Background:

In 1948 the New York State legislature created Boards of Cooperative Educational Services (BOCES) to provide shared educational programs and services to school districts within the state. Today there are 37 BOCES, incorporating all but nine of the state's 721 school districts. BOCES partner with districts to provide a broad range of services that help meet the evolving educational needs of students. The Western NY Regional Information Center housed at Erie 1 BOCES provides informational and technological services to support instructional and administrative functions. The goal is to maximize the quality of instruction and to improve learning; efficiency and effectiveness of educational institutions; and to enhance the decision making process.

The WNYRIC is an information and learning technology service provider that delivers technical support, resources and solutions for school districts, communities, and various other partners to enhance learning and manage the total educational environment.

In the fall of 2010, discussions began regarding additional collaborative projects which could save the school districts, and the tax payers, in our region money. Controlling and reducing power consumption was an obvious initial step based on the NY State Comptroller's Power Save audit. Gartner Research and InfoTech Research also provided information regarding the significant cost associated with unmanaged computer power management policies.

In addition to the energy cost for running computers in school, it was noted that significant cost containment could be achieved by reducing the time and resources used on repairing and maintaining computers that were infected with viruses, Trojans and spam ware. These types of issues often require trained staff to go from computer to computer to fix the issues. This process is sometimes referred to as "sneaker net" because of the way the technicians move to each computer, updating software and installing software patches that are created to protect the computers and network. As technology has improved, new programs were developed to be able to push out these updates and patches at one time, from one central location, with one person; called "end-point management." The use of end-point management programs have been used to greatly reduce staff time, travel expenses, and the down time of a computer system.

In New York, as in other states, schools are trying to find ways to deal with shrinking revenues and increasing expenses, while trying to provide revenue to support robust instruction.

The four BOCES making up the WNYRIC (Cattaraugus/Allegany, Erie 2/Chautauqua/Cattaraugus, Erie 1, and Orleans/Niagara) believed that finding ways to reduce the cost associated with powering and fixing computers was critical to helping districts to achieve their objective of providing revenue necessary to support robust instruction. The structure of the BOCES and their ability to interact with the districts provided the perfect environment to achieve this.

Work Plan:

The processes and activities completed from September 2010 to present have been as follows:

- Investigation of the programs that were being utilized for power and patch and security management in school districts and BOCES.
- Investigation of any grants that school districts and BOCES had submitted for power and patch and security management and their results.

- Using Gartner Research and InfoTech Research firms, we investigated, through proof of concepts, three programs which support centralized patch, security and power management.
- Selection of KACE, BigFix and Microsoft SCCM as products which could potentially provide patch, security and power management.
- Creation of a Proof of Concept process with both KACE and BigFix in a school district and at the Erie 1 BOCES level.
- Submission of a NYSERDA Grant in February 2011 which included Data Center server virtualization, data storage virtualization, HVAC and airflow management, computer end point power management and network switch dimming.
- Proof of Concept for the month of December 2010 and January 2011 commenced for BigFix and KACE. SCCM was eliminated as an all Microsoft Windows environment was necessary and that is not consistent with the environments of our districts' environments.
- In January BigFix was purchased by IBM and renamed IBM Tivoli Endpoint (TEM) built on BigFix technologies. This delayed the Proof of Concept until May 2011.

The following criteria were selected as necessary for the Proof of Concept for both products:

1. Required functionality to create and push an application
2. Ability to have a basic inventory of the workstations and servers in the program from a virtual audit perspective was required
3. Centrally located server for hosting not a proprietary appliance
4. Integration with Active Directory, eDirectory and Open Directory if necessary
5. Must be "agent" based to relieve the network traffic implications
6. Ease of install and uninstall of agent
7. Robust installation of patching in stages eliminating the need for end user intervention
8. Ability to have the power management be "opted out" of by the end user
9. Robust reporting tools which can be distributed in a web based environment by roles
10. Power management should provide powering up capabilities as well as sleep and hibernate in a robust form

Based on the criteria and studies done by the Senior Network Engineers and Field Supervisors it was determined that IBM TEM was a solution which met our criteria. The shared utilization from a single server would provide much needed cost containment.

A return on investment study was also conducted in November of 2011 with IBM and Erie 1 BOCES concerning the patch and security management automation tool. This study related to the service calls from districts which were received in September and October 2011 pertaining to malware and virus infections on the computers in the districts. Although end point security is not an official BOCES related service, many school districts were at a loss in preventing malware from proliferating on their local data networks which caused critical down time impacting technology integration in classroom curriculum. The ROI study indicated that there was a potential to save over $500,000 in annual labor costs if school district networks were secure and patched in a more automated manner.

Negotiations regarding pricing of the IBM TEM product with IBM commenced simultaneously with analysis by Labella Associates, an Engineering firm appointed by NYSERDA to analyze computer end point power management.