Server Consolidation / Backup Strategy

Overview

SDCC provides technology through multiple layers of hardware and software. All hardware will eventually need replacement and the technology of operating systems changes over time affecting a replacement strategy.

In developing a replacement strategy there are certain factors that affect a solution. This document summarizes a very complex technical review effort into an Information Technology Strategy.

It is important to note that other school districts have received audit findings for not having a tested and documented Disaster Recovery Plan. This effort will meet the test.

During these trying budgetary times it is also important to note that funding for this project will be provided by Sales Tax Funds. Sales Tax funding can not be used for salaries. Sales tax can only be used for capital investments in technology having a life of at least 5 years.

Factors Affecting the Strategy

1. Network Servers have a life expectancy of approximately 5 years. As the server approaches 5 years of age it has an increased probability of failing. An unplanned failure has a significantly greater impact on the User community than a planned outage.

   There are presently 52 servers that have significant age in the District Office Data Center. At least 40 of these must be replaced this year. These 40 servers would have a cost of approximately $240,000. This is an amount that would be spent regardless of new technology.

2. SDCC uses 2 strategies to provide for replacement of a failed server.

   a. High Value Servers that are critical to providing services are covered by a Maintenance contract. The contract provides for 4 hour response by the Manufacturer. These contracts are relatively costly and can be as much as 20% of the cost of a new Server. For this reason IS purchases maintenance on critical servers that are installed at the District Office. The cost of maintenance on these servers is over 20% of the cost of a new server and must be funded from General Fund dollars that could be used for salaries.

   b. Lower Value Servers that serve many functions have been deployed in almost every school. There are about 500 of these servers. In order to avoid the relatively high cost of Maintenance the district has purchased additional servers to be used as replacements. These servers can be deployed within a day in the event of a failure. This “Depot” function is economical.

3. Virtual Server Technology is available that will allow the District to reduce the total number of servers deployed. The new technology creates a more cost effective solution by enabling the following savings:

    a. Reducing the number of Physical Servers by a ratio ranging from 10:1 up to about 18:1.

    b. Reduction in rack space.

    c. Reduction in Electrical Expense to run the servers

    d. Reduction in HVAC expense due to reduction in heat.

    e. Reduction in labor required to create and implement a new server from 6 hours to 30 minutes after the first Virtual Server is implemented.

    f. Increase in Quality Control since additional servers can be created using a "Copy" feature.

    It is estimated that the operational cost savings at the District Office will be approximately $20,000 annually be converting to Virtual Servers.

4. The existing District Support Servers are 5 years old and in some cases Maintenance is not available since the machines are at end of life. These servers are specially equipped and can not be replaced quickly.

5. The room containing District Servers is completely full of equipment and the number of additional racks needed is excessive. Additional Racks are needed now and there is no room to add the racks.

6. SDCC needs a Backup and Recovery Strategy that is testable and meets the recovery points identified by survey of users. A Virtualization strategy is needed to create an environment that can be replicated and restored. A 24 to 48 hour recovery criteria has been defined for critical functions follow:

    a. Internet Access

    b. TERMS access to AS400

    c. Email

    d. Instructional Application Servers

    e. Home Directory File Shares (Word, Excel, other)

7. Another location is needed to create a Disaster site that is:

    a. Far enough away from Green Cove Springs to be deemed appropriate.

    b. Have multiple communication paths to phone company Central offices.

c. Have enough room to contain the equipment needed.

d. Have a Generator and Transfer switch that can support the equipment needed.

e. Have adequate road access so that employees can get to the facility.

Conclusions

SDCC must adopt the new technologies and immediately implement plans to purchase and install the requisite equipment to support the Districts needs. Specifically the plan should address the following:

FUNDING for the following purchases will be provided from SALES TAX revenues that are specifically tagged for Technology Infrastructure Capital Improvements that have a life of 5 years or more. These funds can not be used for salaries.

1. AS400 that is now 5 years old should be replaced with a new version and the old one converted to be a backup machine for Disaster Recovery testing and use. Current AS400 will be relocated to Rideout Elementary.
2. Existing District Servers, and others where appropriate, should immediately be replaced with Virtual Server Technology.
3. All other accommodations to existing rooms will be implemented. This includes, but is not limited to, Electrical, Server Racks, Switches, Routers, and Communications.
4. Network Server backup location and an additional pathway to the Internet will be provided through Rideout Elementary school.
5. Rideout Elementary School's Main Distribution Facility will be used for the Backup location. IS will be provided exclusive access to this room. Physical Security will be installed on the door to insure that only District IS Staff has access to the room.

Funding Estimates from Sales Tax Proceeds

AS400	$240,000
Virtualization	$240,000
Backup Location	$180,000
TOTAL	**$660,000**