Emerging Technologies in the Public Sector

Company Participants

- Anurag Rana, Analyst, Bloomberg Intelligence
- Jesse Holler, Analyst, BGOV
- Mark Forman, Global Head of Public Sector, Unisys

Presentation

Anurag Rana {BIO 7440273 <GO>}

Good morning, everybody. My name is Anurag Rana, I'll be moderating today's call.

Just some housekeeping notes to start off with. Mark Forman, our Chief Speaker today has been held up in a meeting and would be joining us about 15, 20 minutes late. We also have Jesse Holler from Bloomberg Government, would be helping us figure out a lot of funding and other issues that's happening at the federal government level.

So, some housekeeping notes. Today's presentation will be recorded and available for download. At the bottom of the slide window, you will notice that you can adjust volume and maximize your screen. We recommend you maximize your screen for best quality. Feel free to ask question using the Q&A panel to the right of the PowerPoint slides. We will address questions at the conclusion of the presentations. A copy of the slides and transcript will be available upon request following the presentation. Please send an email to bievents@bloomberg.net.

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Just a quick overview of the IT services dashboard, you could type BIITSD [ph], go there, take a look at a whole lot of data that's on the industry, including government IT, monitor news and data alerts, and see all sorts of the market growth that's done on the industry.

So, with that, let me start with a discussion and talk to Jesse a little bit about the current budget environment and what's happening with the Federal IT Acquisition Reform Act, and off to Jesse.

Jesse Holler

Thanks, Anurag. As Anurag said, my name is Jesse Holler, I'm an analyst with Bloomberg Government. I specialize in information technology, as well as mergers and acquisitions. And so, I want to bring you a perspective that incorporates how commercial technology flows into the government and is used by the government.

And as Anurag said, the budget and specifically FITARA, which is the Federal IT Acquisition Reform Act, has been major player this year within the whole public sector space. Now, what FITARA has really does is, it's taken the huge amount of change that's going on in the government, and it's allowed them to do an inventory of a lot of federal agencies and say, based upon four specific criteria, which are data center consolidation, IT portfolio review savings, incremental development and risk assessment, how each agency is doing.

And what we found is that really most agencies are failing at this. But particularly egregious spot is within data center consolidations. Whenever they do a review of data centers, they actually find that there is way more data center a day than they initially been -- initially thought. And so they just keep failing at that.

Another core aspect of this is the empowerment of the CIO. The CIO for a long time was just kind of a head that didn't necessarily have a lot of power with FITARA and the new acquisition reform acts. The CIOs are given a lot of power, they are given a seat at the table. They have the ability to affect acquisition and procurement reform. And this is what the federal government is trying to do to shape and bring IT acquisition into the 21st century to catch up to the private sector in a lot of these spaces.

Anurag Rana {BIO 7440273 <GO>}

Hey, Jesse, just about the scorecard. Give us a little more insight as to what exactly do they say for some of these agencies?

Jesse Holler

So yeah, in particular, it was especially interesting. Even NASA, what we think of as probably a leading-edge government agency, got an overall F grade, when you took all of the different aspects together. So in data center consolidation, they got an F. In IT portfolio review savings, which is, hey, you guys have identified this many dollars in savings, how close have you come to achieving that amount in savings. They got a D. They really -- they didn't go above that. The highest grade within the entire federal government was for the Department of Commerce, and they got a B. But that's because their IT programs aren't that huge, they're not very complex, there is not a ton of them. And so it's not as hard to manage as someone like NASA or the Department of Treasury or VA.

Anurag Rana {BIO 7440273 <GO>}

Jesse, are there any recommendations or what's kind of the outcome of that, of all of this?

Jesse Holler

So what's going to happen is, and Congress has already been doing this, but there is a lot of reviews going on and they've brought the new CIO in front of Congress. And this is actually, to your point earlier, Mark Forman was the first federal CIO, it wasn't call that back then. But we're kind of setting the stage here for what we're going to talk with him about a little bit later on lay the groundwork in now and allow it to go forward.

But like I was saying, they're going to bring people in, there's going to be somewhat of a reckoning and they're going to try and get a lot of these agencies up to snuff. And I think a huge part of that is actually a transition to a commercial cloud, and something that I know you've been covering a lot in your IT services bits.

Anurag Rana {BIO 7440273 <GO>}

Yeah, thanks. So let me pick up on that and, I think, talk a little bit about the public cloud spending. Now, this is something that has been going on for a very long period of time. But in the last 12 to 18 months, you've seen a massive adoption rate for cloud by a number of even your legacy companies. So, let's go back in history. So when Amazon started their business, I mean, one of the things that they created was, they needed a very agile infrastructure to run the retailer that they are, and that led to the formation of Amazon web services, Amazon web services became very successful.

And it was very clear, I would say, let's say, seven to eight years ago that cloud is going to be a very interesting place for a lot of the vendors, which led to investments from Microsoft into a lot of data centers. Google, by default, was anyway using a lot of those resources for their own business.

So -- but what we are seeing now is, new and emerging businesses are coming up, such as the ones that don't required your traditional IT. So let's say, Uber for example, or Airbnb, Netflix, all these companies are essentially formed on a cloud infrastructure, which leads us to the whole point that if you are a commercial company, why do you need to manage, why do you need to have a massive infrastructure of your own, when you can rent it at a much cheaper price going to Amazon, Microsoft, Google, or some of these companies.

So, that's now the public cloud spending place -- space which, according to IDC, is growing pretty rapidly at this point. Now, having said that, companies are not straight away going into the public cloud, not all of the legacy IT or legacy companies are just moving that IT infrastructure. I think they're taking a very slow approach right now. You have a portion of their data and compute goes to public cloud, but they still want to manage the rest of it internally.

So what we are seeing right now is kind of the emergence of -- in addition to the public cloud, we are also seeing the emergence of the private could, as well as the hybrid cloud, which is where a lot of the companies such as IBM, Oracle, HP, Rackspace, VMware, they're all focusing on right now, so that they can still make some money, because what we are seeing right now in public cloud is that there's a lot of pricing pressure from these top three vendors.

Jesse Holler

Anurag, I know that Amazon is really the 500 pound driller in the room, they are very dominant. As you see this public IT cloud spending ramping up, do you think that Amazon will capture as much market share as it's held in the past?

Anurag Rana {BIO 7440273 <GO>}

It would be very tough. I mean, in just a sense that, I mean, this is typically the nature of any market, when you have the first mover that has a lot of market share, a lot of people want to get into the game. They, by default, essentially will take some share away from that. Now, it will be very interesting as to the -- what would be the adoption of the public cloud at this point. Because you have to realize that Amazon provides a lot of basic compute and basic storage services, but it's not really big on managed services, which is they're not going to come and help you run your data centers, they expect you to know how to -- how for you to do that on your own, they can help you with some on-demand need.

So it will be very interesting to see which direction Amazon takes in place, because companies will still depend on some kind of professional help to help them manage the workload between public cloud, private cloud, on-premise, all those things. So even Amazon, as you said, is clearly the big gorilla here, but then rest of the gang is actually doing very well, as well.

Jesse Holler

Interesting.

Anurag Rana {BIO 7440273 <GO>}

So you have some data that you aggregate on public cloud as well. Let's talk a little bit about that and then we should jump on bring Mark into the equation.

Jesse Holler

For sure. Yeah, just a quick overview of what our data is. So we actually create analyst-defined markets based upon what the federal government is telling us as far as their publicly available information. And what we've been seeing over time is that cloud spending, and by cloud we mean public cloud, commercial cloud, has increased quite a bit from 2010, but really has leveled off in the '13-'14 timeframe.

And that's really because this adoption of cloud by the smaller agencies and putting public website for low-hanging fruit has pretty much been done.

And so, a lot of pressure is going to have to come from above and a lot of the agencies are going to have to become much more comfortable with putting their data out there, in order for a bigger move towards the commercial cloud, even though there are a ton of cost savings and most likely security efficiencies that will come from this. And so yeah, let's bring Mark on the line and get his opinion on a lot of the topics we've already been talking about so far.

Anurag Rana {BIO 7440273 <GO>}

Thanks. Let's see if Mark can join us. Hi, Mark, can you hear us? Hey, Mark. Hi.

Mark Forman {BIO 18718207 <GO>}

Hi.

Anurag Rana {BIO 7440273 <GO>}

How are you, Mark?

Mark Forman {BIO 18718207 <GO>}

I'm very good, very good.

Anurag Rana {BIO 7440273 <GO>}

Thanks so much, Mark, for joining us. Jesse and I were just discussing the scorecards that we've recently received and also started discussing on the public cloud space. So would you please give us some insight on what your thoughts are and may be starting with a little bit about your background, please?

Mark Forman {BIO 18718207 <GO>}

Great. Why don't I start with my background, and I believe the way this is set up, you'll be able to show in advance my slides for me, is that right?

Anurag Rana {BIO 7440273 <GO>}

Absolutely.

Mark Forman {BIO 18718207 <GO>}

Okay, alright. So my background, for everybody in the audience. I actually started out of a graduate school with a degree in Public Policy in Operations Research. I was at the, what's now the Government Accountability Office, used to be called the

General Accounting Office; and I was in the government's Fast Track Management Training Program. So I spent about 2.5 years there, left and went to the Defense industry, worked for a couple of companies. The Cold War ended, I had been doing a lot of what-if analysis and where the Defense Department should be putting its investments near-term, mid-term, long-term, using performance metrics and cost benefit analysis.

And the committee that oversees all the management laws of government wanted somebody with that experience. So I joined what back then was called the Senate Governmental Affairs Committee staff, now it's called the Homeland Security and Governmental Affairs Committee staff. And spend most of the 1990s overhauling the management laws of the government. So the last major IT reform called the Clean Air Cone Act, and then do that through the -- until the beginning of '97, went to work for IBM in Global Services.

A few months into that was anointed to take on the e-government leadership and create the, back then we call that e-business in the public sector, which was a global role at IBM. I did that until November 2000s, moved over to Unisys to rework their global public sector portfolio and federal portfolio to focus on e-business in the public sector. And while working for Unisys, I got a call, would I want to interview for a job at the White House, which turned out to be for the CIO for the Federal governments. I was at Unisys only eight months, when I went into the Bush administration.

We applied commercial approach to identifying the strategy for e-government initiatives and that was largely consolidation around citizen forces and groups, if you understand the portfolio of the Federal government and where their transactions are, then a lot of other things related to IT spending fall in the place pretty well. There are government citizen transactions, so that was one portfolio. But that's the third level portfolio transactions. Most of the transactions are actually between government and business. So the government, the business portfolio.

The second level of transactions are between federal, state and local governments, largely through grants, but also through regulatory information. So government to government is the third portfolio. And then the internal efficiency and effectiveness, bringing in a common sense approach to ERP and consolidating all the different agencies that wanted to do e-procurement on the basis of the government, payroll consolidation, rather than that 23 different agencies all trying to do payroll, consolidating that down to two payroll centers. Those are the type of the e-government initiatives.

Now overlaying that was a whole bunch of governance. And the reason I was hired was because I understood e-business and the strategies for using the web and migrating to the web. But I also understood the authorities to control the budget and the information policy that went along with that. So we put in place a J2E, a job a second edition, enterprise edition framework, which is called the Federal Enterprise Architecture. It was a revised approach to the architecture, but it was basically brining in the three-tier architecture using reference models.

In correlate to that, we put all IT spending on a business case process. So IT in the federal government now managed by investments and every investment has a code, that code relates back to the business function and the, what's called, the services components reference model. Think of that as a module of an application. So that would be things like payments, would be grant administration, contract award, collection of intelligence for information. Those are business modules. And then the service component could be something that executes a financial traction -- transaction, creates a payment file, for example, to send the Treasurer and then they transfer the funds.

Underlaying that was technology environment. And the concept on these business cases was that we wanted an agency to identify the strategic gap. So there is a set of laws that are changing or changed over recent times to get government to focus on closing performance gaps, most of the Big Data or data analytics investments relate to implementation of that law called the GPRA Modernization Act, the Government Performance Results Act, Modernization Act. And I had been involved with the original version of that when I was on the hill. But that's to cap performance measures. And what we were looking for is, the gap in performance relative to cost, and you could base the business case for an investment on reducing the cost relative to achieve a given level of performance or closing a performance gap because of a public policy need. Our basic strategy was the global war and terrorism, or you could also justify an investment on the basis of closing that performance gap.

So to understand IT investments, in general, you're leveraging IT to reengineer to close that performance gap. And your alternative is just hire a lot of people, which the government really can't do in mass to close the magnitude of performance gaps it has. Well, the corollary, of course, to those re-engineering projects is not a business transformation. When people ask why do government projects fail, 99% of the time it's because of breakdowns in business transformation, leadership, changed management, which is very difficult obviously to do in government. So something to keep in mind.

After I left the White House, I went to start up in Silicon Valley. Did that for a couple of years, came back to Washington and worked for KPMG, rebuilding their advisory services in the IT and business transformation environment. I left to do another start-up, that start-up didn't quite make it to where it needed to be. So I went to work, it was a SaaS, software-as-a-service start-up, so I went to work to build a consulting and services practice at TASC, which most of you probably know, (inaudible) of government was acquired by Engility. That's a different model and had the opportunity to come to Unisys and take over the creation of the global public sector. So that's how I'm now at Unisys and looking across the globe at a number of initiatives.

Jesse Holler

Thank you, Mark. And we were actually just talking about the Federal Acquisition Reform Act that was passed by Congress at the end of last year. I'd like to get your opinion on the new power that CIOs have and how the agencies have recently done, a lot of them failed at the four main aspects that they're looking to grade people on.

What do you think the government is going from there, and do you think they're going to take some corrective measures in the CIOs going forward?

Mark Forman {BIO 18718207 <GO>}

The power of the CIO has shifted as technology has shifted. The regional construct that we had in the Clean Air Cone Act, and that created the Federal CIO or it's called the administrator free government and IT in the E-Gov Act of 2002 was the notion that the CIO is the leader in re-engineering and applying technology to do the business transformation for the agencies. That model was good till about 2004 or 2005. And at that point, it seemed that we got to the point where most of the technology we now had occurred and we hit the wall on business transformation because of the change in leadership.

The role of the CIO outside of government shifted to be more of the chief geek oftentimes either done away with replaced by CTO moved under the CFO. And ironically, at the end of the first Obama CIO's role, Vivek Kundra, OMB put out a memo that basically said the CIO's role as the Chief Technology, Chief Geek, managing the IT infrastructure.

With this new wave of social technologies, Big Data analytic tools, mobile computing and cloud, it's pretty clear that we're in now another major disruption. So Congress's view is that the CIO should be the business transformation leader.

The wall that exists is that Congress funds programs, so these are things like Head Start, Food Stamps, the border security programs. And they give them money not to the CIO, but to the program manager. The program manager in getting in a fight or a disagreement with the CIO, will go to their boss and then to the secretary. When a Secretary of Department has to choose between a CIO, that's still viewed as the technologist, and the program official who is accountable for achieving the performance objectives for government program, the program official 90% of the time will defer who will be the person that wins out, the secretary will defer to the program official.

Typically what happens in the federal government is the leader making the executive decisions of (inaudible) apointee and because of the breadth of knowledge will be unwilling to take the risk to ignore their program official and view what the CIO says. So that's the barrier, it's how funds are budgeted, and the fact that the program official is how powerful. Regardless of what Congress may want or make say they want, Congress is unwilling, for example, in the E-Gov area and even in today with shared services to tell program officers that they don't control their own destiny, but they should take advantage of shared services.

Anurag Rana {BIO 7440273 <GO>}

Hey, Mark, this is Anurag. Just wanted to get your insight on how public sector officials are looking at their cloud and what's their -- how do they feel about the public cloud versus their private cloud? What's kind of the mindset at this point?

Mark Forman {BIO 18718207 <GO>}

Well, let's talk about the four-tier architecture chart that you put up, because this really gets into where I think you see the leading agencies and the leading CIOs who have worked within their agencies are moving. By the way, most of this is happening at the bureau level, not at the department level. And FITARA has actually ended up creating some havoc in this roadmap at this four-tier architecture that we're seeing in, not just the US, but state and local and in other governments.

Hadoop has allowed agencies to segment their legacy data stores. And most agencies, when you look at them, will look at their data within five or six archetypes. And I believe there are six. So that first layer is really at that data level. And the agencies are looking at the difference between the people, places, which you've seen the rise in GIS spending. I think we're going to continue to see growth in GIS spending at the data level. The dollars, which basically is the record of financial transactions, collections and payments, assets which are everything from aircraft and weapon systems to facilities and bridges, and so forth.

Cases and events; so an event could be a national disaster, the flooding in South Carolina, for example. And then the -- records. And records -- this records issue in government is amazingly paper-based and yet futuristic. So we've also seen this dramatic growth in records management investment. Now the reason for that is that generally you have to have a record that goes along with a financial transaction, that record in government is the documentation of what people call inherently governmental decision.

And the tracking for that obviously moving to mobile to bring your own device has become much more complicated. So some of this data is a record of the agency activities. Some of this data now is more effectively and efficiently collected in the cloud or available in the cloud. So I'll give you an example. When the Census Bureau has people sent out to collect pricing information, they go to -- they give people readers or digitizers, they go to stores; they collect their pricing data; they come back; it gets put into the Census Bureau systems; and then it gets processed; and about three months later, you find out what the government thinks inflation is.

If you're familiar with The Billion Prices Project run out of MIT, two professors were doing this on a server and they were collecting real-time price data from all over the world. If you think about it, how many of us go to Amazon or when we go to travel, we go to Travelocity or TripAdvisor or other places to get prices. So the notion of how government collects data and understanding that that's what so many of these information systems do is, they just collect data and prepare them for when decision makers do policy analysis or when they work a transactional workflow. We now know we can get a lot more data and better data out of the cloud.

Regulatory systems that use input from Yelp or Twitter rather than having somebody go to a website or go to an office and fill in a form that a year later, some government agencies going to evaluate it, it's -- some of these agency data systems are just so antiquated that if you're really going to do the data analytics, improve the

performance of the government, you have to go to the cloud to get some of the data. So that's the data layer.

Now we know the other part of the cloud is that you get analytics, software-as-a-service. Tableau, for example, is one of the SaaS products that has made a huge inroad in government, in disaster management, WebEOC, which is basically a bulletin board, dominates so much of the workflow around disaster management at both the state and the federal level.

So there are a number of these SaaS applications that you can integrate with through APIs. So what's happening in both the legacy environment and in the modern environment is, we're using much more modular applications. And so those modular applications coupled with data, there is a mixture of inside the firewall, on-prem, and outside in the cloud, is what then gets orchestrated through -- in the old days we used call the service bus and currently we may still do that, but increasingly it's that brokering tool.

Now the other thing that's happening is, through the end-user devices, more agencies are realizing that they can leverage HTML5 and put some of that modular capability on the end-user device. So there, again, you may get that component from an app store commercially. The government uses Concur for travel, for example. So you can get the Concur app. Now, it may not work the way it should, the government may want to do some things with that, but we do see that as well, that this whole applications release model is morphing to take advantage of those end-user devices.

Jesse Holler

So Mark, I know we've seen recently, and we are talking about this before you came on the call that a lot of the low-hanging fruit for the public cloud has kind of been put off. And as far as government's spending on this public cloud, it's been kind of leveling off in the last couple of years. Do you see that changing at all? Do you see a push from on-hire, some grounds level of grassroots to move more data into the public cloud to see those efficiencies that we know are available from a more commercialized solution?

Mark Forman {BIO 18718207 <GO>}

That's a great question. The government guys want to move the data into the public cloud as part of transparency at the political level. At the working level, most of the folks recognize that there is better data that they can get access to in the cloud. So they want access to data in the cloud to marry up with their applications, and that's where a lot of the thought leadership and investments got to go. We've seen, I think, at all levels of government, dozens if not hundreds of mobile apps built by different levels of government and agencies. It's becoming a very chaotic environment and those investments don't generally tieback to any measurable performance gain.

So a lot of the work that has to go on and the indicator that I'm looking for basically is effective digital strategy and architecture work. Now what's driving that and what you see in these charts what drive this round of business transformation is the mix of other initiatives that the administration has and I think some of them will flow to the next administration.

Those initiatives, generally, you might not say are IT initiatives, they're more modernization initiatives. The reality is, some of them are just dealing with the fact that government is the target in cyber security and some of them are the results that you can't do anything in government that involves improved use of information, whether they're transaction or the problem solving level, and those really are the ways to think about this. Can't do anything government to get an improvement without modernization of the technology. So we've got some of these initiatives, like evidence-based budgeting. And what that really does is, take advantage of this GPRA Modernization Act to say that, if you're going to ask for an increase in funding, you have to make the business case, you have to show us where the performance gap is and what closure, if it's a 20% gap and we're going to close half of that by making this additional budget increase. If it relates to IT, then they're going to have to make it by a business case.

And the number of other things kick in from FITARA. FITARA has some very interesting improvements over Clean Air Cone and the E-Gov Act as it relates to risk management. So I think that's probably one of the most important and under-looked aspects of this.

The risk management basically says, we want to do a better job before you justify your investment in that business case of outlining the risks and figuring that into the budget, and we want you to do greater focus during the course of that project on managing the risk, identifying that, pulling the stakeholders in to share in that business transformation effort. So that's kind of the marriage between these, so a couple of interesting initiatives that I think you should focus on.

About four years ago, the Obama administration said: in your budget request, we want you to cut your legacy investment in operations and maintenance spend and use that money to reinvest in modernization. Most agencies spent 75% to 80% of their IT money in just legacy O&M, which leaves very little money to do much modernization, that was called DM&E, development modernization and enhancement. Above one or two pet projects, and then what's needed to invest in cyber security. This 5% model said, you need to look at an operational review of where your systems, even though you may be comfortable with them, could take advantage of new technology and we can cut some of that spending and better use new technology.

So looking at things like why are we collecting data and using all this money to process this all data when we could get 95% of the value by just going to enter [ph] in the cloud for GIS, for example. So that 5% has been going on year after year. Some agencies, it's only 2% or 3%. But at some point, I think in '16 because it's the last year of the administration, we see a shift from O&M spend to DM&E spend, and

that's in these areas that they make the business case that they can tie into performance improvement. So take these initiatives altogether, what we're looking for is a shift of somewhere around 5% this year in the actual expenditures for 2016. Now we're on a continuing resolution. And if that last into the rest of 2016, it's going to be a very incremental shift, we won't see a lot of new major projects.

But within the existing projects, we should see some things like consolidation of financial systems and consolidation of investment in the ERPs, consolidation of grants, systems and grants are much bigger than procurement spending for the federal government. They have huge issues in agencies that are big grants makers, which are basically most of the civilian agencies. So those are the areas that I would look to see some of these changes and see the emphasis at the end of the day where Congress is doing their oversight.

Anurag Rana {BIO 7440273 <GO>}

Thanks. Mark, should I move on to your next slide?

Mark Forman {BIO 18718207 <GO>}

Yes.

Anurag Rana {BIO 7440273 <GO>}

So, could you give us some insight about how things are changing from build and operate to buy, build and operate?

Mark Forman {BIO 18718207 <GO>}

Right. So on the O&M side, we went through a period over the last 10 years where the government's tried to simplify its operating environment. And the concept just kind of inside baseball on this, the CIO Council used to get together every year with OMB and do their IT strategy review. So we could focus on the major initiatives and how the CIOs who are going to work across agency silos. In order to make that happen, the CIOs said, you must give us control over office automation, infrastructure and telecommunications.

So every department now has just one business case that covers all the spending. And the idea was to move to a common production environment. Some of the agencies have moved that into just a virtualized environment, which could be called a private cloud. More and more we see agencies moving to hybrid cloud environment where they leverage even in the intelligence community that mix of a gov cloud, a government certified version by a FedRAMP of what's in their public cloud. And sometimes we will see the government going to just the public version of Amazon and Microsoft, because that's where those SaaS applications lie.

So in the three-tier architecture, the CIOs are focused on having a common production environment that would be under their control and we had things like

the TIC, the Trusted Internet Connection. So that there is only one way in or out to that legacy operating environment, and even new apps that would be in that production environment. Well, to make that work then because networks kept getting shut down and so forth, most of the CIOs then found they had to build a common integration and test environment.

That though was because every program have their own contractor. And the programs were basically funding different applications being built in different environments that need to then move into common environment.

So that was never fully successful, some departments were more successful than others had it. But now we come into this new environment where we want to leverage Hadoop into data analytics. And so the CIOs are focused on trying to get it to common production environment. They also need a data environment that requires CapEx, you still have your integration and dev environment because you can't get rid of the fact that your program officers control the money and they're still going to go out and build their own environment.

So we hear and I've heard for years, we've got to consolidate data centers. Until Congress stops appropriating money directly to the programs and minding them control their own destiny with their own development environment, we're not really going to consolidate the cost of the data centers.

We'll consolidate the physical facilities, but the cost lies in everybody developing applications differently, even when they are cost apps, because the lack of skills in those program officers is the binding constraint on what CIOs trying to do. Well, of course, with the governance processes trying to tight that up including FITARA by saying the CIOs have more control over the budget, the program officers are going to get around that, by going out to the cloud and buying more SaaS and data via the cloud.

So now the governance environment for CIOs is shifting where they've got to maintain that CapEx for the four cylinders of the legacy environment, and they have to also understand how they integrate with cloud apps and cloud data stores in both the public and private cloud environment. So that's the model and what we see from the surveys, you see a lot of CIOs talking about their role as brokers, where they're aggregating, they're trying to figure out what they're going to do as an enterprise service can provide that. I believe that's where the federal CIOs are going to go as well from my discussions, that's the next phase beyond FITARA, but the CIOs aren't going to wait for another new law, that's what will happen at the beginning of the next administration. If you're a CIO, you've already adopted the notion that you're a broker across these environments and across the on-perm and the off-prem environments.

So I fully see over the next year CIOs making that transition as well, understanding that their most difficult problem is at that lower level on the dev environment and working with the people who actually control the money. Does that make sense?

Jesse Holler

(multiple speakers) Now, I know that the CIOs have been doing a lot of the stuff, they've been putting in the work. And I think something that you've talked about a little bit earlier, your start-up experience, would be really interesting as far as a perspective from the federal government. So the government for a while has had an innovation problem to say the least.

And what they've been doing is, they set up these small organizations within the civilian sector, there's one called 18F [ph] that's kind of a management consultant to help develop these really agile type software programs for the federal government. Frank Kendall, who is the DoD's CIO actually flew to Silicon Valley, he's been out there a number of times this year. He is setting up an office in the Valley to try to mend relationships with the Valley and to kind of recruit from them. They know that they lacked a big skill set.

Recently they started doing this thing called Agile Blanket Purchase Agreement where they can buy lines of code quickly and efficiently from the public sector. They're just trying to be better towards start-ups. Where do you see this going from a governmental perspective? It seems like the idea within government has changed at, hey, we can use these smaller companies, they're more lean, they're more agile, we don't just have to get our technology from these big defense primes, from people who always catered to the federal government. Where do you see that going in the future?

Mark Forman {BIO 18718207 <GO>}

I'm -- I think those are good initiatives, but I'm not holding my breath.

Jesse Holler

Right. Yeah, it's a hard culture to change, right?

Mark Forman {BIO 18718207 <GO>}

Well, it's not the culture, it's the market with Silicon Valley is segmented towards return on investment. The market and the government is segmented towards on return on labor. There is nothing in FITARA despite, I think, a number of people toeing [ph] members of Congress that gets us away from a labor-based contacting model. So it's fine to say that I can buy lines of code. But what the procurement officers have to deal with is, much more basic things, primarily we don't have enough procurement officers that can satisfy even the comments in the cloud about how do I define a service level requirement. So the binding constraint number one on here is the incapacity or the lack of capacity among contracting officers to orchestrate the relationship between the buyer and the sourcing model.

So we have these public affairs for us [ph], where people go out to Silicon Valley to encourage contractors to sell to the government. And then they turn it over to the

sourcing arm and there's no real sourcing strategy that incorporates buying from a start-up that's looking for an order of magnitude a return on investment to the private equity firm, that's bootstrapped -- that's funded them or to the people there that have bootstrapped themselves. It's almost not orchestrate of all from the standpoint of the government's resource availability.

But let's assume they work through that and they figure out ways to source from Silicon Valley. Now you have the problem of understanding the government workflow and leveraging in technology of the government workflow. So back to the future. When Clean Air Cone was established, the government was basically shut down on the ability to buy IT, because the requirements were unable to specify in a way that it could fend off a protest, how the government wanted to use technology. All the studies that GAO did the audit said government was buying technology for technology stake. When we shift the business case model, the concept is that we have a well thought out way to leverage a business transformation effort that takes advantage of technology.

So you'll hear people and government talk about people first and what they're really saying is, how am I going to change my business process. And then I want to look at how I leverage the technology. But you go out Silicon Valley and they've got whole new models for doing the business process. So the gap between how do the people in government change the way they do their work and what's the business model envisioned in that new technology is so great, that you can't sustain a change management paradigm in government, that's the issue that ultimately I'm looking for how are they going to solve it. So 18F, perfect example, they thought they bring in a bunch of technology growers, the technology growers which sit with somebody and build the optimal technology change. And the people came in and they sat with the government person and they said, let me build you user interface.

But the issue is not the user interface, it's the workflows that need to get re-engineered and transformed. And that takes an understanding of the government business processes. That's the monopoly that exists within Washington.

Anurag Rana {BIO 7440273 <GO>}

Thanks, Mark. And we just have a few minutes left. So let me start with some of the Q&A that's already flowing in. This is a reminder. If you want to ask a questions, you can do so using the right-hand side of the PowerPoint slides. So the first question I have, Mark, is, on cyber security. Fundings have been usually good in that area. Do you have any insight on any new trends that we are seeing, as it relates to cyber security?

Mark Forman {BIO 18718207 <GO>}

Yeah, I think it's even going to be better. I mean the reality is that, it was relatively constant, slightly growing. And even at that level, you had the program officer saying, security is just not a priority, I'll hold off and fund that later. And the result of that was now federal employees, contractors, their families are all at risk of

somebody manipulating them, should they work on a project that another government doesn't want them to work on.

This has become a very serious issue and is now recognized at that program level that there is a different level of risk because of what Neochem [ph] issues have become and people now having a different understanding of their risk. And so we're going to see investments in security within programs, it may not be as easy to break out as the overall IT security budget, although OMB does track that, because it's a specific portion of the business case.

What happens on the government side is, a system has to have an authority to operate. And at least once every two years, go through an audit to validate that. People have said, yeah, that's old school. Well, the reality is, that's the way we understand when there is a need to secure an application. We have a whole new set of ways to do that, but those were what people were resistant and I think there's a lot more open to this, just to that now. And that's what's driving this round of spending in IT security.

I would say -- I would look at less of a focus on the CDM, although I think that will be increasing; and more of a focus on this concept around rich hybrid clouds using MTIPS. MTIPS is the managed security protocol that goes along with the Trusted Internet Connection. I think we're going to see a very rapid shift to taking advantage of MTIPS.

Anurag Rana {BIO 7440273 <GO>}

Great. I've another question that is interested in figuring out the impact of a lot of these emerging technologies, on human capital supply, can you speak to the skills and specific competencies that you consider are most critical to working with some of these emerging technologies?

Mark Forman {BIO 18718207 <GO>}

Well, I think the skill set on the industry side is the ability to articulate the value proposition, the critical thing especially for people in the audience who are investing in Silicon Valley or start-ups that don't know quite how to sell to the government. The critical thing is for those companies to understand how far along the government agency is in trying to solve that problem. Most of these problems are chronic problems and there are legacy attempts to solve those that have failed. When a company who will come in and tell me about a great new thing and things that I should be doing as a CIO, I used to get very frustrated if they didn't understand what we are already doing and the problems. They're all public.

The government has to wash [ph] and audit reports, oversight hearings, the dashboard, so the industry side has to understand the gap between what the government agencies try to do and the problems they're still grappling with.

On the government side, similarly, the government needs to have the analyst, if you're dealing with, for example, the strategic planning and developing the business case, you need data scientists that understand the business of government and how to close those gaps. The government needs people who understand service level requirements and SLAs as well.

Anurag Rana {BIO 7440273 <GO>}

That's very useful. One last question, Mark, on some of the use cases of Big Data that you have seen in the public sector at this point?

Mark Forman {BIO 18718207 <GO>}

Yeah. I think we see a tremendous amount on the strategic planning. There is no reason I went to school, graduate school and focused on quantitative methods and OR. Policy analysis should be based on data and decisions should be based on data. In the Reagan administration, there were a lot of these program analysis and evaluation offices across all the departments. In Bush 41, these all went away. And in the Clinton administration, they further went away, they were replaced by the National Performance Review. In Obama administration, we're seeing a resurgence of these strategic planning offices that leverage data analytics. And I think that's one of the best use cases.

Anurag Rana {BIO 7440273 <GO>}

Great. Any final words, Mark? Any final words, Jesse?

Mark Forman {BIO 18718207 <GO>}

The only think I'd say is, we've now have some stability with this -- the budget agreement for two years. But we don't have that locked-in via the appropriations process. That is the action that has to occur between now and the middle of December. If that may get postponed till January or February, when it's clear the views on the American public. But I would look for whether that agreement gets locked in, because if that agreement gets locked-in an appropriations bill, the sequestration levels rise in both the defense and civilian and a lot of that money is going to go into modernization.

Jesse Holler

That's an exciting discussion and I'd like to thank Mark again for joining us. Anurag?

Anurag Rana {BIO 7440273 <GO>}

Thank you. Thanks, everybody. If you need a request of copies of today slides, please send an email to bievents@bloomberg.net. Thanks everybody for talking the time. Thank you, Mark.

Mark Forman {BIO 18718207 <GO>}

Thank you. Glad to do it.