



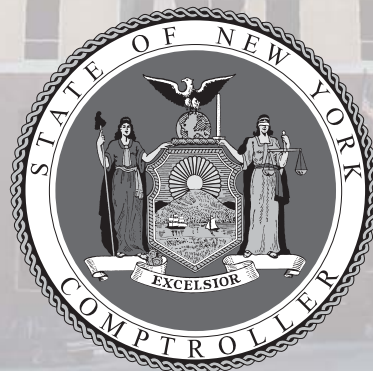
Monticello Central School District Information Technology Cost Savings

Report of Examination

Period Covered:

July 1, 2008 — June 24, 2010

2010M-184



Thomas P. DiNapoli

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State of New York Office of the State Comptroller

Division of Local Government and School Accountability

February 2011

Dear School District Officials:

A top priority of the Office of the State Comptroller is to help school district officials manage their districts efficiently and effectively and, by so doing, provide accountability for tax dollars spent to support district operations. The Comptroller oversees the fiscal affairs of districts statewide, as well as districts' compliance with relevant statutes and observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving district operations and Board of Education governance. Audits also can identify strategies to reduce district costs and to strengthen controls intended to safeguard district assets.

Following is a report of our audit of the Monticello Central School District, entitled Information Technology Cost Savings. This audit was conducted pursuant to Article V, Section 1 of the State Constitution and the State Comptroller's authority as set forth in Article 3 of the General Municipal Law.

This audit's results are resources for district officials to use in effectively managing operations and in meeting the expectations of their constituents. If you have questions about this report, please feel free to contact the local regional office for your county, as listed at the end of this report.

Respectfully submitted,

*Office of the State Comptroller
Division of Local Government
and School Accountability*

Introduction

Background

The Monticello Central School District (District) is located in the Towns of Bethel, Fallsburg, Forestburgh, Mamakating, and Thompson in Sullivan County. The District is governed by the Board of Education (Board) which comprises nine elected members. The Board is responsible for the general management and control of the District's financial and educational affairs. The Superintendent of Schools (Superintendent) is the chief executive officer of the District and is responsible, along with other administrative staff, for the day-to-day management of the District under the direction of the Board. The Executive Director of Instructional Technology and Staff Development (IT Director) is responsible for managing the District's information technology (IT) operations.

During our audit period, there were six schools in operation within the District, with approximately 3,400 students and 470 employees. The District's budgeted general fund expenditures for the 2010-11 fiscal year are \$76 million, funded primarily with State aid and real property taxes. These budgeted expenditures included approximately \$567,000 allocated to the District's IT operations for computer-assisted instruction. The District's information technology network included 1,590 desktop, laptop and tablet computers,¹ linked together and located throughout the District's classrooms, computer labs, libraries and offices.

The electricity used by common computer equipment represents a significant portion of the electricity used in school buildings. Reducing the amount of electricity this equipment consumes has important cost saving benefits. Additionally, virtual server² technology allows multiple independent virtual operating systems to run on a single physical computer. It is a way of maximizing the use of physical resources to minimize the investment in hardware. It is now feasible to have a single server run 16 virtual operating systems simultaneously. Through such virtualization, school districts can achieve higher server density and decrease hardware acquisitions and maintenance costs, resulting in significant savings.

Objective

The objective of our audit was to review the District's information technology operations to determine if District officials implemented effective cost savings measures. Our audit addressed the following related questions:

¹ A tablet computer is a notebook computer equipped with a touchscreen.

² A server is a computer that links other computers and electronic devices together in a network environment.

- Did District officials achieve cost savings by using a staff-developed computer program to turn off computers automatically each day?
- Did District officials achieve cost savings by using virtual technology for their servers?

Scope and Methodology

We reviewed the District’s information technology operations for the period July 1, 2008 through June 24, 2010.

We conducted our audit in accordance with generally accepted government auditing standards (GAGAS). More information on such standards and the methodology used in performing this audit is included in Appendix B of this report.

Comments of District Officials

The results of our audit have been discussed with school district officials and their comments, which appear in Appendix A, have been considered in preparing this report.

Information Technology Cost Savings

The Board is responsible for providing quality educational programs to students in a cost effective manner. District officials recognize that although computer networks are essential to today's educational programs, they are major consumers of electricity. The IT department's staff has taken a number of steps to lower the costs associated with operating the District's information technology infrastructure, including programming computers to shut down automatically every day and consolidating physical servers. We estimated these actions saved the District \$11,000 in annual software costs and at least \$9,700 in annual electricity costs. We commend District officials for taking these cost savings initiatives.

Computer Shutdown

District officials recognize that computers are a major consumer of electricity. All of the District's networked computers are programmed to shut down automatically at 9:00 p.m. each day. The IT Director told us that based on the IT department's periodic tests during the school year, the automatic shutdown is about 70 percent effective. We estimated the District saved almost \$7,500 in electricity costs during the 2009-10 school year by shutting off computers at night.

Although there are numerous software programs available that enable a network administrator³ to schedule all of the computers on a network to shut down at a specific time, the District's IT staff wrote their own software program to perform this same basic function. Based on available pricing information,⁴ we estimated the District saved more than \$11,000 in 2009-10 by using the IT department's software program instead of purchasing similar software to handle automatic shutdown of District computers.

Virtual Servers

Computer servers are another major consumer of electricity. Servers typically include multiple hard drives, fast central processing units, and high-performance memory. Because servers usually host files and applications for the other computers and electronic devices connected to the network they usually run continuously. Typically, servers are set up to use only a small fraction of their overall processing capability. Specialized software can turn one physical server into multiple virtual servers, using more of the physical machine's capabilities.

³ A network administrator is the individual responsible for ensuring the network infrastructure and its related computer hardware is maintained and functioning properly.

⁴ <http://www.dimaware.com/shutdown1pro/shutdown1pro.html>

Over the last three years, the IT department has eliminated seven of its 13 physical servers through virtualization. We estimate this saved the District between \$2,200 and \$3,600 in electricity costs during the 2009-10 school year. Because servers generate considerable amounts of heat, the elimination of these seven servers will also help the District save energy on building cooling costs.

APPENDIX A

RESPONSE FROM DISTRICT OFFICIALS

The District officials' response to this audit can be found on the following page.



Monticello Central School District

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Mrs. Susan M. Purcell, *President - Board of Education*

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"Building Excellence Through Trust"

February 4, 2011

Office of State Comptroller
Binghamton Regional Office
State Office Building, Room 1702
44 Hawley Street
Binghamton, NY 13901-4417

Dear Ms. Singer:

Inspired by the current fiscal climate the Monticello Central School District continues to explore different avenues for cost savings. We benefit from an efficient and effective Instructional Technology Department that looks both externally and internally for solutions. The Comptrollers Office has identified two areas in which efforts of the department have resulted in measurable savings for the district. The department serves as an example for other areas of the school community to look for innovative cost savings measures. We applaud the efforts of the Instructional Technology Department and believe that other departments will follow their example. These types of efforts will assist the Board and Administration in providing quality educational programs in a cost effective manner.

Sincerely,

A handwritten signature in cursive script that reads "Gladys P. Baxter". The ink is dark and the signature is fluid and legible.

Gladys P. Baxter
Assistant Superintendent for Business

GPB/cr

Cc: Edward Rhine
Board of Education

APPENDIX B

AUDIT METHODOLOGY AND STANDARDS

Our overall goal was to determine if the recent changes to the information technology operations implemented by District staff resulted in cost savings to the District. To accomplish our objective, our procedures included the following:

- We interviewed the District Superintendent and IT Director to identify recent changes made to the District's information technology operations.
- We reviewed the District's utility bills for the months of December 2009 to May 2010 to determine the price paid for electricity.
- We reviewed the District's computer inventory, environmental datasheets from the computer manufacturer, and the results of testing performed by one university's technology department to determine the amount of energy consumed by the District's computers.
- We contacted the server manufacturer for an estimate of the electricity consumed by the District's servers.
- We obtained price quotes for remote automatic shutdown software from two software manufacturers.

We conducted this performance audit in accordance with generally accepted government auditing standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

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