



IOWA'S RECOVERY CENTER¹

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Iowa's acting-CIO John Gillispie was frustrated. His friends from Iowa's Department of Public Safety had just visited the newly refurbished state continuity of operations data center located, just outside Des Moines. As prospective tenants, they were impressed. The construction had taken into account Homeland Security and EMD recommendations, and it showed. There was good HVAC, separate power grids and generators, good power distribution and cleansing, and separate water supplies. At \$500-\$800 per month for a dedicated rack and key, the fees and service would be competitive with private sector space.

The hitch was floor space. In order to handle FBI data, Gillispie learned that the FBI required that public safety server racks in shared data centers be physically caged off, including the floors above and below. This could double or triple the floor space that the Department of Public Safety would consume. They wanted a discount, and Gillispie was balking. Every tenant in this modern recovery facility had to pay the same fees or else put Federal reimbursement for the state's own costs at risk.

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The state opened the data center after the devastating upper Mississippi River floods of 1993, brokering a deal for 11,000 square feet of mainframe-capable space in a Federal facility managed by the National Guard. State engineers configured and built out the space modestly, raising floor, bringing in basic power and minimal HVAC. But they left it at that – providing for minimal power distribution, and with scant HVAC. Gillispie guessed that the room, as built, could never have accommodated the mainframes, with their significant cooling and power requirements.

As it turned out none ever went in. Over half the space – about 11,000 square feet – was allocated to Iowa's Emergency Operations Center and its Statewide Communications Network. Four thousand square feet remained vacant, and available.

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Recently, the state chose to bring its Medicaid processing “in house”. Sensing both need and opportunity, Gillispie identified the Guard space as an obvious location for the Medicaid mainframe. Medicaid would need about a thousand square feet. Gillispie had his eye on the other three thousand which, with some upgrading, could provide Iowa with a modern data center and a basic continuity of operations backup facility. In Gillispie’s view, both were sorely needed. At the moment, though, the facility was no more useful for mainframe computing than ever, and hardly suitable for use as recovery facility. By 2007’s more demanding standards it was more than a “cold site,” but short of “hot”.

Gillispie knew that the new processing investment from Medicaid would help pay to bring the center up to Federal recovery standards. He persuaded state officials to invest further to complete the overhaul – bringing in, distributing, and cleansing the power, boosting HVAC based on recalculated heat load per square foot, adding UPS capability – and installing a mainframe, robotic tape system, and a storage area network.

Gillispie planned that the new space would become a shared “co-location” space for state agencies, offering installed wiring, power, and network connections linked to the capitol complex. With some hard work he might establish the facility, in effect, as a secondary processing site. He continued to invest to give the state some continuity of operations capability for its mainframe environment, providing redundancy in the event of disaster. In the meantime tenants – state agencies – would gain a valued resource for their test and development activities.

“Literally all anyone had to do was come in there, mount their servers in the cabinets, and they were ready. It was not only a hot site, it was an operational site,” Gillispie said. “I encouraged people to split systems: put their test and development equipment out there, and keep the live systems at the downtown data center. In the event of a disaster, they could reconfigure the test servers, stay operational while waiting for additional equipment to arrive, and at least stay in business.” An agency could put half its email servers there, for example, leave the other half downtown, mirror the data, and in the event of outage, make the recovery center servers operational, operating in a “degraded” mode until fresh hardware arrived.

The National Guard charged Gillispie rent and services, and he expected to recoup these costs by levying “rack rate” charges on his tenants. “There was no escaping the fully loaded cost out there,” Gillispie said. “We paid for janitorial. We paid for carpet replacement in shared areas. We were charged for power, because the Guard pays power. We are charged for fuel for the backup generators. We pay for everything.” And with that, Gillispie arrived at a monthly rack rate based upon twenty amps of dual redundant power to the rack. “It was as true a fully-loaded cost as you can get to in this environment,” he observed. “We have to capture it or we are losing money on this space.”

Gillispie’s organization brought the data center into operation, and started to migrate systems, splitting some, as planned, between the downtown data center and the

business continuity center. The Secretary of State put its secondary system in. The Division of Human Services migrated its data warehousing equipment. State Community Colleges followed. The Judicial Department located half of all its equipment at the recovery center. “They figured out the value of what we did,” Gillispie said. “The facility is designed as a “Class 3” data center, so we are designed to 4(9)s [“99.99%] availability. They recognized that they were critically exposed by other servers being in one location. That would put them out of business; take them weeks if not months to recover.”

Gillispie needed 80% occupancy to break even, and it looked like he would make it. But others balked. When Executive Branch agencies saw the cost of Gillispie’s facility, for example, they claimed it was too expensive. They could do it cheaper on their own, some asserted.

Gillispie was exasperated. “That is because they do not count all their costs, and they do not do it to industry standards,” he asserted. “Downtown, somebody else pays for the building; somebody else pays for the major maintenance; somebody else pays for the power.”

In fact, the state legislature funds a budget item for power, gaining oversight over the total “spend”. But as a result, individual agencies do not include the costs of power in their own budgets. “If you are a state agency,” Gillispie observed, “you do not pay for power. But minimum of fifty percent of the operating cost in the data center is power because you bring electrons in and you take BTUS out. You will never make a rational decision about collocation. If you are the agency *paying* for power, but you have no control over *how* power is used, how can you possibly control its usage?”

Making the case for the recovery center was further complicated by a diversity of recovery site approaches for state departments. Many individual agencies each have their own legislative authority or constitutional authority, and can establish their own standards. As a result, practice is diverse.

“There are guys who tell me that it is cheaper for them to put it in a closet. Well, sure it is. But it is not safe,” Gillispie said. “It is not secure. They cannot guarantee they are going to get power to it in any reliable way, and they cannot keep it cool. And they cannot control access to it because the janitor works in that closet.”

Gillispie was worried, too, about the consequences. As the state’s designated CIO, Gillispie was concerned to put Iowa state government on a sound footing. “I think there are agencies what would be hard-pressed to be back in operation in 30-60 days if they lost their primary location. Folks have never taken into account the cost of *not* being available and included that in their equation.”

“You almost have to start with what your data center and applications availability has to be,” he said. “Then, the next step is to pass standards that specify recovery speeds for different operations.

The recovery center might provide a model. Medicaid's audit found it to be among the best of any of the states they'd seen. "There was not an item on their checklist that we had not thought about," Gillispie recalled.

The lack of true cost awareness, and its consequence for performance in the event of disaster, concerned Gillispie. "Cost in a data center is directly proportional to the standardization from a reliability and design perspective," he observed.

As he looked to the future, Gillispie wondered what he might do to address the lack of a standard way to account costs, and the patchwork of recovery standards that now characterized the state. A standard as simple as requiring all servers to be located in Class Three data centers with "N+1" availability in its entire infrastructure, with both power and HVAC, might go a long way to driving the behavior he thought was important, and assuring basic continuity.

As he surveyed his options, Gillispie thought seriously about taking steps to pass such standards through the State Technology Governance Board.