GOVERNMENT OF THE DISTRICT OF COLUMBIA
Office of the Chief Technology Officer

Office of Chief Technology Officer
Performance Hearing

Testimony of
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Before the
Committee on Government Operations
Brandon T. Todd, Chairman
Council of the District of Columbia

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Good morning, Councilmember Todd, and members of the Committee on Government Operations. I am Barney Krucoff, the Interim Chief Technology Officer of the District of Columbia. I am pleased to testify today on behalf of Mayor Muriel Bowser regarding the performance of the Office of the Chief Technology Officer (OCTO) over Fiscal Year (FY) 2017 and to represent OCTO's many smart, hard-working employees.

Mayor Bowser's Fiscal Year 2017 Budget reflected our deep commitment to DC values by making investments that provide all residents of the District of Columbia with the opportunity to succeed. We remain focused each day on creating pathways to the middle class by investing in education, affordable housing, infrastructure, public safety, and people.

At OCTO, in particular, we aim to direct the strategy, deployment, and management of DC Government technology with an unwavering commitment to IT excellence, efficiency, and value for government, residents, businesses and visitors. I sometimes hear people say, "I don't understand OCTO." Although OCTO provides many complex services, in the big picture, OCTO is not complicated or hard to understand. Let me explain:

ConnectDC

One of the smaller functions of OCTO, but a function that rightly gets a lot of attention, is ConnectDC, which is an OCTO program that works to close the digital divide. Through ConnectDC, we provide Digital Literacy Training, Technology and Internet Subsidies, and WiFi for public housing residents.

Digital Literacy Training: OCTO, in conjunction, with the local nonprofit Byte Back, provides extensive semester-length classes to residents. Participants learn basic computer skills, including, for example, how to use email, search the Internet, and perform file and folder management. We are reaching seniors through this program, the average age of participants is currently 53, and the oldest student was 86.

Technology and Internet Subsidies: Through a relationship with another nonprofit organization, Everyone On, OCTO provided 500 months of free Internet to low-income District families in FY17.

WiFi for Public Housing Residents: As part of the ConnectHome initiative, and through a partnership with the District of Columbia Housing Authority (DCHA) and the Mayor's Office of Federal and Regional Affairs, OCTO upgraded the infrastructure in 21 DCHA-managed

properties and delivered free DC WiFi to more than 1,500 households. This effort provided broadband access to more than 750 school-age children.

In addition, we promoted public awareness through an ad campaign on local buses and in Metrorail stations around the city to promote technology training, and published a Cyber Security Awareness Guide to educate residents on how to safely browse the Internet, handle emails, and more. We are proud of our Digital Divide Programs through ConnectDC and are always looking for ways to expand them to reach more people.

DC Net and Telecomm Services

Now, let's move on to understanding other parts of OCTO. I'd like to start with our biggest unit—DC Net. District residents buy broadband Internet for their homes through an Internet Service Provider (ISP), such as Comcast, Verizon, or RCN, to name a few. OCTO is the ISP for the entire District Government, plus some federal agencies and nonprofits. We connect District operations, and OCTO's DC Net program runs an extensive fiberoptic network that is the envy of other jurisdictions. DC Net is big, with a 100-gigabit core; DC Net is extremely reliable, 99.999 percent availability; and DC Net also has capacity for growth.

We currently connect over 622 buildings, including government facilities, schools, libraries, recreation centers, senior centers, and police and fire/EMS stations. At those locations, we extend the Internet presence through WiFi. DC WiFi is free to the public and available both inside and outside of many District buildings. OCTO manages 804 WiFi access points. For example, at Ballou High School in Ward 8, DC Net recently completed deployment of 14 outdoor wireless access points, providing complete coverage of the campus.

Unlike typical ISPs, OCTO has a special mission to service "Community Anchor Institutions" through our DC-CAN program. These can be nonprofit entities. If a nonprofit is located near DC Net fiber and is large enough to require substantial bandwidth, for example a T1 line, DC Net may be able to provide more bandwidth at no additional cost.

Like the ISPs that service residents' homes, OCTO loves to bundle our products. We are also the telephone company for District agencies. Our voice operations support more than 80 million phone calls annually on 40,000 land-line phones, including 31 call centers. We have a particularly important relationship with the Office of Unified Communications, where we support separate call centers for 9-1-1 and 3-1-1.

Today, data and telecommunications go well beyond wired networks. OCTO manages the District's relationships with several wireless carriers, and strives to get the District the best value for our investment. Our mobile telecommunication governance program is the managerial and technical support program for 30,380 mobile devices..

You may well ask what are District employees doing with all of those devices? Email, of course is the number one application. We handle 740 million email transactions per year within our Citywide messaging infrastructure. This includes spam, malware, and other email. We also store 293 terabytes of email information to comply with the city's open records laws. In 2017, OCTO completed a milestone upgrade of the District's email system to the Microsoft Office 365 Platform, giving agencies extensive new tools for collaboration and enhanced security.

With tens of thousands of land lines, mobile devices, and personal computers of all shapes, sizes, and capabilities, inconveniences will arise:

- An office worker forgets her password;
- A DCPS teacher can't get his new laptop cart to work as expected;
- An administrator's printer cartridge is out of ink, and the boss wants 15 hard copies stat; or
- Heaven forbid, your computer displays the "blue screen of death."

Who you gonna call? OCTOhelps! Someone from OCTOhelps, our 85-person tech support team, rushes to the scene, only, unlike their colleagues at Fire and Emergency Medical Services, we don't save lives, we save productivity! We receive 152,000 phone calls and resolve 255,000 help desk tickets annually.

Cyber Security and Data

Not every IT service ticket is as easy as replacing a printer cartridge, and some involve IT security. In addition to providing technical support to many District agencies and their employees, OCTO runs the District's citywide cyber Security Operations Center (SOC). We counter an average of 423,407 cyber-attacks each day, and threats are always evolving. At OCTO, we realize the stakes are high. We are constantly asking ourselves: if our security team thwarts ten million attacks and one attack gets through, is that good enough? Cyber-attacks are most likely to succeed when those of us on DC's network fail to take basic precautions, for example, clicking on a link in a phishing email. That is why OCTO implemented cyber security

awareness training and requires all District employees to complete an online course to ensure they understand their role in protecting the District's IT environment.

OCTO is constantly searching the DC Network for Desktop and laptop computers without the latest patches; improperly configured mobile devices; servers that need to be patched; applications that need to be patched; and more. OCTO crews will then work through the night applying the latest patches to ensure that systems are secure and ready when agencies open in the morning.

We know that what the bad guys really want to get is the data. But what data does the District have exactly? Where is it, and how sensitive is the information? While we constantly work to make sure our data is protected, OCTO also realizes that protection must also be balanced with openness. Mayor Bowser is committed to "making our local government one of the most accessible systems in the country." To those ends, on April 27, 2017, the Mayor issued Executive Order 2017-115, the District of Columbia Data Policy, with the stated goal of driving the District of Columbia Government toward more open and efficient usage and sharing of government data.

The policy established the following principles, acknowledging the value of data to the District and the inherent need to balance openness and protection:

- Data are valuable assets independent of the information systems in which the data reside; and
- The greatest value from those assets is realized when freely shared to the extent consistent with the protection of safety, privacy, and security.

The centerpiece of the Data Policy is known as the Enterprise Dataset Inventory, which is due to be publicly released on later this month. The District has never had such an inventory. The inventory not only describes the District's data holdings—it also classifies those holdings by sensitivity. For every enterprise dataset that cannot be open to the public, an explanation for restricting access will be publicly provided. Publicly releasing the inventory will go a long way toward meeting the Mayor's commitment to "being open by default."

All of the District's data resides on servers. OCTO's server team manages over 3,900 servers and hundreds of applications for 87 agencies. Those servers are located in our data centers and, now, also in the cloud.

Managing our servers and applications is extremely important. You may not realize it because when OCTO does its job well, you rarely hear about it. However, imagine what happens when those servers and applications do not work? I'd like to share an example of such an incident:

In one data center, a drive fails in a piece of equipment called a storage area network, or SAN. There is redundancy within this device, such that if one or even a few drives fail, it should "self-heal." However, the self-healing process goes awry – the SAN device is so busy healing itself, it stops handling other normal requests. The effects are significant: The PASS System, which makes and tracks purchases made across the District Government, cannot be used; citizens realize the line at the DMV has stopped moving and some of them take to Twitter; a DDOT field crew that has just filled a pothole can't complete the job by using their mobile device to close the work order.

Reports begin flooding into OCTO—both through automated alerts from systems we operate, and through calls and emails from our agency partners. OCTO engineers immediately stop their normal tasks and get on a conference call. The first order of business is sorting through all of that incoming information and isolating the underlying problem. Once the malfunctioning device is identified, support from the original equipment manufacturer has to be called and a solution identified. Typically, within one to two hours, the outage is completely resolved, and District operations revert to normal without incident. This is part of the work that OCTO does every single day. I shared that anecdote because:

- I'm proud of the technical teams that routinely diagnose and resolve such situations;
- I appreciate the efforts of our vendors, who stand behind their products and help us get back up and running. Those vendors also work closely with us to make sure such events don't happen a second time;
- The story speaks to the efficiencies that OCTO brings to the District information technology operations. We do not have numerous agencies operating important IT systems independently. Agencies share the same data centers, and applications share the same expensive pieces of equipment. A centralized and talented team of experts supports many critical applications. Through these efficiencies, centralization is saving the District money each and every day;
- Citizens want education, jobs, housing, and safety. OCTO is not normally on the front lines of government, directly dealing with residents and businesses, but we help in those

big issues, and the smaller ones, 24/7/365. Citizens want the line at the DMV to move and potholes to be filled. Small businesses want contracts to get through. We are critical to the routine operations of all District agencies that are on those front lines every day.

Looking Ahead

As you can see, OCTO serves the District in numerous ways day in and day out. I would like to close by telling you about three of the ways in which we aspire to improve and expand:

1. **Improving communications with our partner agencies.** Personally, improving communications is my biggest push as Interim CTO. OCTO would like to continue to improve communications around our long-term technology strategy, and better outage reporting with all of our partners throughout District.
2. **Leveraging DC Net capacity for good.** OCTO wants to reach more people, particularly with DC WiFi. We are working with the Office of Public Private Partnerships and DDOT, for example, to determine how best the District's assets can be leveraged in alignment with this long-term policy goal. We will continue to look for focused areas where the DC Net infrastructure, digital divide problems, and opportunities for economic development overlap. That is where OCTO can provide solutions that serve the broadest segments of the District's residents, in the most cost-effective way.
3. **Cyber Security** is of paramount importance, and this administration is constantly working to ensure we are constantly monitoring and improving our cyber security efforts. As Interim CTO, I am fortunate not only to have the support of the Mayor, but also the collaborative efforts of Homeland Security and Emergency Management (HSEMA) and the Office of Risk Management (ORM). For example, OCTO and HSEMA have improved the flow of intelligence between OCTO's security analysts, who have the details of what is happening on the front lines, and HSEMA's fusion center, which can put those details in an overall context. Additionally, OCTO works with ORM to develop District-wide policies to address potential cyber-threats and associated risks.

Without going in too much detail, I can report that OCTO's priorities for cyber security include filling key vacancies, expanding the hours of operation for the SOC, implementing several tools that provide additional layers of security, and developing District-wide policies in collaboration with other District agencies. Please know that we are staying vigilant.

Conclusion

That concludes my testimony. I'd like to thank you, Chairman Todd, for your leadership and support. I appreciate the opportunity to share our accomplishments and plans for continuous improvement, and look forward to continuing to work with the Committee. I hope my testimony has given all of you a better understanding of OCTO. I am happy to address any questions you may have at this time.