



A city consolidates its data centers

The experience of one US city provides lessons on how public-sector organizations can design and execute a data-center consolidation.

**James Kaplan,
Rishi Roy,
and Ryan Taylor**

Even prior to the recent economic downturn, a trend toward data-center consolidation was becoming evident among large government entities. In their quest for cost-savings opportunities, the state governments of Texas, Oregon, Michigan, and California—as well as many federal agencies—have in the past few years embarked on efforts to consolidate their data centers.

A large US city—looking to stretch its IT budget, increase efficiency, and improve the quality of its services—is in the second year of a five-year initiative to consolidate more than 50 data-center facilities into only 2 locations. Technology

change programs of this scale are inherently complicated in the public sector, but the city's experience so far provides lessons on how public-sector organizations can overcome the challenges that can hinder data-center consolidation.

The starting point

To get a clear picture of its IT landscape, the city commissioned a review of the IT environments of each of its agencies. Among other findings, the review revealed that the city owned several thousand servers—many of which had aged well beyond the typical four-to six-year refresh cycle—scattered across more than 50 data centers and data closets. Assets



were underutilized, with servers often dedicated to single applications. Due to their age and subscale capacity, many of the data-center facilities were unreliable and inefficient. Support services were highly fragmented across city agencies and inconsistent in quality; many agencies lacked even technical service-desk functionality.

This situation was partially a result of the city's project-by-project funding and budgeting processes. Most agencies built their own data centers, bought their own servers, and hired their own IT staff, with no transparency into other city agencies' IT assets. What's more, the city had paid high prices for IT infrastructure: project-based purchases meant that the city realized little purchasing leverage.

The city administration, which had intuited a significant opportunity to improve IT effectiveness and efficiency, now had a supporting fact base and a compelling case for change.

The future-state model

The city decided to adopt a shared-services model for IT. City agencies would transfer most of their IT assets and IT infrastructure staff, as well as a portion of their budgets, to the city government's central IT function. The city would provide a highly standardized set of infrastructure services, hosted in two modern data centers designed to meet industry standards for reliability and security.

Before starting the physical migration, the city developed its facilities strategy (including site-selection criteria and technical design), created a catalog of standard services that would be available to city agencies at specified costs,

and defined the target technical architecture. The central IT function's support of IT services would be modeled on ITIL,¹ a widely accepted best-practice framework for IT services management.

The city established a program-management office (PMO) to drive implementation. The PMO oversaw the assessment of each agency's infrastructure footprint (assets, labor, and spending), as well as the creation of detailed migration plans and a financial model. In addition, the PMO created a performance dashboard to give each agency full transparency into the city's IT infrastructure, services, and service-level agreements both before and after the transition. The PMO continues to coordinate the efforts of all parties involved and to monitor program risks and issues.

The lessons

City officials knew that consolidation would not be easy. And the public-sector setting presents a number of unique challenges for designing and executing a data-center consolidation, including the following:

Developing an accurate baseline of infrastructure spend. As noted, this city government was typical of public-sector organizations in that its IT spending was decentralized across dozens of groups. In addition, due to complex funding models, most infrastructure investments were embedded in project budgets, with little to no itemization of the IT components. To create an IT spending baseline, the city had to ask each agency to come up with a zero-based estimate of what it spent, relying primarily on a physical-asset count and a review of recent purchase orders for unit-cost estimates.

¹Information Technology Infrastructure Library.

To ensure transparency into IT spending, the city's budget office established new governance processes that require all IT infrastructure-related funding to be approved by the central organization.

Capturing value from the consolidation. In the private sector, companies can capture short-term labor savings by improving efficiency and reducing head count. Such actions are not always feasible in the public sector. Furthermore, public-sector funds are allocated on an agency-by-agency basis, and some agencies are loath to give even part of their budgets to a central organization. These two challenges make it more difficult for public-sector organizations to capture value from consolidation. The city addressed the first challenge by framing the consolidation program with respect to long-term cost avoidance: there would be no layoffs, but neither would there be any new hires. Instead, agencies would have to rely on their existing IT staff to meet their growing IT needs. As for the second challenge, the mayor and the budget office issued a top-down mandate requiring agencies to transfer the appropriate funding to the central organization. To make the transfers as smooth and uncontroversial as possible, the city charged each agency an amount that covered only the cost of the resources the agency used (for example, an agency using five servers would transfer funds equal to the cost of those five servers).

Creating a credible central organization.

Many agencies did not, at first, trust the central IT organization to provide infrastructure services with the required reliability and responsiveness. In fact, some larger agencies had IT operations that were at least as efficient and innovative as the central group; those agencies were wary of ceding control of their IT infrastructure and assets, and IT employees at those agencies were hesitant about joining the central organization. The central IT function took a number of steps to build credibility: it recruited top IT talent from the private sector, created a cross-agency governance council that included influential people in the agency CIO community, and courted one of the city's largest and best-run agencies to support the consolidation and participate in a high-profile pilot. That agency's leaders publicly championed the program and jointly developed solutions with the central IT organization.

Managing a wide range of stakeholders. In a public-sector IT consolidation program, decision makers are necessarily accountable to many stakeholders—including elected officials, labor unions, local companies, and city residents. Unless properly managed, any one of these stakeholder groups can hinder progress. To ensure stakeholder alignment, public-sector organizations should carefully document and communicate the rationale for all major decisions. In this case, for example, political

To ensure stakeholder alignment, public-sector organizations should carefully document and communicate the rationale for all major decisions

considerations might have resulted in a suboptimal choice for one of the planned data centers. The jurisdiction's project team thus invested substantial time laying out a robust set of decision criteria (for example, resiliency and disaster-recovery implications) and articulating how each option performed relative to these criteria. This rigorous documentation was essential to helping all stakeholders agree on the way forward.

Among the data-center consolidation program's expected benefits are run-rate cost savings of more than 15 percent, attributable in large part to improved asset utilization, increased energy efficiency, lower vendor rates, and higher labor productivity. In the first year, the program saved \$5 million, and in five years, savings are projected to reach \$40 million. In addition, city agencies will benefit from better and more consistent services, as well as access to a greater breadth of IT capabilities. The city has already had visible successes—for example, the transition of several prominent agencies and the offering

of new IT services (such as disaster-recovery services, which were previously inaccessible to small agencies).



Although these early wins should help garner continued support, city leadership will need to demonstrate a high level of commitment to maintain the program's momentum. The city must address a number of cultural and behavioral challenges—among them, the lack of incentive among the front line to improve performance, individual agencies' reluctance to relinquish control, and constraints stemming from civil-service rules and union contracts. Formal mechanisms for engaging and motivating the front line will be particularly important if implementation is to succeed; the frontline staff, after all, will have to execute—and live with—the changes. Addressing these challenges will enable the city to realize the full value of its data-center consolidation program.○

