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Improving Management and Acquisition of IT Investments

Testimony Before the
Committee on Oversight and Government Reform
U.S. House of Representatives

Hearing on "Wasting Information Technology Dollars: How Can the Federal Government Reform its IT Investment Strategy"

January 22, 2013

Chairman Issa, Ranking Member Cummings, and distinguished Members of the Committee: Good afternoon. My name is Chris Niehaus, and since 2009 I have been the Director of Microsoft's U.S. Office of Civic Innovation. My team focuses on developing and delivering new and unique solutions in the Government, Education and Healthcare communities. We have developed, for example, a cloud-based 3-1-1 system for citizen access to municipal services, and we are adapting a gesture-tracking gaming device to help with injury rehabilitation for wounded warriors and to help detect improvised explosive devices. Additionally, I work extensively with Public Sector customers on technology efficiency and optimization initiatives, from the evaluation and adoption of Cloud Services to the modernization of end user experiences through Mobility and Virtualization technologies. Before becoming Director of Civic Innovation, I was a Director of Technical Sales in our Federal Government business where I launched Microsoft's first Cloud email and collaboration service (the precursor of our current Office 365) and focused on working with government customers to drive efficiency in Systems Management and Desktop Optimization. I appreciate the opportunity to be here today to discuss the Government's management and acquisition of IT investments.

While my experience at Microsoft has focused on public sector customers, that work is informed by Microsoft's broader experience supporting public and private sector customers, large and small, around the world with diverse requirements, sensitivities and constraints. I hope that my practical experience working with both private and public customers will aid the Committee in its consideration of the Government's IT investment strategy.

Before I address areas for improvement, I'd like to commend the steps the Government has taken to optimize costly data centers, cancel troubled custom-designed IT programs, and coordinate a standardized approach for determining the security of cloud-based services. We also support the Committee's goals of reducing the Federal Government's cost of operating and maintaining legacy systems, decreasing duplicative technology, utilizing more cost-effective commercially available technologies, and maximizing the value federal customers receive from their IT assets. At a time when Government agencies must justify and extract maximum value from every dollar they spend, Microsoft's experience repeatedly validates three lessons that support these goals: 1) agencies can decrease the cost of expensive existing IT assets, as well as avoid unnecessary acquisitions, by more effectively assessing and managing existing technology, 2) the most successful and cost-effective IT solutions result when the private sector collaborates with agency CIOs and procurement officials to provide commercially available technologies in a way that meets agencies' unique needs, and 3) the Government is able to obtain the best value when IT is acquired based on principles of full and open competition, and the evaluation factors are clearly defined. These three points help us assess the promise and cost-effectiveness of both existing and pending Federal IT procurements, and inform our views on IT acquisition reform efforts. I hope they will provide you with ideas on how to craft effective legislation in the IT procurement area.

I. Government decreases the cost of expensive existing IT assets, as well as avoids unnecessary acquisitions, by more effectively assessing and managing existing technology.

The Committee is right to focus on "IT investment strategy" today, and not simply acquisition. Though there is room for reform when it comes to acquiring IT assets, as I will discuss, recent

GAO reports show that an equally important area of focus for cost savings is the better utilization of existing IT assets. Such improved utilization practices can, in turn, facilitate more effective acquisitions in the future. In one report dealing with IT operations and maintenance expenditures, GAO focused on the need for agencies to make better use of oversight mechanisms under the Clinger-Cohen Act (e.g., operational assessments) to manage existing IT assets more efficiently. This is particularly important given that GAO found that the "significant majority" of federal IT spending goes towards the operation and maintenance of existing technology, rather than new technology acquisitions.[1] In my experience, spending money on existing technology is not necessarily a problem, so long as that spending is being done on technology that is well managed and continually integrating the latest technological innovations.

In another report, GAO noted that cost savings can result when agencies review and analyze more rigorously the performance of existing IT investments.[2] GAO suggests that review and analysis of existing IT investment is weak, largely because agency risk assessments leave important data out of their analysis. On the other hand, the GAO has noted occasions where agencies have decreased duplicative technology by reviewing portfolios of existing IT investments.[3] These reports validate Microsoft's experience that better management and evaluation of existing IT assets can greatly enhance efficiency.

There are a number of opportunities for the Federal Government to strengthen its process of assessing and managing existing federal IT assets. First, it could make mandatory the OMB recommendations that agencies should assess the operation and performance of existing IT assets based on seventeen key factors. This would address the GAO's concern that such evaluation is not being performed consistently. In line with this, we applaud efforts to require agencies to engage in government-wide inventory of existing assets, including those in the National Defense Authorization Act of 2012. Agency CIOs, working with the CIO Council and OMB, are well situated to perform the type of analysis, inventory, and management of existing IT resources that GAO recommends should be more rigorously implemented. The effectiveness of this process is heightened by establishing one CIO within each agency.

Second, we believe it makes sense that agency CIOs should perform a business case analysis evaluating current assets, existing needs, and new technologies to increase efficiency, before making IT acquisitions of a certain magnitude. This would decrease the likelihood of duplication and more closely mirror the private sector's continual focus on identifying and evaluating alternatives for reducing the total cost of ownership. In addition, this process would be superior to requiring that such analysis be performed on a government-wide basis by a single outside agency that would lack a CIO's intimate awareness of the needs and resources of a particular agency. Giving heightened budgetary authority to agency CIOs over IT acquisitions

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[1] GAO, *Information Technology: Agencies Need to Strengthen Oversight of Billions of Dollars in Operations and Maintenance Investments*, GAO-13-87 (Washington, D.C.: October 2012).

[2] GAO, *Information Technology Dashboard: Opportunities Exist to Improve Transparency and Oversight of Investment Risk at Select Agencies*, GAO-13-98 (Washington, D.C.: October 2012).

[3] GAO, *Information Technology: Departments of Defense and Energy Need to Address Potentially Duplicative Investments*, GAO-12-241 (Washington, D.C.: February 2012).

would help, ensuring that officials who are most aware of existing IT assets and needs are empowered to make the necessary acquisitions.

This discussion should not focus solely on what the Government alone can do better. Obviously, we in the private sector have an important role to play. Based on my experience, I know that industry can and regularly does assist agencies in the goal of better managing existing assets, as well as constantly evaluating new technologies that can increase efficiency. Industry can provide IT solutions that decrease duplicative technology and empower a Government buyer to make smarter decisions. Here, an important part of the answer lies in new, cloud-based delivery models that allow agencies to dynamically select and consume the IT they need. This is but one benefit of cloud computing, which offers federal customers IT that is always kept up to date at the cloud provider's location, thus making the update process transparent and convenient for the end user. Files and data can be stored remotely and automatically backed up. A move to the cloud enables agencies to modernize and better control their IT resources and to do so within their operating expense budgets rather than through large capital expenses. However, it is important that federal customers make thoughtful and accountable decisions when selecting cloud computing service providers to make sure that trusted vendors will protect the Government's highly sensitive data. In addition, while the cloud offers many efficiencies, it is not a substitute for federal departments and agencies effectively managing their own networks. Even machines and devices that use cloud services over Federal Government networks must be authorized, secured, updated, and otherwise properly managed.

Industry can also help agencies reduce the costs of existing assets by providing solutions that modernize back-end technology and facilitate best practices for better managing these assets. In fact, reducing the costs of operation and maintenance of legacy systems may not be so much a problem of bad or outmoded software as it is a matter of smarter management and deployment of IT assets. For example, in a 2011 report, Gartner, a technology research firm, found that if software configuration and user customization are managed at the system administrator level, operating and maintenance costs can be nearly halved in comparison with leaving user PCs unmanaged.[4] The report also noted that money is often wasted on under-implemented management systems, and that software ownership costs are by themselves a small fraction of the total cost of ownership. Through appropriate use of inventory controls and configuration management, the report found, the average total cost of ownership per PC can be reduced from $5,795 to $3,310 per year.[5] Further, with adoption of Application and Desktop Virtualization Technologies when mission-appropriate, total cost of ownership per PC can be reduced another thirty percent.[6] Industry can work with individual agencies to assess the best strategies for

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[4] Frederica Troni et al., *Desktop Total Cost of Ownership: 2011 Update*, Gartner Report No. G00208726 (November 16, 2010).

[5] *Id.*

[6] Frederica Troni & Terrence Cosgrove, *Total Cost of Ownership of Traditional Software Distribution vs. Application Virtualization, 2011 Update*, Gartner Report No. G00211177 (March 17, 2011); Frederica Troni & Mark A. Margevicius, *Total Cost of Ownership Comparison of PCs With Server-Based Computing, 2011 Update*, Gartner Report No. G00209456 (December 14, 2010); Frederica Troni et al., *Total Cost of Ownership Comparison* (continued…)

achieving such savings given each agency's particular missions and needs, and the Government can make sure that CIOs and acquisition officials have the flexibility and incentives to implement those strategies.

Finally, industry can provide solutions that enable agencies to optimize resources in a way that is tailored to agencies' specific missions. For instance, the private sector has deployed innovative solutions that have greatly increased the efficiency of commercial data centers.[7] Similarly, to take an example from my recent experience, the Army, Air Force, and Defense Information Systems Agency were able to save an estimated $100 million per year[8] by entering into a Joint Enterprise Licensing Agreement or JELA to access the latest Microsoft technologies and support IT priorities such as datacenter optimization, standardization, interoperability for all three agencies, and utilization of cloud computing. However, this example also illustrates that consolidation must be done with each agency's business needs and strategic goals in mind. The Army-Air Force JELA was a successful effort because the CIOs communicated about their resources and needs and worked directly with industry to produce a solution that made sense for their specific situation, including special security needs for the Department of Defense. Such consolidation would be ill-advised if the result is to compromise any agency's mission or unique requirements.

II. Agencies are able to acquire the most cost-effective and successful IT solutions when industry is able to work collaboratively with agency CIOs and procurement officials to bring to bear existing commercial technologies and tailor those technologies to meet agency-specific missions and needs.

Not only is the Government generally required to purchase commercial items when available and to perform market research to determine if such items are available,[9] but experience has shown that the purchase of such products can provide effective IT solutions at a significantly lower cost

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of PCs With Hosted Virtual Desktops, 2011 Update, Gartner Report No. G00209403 (December 14, 2010).

[7] For example, Microsoft's recently expanded or newly built data centers make use of air-side economizers to improve cooling efficiency, and have made other impressive improvements in energy efficiency and service continuity. Christian Belady, *2012's Big Moments in the Microsoft Cloud* (December 31, 2012), http://www.globalfoundationservices.com/posts/2012/december/31/2012s-big-moments-in-the-microsoft-cloud.aspx (last visited January 16, 2013). Mark Forman, former administrator for e-government and IT at OMB recently said that the predominant approach to data center consolidation used by the Government will result in little net savings. Frank Konkel, *Forman: FDCCI Cost Savings Are 'Smoke and Mirrors,'* FCW (November 29, 2012), http://fcw.com/articles/2012/11/29/fdcci-savings.aspx (last visited January 17, 2013).

[8] Tim Greene, *DOD Saves $100M a Year with New Microsoft Licensing Deal*, Network World (January 4, 2013), http://www.networkworld.com/news/2013/010413-dod-microsoft-265517.html (last visited January 17, 2013).

[9] *See* Federal Acquisition Streamlining Act of 1994, Pub. L. No. 103-355, 108 Stat. 3243 (1994); FAR Part 10.

than custom IT developed specifically for an agency. It is in the Government's best interest to acquire such custom-made solutions only when commercially available solutions are clearly inadequate to meet Government requirements. The history of federal IT procurement provides many examples of agencies' well-intended custom IT development programs that were wisely scrapped due to high cost, low performance, or both.[10]

However, for the Government to successfully utilize commercially available technologies, it must also buy commercial items in as commercial a manner as possible. For this to occur, agency CIOs, the CIO Council, procurement officers, and industry must collaborate more closely to fully understand the commercial abilities of the private sector. As emphasized by the Office of Federal Procurement Policy and the previous U.S. CIO,[11] such collaboration is particularly important when Government is developing its requirements for future acquisitions, so that the Government understands what can be obtained from the commercial market in current form or in a manner that can be customized to agency needs. Facilitating direct communication between industry and agency CIOs is critical, as CIOs are uniquely aware of the IT needs of their own agencies and can communicate those needs when they report to the CIO Council, as they are required to do.[12] This creates an opportunity for identification and coordination of similar needs, as well as innovation and customization to meet unique needs.

In my own work, I have seen how industry can work with agencies to adapt commercial devices and services to meet the myriad missions that the Federal Government must accomplish. For example, in response to the Air Force's need for better and more affordable rehabilitation tools for our wounded warriors, Microsoft and the Air Force are currently collaborating to identify ways in which the Xbox Kinect, a mass-market, off-the-shelf game controller which, unlike traditional hand-held controllers, recognizes movements, gestures and speech, can be adapted to meet the specialized needs of the Air Force's medical community as a rehabilitation tool for our wounded warriors. The Xbox Kinect costs about $110 on the mass commercial game market, yet given its substantial development costs, it would cost orders of magnitude more than that if marketed exclusively as a medical rehabilitation device. We are also exploring how to use Kinect technology to help our warfighters in other ways, such as helping defeat IEDs, and we are

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[10] For example, in 2010 the OMB halted the acquisition of all federal IT financial systems because agencies were purchasing custom built financial management packages that "too often cost more than they should, t[ook] longer than necessary to deploy, and deliver[ed] solutions that [did] not meet [an agencies] business needs." Office of Management and Budget, *Memorandum for Heads of Executive Departments and Agencies* (June 28, 2010), available at http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m-10-26.pdf.

[11] Office of Federal Procurement Policy, *'Myth-Busting 2:' Addressing Misconceptions and Further Improving Communication During the Acquisition Process* (May 7, 2012), http://www.whitehouse.gov/sites/default/files/omb/procurement/memo/myth-busting-2-addressing-misconceptions-and-further-improving-communication-during-the-acquisition-process.pdf; Vivek Kundra, U.S. Chief Information Officer, *25 Point Implementation Plan to Reform Federal Information Technology Management* (December 9, 2010), https://cio.gov/wp-content/uploads/downloads/2012/09/25-Point-Implementation-Plan-to-Reform-Federal-IT.pdf.

[12] *See* 44 U.S.C. § 3603(b)(4).

working under a cooperative agreement with the Army to use Kinect technology to help estimate potential threat levels from pedestrians. These examples illustrate how economies of scale in the commercial market can be leveraged to meet the highly specific needs of federal customers.

We commend efforts by the Government to encourage agencies to optimize and modernize their IT resources using creative collaboration with industry to identify and adapt the best available commercial technology. We also support efforts such as FedRAMP, to provide standardized approaches for determining the security of cloud-based services.

We would caution, however, that a top-down, lead-agency IT acquisition model should be avoided. Centering acquisition authority in one outside agency that does not intimately understand the specific needs of individual agencies could create a needlessly cumbersome process that could make it more difficult for industry and agency customers to work together in an agile and creative way to meet mission needs.

We also recommend that the Government avoid mandating any new acquisition structures focused on procuring so-called "commodity IT," for several reasons. First, it is not clear what precisely is meant by the term "commodity IT," or why an additional term beyond "commercially available off the shelf" (COTS) is needed. To the extent that there is an assumption that IT services or devices could be generically interchanged, there turns out to be very little IT that is truly a "commodity." Even widely used IT technologies are rarely so generic that they can be bought interchangeably like pencils or copier paper. Something as ubiquitous as email is not a commodity, as demonstrated by GSA's recent awards for email-as-a-service, where GSA appropriately designated seven different varieties of email service, depending on the privacy, security, cost and other legal and mission needs of specific agencies. In our experience, the email needs of a soldier on the battlefield with a disconnected device, for example, are vastly different from those of a field inspector for the USDA or a criminal justice official making communications with a prosecution task force. The best-value email solution for each of these users will be quite different, and procurement policy should not only recognize that, but encourage industry and Government to tailor solutions when appropriate.

Second, products such as pencils or cleaning supplies are static and do not undergo the rapid, nearly daily technological change that cloud-based services undergo. Assuming that an IT service is static and not evolving is no more valid than assuming that the mission of a Government worker is static and not evolving.

Third, attempting to categorize certain IT products as a commodity overlooks the increasing prevalence of "IT-as-a-service," which by moving more IT into the cloud makes IT an operating expense, rather than a capital expense, thus enabling it to be re-scaled and redeployed very quickly. Implementing procurement policy that ignores this trend, which is being adopted aggressively within the private sector, would run counter to emerging industry best practices and decrease the Government's ability to obtain the most effective IT solutions. For this reason, strategic sourcing, a system typically used for items that truly are commodities, such as office or cleaning supplies, is less likely to be effective or even necessary in the realm of information technology.

Industry is ready and eager to bring to bear best-in-class commercial IT solutions to meet agency missions, and we and our competitors work every day to out-innovate each other in this regard. But a model that focuses on commodity IT may actually cut against the benefits that can be realized by purchasing commercially available IT. Devices and services available on the commercial market have varying levels of complexity and quality. The commercial market provides a wide range of options for agencies to select and adapt IT solutions that meet an agency's specific needs. Policies that require agencies to procure cookie-cutter technology based on a one-size-fits-all standard would ignore many commercially available and cost effective solutions that can better meet the needs of agencies, and might keep some sophisticated commercial innovators out of the federal market.

III. Federal customers receive the greatest return on an IT investment when the focus is on the total life-cycle cost of ownership and best value, and when selection and evaluation of IT assets is done using neutral criteria consistent with federal competitive procurement norms.

Agencies are generally required to select IT solutions that maximize best value for the Government.[13] One of GAO's recent reports supports the OMB recommendation that agencies need to evaluate the "life-cycle costs" of IT investments.[14] What this means, as the Committee is aware, is that a short-term emphasis on initial acquisition cost that ignores the total cost of ownership will increase the Government's overall IT costs. IT acquisition reforms need to recognize that the "best value" solution will vary on a case-by-case basis, and should require agencies to be clear in defining more precisely what will constitute the best value IT solution for a particular IT mission. And when a CIO's office defines best value precisely, the Government should ensure that procurement officials within agencies adhere to those definitions when actually making purchase decisions.

In those instances where all things really are otherwise equal among COTS IT products and services, then cost (over the expected lifetime of the technology) will be the driving factor. But in many other instances, the needs of the mission will require an examination—and likely a careful balancing—among a number of potentially competing interests, including cost, availability, redundancy, security, accessibility, privacy and other factors.

Different technologies as well as different licensing models need to be considered and evaluated against neutral criteria to decide which model will provide the best value for the federal customer in a specific situation. The then-U.S. CIO, OFPP Administrator, and IP Enforcement Coordinator noted that "as program, IT, acquisition, and other officials work together to develop requirements and plan acquisitions, they should follow technology neutral principles and practices," which means "selecting suitable IT on a case-by-case basis to meet the particular operational needs of the agency by considering factors such as performance, cost, security,

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[13] FAR 15.302.

[14] GAO, *Information Technology: Agencies Need to Strengthen Oversight of Billions of Dollars in Operations and Maintenance Investments*, GAO-13-87 (Washington, D.C.: October 2012).

interoperability, ability to share or re-use, and availability of quality support."[15] As part of a transparent, fair and cost-effective technology selection and evaluation process, in which the competition is full and open to all competitors, we recommend that neutral factors such as the following be used:

1. Total cost of ownership/operation over the anticipated lifecycle for the technology;
2. Security/resiliency of the technology against attack or unauthorized access, including applicable requirements such as IT security controls, authorization and monitoring (FISMA), patient privacy (HIPAA), confidentiality of criminal justice records (CJIS), and educational privacy (FERPA);
3. Privacy implications for both citizens and Government users who interact with the technology;
4. Accessibility of the system to those with disabilities;
5. Integrity of records maintenance, such that they can be archived and retrieved intact for future reference as authoritative proof of final agency actions;
6. Data portability to allow for interaction between data systems, citizen access to data, and migration between service offerings; and
7. Openness of the technology in terms of utilizing globally recognized, interoperability standards.

Different factors will be more important to different federal customers, depending on the unique needs of the mission that must be satisfied. The Government should ensure that procuring agencies define clearly and transparently what factors will weigh most heavily in a determination of "best value" in a particular procurement. For example, the Acquisition Advisory Panel has noted "GAO and IGs concerns about ill-defined requirements in orders under interagency contracts" and recommended more up-front planning requirements before actual procurement occurs.[16] Increased transparency in the Government's requirements allows more competitors to enter the market, which provides the greatest range of cost-effective solutions for the Government. The Government similarly benefits from accepting commercial licensing terms where available.

Conversely, the Government should expect industry to be equally transparent in the acquisition process about how the devices and services being offered to the Government will satisfy the Government's more explicit best-value requirements. As Microsoft's General Counsel, Brad Smith, observed in a keynote address to a Washington, D.C. forum on Cloud Computing for Business and Society, "it shouldn't be enough for service providers simply to say that their services are private and secure. There needs to be some transparency about why that's the

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[15] Vivek Kundra, U.S. Chief Information Officer, Daniel I. Gordon, Administrator for Federal Procurement Policy, Victoria A. Espinel, U.S. Intellectual Property Enforcement Coordinator, *Technology Neutrality* (January 7, 2011), http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/memotociostechnologyneutrality.pdf.

[16] Acquisition Advisory Panel, *Report of the Acquisition Advisory Panel to the Office of Federal Procurement Policy and the United States Congress* (January 2007).

case."[17] For example, the Government may feel it important to ensure that the sanctity of the data it entrusts to third parties will be preserved and to know what, if any, uses will be made of the data by the contractor host company. We, and our competitors, need to do better in this area so that our Government customers can be better buyers and guardians of data.

IV. Conclusion

Microsoft recognizes the importance of providing IT solutions that increase efficiency while still providing effective IT solutions to meet the needs of our federal customers. We look forward to continued collaboration with federal agencies to improve the management of existing IT assets, identify more cost-effective commercial technologies tailored to the needs of agencies, and provide IT solutions that will maximize best value and decrease the total cost of ownership for agencies. We also look forward to working with members of this Committee and other members of both the House and Senate as they consider ways to improve the Government's IT investment strategy. I thank you for your time and look forward to answering your questions.

[17] The Brookings Institution, *Cloud Computing for Business and Society* (January 20, 2010), available at http://www.brookings.edu/~/media/events/2010/1/20%20cloud%20computing/20100120_cloud_computing.pdf.