



**The IT Modernization Podcast Series**

**A Three-Part Podcast Series hosted by Guidehouse Addressing  
Top-of-Mind Issues in IT Modernization**

**Podcast Episode - IT Modernization: Cloud Modernization**

**INTRO:** Welcome to "Modernizing IT, the podcast where IT experts and visionaries from federal government agencies and the private sector share behind the scenes insights into the innovative world of IT modernization.

**RAQUEL:** Hi, I'm Raquel Morgan, a director in the in the IT and Business Strategy practice at Guidehouse. In this episode, we'll be talking about cloud modernization and who better to discuss this than our guest Tom Santucci, who's the director of IT Modernization at the Office of Government-wide Policy at the US General Services Administration. In this role, Tom leads data center and cloud optimization initiatives and is responsible for driving federal agencies to implement cost effective and efficient cloud data center and infrastructure solutions.

He also co-chairs the Cloud & Infrastructure Community of Practice, which shares industry best practices and agency experiences and IT modernization with more than 4,000 members from the Federal IT workforce.

Before joining the GSA in 2019, Tom managed the Data Center Transformation Initiative for the Department of Justice. Tom, welcome to the show.

**TOM:** Thanks, Raquel. Glad to be here.

**RAQUEL:** Let's get going with our first topic, Starting the Cloud Journey. I wanna start by underlining the journey federal agencies have been on with cloud modernization. That journey started in 2016 with the first federal cloud computing strategy Cloud First, which was released by the Office of Management and Budget. In 2019, a new strategy was published called Cloud Smart. Tom, can you explain the key differences between the two strategies and why the shift in focus?

**TOM:** Yeah, the first cloud strategy was a bit of a misnomer as it gave the impression you need to move to the cloud first and foremost, which was not the intention and Cloud Smart helped clarify that in a high-level strategy to drive cloud adoption in federal agencies and offers a path forward for agencies to migrate to a safe and secure cloud structure.

Cloud Smart was a part of a new holistic vision for IT modernization that also introduced terms like key mission facility or KMFs or application rationalization, also known as App Rat, which we'll get into later, and DCOIM 1919 reflected on these new strategies and the goal of encouraging a thoughtful agency specific approach to IT modernization. For example, KMFs give agencies flexibility to keep facilities that are strategic to meet specific agency requirements and we always use FAA air traffic control centers and VA hospitals as prime examples of that. And then the application rationalization playbook was also released by my office as part of the government's push for IT modernization.

**RAQUEL:** Great, thanks. Given federal agency's reliance on Legacy On-Premise applications, to what extent did they struggle to implement a cloud strategy?

**TOM:** Well, that's a good question. First of all, the term legacy is defined. I'll use GAOs description of that by three attributes, cannot keep up with current security standards. Vendors no longer support it or an aging workforce to maintain it. So legacy systems running on COBOL and other languages have a long runway to start a migration path to other services like IaaS or PaaS or even the cloud and they continue to be the most challenging.

Agencies typically take one or two approaches when moving to the cloud. Either application owners independently decide to move to the cloud or an agency takes a strategic holistic approach to using Cloud Smart to determine the fate of each application in the IT portfolio prior to any migrations and the latter is the most successful we've encountered.

Unfortunately, most CIOs are only in the position for three to five years, and they don't have an appetite to convert mainframe applications with limited budgets and other priorities, nor do they have the data to understand the application-level inventory. This means that often that they are unable to take a holistic approach at the portfolios and implement a strategic vision for cloud adoption.

And other considerations that can include risk tolerance for an agency which is tied to the organizational culture along with the funding and agencies may not have prioritized acquiring funding to modernize or move Legacy applications to other platforms.

**RAQUEL:** Great, thanks for that. I recall you saying in earlier conversations we've had that cloud modernization is not a destination. It's really a journey, but where do companies or agency leaders start that journey? For example, how do they decide what applications to move to the cloud?

**TOM:** It's a two-part question. The business part and arguably the most important, technical part, and from a business standpoint, application rationalization is the linchpin between agency mission and technology. And CIOs need to take an inventory of the entire IT portfolio and determine how well suited each line item is to the agency's mission and is it meeting the customer expectations whether it be government to government or government to citizen or government to industry and identifying redundancies and legacy systems. If you don't know what's in your portfolio, it's hard to prioritize systems effectively and retain or migrate to the cloud or SaaS or consolidate multiple redundant instances and assess each item based on whether it's cloudable. And once your application rationalization is complete, a thorough technical assessment of your cloud desk-in applications can happen. Rationalization is thus a cultural and technology shift to empower agents, CIT leaders, and practitioners to make better strategic decisions.

**RAQUEL:** Let's move on to our second topic and discuss the application rationalization process in a little more detail. We've identified that application rationalization is a critical first step in cloud modernization. We understand your office in collaboration with the Chief Information Officer Council and the Cloud & Infrastructure Community of Practice published an application rationalization playbook. The playbook talks about key steps IT leaders and practitioners should follow to rationalize their IT portfolio. Tom, can you briefly summarize what those key steps are for our listeners?

**TOM:** Sure, step one is to identify needs and set governance by conducting a readiness assessment, identifying legislation, executive and agency specific requirements, and developing a questionnaire for data application and system owners. And then step two is to actually do that inventory of develop your IT portfolio by disseminating the questions to the owners and program offices, reviewing responses for completeness and accuracy, and resolving discrepancies with existing inventories. And this is a constant change.

Step three is to assess the business value and technical fit and by weighing the business value and technical fit based on agency's specific business and mission needs, determining the upstream and downstream dependencies and identifying duplication along the way.

The fourth step is to assess the total cost of ownership. This is where many application owners don't even know what the cost is. By first confirming the current state of total cost of ownership and that would include data center cost, enterprise services, and all of the likes that they don't normally pay for today.

Step five is to score the applications to weigh factors relevant to each agency's specific business and mission needs and incorporating the business value technical fit and total cost of ownership factors collected in the questionnaire.

The final step is to strategically determine data application system placement whether it should be reviewed, rewarded, refreshed or removed from the inventory based on the above scores. At this stage, the CIO office and business leaders will analyze hosting alternatives for on-prem applications whether it be on-prem SaaS or cloud, and this will develop the agency's migration strategy.

**RAQUEL:** Let's talk a little about identifying needs. What about applications that are mission-critical, complex, or have a lot of dependencies with other systems? What's the best cloud strategy for these applications?

**TOM:** Yeah, this is really important. Many applications can be moved to the cloud but not all applications should be moved. The output of the App Rat process along with a thorough technical assessment will help determine the right answer.

Most agencies are not going to have an entirely cloud infrastructure. They will have a combination of on-prem and cloud, and identifying and understanding the interdependencies with each other, with other on-prem applications will become more critical in the decision-making process.

And once you understand the complexities and costs associated with migrating each application, one can create migration plans on a per application basis. Lifting and shifting is one approach, but some applications need to be redesigned before they move. Ideally, applications should ultimately be redesigned to take advantage of the cloud native app technology such as microservices, containers, native scaling, et cetera. And this could be a multi-year initiative depending. And this could be a multi-year initiative depending on the scope and complexity of the application and long-term funding needs to be allocated accordingly.

**RAQUEL:** Now, we're gonna move on to our third topic. I wanna talk about the different types of cloud architectures that are emerging today. With that in mind, a term that we hear a lot is hybrid cloud. What's meant by hybrid cloud and how does it differ from multi-cloud?

**TOM:** Yeah, we get this a lot. In fact, our team actually published a multi-cloud and hybrid cloud adoption guide which can be found on cio.gov. The guide provides a deep understanding of the multiple architecture options and covers the strengths and weaknesses of each of the models in depth.

In simple terms, hybrid cloud includes on-prem data centers whether it be agency owned or commercial, while multi-cloud architectures does not. The attraction of hybrid cloud is the retention while still providing an opportunity to modernize the rest of the IT infrastructure and attain the benefits of cloud computing. Multi-cloud solutions generally include one or more cloud service providers. Multi-cloud leverages best of practice innovations and capabilities.

A potential risk of the single cloud or single CSP environments is vendor lock-in and multiple CSPs mitigates the risk and agencies can better align specific requirements with the best available services and products in a workforce that's capable of supporting the environment.

**RAQUEL:** My next question for you, Tom, is what are some pitfalls or barriers CIOs need to be aware of when implementing cloud technology?

**TOM:** While referred to the heart of Cloud Smart, which is workforce security and governance, cloud is not always cheaper. Total cost of ownership can differ depending on what kind of cloud setup you have, whether it be hybrid or multi-cloud. You need to flesh out the true cost of ownership when comparing cloud to on-prem. Hosting options can be compared by cost, resiliency, reliability, agility, security and service delivery. And then of course, financial and compliance considerations need to be accounted for. Hybrid and multi-cloud infrastructures can be difficult to manage as there's limited amount of workforce of cloud architects with their requisite skills. And finally, network latency needs to be a consideration.

**RAQUEL:** In addition to the well-cited benefits that we hear often such as redundancy, flexibility, and scalability, are there any additional benefits cloud modernization can deliver that you think IT leaders and practitioners should be aware of?

**TOM:** You set that one up for me. Using cloud commercial data centers or even SaaS can bring a lot of environmental and sustainability benefits compared to using agency-owned data centers.

The Energy Act of 2020 mandates the federal government reduces greenhouse gases and I believe IT has a role in meeting these goals. And given that role, agencies could take a look at the IT sector as partners to help with the best practices for meeting these sustainability goals.

For example, many major public cloud providers like AWS, Google, Microsoft, all provide tools for measuring greenhouse gas emission reduction and I encourage anyone who is listening to check out our recordings of the Data Center Sustainability Summit. The videos are available on GSA's YouTube channel.

**ANN DUNCAN RECORDING:** “If you're building a modern, scalable, cloud-native application, right, by definition, you're gonna be able to be more sustainable. Because if I can spin those servers up and spin 'em down as I need, right, I'm using less energy, right? If I can, if I have the ability to virtualize that, I'm gonna use less energy, I'm gonna be more sustainable. If I have the ability to pick that up from my data center and put it in a data center in a location where we can be more sustainable, that makes a difference too, right?”

**RAQUEL:** That was Ann Duncan, CIO at the United States Department of Energy and a former CIO at the Environmental Protection Agency speaking at GSAs 2022 Data Center Sustainability Summit.

Let's look ahead to the future now and discuss how cloud modernization might change in the coming years. In the next five to 10 years, will Legacy On-Premise applications still be responsible for handling the bulk of federal agency IT workloads or will most of those applications be migrated to the cloud? And what about organizations that still rely on mainframes for some of their workloads?

**TOM:** Mainframe and cloud are not either, or. Commercial companies are getting out of the data center business, and I continue to see agencies moving in that same direction. Cloud service providers have started offering mainframe services in the cloud and mainframe as a service. We've heard chance about mainframes going away since the nineties. I think it'll take funding vehicles like TMF to spur this type of change.

**RAQUEL:** Do you think we're ultimately moving to a world where everything will be hosted in the cloud or do you think a hybrid environment where some applications are still On-Premise and others are in the cloud will remain for some time?

**TOM:** Well, we've seen a shift over the last five years towards cloud adoption and migration and the consolidation of federally owned and operated data centers. Most federal agencies have taken a hybrid approach and this will continue for some time.

As I mentioned before, the hybrid cloud model allows agencies to avoid vendor lock-in and leverage best-of-breed technology from each vendor. The market is recognizing this is a preferred deployment model, and companies are providing solutions to manage multiple service providers through automated solutions, and these capabilities will improve and evolve over time, but we have a focus on creating a workforce and acquire consultants who can support this model.

**RAQUEL:** That brings us to the end of this episode. Thanks for tuning in to the Modernizing IT podcast series and our discussion on Cloud Modernization Today. I'd like to express a very special thanks to our guest, Tom Santucci.

**TOM:** Thanks for having me.