



Powering digital learning at all grade levels

Lynbrook Union Free School District equips every student with a mobile device and rebuilds its data infrastructure to be more effective in enabling teaching and learning



K-12 Education

United States

Business needs

The school district aimed to provide students with the right devices to support the many learning scenarios and evolving content creation requirements in each grade. That also required updating the network infrastructure.

Solutions at a glance

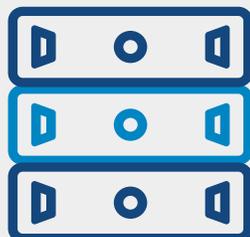
- Client Solutions
 - [Dell Latitude 3189 2-in-1](#)
 - [Dell Venue 11 Pro 5000 Series tablet](#)
- Converged Infrastructure
 - [Dell EMC VMware vSAN Ready Node](#)

Business results

- Deploys 6 hyper-converged devices to replace 14 servers and 2 SANs
- Cuts infrastructure costs substantially
- Enables successful 1:1 initiative
- Provides a transferable model for other school districts

Increases storage from

27TB
to 50TB



Boosts networking speed from

1GB
to 10GB



Lynbrook Union Free School District is a suburban school district on Long Island just outside of New York City. Over 300 teachers are responsible for the education of nearly 3,000 students, some of whom are not native English speakers.

The school district is unalterably committed to student success. Neil MacDermott, instructional technology coordinator at Lynbrook Union Free School District, explains, “We’re looking to transform instruction by using technology, together with the proper level of staff support.”

Lynbrook Union’s strategy for integrating technology into teaching and learning follows the SAMR Model and its phases of substitution, augmentation, modification and redefinition. When Lynbrook started this transformation many years ago, it began with a 2:1 approach that provided one laptop for every two elementary school students. The 1:1 initiative, beginning at the middle school level in the fall of 2014, saw a deeper application of the SAMR model. Technology use began as a substitution, replacing paper-based tools with digital technology, but the teaching and learning experience changed rapidly as technology integration became more transformative over time. Over the four years of the program, which started with the Dell Venue 11 Pro 5000 Series tablets, student performance on assessments improved and teachers moved more efficiently through the curriculum.

A mobile device for every student

Ready to take another leap forward, Lynbrook Union expanded the 1:1 initiative to the high school level. The school district purchased 500 Dell Latitude 3189 2-in-1 devices with an Intel® Pentium® Processor N4200 to support this effort. The main application running on the Dell Latitude devices is Microsoft Office 365. Ronnie Ramlogan, assistant engineer, CORE BTS, at Lynbrook Union Free School District, says, “We chose the Dell Latitude 3189 because it’s extremely durable and offers features we value, such as a touch screen and an active stylus. It is also a good fit for our infrastructure.”

Student feedback on the Dell Latitude convertible laptop is positive. Previous challenges students experienced on another computer, like an easily lost, detachable keyboard, are no longer an issue. MacDermott says, “So far we’ve had just one Dell Latitude break. The warranty service from Dell was quick and effective.”

Building a hyper-converged infrastructure

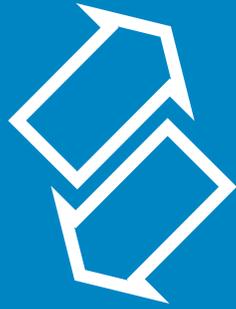
MacDermott and Ramlogan coordinate efforts to achieve an optimal alignment between application and user support and the underlying infrastructure. When it became obvious that the 1:1 initiative would lead to students creating more digital content and teachers innovating in the classroom, it was time to make the infrastructure more robust and efficient.

“Re-creating our network operations center on Dell EMC devices, including switches and cabling, cost much less than the previous infrastructure.”

Ronnie Ramlogan
Assistant Engineer, CORE BTS, Lynbrook
Union Free School District

1:1

Enables successful
1:1 initiative



“Instead of accessing 14 different servers, I can manage all resources in our Dell EMC hyper-converged network from a single console.”

Ronnie Ramlogan
Assistant Engineer, CORE BTS, Lynbrook
Union Free School District

With assistance from Dell EMC, Lynbrook Union created a hyper-converged environment. The district replaced 14 physical servers and two storage area networks (SAN) with just six Dell EMC VMware vSAN Ready Nodes on PowerEdge Servers with Intel® Xeon® processors to run a total of 41 server applications. Solutions facilitated by the Dell EMC technology include Microsoft Exchange Server and SQL Server, PowerSchool, and multiple file servers. In the transition, storage increased from 27TB to 50TB and networking speed went from 1Gb to 10Gb.

Big cost and power savings

Expenses for implementing hyper-convergence were significantly below those for building the previous network. As Ramlogan notes, “Re-creating our network operations center on Dell EMC devices, including switches and cabling, cost much less than the previous infrastructure, which consumed a larger budget.”

Additional savings come about because the new network environment’s power consumption is about one-third less than before.

Increased manageability and efficient backup

The infrastructure’s manageability improved greatly with the new solution. “Instead of accessing 14 different servers, I can manage all resources in our Dell EMC hyper-converged network from a single console,” says Ramlogan. “Also, VMware performance is clearly faster on the new platform.”

In addition, replication to the district’s backup site for purposes of disaster recovery is much quicker. “Servers were previously cloned manually once a month for disaster recovery, but now this function happens automatically at two-hour intervals where servers are synced,” Ramlogan states.

More powerful support for teachers and students

When teachers saw the differences in the responsiveness and performance of applications after the deployment of the hyper-converged infrastructure, they began thinking about other usage scenarios. MacDermott says, “It has become far easier and less time-consuming to set up a new virtual server, test it and make it available to teachers. And, by almost doubling storage, we can accommodate much more digital content and many other software tools.”

For both teachers and students, network and application performance has vastly improved. “Interacting with network shares has become a more responsive and reliable experience by going from 1Gb to 10Gb networking with Dell EMC,” MacDermott adds.

Transferable model for other school districts

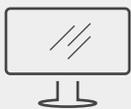
School districts have visited Lynbrook Union to see what was accomplished there. “No other school district we know about has a hyper-converged network,” says Ramlogan. “We’re ahead of the curve with Dell EMC.” In various assignments, Ramlogan has had the opportunity to work with a variety of technology providers. He states, “Compared to other manufacturers, Dell EMC generates no complaints and is much better to deal with, for instance, in supporting an implementation, diagnosing issues and providing warranty service.”

For these other school districts, which often lack a dedicated network operations room, the space efficiency of the hyper-converged technology is an important consideration. “We use less than half a rack today instead of a full rack, which can make a big difference when you have very little space to use,” says Ramlogan.

Evolving the learning environment

Lynbrook Union keeps abreast of tech innovation to keep improving the teacher and student experience. MacDermott states, “It’s extremely useful for us that Dell is willing to visit, show us available solutions and discuss what’s in the pipeline.”

Currently, the district is budgeting for Actiontec wireless devices sold by Dell that will let teachers display content from tablets and laptops to a digital whiteboard. These will be in all middle school and high school classrooms. Other plans include wider use of Microsoft SharePoint Server and single network sign-on for all users.



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