

Data Center Strategy

History of the National Computer Center in Baltimore

SSA's main computer operation center, the National Computer Center, (NCC), is a thirty year old facility located on the agency's main campus in Baltimore. Originally built to house large mainframe processing units and the associated peripheral equipment, the design and physical plant met the standards of the late 1970s. Over the years the NCC's computing capacity has grown through retooling and modernization of the processing equipment. Growing workloads, expanding telecommunication services, the need to transmit and store huge volumes of electronic images, the electronic disability folder process, and the need for tighter security tools, however, are severely hampering the NCC's capacity to support the agency's business. The storage capacity has grown from 12 terabytes in 2000 to 483 terabytes in 2009 with projections that it could increase by four times that much in the next five years.

The need to improve the protection of critical data and infrastructure received heightened attention following September 11, 2001. In December 2003, Homeland Security Presidential Directive 7 required Federal agencies to identify, prioritize, and protect critical infrastructure. SSA's disaster recovery strategy had not been refreshed in over ten years and did not take into account the impact of eDib, the electronic disability processing system, and the disability electronic folder. This Presidential directive, coupled with the agency's own growing sense of unease about its recovery capabilities, led to the decision in 2004 to begin planning for a second data center.

Durham, NC Second Support Center

The Second Support Center (SSC) was built to function in tandem with the National Computer Center (NCC) in Baltimore as a fully functional, co-processing facility. It is planned that about 50 percent of the work processed currently at the NCC will be transferred to the Durham center.

The two facilities "mirror" each other and provide backup. In the event of a disaster, sufficient capacity is being built into the new site so that it can take on the critical workloads of the NCC almost immediately and sufficient space is available so that additional equipment and staff can be added to handle 100 percent of the agency's workloads. SSA took occupancy of the new facility in January 2009.

The increasing fragility of the NCC has caused SSA to accelerate expansion at the Durham site to ensure that it has full capacity to recover all critical functions. Current implementation estimates show that the Durham Support Center will be fully functional in early 2013.

Background and Status of a New National Support Center in Urbana MD

In April 2008 SSA obtained external expert advice on the stability and viability of the current National Computer Center. The report by these experts confirmed that by 2012 the NCC will no longer be a viable operational center and replacing it cannot wait until the Durham data center is

fully online. Because the electrical supplies into the NCC are rapidly becoming inadequate and replacement parts for the backup power supplies are virtually impossible to get, the General Services Administration advised that SSA will have to increase significantly the number of times the NCC is shut down for maintenance, potentially curtailing the agency's operations to a substantial degree. (Since GSA issued that advice SSA has extended the life of the NCC's power source, done some upgrades to the center, and taken other steps to extend the NCC's functioning beyond 2012. Some questions remain, however, about the level of risk involved in the NCC's continuing operation.)

In February 2009, SSA received \$500 million in ARRA funding for construction of a new support center. It estimates that an additional \$350 million will be needed to purchase data storage and processing equipment necessary to bring this facility online.

At a February 2011 joint hearing before the Social Security Subcommittee of Ways and Means and the Subcommittee on Economic Development, Public Buildings, and Emergency Management of the Transportation and Infrastructure Committee, SSA and GSA detailed the status of securing land and building the new NSC. GSA estimated that the NSC project is about a year behind schedule, with an expected construction completion date of September 2014. Final commissioning should be completed by September 2015 and at that time SSA can begin the IT migration to the new location in Urbana, Maryland. This last piece is expected to take close to 18 months, meaning that the facility will begin operation in 2016.

The Board is concerned about SSA's ability to provide ongoing data security as the transition between data centers takes place. When asked about plans to address a worst case scenario, agency executives recognized that current contingency plans for disaster recovery are not nearly sufficient. In the event of a disaster, the Durham data center should have sufficient capacity to provide backup and recovery of critical workloads. During recovery exercises scheduled for the summer of 2011, SSA hopes see a recovery time for critical applications of 24 hours.

Should the NCC no longer be operational the Durham data center will become the agency's primary computing center. Because that site is not yet fully functional, the agency's current disaster and recovery plan is heavily reliant on commercial hot-site facilities, and they are capable of only restoring, at best, 25-to-30 percent of SSA's service in a timely manner. Given the economic importance that Social Security plays in the lives of large segments of the American population, the prospect that correct benefits could not be delivered or important data could be lost because of a major systems failure is disturbing.

Visit Summary: Durham Support Center

In May, 2010 the Advisory Board traveled to Durham to meet with managers and tour the new support center. SSA officially took possession of the Durham Support Center in January 2009. By May, 2009 the center was processing the electronic disability folder workload and by July it was processing SSA's software development workload.

The Durham Center is a co-processing center: it is not a back-up facility, it is online and operational every day, 24/7. *Co-processing*, *redundant processing* and *mirror facility* are used to describe the relationship between the National Computer Center in Baltimore and the Durham Support Center. The two sites handle some of the same workloads. Durham can handle full computer processing for SSA, as was the case in February 2010 when the National Computer Center was closed for several days because of snow.

At both the National Computer Center and the Durham Support Center all work is backed up to tapes which are trucked to a storage facility every night. In the case that either the NCC or DSC is not operational, those tapes would be taken to a back-up facility like the Sun Guard facility in New Jersey and used to re-establish operations.

The possibility of cyber attacks at both of the data centers was discussed during the visit. The agency has had cyber threats before but they were quickly identified and appropriate action was taken. The responsibility for cyber security falls under the jurisdiction of CIO Frank Baitman who is working with a number of external security experts to ensure that SSA's systems are made as difficult to penetrate as possible. As for internal threats, SSA's policies restrict employee access through the security verification programs. Data is available to both end-users and programmers on a need-to-know-only basis. Employees must log in and log in reports are monitored.

There were a number of factors that resulted in the selection of Durham as the site for the new data center. SSA looked for a site away from saltwater, earthquake zones, and nuclear power plants. Durham was far enough away without being too far. An airline hub serves both Baltimore and Raleigh/Durham airports, it is a good recruitment area for IT professionals, and generally thought to be a good place to live.

The building has unique features that help to improve physical security. The walls are designed to absorb a blast, the girders are built to collapse progressively, and the lobby is cordoned off from the rest of the building with a separate exhaust system. There is an extensive surveillance system and North Carolina red rocks serve as a physical barrier at the front of the building.

The DSC is on a different power grid than the NCC. It is estimated that the power grid would be sufficient for at least the next 20 years. The agency is finishing the build-out of the facility's backup power system which will run on generators. Should both the NCC and DSC be destroyed, SSA has a back-up plan to move operations to either the Atlanta or Dallas Region.

To further ensure the continuity of operations, SSA is dividing its workforce between Durham and Baltimore with about 40 percent of the staff involved in the DSC operation and 60 percent with the NCC operations. Telecommunications operations will be handled remotely with most of this workforce located in Dallas and Seattle. SSA is securing another office building near the DSC to handle most of the 475 employees that will be assigned to the DSC. SSA is currently involved in recruiting employees for the DSC in the Raleigh/Durham area.

The Durham center has a 20 year lease. The contractor who designed and built the facility purchased 25 acres for the building site. In contrast, SSA will own the new NCC in Baltimore once it is built because the land and the design/construction of the building will be separate purchases. Once the new NCC is completed, SSA will need to begin planning for the future of its data center operations. This could mean a third data center, the potential for using “cloud” computing instead of another bricks/mortar facility, and/or the possibility of using mobile modules.

Recent Inspector General Audits

As part of the *American Recovery and Reinvestment Act of 2009*, SSA’s Office of Inspector General (IG) was given funding to monitor the effective use of the data center funding. To date, the IG has published a series of reports that review the planning for and the progress of the new NCC project and other factors regarding SSA’s data center operations.

- *The Social Security Administration’s New Data Center Site Alternatives* (Limited Distribution), February 10, 2011. This review evaluates the appropriateness of the site selection process by the General Services Administration/SSA team for the new data center. <http://www.socialsecurity.gov/oig/ADOBEPDF/A-14-10-20184.pdf>.
- *The Social Security Administration’s Disaster Preparedness*, August 13, 2010. The IG reviewed the actions taken by the Social Security Administration (SSA) to ensure continuity of operations during an unexpected disruption of power at the National Computer Center. The OIG found that a prolonged NCC outage would likely have devastating consequences and that SSA needs to act swiftly to address any outage. <http://www.socialsecurity.gov/oig/ADOBEPDF/A-14-10-20116.pdf>.
- *The Social Security Administration’s Second Support Center Disaster Recovery Capability*, July 22, 2010. The report describes how the Durham Support Center will support SSA’s current and future disaster recovery plans and outlines the risk of diminished service during the recovery period should the NCC become unavailable. <http://www.socialsecurity.gov/oig/ADOBEPDF/audittxt/A-14-10-30110.html>
- *The Social Security Administration’s Data Center Alternatives*, April 12, 2010. The IG evaluated SSA’s decision process to build a new data center (to replace the current NCC) outside of the agency’s Baltimore headquarters. <http://www.socialsecurity.gov/oig/ADOBEPDF/A-14-10-21043.pdf>.