on universities as incubators to drive innovation. She shared the example of the Commonwealth Center for Advanced Manufacturing (CCAM), where Rolls-Royce is partnering with the University of Virginia, Virginia Tech and other companies to jumpstart advancements in manufacturing in an open and collaborative environment where the company maintains ownership of the IP. Blakey also discussed her personal and professional background and how a passion for safety and policy issues has shaped her career.

NVTC and NOVA Host Briefing for Members of Northern Virginia General Assembly Delegation

On Dec. 8, NVTC and Northern Virginia Community College (NOVA) hosted a briefing for Northern Virginia members of the General Assembly to provide updates on the status of several important regional initiatives in advance of the 2017 General Assembly session. The briefing, which was attended by 13 legislators and 10 legislative aides, began with a welcome from NVTC President and CEO Bobbie Kilberg.

Next, Greater Reston Chamber of Commerce President Mark Ingrao, on behalf of the Coalition of Northern Virginia Chambers, a group comprising 12 local and jurisdictional chambers from across the region, provided a status update on the work that the Coalition, NVTC and other stakeholders have put forward in establishing a Northern Virginia Regional Council under GO Virginia, a bipartisan and business-led effort focused on creating economic incentives for localities and regions to collaborate together to make meaningful progress on infrastructure, economic development and other regional investments.

Inova Center for Personalized Health (ICPH) CEO and NVTC Chairman Todd Stottlemyer then briefed the group on the status of the ICPH and also its Global Genomics and Bioinformatics Research Institute. Stottlemyer discussed how ICPH leverages Virginia’s life sciences and health assets, the data analytics and cyber capabilities of our technology sector, and the strengths of our universities to drive innovation and economic growth. He also discussed ICPH’s mission of advancing research in core centers of excellence to enable access to tailored treatments that maximize individual wellness, drive outcome improvements and develop evidence-based care delivery innovations.

NOVA President Scott Ralls then spoke about NOVA’s workforce initiatives, including its cybersecurity program, which has grown 20x over the past three years and now has over 800 students enrolled, and its implementation of the “New Economy Workforce Credentials Grant Fund” where NOVA is working with NVTC and other business-community stakeholders to identify high demand technology jobs in this region and to provide students with the credentials needed to fill those jobs.

Closing the briefing, Center for Innovative Technology (CIT) President and CEO Ed Albrigo updated the group on CIT’s MACH37 Cyber Accelerator, the CIT GAP Funds program and CIT’s other initiatives that accelerate commercialization, support new technology startups and attract and leverage private sector investment capital. Albrigo shared that MACH 37 has launched 40 companies over the past 3 years; that the CIT GAP Funds has leveraged $416 million in private sector investment using $18.2 million in state funds; and that CIT programs have led to the creation of more than 2,000 high wage jobs across Virginia - with many more on the way.
NVTC Technology Executives Visit Policymakers in Richmond

Following the start of the 2017 Virginia General Assembly session, members of the NVTC Board of Directors and NVTC member companies spent Jan. 31 in Richmond discussing NVTC priorities with policymakers.

NVTC participants included NVTC President and CEO Bobbie Kilberg, Inova Center for Personalized Health CEO and NVTC chairman Todd Stottlemyer, NVTC Board member Jim Duffey, Telos Corporation Manager of Government Affairs Robert DuPree, Cox Communications Vice President Kathryn Falk, Northern Virginia Community College Director of Government Affairs Dana Kauffman, NVTC Board Member John Mendonca, SunTrust Bank Greater Washington and Maryland Division President and CEO Dan O’Neil, Northern Virginia Community College President Dr. Scott Ralls, and CSRA, Inc. Vice President of Government Relations Alexandra Veitch.

The group met with Lt. Governor Ralph Northam, Attorney General Mark Herring, Speaker of the House Bill Howell, Senate Democratic Leader Dick Saslaw, Delegate John Bell, Delegate Glenn Davis, Delegate Chris Jones, Delegate Nick Rush, Senator Bryce Reeves, and Senator Jill Vogel.

▲ NVTC executives met with policymakers in Richmond on January 31st. Back row, from left: NVTC VEOI Director Steve Jordon, Cox Communications Vice President Kathryn Falk, NVTC Board member Jim Duffey, NVTC Board Member John Mendonca, Northern Virginia Community College Director of Government Affairs Dana Kauffman, CSRA, Inc. Vice President of Government Relations Alexandra Veitch, and Telos Corporation Manager of Government Affairs Robert DuPree. Front row, from left: NVTC Vice President of Policy Josh Levi, SunTrust, Inc. confirmed for CXO Auction President and CEO Dan O’Neil, NVTC President and CEO Bobbie Kilberg, Virginia Attorney General Mark Herring, NVTC Policy Manager Troy Murphy and Northern Virginia Community College President Dr. Scott Ralls.

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Celebrate the Region’s Top CFOs!

Now in its 21st year, the NVTC Greater Washington Technology CFO Awards ceremony honors outstanding CFOs for exceptional achievements and excellence in promoting the region’s technology community. Join NVTC and Greater Washington’s technology leaders on June 5 to recognize the region’s top CFOs.

We’ll be honoring winners in the following categories:

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- Division/Group CFO of the Year

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On February 25, the Virginia General Assembly adjourned sine die concluding the 2017 Legislative Session. During the 46-day short session, the General Assembly heard more than 2,000 bills related to a broad array of issues and policies. More than 800 bills were approved and sent to Governor Terry McAuliffe for his review and action. The General Assembly will convene for a one-day Veto Session on April 5 to act on bills that are vetoed or amended by the Governor. NVTC’s specific legislative priorities for the 2017 Legislative Session were outlined in a letter to policymakers before the session began and NVTC maintained a full-time presence in Richmond throughout the session to actively advocate on behalf of the technology community.

Specific legislation of interest to the region’s technology community included:

**Tax Incentive for Investors in VC Funds that Target Virginia Companies**

NVTC successfully supported legislation sponsored by Del. Nick Rush which allows investors in qualified venture capital funds to subtract any income earned through their investment, including carried interest, if the venture capital fund invests a majority of its capital in Virginia businesses. HB 2074 passed the General Assembly and has been sent to Gov. McAuliffe for review and action.

**STEM Education and Computer Science**

Legislation sponsored by Sen. Jennifer McClellan and Del. Tag Greason creates a partnership between the Northern Virginia Community College and CodeVA to promote computer science training for teachers. SB 1493 and HB 1663 passed the General Assembly and have been sent to Gov. McAuliffe for review and action.

**Research & Development Tax Credits**

NVTC successfully opposed legislation sponsored by Sen. Glen Sturtevant, which would have phased out Virginia’s R&D Tax Credits by 2027. SB 1540 was not approved in the Senate.

**Data Breach Notification Requirement**

Legislation sponsored by Sen. Janet Howell and Del. Mark Keam and supported by Gov. McAuliffe initially sought to require employers to notify the Department of Taxation after discovery of a security breach of payroll information. NVTC successfully supported amendments to the legislation providing that employers instead notify the Attorney General utilizing the same process required under Virginia’s existing database breach law to streamline compliance requirements for Virginia businesses and prevent confusion. SB 1033 and HB 2113 passed the General Assembly and have been sent to Gov. McAuliffe for review and action.

**Unmanned Systems-Related Legislation**

NVTC successfully proposed amendments to and supported legislation sponsored by Del. Randy Minchew that expands Virginia’s anti-peeping laws to include the use of electronic devices. HB 2350 passed the General Assembly and has been sent to Gov. McAuliffe for review and action.

NVTC opposed two bills (HB 1602/Del. Matt Farris) and (HB2197/Del. Terry Kilgore) that sought to create new unmanned systems-specific criminal and civil laws, primarily related to privacy. While well-intentioned, the bills posed unintended consequences and would have been problematic for technology businesses and the unmanned systems industry.

**Employment Nondiscrimination**

NVTC has been a strong supporter of legislation that would prohibit public sector employment discrimination on the basis of sexual orientation. This legislation fosters fair treatment in the workplace, benefits technology employers by promoting employment and retention of a critical talent pool and benefits higher education institutions in their recruitment and retention of faculty and researchers who train the workforce and help drive our innovation economy. This session, there were several pieces of legislation to prohibit employment nondiscrimination sponsored by Sen. Adam Ebbin (SB 783), Del. Kaye Kory (HB 2057) and Del. Mark Levine (HB 2129). While SB 783 passed the Senate, all were defeated in the House of Delegates.

**Wireless Communications Infrastructure**

NVTC supported legislation sponsored by Sen. Ryan McDougle and Del. Terry Kilgore that aims to encourage more broadband deployment by providing for a more uniform and streamlined process across local governments for the approval of small cell facilities on existing structures. This will help meet growing demand for wireless data, attract businesses that require ultra-fast and reliable network connections and recognize the full potential of Internet of Things-related solutions in healthcare, transportation, smart cities and other important areas. SB 1282 passed the General Assembly and has been sent to Gov. McAuliffe for review and action.
Expansion of Virginia Subpoena Power to Foreign Business Entities

NVTC successfully opposed legislation sponsored by Sen. Scott Surovell that would have expanded the territorial limits of subpoena power in Virginia to compel out-of-state discovery from nonresident non-parties to a civil case. The Uniform Interstate Depositions and Discovery Act (UIDDA), which Virginia and most states have adopted, affords protection to Virginia citizens subject to subpoena from another state by providing for enforcement of the subpoena in Virginia under Virginia law. In turn, it considers that Virginia courts will respect the territorial limitations of their own subpoena power. Legislation to expand Virginia’s territorial limitations on its own subpoena power may lead to other states responding in-kind to the detriment of businesses that chose to locate in Virginia because of Virginia’s legal framework, protections and safeguards. SB 814 was not approved in the Senate.

Metro Safety Commission

NVTC participated in a business coalition led by the Northern Virginia Transportation Alliance (NVTA) where we successfully supported legislation sponsored by Sen. George Barker and Del. Jim LeMunyon to implement the federally-mandated Metro Safety Commission to oversee Metro safety and maintenance efforts, implement necessary Metro Compact and personnel reforms, and ensure continued federal and statewide transit funding.

The federal government required that identical legislation establishing the Metro Safety Commission be enacted in D.C., Maryland, and Virginia by Feb. 9. The jurisdictions missed the deadline and the Federal Transit Administration (FTA) indicated they will withhold some federal transit funds from the jurisdictions until the commission is created. NVTC recently signed on to a letter organized by NVTA and sent to U.S. Secretary of Transportation Elaine Chao requesting that she suspend the FTA’s decision to withhold funds.

HB 2136 and SB 1251 passed the General Assembly and have been sent to Gov. McAuliffe for review and action.

The General Assembly also included language in the budget that aims to increase transparency at Metro and directs Virginia’s Secretary on Transportation to identify potential reforms in preparation for a renegotiation of the multistate Compact.

Government-Run Broadband Authorities

NVTC supported legislation sponsored by Del. Kathy Byron which initially aimed to focus government-run and funded broadband authorities on the deployment of broadband in unserved areas of the Commonwealth to ensure taxpayer dollars are well spent and are not used to compete with private sector broadband providers. Due to strong local government opposition, the legislation was substantially narrowed to focus on transparency of government-run broadband authorities and now provides that these authorities maintain records concerning the fixing and revision of rates and fees and make them publicly available. HB 2108 was approved by the General Assembly and has been sent to Gov. McAuliffe for review and action.

Uniform Fiduciary Access to Digital Assets Act (UFADA)

NVTC successfully supported legislation sponsored by Sen. Mark Obenshain and Del. Jay Leftwich that creates the Uniform Fiduciary Access to Digital Assets Act. The bill is an update to NVTC supported legislation signed by the Governor in 2015 and allows fiduciaries to manage digital property like computer files, web domains and virtual currency, and restricts a fiduciary’s access to electronic communications such as email, text messages and social media accounts unless the original user consented to such access in a will, trust, power of attorney or other instrument. SB 903 and HB 1608 passed the General Assembly and have been signed into law by Gov. McAuliffe.

Energy Storage

NVTC successfully supported legislation sponsored by Sen. Adam Ebbin which expands the mission of the Virginia Solar Energy Development Authority to include positioning the Commonwealth as a leader in research, development, commercialization, manufacturing and deployment of energy storage technology. SB 1258 was approved by the General Assembly and has been sent to Gov. McAuliffe for review and action.

Student Access to Collected Personal Information

NVTC was successful in seeking amendments to legislation sponsored by Sen. Frank Ruff so that it allows, but does not mandate, school systems to include in contracts with school service technology providers a provision that parents can access student personal information in machine readable format. The legislation as originally introduced would have prohibited technology businesses from doing business with Virginia school systems if they provide parents with access to student personal information in any format other than machine readable format. SB 951 was approved by the General Assembly and has been sent to Gov. McAuliffe for review and action.

Cybersecurity/Procurement

NVTC supported a resolution sponsored by Del. Kathleen Murphy that would have directed the Joint Legislative Audit and Review Commission (JLARC) to (i) evaluate the Commonwealth’s current policies, procedures and standards for assessing cybersecurity risks and protecting the electronic information of state government and (ii) make recommendations for the improvement of such policies, procedures and standards. HJ 692 was not approved in the House Rules Committee along with many other study resolutions that would have resulted in cost to the state.

Legislation sponsored by Del. Dave Albo requires that any state IT contract require compliance with applicable federal laws and regulations pertaining to information security and privacy. HB 2360 passed the General Assembly and has been sent to Gov. McAuliffe for review and action.
Computer Crimes
早点supported legislation sponsored by Sen. Monty Mason and Del. John Bell and supported by Gov. McAuliffe that sought to update Virginia’s computer trespass laws by lowering the standard of intent to make it easier to prosecute. The legislation also included a provision protecting legitimate commercial activity. The House of Delegates did not approve SB 1377 and HB 1986. Legislation sponsored by Sen. Monty Mason and Del. David Yancey and supported by Gov. McAuliffe would increase the penalty for computer trespass crimes from a misdemeanor to a felony if the computers targeted are used by the state or local government or certain public utilities. HB 1815 passed the House and Senate and has been sent to Gov. McAuliffe for review and action.

Technology Platforms for Short Term Rentals
The General Assembly approved legislation sponsored by Sen. Tommy Norment that would authorize localities to require the registration of persons offering property for short-term rental through Airbnb and other online platforms and authorize localities to impose fees and penalties on persons who violate the registry ordinance or who offer short-term rentals that have multiple violations of state or federal laws or ordinances. SB 1578 passed the General Assembly and has been sent to Gov. McAuliffe for review and action.

Virginia Research Investment Committee
Legislation sponsored by Sen. Dick Saslaw and Del. Chris Jones seeks to consolidate and align research funding in Virginia by moving responsibility for the development of the Commonwealth Research and Technology Strategic Roadmap from the Center for Innovative Technology to the Virginia Research Investment Committee. SB 1371 and HB 2245 passed the General Assembly and have been sent to Gov. McAuliffe for review and action.

Angel Investment Tax Credit
Legislation supported by Del. John Bell aimed to modify Virginia’s angel investment tax credit by increasing funding by $2.5 million per year with the new funding dedicated exclusively to cyber investments. HB 1806 was defeated in the House Finance Committee and did not move forward.

Virginia Economic Development Partnership (VEDP)
Legislation sponsored by Sen. Frank Ruff and Del. Chris Jones reorganizes and shifts authority of the Virginia Economic Development Partnership (VEDP). The legislation would i) establish a new division within the partnership to oversee financial incentives and assure that companies comply with their terms, ii) create an internal auditing arm to monitor the organization, iii) reduce the size of the VEDP Board and provide more oversight responsibility, and iv) maintain VEDP’s international trade division rather than splitting it off as an independent corporation. SB 1574 and HB 2471 have been approved by the General Assembly and have been sent to Gov. McAuliffe for review and action.

Technology business-related budget amendments approved by the legislature and sent to the Governor for review and action:

- Last year, NVTC supported a new initiative to provide $8 million in targeted investment in life sciences and personalized medicine by launching the Global Genomics and Bioinformatics Research Institute at the Inova Center for Personalized Health to leverage Virginia’s life sciences and health assets, the data analytics and cyber capabilities of our technology sector, and the strengths of our universities. This session, the legislature reversed $4 million in proposed funding cuts to the initiative and restored funding to $8 million.

- Last year, NVTC supported the launch of the GO Virginia initiative, a bipartisan and business-led effort focused on creating economic incentives for localities and regions to collaborate together to make meaningful progress on infrastructure and other regional investments. This session, the General Assembly restored $7.5 million of $15 million in proposed budget cuts to the initiative.

- Last year, NVTC supported the launch of the New Economy Workforce Credentials Grant Fund, the first pay-for-performance program for award of workforce credentials in the country, where the state pays up to $3,000 per student who receives a credential in a high demand field (including cybersecurity and other technology areas). While the Governor proposed an additional $1 million in funding due to strong demand for the program, the General Assembly maintained funding at $12.5 million.

- The General Assembly eliminated $1 million in funding designated for cybersecurity public service scholarships and $480,000 in proposed new spending to support summer cyber camps.

- The General Assembly reduced funding for the Virginia Biosciences Health Research Corporation by $1.3 million.

- The legislature retained $10 million in proposed spending cuts to the Virginia Research Investment Fund, leaving $12 million in place to support the initiative, which was launched last year.

- The budget approved by the General Assembly did not include a budget amendment proposed by legislators articulating a policy statement that state agencies should modernize and protect the Commonwealth’s information systems, where appropriate, by expeditiously leveraging commercial cloud computing services that comply with rigorous security requirements throughout state government while driving cost savings and achieving new efficiencies.

For more information, detail and updates about NVTC’s advocacy efforts, please visit us online at www.nvtc.org/advocacy.
On Feb. 15, NVTC hosted the inaugural Capital Data Summit at The Ritz-Carlton, Tysons Corner. With over 300 attendees, the Summit highlighted our region’s unmatched set of data analytics assets with keynote remarks by Clarabridge Founder and Vice Chairman Sid Banerjee, Hewlett Packard Enterprise President and CEO Meg Whitman, and DigitalGlobe Founder, Chief Technical Officer and Executive Vice President Dr. Walter Scott, panel sessions led by data analytics experts from the public, private and academic sectors, and a top technology showcase.

The Summit program was emceed by Capital Data Summit Steering Committee Chair Tom Woteki, chief technology officer, Federal Services, MAXIMUS. Clarabridge’s Sid Banerjee opened the morning session with an analysis of the shift in the data ecosystem today from traditional structured data models to the growing influence of unstructured data, especially in the consumer experience sphere. He shared the need for a new wave of emotionally empathetic computing that sources customer data across many digital channels to provide customer insights.

After Banerjee’s remarks, there were two morning panel sessions. In the first, the Role of the CDO, panelists discussed the evolution of the chief data officer role and how the position is structured within their organizations. The panelists stressed how data is an asset that must be supported by flexible architecture so it can be leveraged and utilized across different organizational teams. In the second morning panel, VC and Growth Investing in Commercial and Government Data Opportunities, two top investors shared their approaches to financing and building successful data analytics businesses. They highlighted the unparalleled data talent expertise in the Greater Washington region and how this talent provides a strong foundation for investments.
Next, Hewlett Packard Enterprise is Meg Whitman sat down with Inova Center for Personalized Health CEO and NVTC Board Chair Todd Stottlemyer for a “fireside chat” conversation. Whitman explained how big data is powering the next industrial revolution, allowing new insights through predictive analytics. She shared how innovations like memory-driven, rather than processing-driven, computing are allowing HPE to provide intelligent services “at the edge” where data is collected rather than on a central server. In discussing the future of the industry, Whitman stressed the importance of skilling the next generation of data employees and the pivotal role universities will play in partnering with the private sector to meet these talent demands.

Attendees enjoyed lunch in the exhibit hall where they were able to network with many data analytics innovators, companies and universities supporting and growing the region’s data industry. The second half of the day included five panels that addressed the latest hot topics and trends in data analytics, including smart cities, Internet of Things security, big data ethics and sourcing talent for the next generation data analytics workforce.

DigitalGlobe’s Dr. Walter Scott closed the Summit program. During his remarks, Dr. Scott discussed how satellite imagery and remote sensing are harnessing big data at a global scale. He explained trends that are enabling large scale analytics and shared how DigitalGlobe’s imagery and analytics solutions are being put into practice to serve a variety of customers and social causes.

Visit NVTC’s blog at blog.nvtc.org for more Capital Data Summit content and videos. nvtc
NVTC VEI Hosts First-Ever NoVaTechVets.org Recruiter Contest

80 Recruiters Participated in the Inaugural Contest with 70 New Accounts Created on NoVaTechVets.org.

The NVTC Veterans Employment Initiative (VEI) recently ran its inaugural NoVaTechVets.org Recruiter Contest aimed at promoting the expanded use of NoVaTechVets.org, a free NVTC Veteran job board and talent resource created by Monster.com to connect NVTC member companies with job seeking Veterans and their spouses.

During the six-week contest, resume views of Veteran candidates on NoVaTechVets.org were tracked to determine the highest number performed by a single recruiter. The recruiter with the most Veteran resume views won a Microsoft Surface Pro 4 donated by Microsoft, an NVTC member company and V EI supporter.

Congratulations to Hewlett Packard Enterprise Senior Technical Recruiter Mike Murray for having the most resume views on NoVaTechVets.org. Murray is the winner of a new Microsoft Surface Pro. Second and third place winners, Jenna Mullikin from EmeSec and Joe Jones from AXA Advisors, received gift cards.

Almost 80 recruiters participated in the contest. In addition, there was a weekly drawing for a gift card awarded to recruiters who created new accounts on NoVaTechVets.org. A total of 70 new recruiter accounts were established during the contest. There are now 530 recruiter accounts from 120 NVTC member companies on the site sourcing workforce talent.

Thank you to all recruiters, companies and Monster and Microsoft for their participation and support of the contest and for their commitment to hiring Veterans and their spouses!

“NVTC and Monster gave my team an additional resource to source for Veteran candidates. The contest triggered my team’s competitive gene, which was a fun motivator! We found and hired an amazing Veteran candidate to join the PenFed team!”

- Jessica Rusk, Senior Manager, Talent Acquisition, PenFed Credit Union

Sign Up for VEI’s Annual Sporting Clays Tournament on July 24!

Enjoy the excitement of sporting clays shooting while raising funds for an importance cause at the third annual V EI Sporting Clays Tournament on July 24 at the Bull Run Shooting Center in Centreville, Va. The event is open to all skill levels! Sponsorships are now available. Contact V EI Director Steve Jordon at sjordon@nvtc.org for more information or go to nvtc.org/events.

Stay Connected to the V EI!

VEI Website: nvtc.org/veterans
NVTC Foundation: foundation.nvtc.org
Job Board: NoVaTechVets.org
Email: V EI Director Steve Jordon: sjordon@nvtc.org
Twitter: @nvtcei
New! V EI YouTube: bit.ly/VEIYouTube

“NVTC’s V EI program provides an opportunity to build our workforce with talented Veterans who bring diverse backgrounds and unique perspectives to our teams. Hiring Veterans is not only the right thing to do, it is also good for business. V EI is important to our company!”

- Chad Mitzen, Director, Talent Acquisition, Booz Allen Hamilton

VEI Highlighted in TechRepublic Article

The V EI and V EI Director Steve Jordon were included in a recent TechRepublic article entitled, “Why veterans can fill your company’s tech skills gap.” The piece highlights public-private partnerships working to fill tech positions with Veterans and the opportunity tech companies have to upskill the transitioning Veteran workforce to bolster their talent pool.

Jordon shared the importance of Veterans being able to articulate the skills they gained in the military when applying to tech jobs. According to Jordon, “It becomes about how they take that and translate it so a company can understand that, although they don’t have a bachelor’s degree in computer science, they are tech savvy and can enter a company in an entry level tech position, or get a certificate.” On the company side, Jordon stresses, “If the CEO pushes it down as a priority—that they don’t need the paper-perfect candidate—then hiring managers can take a hard look at candidates who don’t have that degree but have talent and potential.”

Read the full article at bit.ly/VEITechRepub.
Big Data and Analytics Represents Tremendous Growth Opportunities

By John Shaw, Research and Strategic Initiatives Manager, NVTC

Big data and analytics is undeniably a growth industry by every possible measure. By 2020, the amount of stored digital data will exceed 40 zettabytes, which is roughly equivalent to 6,080 years of HD video, a period longer than recorded history by more than a millennium. In the last two years alone more data was created than in the entire prior history of the human race.

Every day over 3.5 billion Google searches are made and 205 billion emails are sent. Facebook has over 30 petabytes of user-generated data and Twitter sees over 230 million tweets daily; for scale, one petabyte is roughly equivalent to 13.3 years of HD video. Gartner projects that connected devices making up the Internet of Things (IoT) will grow by two billion to over 8.4 billion IoT devices in use this year, representing one billion more devices than there are people on the planet.

However, less than 0.5 percent of data created is ever analyzed or used.

Funding & Revenue

Venture capital funding for Greater Washington companies offering analytics products and services totaled over $93 million in 2016, with the largest single funding round of $12 million for ThreatQuotient announced in August. IDC projects double-digit growth – a CAGR of 11.7 percent – in the big data and analytics market through 2020, growing from $130.1 billion in 2016 to $203 billion in 2020.

Workforce

Analytics talent continues to be in high demand with no signs of slowing in the immediate future. Glassdoor named data scientist as 2016’s hottest job across all business sectors. Data engineer was ranked third and analytics manager ranked fifth on this same list. One-third of NVTC members surveyed for our Greater Washington Technology Workforce Needs Assessment indicated they were currently hiring data analysts. Virginia is also home to the largest percentage of data analytics workers in the nation.

No region is better equipped to meet the demands emerging from the new data ecosystem than Greater Washington. With its leading data analytics firms, highly-skilled workforce, expertise serving federal, state and local government customers, and many outstanding academic institutions, Greater Washington’s data analytics assets are unmatched, and our region is poised to take advantage of the tremendous growth that will come in the field of data analytics.
Past is Prologue
Wonder where the cloud, cybersecurity and the Internet of Things are heading? Look to the network that existed before there was an Internet—and to the future of connected tech.

By Mark Toner
ack around the turn of this century, George Mason University (GMU) held an unusual concert with a special guest—a Canadian jazz pianist who never left home.

“We’re going to play a duet,” the announcer began. “The left hand of this duet is in Virginia, and the right hand of the duet is in Halifax.”

As GMU’s Glenn Smith sat at a grand piano, a laptop was perched precariously on its edge, with two long snaking cords running to the base of the piano, where they connected to a MIDI input/output port. Turning to another laptop connected to a video camera, Smith spoke to his counterpart in Canada, jazz pianist Bill Stevenson.

Having celebrated its 20th anniversary last year, the Internet2 networking consortium now connects more than 90,000 colleges, universities, government agencies, libraries, schools, healthcare organizations and corporations.

“Many times in the jazz world, so much of the communication is done immediately,” Stevenson said. “You can give me an accompaniment, and I can play an improvised melodic accompaniment. I don’t have to take a plane to Virginia, but I’d really like to when the ice abates.”

Smith began with a variation on “Over the Rainbow.” As Stevenson improvised his part of the melody in Halifax, the keys on the piano in Fairfax moved in response to his input there, thanks to the MIDI information transmitted from Canada via the laptop and cables.

Early on in the 2000s, this kind of real-time, cross-border collaboration relied on a specialized network connecting research institutions at the then-unthinkable speed of 10 gigabits per second (Gbps). Today, it would probably only take two smartphones and a standard cellular data plan.

Even as high-speed Internet has become a commodity, research institutions throughout the region, the country and the world continue pushing the envelope of connectivity. Having celebrated its 20th anniversary last year, the Internet2 networking consortium now connects more than 90,000 colleges, universities, government agencies, libraries, schools, healthcare organizations and corporations. In recent years, the region’s colleges and universities have built out and upgraded two local fiber networks of their own, connecting far-flung institutions and their partners to Internet2’s state-of-the-art network.

But the implications for technology companies are far from academic. Along with empowering research ranging from the farthest reaches of space to the smallest parts of the human genome, Internet2 is continuing to refine technologies that touch directly on the work of the region’s tech sector—cybersecurity, big data, the cloud and the Internet of Things among them. These technologies also are enabling startups that will help create the cities of the future, which may well see their first tests within striking distance of Metro’s Silver Line in Loudoun County.

“Regionally, this is a great opportunity,” says Donald DuRousseau, director of research technology services at The George Washington University. “It’s not contained to any one sector.”

In Virginia, the next chapter of the Internet has long roots—and literal ones at that. Drive three hours south from the massive data centers in Ashburn to the tobacco fields of Southside Virginia, where the foundations for next-generation Internet in the state began two decades ago.

As part of a $246 billion settlement between the tobacco industry and states, Virginia allocated money to build a nonprofit fiber optic network that would allow commercial providers through the region to bring state-of-the-art bandwidth to the economically strapped region. The Mid-Atlantic Broadband Communities Corporation (MBC) was founded in 2004 and has since built more than 2,000 miles of fiber optics cable throughout Virginia and attracted tech companies to underserved parts of the state, including Microsoft’s data center in Boydton, a town of 400 near the North Carolina border. It’s yet another example of the promise of the Internet as an economic engine, a story that is inexorably connected with colleges, universities and other research facilities.

In broad strokes, the evolution of the modern Internet has been a story of decades—from the creation of ARPANET in 1969 to its expansion to colleges and universities and the creation of broader networks in the 1980s to the birth of the World Wide Web and the commercialization of Internet access in the 1990s. As Web browsing software and the proliferation of commercial Internet service providers (ISPs) increased Internet traffic exponentially, universities and other research facilities realized they needed a dedicated network capable of handling the large datasets required for scientific research. So, in 1996, the Internet2 consortium was born, and along with connecting its member institutions with its own private fiber network, the consortium and its members were responsible for developing and refining many of the technologies that helped make the broader Internet mainstream—network caching, au-
Regional consortia of universities and research facilities, often with their own fiber networks connected to the Internet2 backbone, have emerged over time. Led by Virginia Tech, Virginia’s research institutions had been operating the Mid-Atlantic Research and Education Exchange (MREX) since the late 1990s. In 2012, MBC helped Virginia’s universities create the Mid-Atlantic Research Infrastructure Alliance, or MARIA, which connects the state’s research universities, community college system, federal agencies and selected commercial providers to the Internet2 backbone through a connection in Ashburn, as well as commercial cloud providers and additional research networks run by federal agencies. In 2015, MARIA upgraded its network to meet the full capacity of the Internet2 network, which just a few years earlier had launched the first transcontinental network with a capacity of 100 gigabits per second.

Meanwhile across the Potomac, The George Washington University operates a similar regional network. The Capital Area Advanced Research and Education Network, or CAAREN, was launched in 2014 with its own 100 Gbps fiber ring that connects GW’s Foggy Bottom campus with an Internet2 access point in Maryland and GW’s...
Donald DuRousseau, director of research technology services at The George Washington University on Internet2: “Regionally, this is a great opportunity. It’s not contained to any one sector.”
Ashburn campus, which also offers a similar high-speed connection to commercial cloud services through the Equinix data center there. Georgetown University, American University and the World Bank are members of CAAREN and have access to its networking, peering and consulting services. CAAREN also works with DC-Net, the District’s city-wide fiber provider, to connect the city’s schools and libraries to the broader Internet2 community.

It’s difficult to understand how fast 100 gigabits per second really is. By comparison, a fast home cable Internet connection might hit 10 megabits per second (Mbps)—and even if it did, it would still be a thousand times slower.

“A couple of years ago, we put in 10 [Gbps] links, and people said we’d never fill that pipe,” says Jeff Crowder, Virginia Tech’s executive director of strategic initiatives.

It’s a far cry from when early Internet networks struggled to reach 56 kilobits per second, the same far-from-blistering speed at which many of us connected to services like America Online using telephone modems in the late 1990s. Crowder compares the increase in Virginia Tech’s wide area network capacity over time to Moore’s Law, which famously predicted that computing power would increase exponentially over time. “We stayed just barely ahead of Moore’s Law until 2015,” he says. “Then we fell back a little bit.” Regardless, if networking trends continue, by 2021 we’ll be talking about network capacity in terabits per second, not gigabits.

While it would be hard to notice the difference in bandwidth while watching cat videos on YouTube, that massive capacity has a real bearing on the kinds of big data that drive research at universities and other research facilities—including research that reaches back to the Big Bang itself.

Space is mind-numbingly large—large in ways that defy facile attempts at explanation. So, too, is the scope of the data collected by radio telescopes pointed at even small slices of the night sky. Looking for “transients”—supernovas, gamma ray bursts and other anomalies dating back millions of years—is a time-consuming process that has been made possible by the emergence of powerful computers to crunch the raw data. The problem has been getting that data from the telescopes to the computers in a timely fashion.

Because of limited bandwidth, researchers at Virginia Tech working with data from radio telescopes in New Mexico once had to cajole counterparts at the University of New Mexico to copy data to CDs and mail them across the country, according to Crowder. Now, both Virginia Tech and the radio telescope have direct connections to Internet2, and researchers in Blacksburg “get the data as it comes off the instrument,” he says.

Similar challenges occur when researchers shift from outer space to inner space. New sequencing technologies have created massive amounts of biometric information—the data from a single human genome adds up to 140 gigabytes, or enough to fill 175 CD-ROMs. So genomics researchers at GW rely on the high-speed Internet2 infrastructure to pull data from the National Institutes of Health as part of their research, which is conducted using a genomics analysis platform that runs on the university’s high-performance computing center.

Not every research university has access to the raw computing power it needs. A key part of managing big data projects is managing how the data moves to and from the cloud and specialized computation centers located elsewhere. For example, Old Dominion University’s Center for Coastal Physical Oceanography monitors ocean circulation patterns and other natural phenomena to create sophisticated modeling and simulations that can identify everything from projected shellfish populations to the dynamics of sea ice and other impacts of climate change.

“These days, there’s no science that can happen anymore without [intensive] computation,” says Crowder. “You can’t even be competitive without these networks in place.”

It’s difficult to understand how fast 100 gigabits per second really is. By comparison, a fast home cable Internet connection might hit 100 megabits per second (Mbps)—and even if it did, it would still be a thousand times slower.

Of course, big data isn’t just getting bigger in academia—it’s exploding everywhere, and technology companies can learn from the skills research institutions have tapped to manage their massive datasets. That’s particularly true as new technologies that have played significant roles on the Internet2 network become more prevalent across all sectors, such as the virtualization and software-defined networking capabilities that are slowly emerging in a broad range of settings beyond academia.

“Researchers who have a 15 to 20 year career in genomics and next-generation sequencing don’t have the expertise to configure network paths and run specialized applications to access and move these large data sets,” says GW’s DuRousseau. “Their focus is on analytical tools, not infrastructure.”

For that reason, cyberinformatics engineers—technology specialists with the expertise to work with very large sets of data,
advanced networking and the cloud—will become all the more critical. “They’re not doing the research, but they’re helping the researchers do their data management, flows, and connectivity so they can access the data they need,” DuRousseau says.

But cyberinformatics isn’t the only skill that is growing more important as data and networks continue to grow exponentially. Consider the challenges faced by a power plant in a connected city.

Wandering around an empty office, would-be saboteurs recently found a password to the plant’s computer network on a sticky note on an employee’s desk, accessed the system and cut electricity to the entire city. After the lights went off, another group of hackers managed to breach the systems controlling a self-driving city bus, causing it to lose control and crash.

All in all, it wasn’t a great day in Alphaville. Fortunately, it’s not a real place, although it represents an all-too-real need as more and more systems and devices become connected to increasingly complex networks. Part of a “cyber range” operated by the Merit networking consortium of research institutions in Michigan, Alphaville is a virtual reality simulator used to train cybersecurity students using 3-D mockups of a city hall, library, school, power station, and more. Students engage in games where they take turns attacking and defending the virtual city’s systems, and professors at different institutions can tailor their classes to use the cyber range’s infrastructure.

GW uses Internet2 to connect its Virginia Science and Technology campus and community colleges with Merit’s Michigan cyber range—one of the few unclassified cybersecurity sandboxes open to colleges and universities. “We know that online training alone is vastly insufficient, especially when you need to train someone with the breadth of a cybersecurity expert,” DuRousseau says.

Doing so will be vital to train the next generation of much-needed cybersecurity talent. But CAAREN and MARIA both are seeking opportunities to connect tech companies involved with universities in research in these and other fields. “We want to open it up,” DuRousseau says. “So if a power company is developing a new gateway and switch, they could plug it in and open it up for people to attack. It’s a living place to do next-generation R&D.”

GW also has been in discussions with the Center for Innovative Technology to provide access to the cyber range to future cohorts of the MACH37 cybersecurity-focused accelerator. But while Alphaville remains a simulation, the reality of a highly connected—and interdependent—city is closer than we may think.

Cyberinformatics engineers—technology specialists with the expertise to work with very large sets of data, advanced networking and the cloud—will become all the more critical.
Using M&A to deliver IoT strategies

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To learn more, please visit www.pwc.com
We began our visit to the future of the Internet in the tobacco fields of Southside Virginia. While that story began more than two decades ago, in some places network capacity in that rural region is still significantly greater than it is in many spots just beyond the Washington, D.C., metro area—or much of the rest of the country.

“If you’re a company that has really high speed Internet access needs and you’re looking towards these 10 Gbps capabilities, your choice of places you could be located are very few,” Crowder says. “It’s a longstanding problem, but it’s getting critical at this point.”

But the rest of the world is rapidly catching up. While the United States still ranks low in rankings of Internet connectivity, more and more places have direct fiber connections to the cloud-based data repositories that drive today’s enterprises. And not far from one of the places where the region’s universities connect to the Internet2 backbone in Ashburn, a new connected city is rising.

To be built adjacent to the future Ashburn Metro station, the Gramercy District is touted as the first “smart city” in the region. With Microsoft among its investors, the $500 million development will bake in next-generation networking and serve as a test bed for connected city technologies. In February, the project’s developer, CIT, and Smart City Works announced the creation of a new accelerator focused on developing smart city technologies—and using Gramercy as a test bed.

Potential smart city startups may not have long to wait for a market to emerge. Heading downtown on the Silver Line, the Pennsylvania Avenue 2040 project has already begun a pilot that could ultimately transform the District of Columbia’s more than 70,000 streetlights into connected devices, offering biometric sensors, energy-saving smart lighting, and public high-speed Wi-Fi access. And that’s just the beginning. The District is working with Cisco and the nonprofit US Ignite initiative to develop what are called “gigabit applications”—public service functions that aggregate data from a broad range of connected devices to reshape how people navigate cities and the services they provide. For example, instead of just weather forecasts, consider a tailored series of alerts that combines wind and weather data with real-time traffic conditions to tell parents when they may want to have a child with asthma play indoors.

Doing so will entail huge amounts of connected devices and bandwidth—DuRousseau estimates that the data from body-worn cameras and devices attached to public vehicles alone will add up to the hundreds of terabytes. But, as is the case in research institutions today, tomorrow’s cities and companies will have to leverage new networking technologies to accommodate all the connected devices and the data they generate.

“It’s not that we’ve got all this data, it’s about being able to use smart networking technologies to attach resources to the data—to take the payload, return the result in time and have the virtual environment disappear so the next user can come in to get their data,” DuRousseau explains.

But as projects like the ones in Ashburn and downtown D.C. take next-generation connectivity from the lab to day-to-day life, enterprising companies will have opportunities to play key roles, DuRousseau says. “There’s a lot of opportunities for collaboration, for bringing students and technologies out of universities and marrying them with companies with an interest in cybersecurity, the Internet of Things, smart technologies, and big data and analytics,” he says. “We have a platform, and it is centered in our back yard.”

Tomorrow’s cities and companies will have to leverage new networking technologies to accommodate all the connected devices and the data they generate.

Mark Toner is a Reston-based technology writer.
Save Money on Your Company’s Everyday Business Needs

As an exclusive benefit of membership, NVTC members now receive money-saving discounts at Office Depot and UPS.

Leveraging the collective purchasing power of NVTC, members are eligible to enroll in a discount program to get savings on office supplies, ink and toner, paper, and coffee and break room essentials.

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Our top responsibility in the Armed Services Committee is to address the reduction in military readiness.
You serve on the House Armed Services Committee. What can you tell our readers about recent or upcoming efforts to rebuild our military?

There are a lot of efforts going on, all of them taking place in unison. We’re looking at what we need to do to rebuild readiness. We’re looking at aging systems across all the different service branches. We’re looking at the challenges we face in different areas around the world regarding our presence, making sure we have the proper capability and capacity to meet those challenges around the world. And to make sure, too, that we give assurances to our allies that we will be there shoulder to shoulder with them as they face these challenges around the world.

We see the world we live in today as a much more challenging and, in some instances, dangerous place – whether it’s terrorist organizations, whether it’s our near peer adversaries like Russia and China and North Korea and Iran. And we’ve seen aggressive behavior by Russia, with them buzzing our destroyers in the Baltic Sea and an intelligence gathering ship 30 miles off the coast from our nuclear submarine construction yard in Connecticut. All these things are deeply concerning to us. So we have our work cut out for us on the Armed Services Committee.

Our top responsibility in the Armed Services Committee is to address
the reduction in military readiness. And that not only includes the training of our men and women in uniform, but also the maintenance, operation and modernization of the systems that those brave men and women use to defend this nation. We have a lot of systems and platforms that are extraordinarily old. It becomes problematic, sometimes impossible, to get those systems operational. And what we're finding across the service branches is a lack of readiness and a lack of modernization of our force in comparison to other forces around the world.

**nvtc** What role do you see the private sector playing in helping address those modernization concerns?
The private sector is going to be critical to getting that done. We're going to rely on the industrial base to help us in not just maintaining the systems and platforms that we have, but also in helping us in the research, development, technology and testing that goes into new systems. Look at the capacity that they have to ramp up efforts either to maintain or to build new systems – we're going to be relying on them quite heavily because there is not enough capacity on the government side to do these things.

We're finding more and more of a backlog of the operational systems that our brave men and women use to defend this nation. Whether they are ships, aircraft, or land systems, less of them are available today because they are backlogged in depots waiting to be maintained. So we are going to need the folks on the private side to help us with that and also to help us get technology as quickly as we can to the warfighter as we modernize these systems to keep up with our adversaries.

**nvtc** You also serve as chairman of the Seapower and Projection Forces Subcommittee. Can you talk about that role and what it means to Virginia?
It's a great honor to be serving in that capacity as the chairman of the Seapower and Projection Forces Subcommittee. Obviously, in Virginia, we have a great legacy of supporting and building our Navy and our Air Force. Virginia knows what it takes to make sure that our Navy and our Air Force have what they need to get the nation's work done. I want to make sure that I am helping in the broader perspective of the nation in making sure we make the right decisions.

One of the things that will be before us is the new Navy Force Structure Assessment that states we should have a Navy of 355 ships. I think that is a very accurate assessment, so my job is going to be to help get our Navy to 355 ships. Obviously it won't happen overnight, but everybody across this nation – all 50 states – will be involved. Virginia will be very involved in it. We will have some of the yards and the maintenance areas that will be dedicated to that, but they'll also rely on companies across the United States to get that work done.

In our portfolio, we include Projection Forces which are the Navy and Air Force strategic aircraft, the strike bombers, the tanker aircraft, and the lift aircraft we use to move soldiers, sailors, marines and airmen around the world and the supplies necessary to sustain them. We need to make sure that those fleets are modernized and that we're building them at the necessary rates and building them on schedule and on cost. That is a critical part of what we do, too. It'll be a nationwide effort, but Virginia will play a critical role, as we have since the Revolutionary War.

**nvtc** You've stated that you will travel to every shipyard in the country in your role as chairman of this subcommittee. Can you tell us about that?
It's a great opportunity. We want to make sure we're there on the front lines talking to our brave men and women that serve, but also those skilled craftsmen and tradesmen that build the best ships in the world. It will be a great opportunity for us to learn and to ask questions directly to make sure that when we get back to Washington we're making decisions not based solely on what we hear from folks that come before our committee, but also from the great men and women on the front lines every day that are welding the steel, painting the ships, putting the great hardware in there, and doing the research, development, testing and evaluation to make sure those ships do what we need them to do.

**nvtc** You've talked about R&D, so can you share your thoughts on how technology and innovation should be playing a role in our defense spending? What can technology companies do to help support our defense strategy?
Technology companies are going to be front and center as we modernize our force. Research, development, testing and evaluation are going to be critical going forward to ensure that we keep up with our adversaries.
Q&A with Congressman Rob Wittman

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that we keep up with our adversaries. We have to do things here in Washington to streamline the process. We can take technology, take it off the shelf, and operationalize it much more quickly to get it to the warfighter. Today, it takes years upon years upon years to take a concept, mold it into a set of requirements, and then have those requirements result in a system being built, whether it’s a ship or an aircraft or whatever it may be. Those are the things we have to simplify. We have to make the timeframes shorter to where we can take that technology, get it to the warfighter, not worry about having the absolute up-to-date technology on the day that it gets to the warfighter, understanding that that will never happen. But to make those systems flexible and upgradable so, as technology changes, we can upgrade it, will be critical.

And we’re going to rely on the great creators and innovators out there that see the opportunity to take that technology and operationalize it for our men and women in the military. We’ve been part of the process the last couple of years with Chairman Thornberry on the Armed Services Committee to do acquisition reform, to be able to get away from low price, technically acceptable, to providing opportunities for the nation to receive best value for the money it spends. It’s not necessarily always best to buy the cheapest thing off the shelf, because it may cost more to maintain through its lifespan or it may not last as long. So we want to make sure we are looking at things in the long term and [considering] what is the best value for the government? What are the lifecycle costs of that system? Again, all the industries out there, both defense and non-defense, will play a critical role in helping us get that technology to where it needs to be.

nvtc Human capital is an essential part of technology companies’ ability to provide innovative products and services to both government and commercial customers. Can you provide your thoughts on how the federal government can support efforts to grow and attract the best technology workers to our country and Virginia?

Well, there are a couple of things that we can do. One is on the education side to make sure that we are putting decision making back in the hands of state and local school systems. They know best where the jobs are. They know best how to prepare their students for those jobs.

There are two tracks that we need to emphasize as to how our education system provides for its students. One is in the STEM disciplines. If we’re going to keep up with other nations around the world and make sure we have a competitive workforce of creators and innovators, we have to emphasize those areas of study and make sure that students come out with applicable skills and abilities and the knowledge necessary to be successful.

Secondly, [in addition to] great scientists, technologists, engi-
I think that there are improvements that we can make to both the H1 and H2 systems so that they truly are meeting workforce needs that cannot truly be met here in the United States.

**nvtc** What other issues do you anticipate the House tackling this session? What are your focus areas and how will they support economic growth in Virginia?

Well a couple of things I think are going to be very important. One is legislative reform on the administrative side. What are we doing to simplify the regulatory realm for businesses? As you know, since [Congress has] come back, we’ve done a number of things through the Congressional Review Act to take off the table many regulations that we thought were not positive in helping our businesses grow. We’re not saying no to regulations; we’re saying no to the ones that don’t have a clear benefit versus the cost. I think continued regulatory reform, making sure there’s the proper balance, is key.

Second is tax reform to make sure we have a system of taxation that actually encourages and rewards businesses for the right behavior. [The system] should reward companies when they grow jobs, when they invest and when they keep and grow jobs here. I think those positive reinforcements, through the proper elements of a tax code, assure there is a level playing field and are very helpful for businesses. I want to make sure there’s a level playing field for all of our businesses, from the smallest to the largest, and that there are incentives for them to grow businesses here.

**nvtc** What are your thoughts about Veterans and utilizing their experience in the workforce?

Veterans are critical to our workforce. Their experience is invaluable. They come to the workforce with extraordinary skills and
experience that I think makes them very, very well qualified for most of the jobs that are available out there. In fact, when you talk to employers about how they feel about Veterans, they are very passionate about hiring Veterans because they know that the experience and knowledge that they have is invaluable to their business.

NVTC’s effort to connect Veterans with jobs, make sure businesses communicate where the needs are and match those with Veterans is phenomenal. We have to make sure that the job skills Veterans developed in the military are directly translatable to what businesses are looking for. There’s been a lot of work done to simplify military job descriptions so that what Veterans have done in the military is easily translatable to what businesses understand to be their knowledge, skills and abilities. We also must make sure that businesses understand the talent and skills available in the Veterans community and that they can learn from and connect with businesses who have an experience in hiring Veterans.

nvtc Is there anything else that you wanted to share with our readers? Any other priorities or focus areas?

I want to assure people that we are working very hard on healthcare reform. We understand the difficulties, both with businesses and individuals in where healthcare is now. Our effort is to fix it, to make it better, to try to get away from the political discussions and actually focus on good public policy.

So I’ve been traveling around the District. In fact, I was just up at Sentara Hospital in Prince William County the other day doing a healthcare listening tour to hear from folks out there, the businesses that are having to deal with providing healthcare and how we make that system work better. Make it work better for patients, make it work better for providers to make sure we’re bringing costs down, to make sure choices are there. Because where we are right now, by any measure, is not acceptable. And we want to make sure, too, that we keep the things that people hold as very important with where we are right now. And that is continuing coverage for folks with preexisting conditions, making sure dependents up to age 26 can stay on their parents’ policies. Those are the foundational elements of whatever we do going forward on reform. We want to make sure that we get this right. And again, fix those problems that are out here and put more power and decision making in the hands of the patient and provider and do more things to help them manage costs, so healthcare is affordable, and that they have the choice to receive through their coverage what’s best for them.

Allison Gilmore is NVTC’s Vice President of Communications and Strategic Initiatives.
How long have you lived/worked in Northern Virginia?
I grew up in Fairfax County. My family lived off of Beulah Road in Franconia where there were still dairy farms. We later lived off of Pohick Road before moving into the City of Fairfax.

During law school, I worked for Bill Cummings in Old Town Alexandria. Bill had been the U.S. Attorney for the Eastern District of Virginia. After graduating, I spent two years clerking for a federal judge in D.C. before moving my way to partner at McGuireWoods in its Tysons office, where I worked with people like Ed Prichard, Carrington Williams and Jim Dyke – real pillars of Northern Virginia. I started representing AOL during the Internet boom of the late 1990s and went in-house in 2003, working out of the Dulles campus.

I now live in Old Town Manassas, just a short walk from the VRE and lots of great restaurants and shops. It’s a diverse, funky little town.

What was your first job?
Dishwasher at the Bob’s Big Boy in Springfield.

Did you learn anything at that job that you still use today?
I learned how to roll up my sleeves and enjoy really hard work. I had a number of other jobs like that through high school and college: moving furniture for JK Moving when the Kuhn family was just getting going, working on the restoration of a historic home in Fredericksburg, building decks and patios, working a jackhammer, and doing pipe-fitting and electrical work as part of a construction project at the Watergate Complex. These were really formative experiences.

Do you stay in touch with former classmates?
Yes. I appreciate more all the time what a remarkable group of people I had growing up alongside me.

I have stayed in touch with Denis McFarlane, a lacrosse and football teammate who founded Infinitive and sits on the Board of Inova Loudoun Hospital; John Brennan, a football and wrestling teammate and Army Special Forces combat Veteran who was recently promoted to general and serves our country with a degree of sacrifice that’s just profound; a track teammate, Alan Johnson, who went on to win Olympic gold; another football teammate, Hubert Davis, who went on to a great college and pro basketball career; another lacrosse teammate, Dave Grohl, was the drummer for Nirvana and is the front man for the Foo Fighters. Others poured themselves into community service and rearing great kids; this is hugely important work.

I love that so many have chosen to stay in Northern Virginia. And I love that Northern Virginia has become the kind of community where so many talented people want to make a life. That doesn’t happen without a vibrant business climate.

“How routine” work day includes:
My job includes managing our public policy, compliance and litigation functions. Stretching those roles across global lines of business that include news-gathering properties like Huffington Post and TechCrunch, advertising and content delivery platforms, our legacy subscription business, and original programming like MAKERS and Park Bench with Steve Buscemi makes every day and week different. It’s a great job. Nuts sometimes in that I don’t always know what I’ll be working on or where I’ll be, but a great job.

How does your company stay ahead of the game, in terms of tech innovation?
We’ve been doing business for 35 years in an industry that is constantly changing. We were the first company to scale an ISP business to tens of millions of consumers, a pioneer in online mapping (MapQuest), the first Internet company to win an Emmy and the first Internet company to win a Pulitzer. But new market entrants like SnapChat disrupt consumer technologies so quickly it’s dizzying.

We’ve done well to attract and retain
some great programming, engineering and data science talent by making the company a great place to work. And our leadership team, including Verizon, which purchased us in 2015, is committed to playing hard and winning in areas as diverse as smart cities and online advertising. That’s fun to be around.

What did you imagine you’d be doing right now when you were a kid?
The life of an airline pilot couldn’t have seemed more cool or exotic! Regular work travel and the misery of taking ill away from home have taken some of the luster off of that idea.

If I wasn’t working at my company, I would be:
At my old firm. It’s a great outfit where I’d planned on spending a career.

Proudest accomplishment (professional or otherwise):
Children who are kind, intellectually curious and a joy to be around.

When I’m not at work, I like to:
Spend time with my partner and best friend. She’s a pediatric cardiologist and great company whether we’re just hanging out on the sofa with our dog, golfing or traveling the world.

I’ve got a few hobbies, like hiking, skiing, scuba diving, and fishing, that I do with my kids. I’ve also coached youth soccer for a number of years.
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David Sozio | Technology Group Head
david.sozio@regions.com
The following photos are a snapshot of some of the great networking among attendees at NVTC’s recent events.

NVTC Titans Featuring Rolls-Royce North America President and CEO Marion Blakey on December 15, 2016

2017 Capital Data Summit on February 15, 2017

Michael and Sharon Ferraro of Training Solutions, Inc.

George Mason University College of Science Dean Peggy Agouris and HPE President and CEO Meg Whitman

Chris Maloney of Enterprise, Cliff Chiet of iHeartMedia and Nicole Zambs of Enterprise

Loren Hudziak of Google, Dan Denenberg of FEDOC, Chris D’Agostino of Capital One, Chiny Driscoll of MetiStream and Russ Cosentino of Zoomdata

Andrew Robinson and Brad King of Robbins Gioia

Dr. Marshall Ruffin of Inova and Dendy Young of McLean Capital, LLC
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