

Testimony before the Subcommittee on Government Operations,
Committee on Oversight and Government Reform,
U.S. House of Representatives
May 14, 2013

Benefits and Challenges of Cloud Computing and the Optimization of Data Centers for the Federal Government



Bernard Mazer
Chief Information Officer
U.S. Department of the Interior

Introduction

Good afternoon Chairman Mica, Ranking Minority Member Connolly, and distinguished members of the Subcommittee. My name is Bernard Mazer and I currently serve as the Chief Information Officer for the U.S. Department of the Interior. As a representative of the Federal CIO Council, I also serve as an executive sponsor of the Federal Data Center Consolidation Task Force¹. Thank you for providing the opportunity to testify regarding the benefits and challenges of cloud computing and of the optimization of data centers across the Federal government.

The Federal Government's information technology (IT) infrastructure is a massive, heterogeneous collection of networks, unparalleled in private industry or other governmental organizations. In the span of 11 years, from 1998 to 2009, the number of Federal government data centers drastically increased from 432 at the time, to more than 1,100². During this time period, the Federal Government's spending on technology increased at a rate of 7% annually³, with little impetus to optimize, share, or rationalize IT infrastructure. The result was an inefficient Federal data center population, with unnecessary operation and maintenance costs, which requires capital that would be better spent on innovative activities that deliver better, more efficient services to the American people.

To reverse this trend, in February 2010, the Office of Management and Budget (OMB) launched the Federal Data Center Consolidation Initiative⁴ (FDCCI). By optimizing and consolidating redundant and wasteful data centers, the government will reduce the cost of data center hardware, software, and operations; shift IT investments to more efficient computing platforms such as cloud solutions; promote sustainability within our data centers and improve our nation's cybersecurity posture.

Since then, there has been a halt of net-new data centers being built. In fact, as of last week, agencies have closed 484 data centers⁵, with plans to close 855 by the end of fiscal year 2013, reducing the overall infrastructure footprint of the Federal Government.

The Federal Data Center Consolidation Initiative Task Force

The Federal CIO Council's Federal Data Center Consolidation Task Force, which I currently chair, was chartered in February 2011, subsequent to its inclusion in OMB's 25 Point Plan to Reform Federal IT⁶. The Task Force is comprised of agency representatives who are responsible for working together to share progress toward individual agency goals and the overall Federal goals of optimization and consolidation.

Today, the Task Force has contributed to the FDCCI by: (i) advising on FDCCI policy and implementation; (ii) sharing information, best practices, and lessons learned; and (iii) working with agencies to assess the benefits and challenges of cloud computing.

¹ OMB. (Dec. 9, 2010). *25 Point Implementation Plan to Reform Federal Information Technology Management*. Retrieved from www.whitehouse.gov

² OMB. (Feb. 26, 2010). *Federal Data Center Consolidation Initiative*. Retrieved from www.whitehouse.gov

³ OMB. The President's Budget for Fiscal Year 2014, Analytical Perspectives, Chapter 19. Retrieved from <http://www.whitehouse.gov/omb/budget>

⁴ OMB. (Feb. 26, 2010). *Federal Data Center Consolidation Initiative*. Retrieved from www.whitehouse.gov

⁵ See FDCCI Data Center Closings 2010-2013. Retrieved from www.Data.gov. May 2013

⁶ OMB. (Dec. 9, 2010). *25 Point Implementation Plan to Reform Federal Information Technology Management*. Retrieved from www.whitehouse.gov

Advising on FDCCI Policy and Implementation

One of the critical roles of the Task Force has been to relate the “boots on the ground” experience of optimization and consolidation to agencies and policymakers across the government. Given that the landscape of Federal IT infrastructure is at varying levels of maturity across the government, there is valuable insight to be gleaned from actual practices. For example, the Department of the Interior has launched an IT Transformation initiative to consolidate IT infrastructure operations at the Department-level, including data center operations, in order to eliminate redundancy and speed the adoption of new technologies, such as the migration to cloud computing. Our experiences, and the experiences of other agencies, help identify issues such as whether there are program gaps which can be addressed via policy or whether there are different criteria by which agencies can measure and document data center optimization and consolidation progress.

Information provided by the Task Force helped inform the evolution of the FDCCI, as recently outlined in the March 2013 OMB Memorandum on PortfolioStat (M-13-09).⁷ PortfolioStat, implemented by OMB in 2012, requires agencies to conduct annual agency-wide IT portfolio reviews, to reduce commodity IT spending, and demonstrate how IT investments align with an agency’s mission and business functions. The data gathered, with the assistance of the Task Force, in this process led to recognition that agencies should focus on an enterprise-wide approach to address all commodity IT, including data centers, in an integrated, comprehensive plan.

M-13-09 noted that, “Agencies with advanced IT portfolio management see eliminating duplication, such as closing duplicative data centers, as a means of optimizing computing power for the enterprise. These agencies have found that cloud computing is a more scalable and transparent way to provision IT services, giving agencies a viable enterprise alternative to major and often stove-piped, capital IT investments. By procuring technology “as-a-service,” agencies can quickly stand up enterprise IT solutions, paying only for what they need, and reducing duplication.” Through PortfolioStat, agencies have already realized nearly \$300 million in savings⁸, some of which is attributed to data center consolidation.

Under M-13-09, the FDCCI was formally integrated into PortfolioStat. Additionally, based on input provided by the Task Force which noted that focusing solely on consolidating data centers was not yielding optimal outcomes, M-13-09 shifted the FDCCI from having a singular focus on consolidation to a dual track focus: optimizing core data centers and consolidating non-core data centers. From the Task Force’s perspective, too many agencies were still treating their data centers as the end, rather than as the means, to deliver optimized infrastructure services, enabling agencies to meet their diverse missions. A data center exists to support mission delivery, and execution and optimizing these assets, which are central to these missions, was recognized in M-13-09.

Sharing Information, Best Practices, and Lessons Learned

Any complex, government-wide initiative needs a forum and group to serve as a community of practice, exchanging ideas from a variety of sources, learning from what works and what doesn’t, and, on a

⁷ OMB. (Mar. 27, 2013). *Fiscal Year 2013 PortfolioStat Guidance: Strengthening Federal IT Portfolio Management*. <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-09.pdf>.

⁸ OMB. (Mar. 27, 2013). *PortfolioStat 2.0: Driving Better Management and Efficiency in Federal IT* blog post. Retrieved from www.whitehouse.gov

continual basis, assisting others to innovate, trying out novel ideas which improve outcomes and results. The Task Force is no different and I am extremely proud of the work done in this arena. Agencies have presented on a variety of topics, including consolidation planning, energy efficiency, application mapping, using cloud computing and deploying enterprise applications to drive optimization and consolidation. These are all available publicly on CIO.gov, the web platform of the Federal CIO Council.

Working with Agencies to Assess the Benefits and Challenges of Cloud Computing

The expected benefits from moving to the cloud can be great and are driving the transition from existing hosting environments that focus on managing servers to modern cloud-based environments. These benefits include: (i) improving service delivery to internal and external customers, (ii) modernizing computing capabilities, such as scalability, on demand provisioning, and resource pooling, (iii) enhancing collaboration within each agency and with external stakeholders, and (iv) replacing legacy IT infrastructure that is nearing the end of its useful lifespan. Moreover, as agencies refine their business processes during cloud migrations, they can also realize significant cost savings.

The deployment of cloud computing also presents challenges, including (i) culture and change management of users and customers who are not comfortable migrating from their existing hosting solutions; (ii) data interoperability and portability due to highly customized nature of many legacy IT systems; and (iii) a lack expertise or experience in implementation. The Task Force is helping address these challenges by providing ideas on ways to inform and educate existing system and business owners; pointing out ways agencies can assess legacy systems and highlighting the need to train existing staff on cloud technologies.

Another challenge agencies have experienced is calculating cost savings related to optimization and consolidation. Federal data centers are spread across agency missions, program and functions. In some cases, the costs of agency data centers are shared between different offices and contracts. Providing the total cost of ownership continues to be a challenge as it is much more comprehensive than just energy or equipment costs. That is why the Task Force worked with participating agencies, GSA, and OMB to develop a total cost of ownership model, based on agency-provided inventory data, built on best practices in the public and private sectors, and tailored to reflect the Federal Government's operational structure. The model is now being used as a planning tool as agencies optimize and consolidate their data centers.

In support of the Federal cloud-first policy, agencies are also leveraging cloud-based technologies to accelerate their consolidation efforts. Agencies are in different stages of moving IT applications to the cloud and in doing so can leverage offerings from the Federal Risk and Authorization Management Program (FedRAMP), a government-wide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services.

Conclusion

Federal agencies are continuing to make progress towards optimizing and consolidating data centers. As of May 2013, 484 data centers have been reported closed and agencies are publicly tracking their consolidation progress through *Data.gov*, the Administration's platform to increase public access to high value, machine readable datasets generated by the Executive branch.

As discussed above, the FDCCI has been integrated into OMB's PortfolioStat program. This integration is expected to strengthen the focus on tracking cost savings, increase the number of tracked metrics, facilitate collaboration across agencies, expedite implementation of best practices seen across the private sector, and should result in a consistent and repeatable method for tracking costs. All this is expected to result in a more accurate assessment of the benefits to this initiative.

I am confident that cloud computing and data center consolidation has the potential to provide modernized IT at a significant cost savings. It is our job as CIO's to provide the evidence of these benefits to the American people.

Chairman Mica, Ranking Member Connolly, and Members of the Subcommittee, this concludes my prepared statement. I would be happy to answer any questions that you may have at this time.



Bernard J. Mazer
Chief Information Officer
U.S. Department of the Interior

On June 7, 2010, Bernard J. Mazer was selected as the U.S. Department of the Interior (DOI) Chief Information Officer (CIO) assuming oversight responsibility for the Department's estimated \$1 billion information technology (IT) portfolio. DOI, with an annual \$15.8 billion budget is considered a large, decentralized Cabinet agency with over 67,000 employees and 236,000 volunteers located in approximately 2,400 locations across the United States, Puerto Rico, U.S.

territories, and Native American Lands.

As the CIO, Mr. Mazer is responsible for providing strategic leadership and advice to the Secretary of the Interior on the effective use of Information technology assets. Mr. Mazer is focused on infrastructure modernization and ensuring that IT investments are cost effective, scalable, and aligned to DOI's mission and strategic direction.

Previously, Mr. Mazer served as the CIO for the U.S. Fish and Wildlife Service, a bureau within the Department. He has over 25 years of experience in the field of information technology and communications including 16 years of project management and more than 10 years in program development. During his tenure with Fish and Wildlife Service, he served as the Acting Deputy Director for unified communications services.

Prior to 2008, he served as Deputy Director and Chief of Information Communications and Technology e in the Economic Growth Agriculture and Trade Bureau in the United States Agency for International Development (USAID). His last two years in USAID were devoted to working with various United States Government entities on reconstruction and stabilization efforts in post conflict countries on infrastructure and governance issues.

Mr. Mazer provided technical leadership and field support to USAID Missions in the areas of energy, information communications technology, and engineering services related to the development and effective use of critical economic infrastructure. He also worked in the E-Government area in various countries and within the Agency which included development of workforce planning, IT capital planning and investment management, enterprise architecture, information security, last mile initiatives, and strategic planning.

Mr. Mazer has also worked on public-private partnership activities with private sector partners including the U.S. Telecommunication Training Institute, private corporations, and specialized Non-Government Organizations (NGOs).

Previously, Mr. Mazer worked in the Department of Defense in information management and telecommunications in the United States, Europe and Southwest Asia. He served as a Community Director of Information in Europe where he was responsible for automation, communications, IT security and privacy, records management and FOIA.

Mr. Mazer holds a Master's Degree in Systems Management from the University of Southern California and a Master's Certificate in Project Management from George Washington University.