North Carolina Schools Dramatically Expand Student Access to Computing

Every public school student will graduate from high school, globally competitive for work and post-secondary education and prepared for life in the 21st Century. That is the mission of the North Carolina State Board of Education. And access to computers—by students and faculty—is obviously a critical component. But how can schools improve their student-to-computer ratios with limited budgets? Over 25 school districts across North Carolina have given an additional 10,000 students access to computing *without increasing their budgets*. This is only possible with the revolutionary NComputing solution that allows multiple students to simultaneously access a single PC while significantly lowering computing costs.

McDowell County School District in Marion, North Carolina is a typical case. Read it to learn why this technology has spread so dramatically throughout the state, the U.S. and the world.

The Challenge

McDowell County School District has eight elementary, two junior high, and two high schools. “Using technology in a meaningful way to engage, educate and prepare students is one of the top priorities of the school district,” says Barry Pace, IT Director for the district. “However, stretched state and local budgets made it challenging to keep classroom and PC lab equipment up to date. We were forced to maintain 6-9 year lifecycles, which made it difficult to run the latest educational applications. We needed a cost-effective solution that would enable us to quickly upgrade labs and put more computing access in front of students.”

Everywhere you go, school IT directors face the same challenge: trying to expand computing access within the bounds of a fixed annual IT budget. When the money for new computers is not there, the PC lifecycle gets stretched out and students must deal with limited access on aging equipment. Shared computing addresses this dilemma by dramatically cutting the costs of giving students access to the latest computing technology.

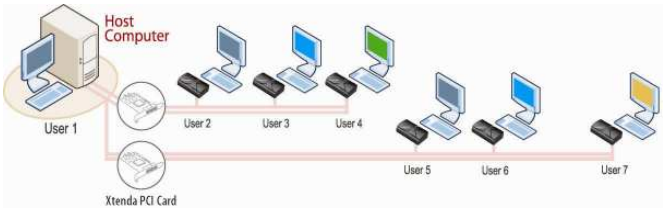
“Stretched state and local budgets made it challenging to keep classroom and PC lab equipment up to date,” said Barry Pace, McDowell School District IT Director.

Student Computing Lab Powered by NComputing in the McDowell County School District

The Solution

Mr. Pace and his counterparts in over 25 school districts in North Carolina turned to NComputing’s X300 solution. According to Pace, “NComputing’s X300 accomplished what we wanted at a lower cost and could be installed in a more efficient and aesthetic manner.”

NComputing harnesses the unused power of a PC and shares it among up to 30 users. They can all run their own applications, and all at the same time. And the cost starts at $70 per additional student. NComputing also requires much less power to run, generates less heat, and dramatically reduces maintenance time. In short, it is ideal for schools.



Up to seven users can share a PC

”We piloted our first X300 in a junior high science classroom and determined that the X300 was certainly capable of supporting four sessions on a single 3.2 GHz desktop with 1GB of memory in any classroom in our

environment," says Mr. Pace. "We also decided that we would try seven sessions in some situations."

Soon after the first pilot, Pace ordered more X300s and began reallocating district PCs and redeploying legacy monitors so that four students could simultaneously use a single newer PC in all elementary classrooms. "We were impressed with how quickly the X300 could be installed, and even with four students accessing NASA Live at the same time, the performance was similar to a dedicated PC," commented Mr. Pace.

McDowell Schools use the X300 with a variety of applications including multi-media software

How Does It Work?

With the NComputing X300, up to seven students can simultaneously share a single PC. Each X300 system includes a PCI card and three access terminals. The card plugs into a PCI slot in any standard PC. Each card has three RJ45 ports. Standard Cat 5/6 cables (up to 33 feet (10 m) long) plug into the card to connect the shared PC to the X300 access terminals. The terminals then connect to standard peripherals (keyboard, mouse, monitor and speakers or headphones.)

Standard PS/2 keyboard, PS/2 mouse, VGA and audio ports connect to user peripherals

Add a second X300 system and seven students can share a single PC (one on the host PC and three on each of two PCI cards. The X300 is compatible with standard PC applications and delivers a rich PC experience to each user.

The X300 kit is easy to install and includes one PCI card and three small access terminals

Teachers and administrators can use NComputing NControl software to monitor student activity. Teachers can also send warning messages and even take control of a student's session if they use improper applications.

The Results

The McDowell School District has deployed about 350 NComputing X300 kits to date. They are installed in 300 PCs, with most of the PCs hosting three additional students. Eleven of the twelve schools in the district have deployed NComputing systems—the majority in elementary classrooms. Approximately eight out of the 35 computing labs in the district are using the X300, with half of them deploying four access terminals per PC and half deploying seven access terminals per PC. The result is over 1000 additional seats of computing access for students in the McDowell County School District alone.

According to McDowell's Network Engineer, Mr. Kelly Combes, "schools deploying NComputing should pilot their specific usage environment to determine the best ratio of users per PC. We have some environments where seven users per PC work well and others that work better with four users—either way, the cost savings are substantial."

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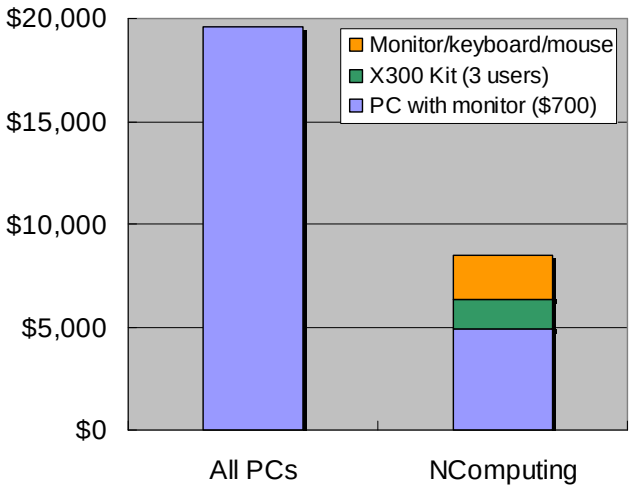
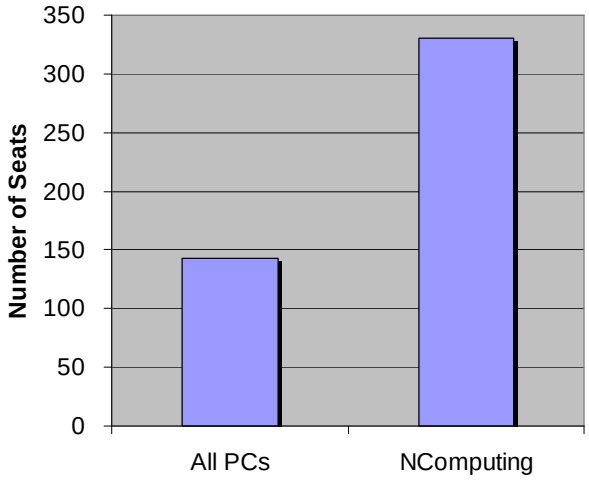
A comparison of the acquisition costs for a 28-seat student lab demonstrates the cost savings that McDowell and other North Carolina schools achieved. The acquisition cost of an all-PC lab would be $19,600. In comparison, a lab using NComputing technology with a smaller number of shared PCs would only cost $8,470. The total cost of outfitting a 28-seat student lab is 57% lower with NComputing.



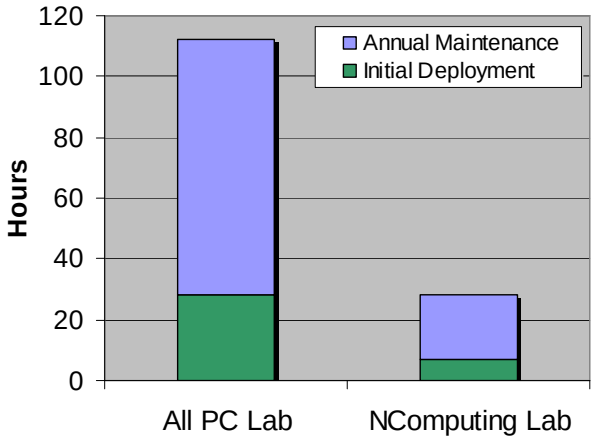
NComputing cuts the acquisition cost for a 28-seat computer lab by 57%

What do districts do with the money they save? They usually buy more seats. And that improves their student-to-PC ratios, which after all is a primary goal, by giving more students access to computing. For example, a district with a fixed annual budget of $100,000 for computer purchases and refreshes can afford 188 more computing seats (131% more) by using NComputing.



A $100K annual budget can deliver 188 more seats (131%)

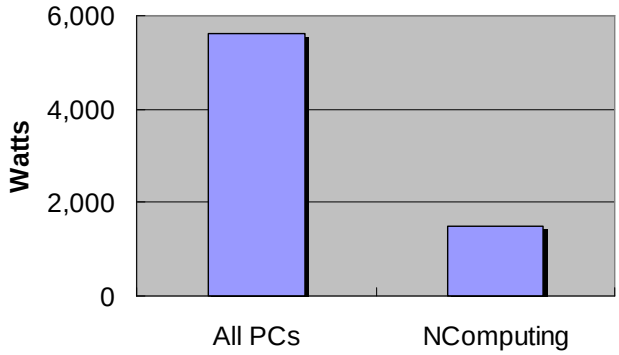
The efficiency and cost savings of the NComputing solution continue beyond the initial acquisition. Since the number of required PCs is only a fraction of the number of access terminals, the hours of IT personnel time required to deploy, support and manage the equipment are greatly reduced. Assuming a PC takes an hour to deploy; this means that an NComputing lab would require 75% less time to set up. If a PC requires three hours per year of maintenance and support (a very conservative estimate), then an NComputing Lab with 28 seats would require 75% less support.



Time required to deploy and manage PCs is reduced 75% with NComputing

"I was blown away... it allowed me to stretch my computer budget in such a way that there would no longer by a waiting line to use a computer," said Dr. Louis Johnson of Rockingham School District in North Carolina.

NComputing also dramatically reduces electricity usage and heat. An X300 access terminal uses less than five watts of electricity instead of the typical 200 watts per PC. The diagram below shows the electrical usage comparison for a 28-seat computer lab.



The efficiency of the NComputing solution cuts electrical usage

The efficiency of the X300 solution is a direct result of its much smaller footprint. The three small access terminals and PCI card take the place of three additional full-sized PCs. Plus, each access terminal receives all of its power directly through the cable attached to the host PC. Therefore, no separate power connections are required for the access terminal, further simplifying installation and maintenance.

The X300 access terminals do not require separate power connections

The Growth of Expanded Student Access

Since early 2006, over 25 school districts in North Carolina have deployed 10,000 seats with NComputing systems in hundreds of schools. Much of this growth is a result of district IT managers sharing their experiences with their counterparts in other districts. Other states have seen similar growth and schools in over 70 countries are rapidly adopting the NComputing approach.

Besides the students who are excited about getting access to computing, IT managers are thrilled by the efficiency, ease of use, compatibility with standard PC applications, and overall lower maintenance requirements. And of course, principals and administrators are pleased to see their limited budgets go so much further.

"I was blown away when I saw NComputing's X300 in action," says Dr. Louis Johnson of the Rockingham County School District in North Carolina. "It allowed me to stretch my computer budget in such a way that there would no longer be a waiting line to use a computer."

North Carolina School Districts Have Deployed 10,000 NComputing Seats

District	*Seats**	*District*	*Seats**
Avery	80	Lee	120
Beaufort	220	Madison	40
Bladen	20	McDowell	1400
Brunswick	600	Montgomery	200
Cabarrus	40	Nash-Rocky Mt.	2000
Caswell	240	Northampton	200
Craven	920	Orange	240
Currituck	20	Pender	440
Dare	276	Pitt	240
Franklin	120	Polk	40
Henderson	40	Robeson	960
Hertford	8	Rockingham	240
Jackson	40	Washington	960

* Approx. number of seats connected to an NComputing system.

North Carolina added 10,000 computing seats in schools with NComputing—without an increase in IT budget. The old approach for the same number of new seats would have cost an extra $4 million.

NComputing solutions have been deployed all over the world by schools, businesses, governments and other institutions. To learn more about NComputing, please visit: www.ncomputing.com

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