Touro College of Dental Medicine Transforms Education and Clinical Care through Digital Dentistry

At a Glance

Industry
Healthcare/Education

Technology
Colocation

TierPoint Customer
Hudson River CIO Advisors

Challenge
Designing IT infrastructure for state-of-the-art dental education and clinical care.

Solution
Thin clients, GPU-enabled servers and the Imprivata platform create a digital ecosystem that is flexible for student learning and secure for patient data.

Results
HIPPA compliance; high reliability, low latency workstations; highly secure operations in multiple-user environment; ability to scale and keep up with changes in dental and IT technology.

Website
dental.touro.edu

Intro

Touro College of Dental Medicine at New York Medical College (TCDM) was established in 2016 as the first new dental school in New York State in 50 years. With that in mind, TCDM was designed from the ground up to provide students and faculty access to the latest digital tools in dentistry as well as to offer affordable dental care to the public.

TCDM chose Hudson River CIO Advisors to design the IT infrastructure needed to transform a traditional approach to dental training and practice to one that incorporates the tools of modern digital dentistry.

Hudson River CIO relies on colocation at TierPoint's Hawthorne, NY, data center, which provides high bandwidth to deliver the high-end graphic displays required by Citrix systems; the Disaster Recovery services required for HIPPAA compliance; business continuity services for an operations center in a secure, climate-controlled facility; and high-speed data connections to TierPoint's national data center network.

Challenge

Dentistry is evolving rapidly through new digital dentistry processes. Designing the right IT infrastructure for digital dentistry and education was one of the first challenges in creating TCDM in 2016.

The first bids TCDM received were for a typical dental school IT installation: a network of individual PC workstations. Not only are these networks difficult to maintain, they are a logistical nightmare from a security standpoint.

In addition, digital dentistry requires fast, high-end graphic workstations for 3D X-rays and modeling. These new technologies are typically deployed by private dental practices and are not designed for enterprise scale. TCDM wanted to build a platform that would bring the latest digital technology to students, faculty and patients.

Mike Schreibman, co-founder of Hudson River CIO Advisors, said, "The platform needed to accommodate the fluidity of classroom activity: an infrastructure that allows people to quickly move from place to place; fast login and load times for 3D graphics; and two-factor authentication for hundreds of users."

The solution also needed to integrate a practice management system and all the Microsoft tools. And the system would need to extend from the academic setting to become part of the clinic, providing everything that goes along with maintaining permanent patient records and meeting HIPAA compliance.

It quickly became apparent that the old model of networked PCs, used for decades, would not work. What Touro College of Dental Medicine needed was unprecedented.

Solution

Hudson River CIO's solution centered on using thin clients and a Citrix graphics environment, enabling the school to have a high-end graphics system without all the gear required in a PC-based system.

> " Whenever we talk to potential clients, they're always concerned about data security, physical security, firewalls, what kind of systems we have to ensure that their data and the equipment are safe. Once we take them through a tour of TierPoint's data center, you can see them start to relax. "
>
> *Mike Schreibman*
> *Co-founder of Hudson River CIO Advisors*

The approach depended on TierPoint's data center capabilities, including fiber optic connection to the school and GPU-enabled servers.

The thin client solution transformed the foundation of the dental school, the simulation lab. For the first two years of study, students spend about 1500 hours of instruction in the simulation lab developing their hand skills, training on the digital tools, and learning the processes they need to work on live patients. The simulation lab has 112 seats, each like a mini dental office, where students take instruction and work on projects with lifelike mannequins.

Having a thin client at each of these stations gives TCDM the power to have a master instructor demonstrate procedures to the entire classroom at the same time. Whether broadcasting PowerPoint slides or high definition video, the thin client structure enables everyone to view the instructor's actions close up.

Learning in the simulation lab also involves students using new 3D high-definition cameras and state of the art software to design and create crowns for their "patients." Using cameras to model the crown to specifications, students then send instructions to a milling machine that will take a block of porcelain and precisely cut the crown.

> "Hudson River CIO Advisors and TierPoint helped us put in a system that allows us to reconfigure and scale technology to always keep up with how fast it changes."
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> *Dr. Alan Jurim*
> *Director of Digital Dentistry, Touro College of Dental Medicine*

TierPoint's GPU-enabled servers and direct fiber optic cable to the client enable this process for 112 students at the same time without lag.

In designing the system, Hudson CIO's Schreibman said, "We looked for hyperconverged GPU-enabled servers to send Citrix screens out to the workstations, coupled with fast connectivity between the data center and the school. Even the dentists who had their own equipment were impressed with the speed and resolution."

The design also scales well, so TCDM could grow from the first class of 115 students to 600 students and faculty, and to 160 dental chairs, with very little effort.

Security issues in an academic environment are challenging. The solution for TCDM was to employ the Imprivata platform for authentication management and virtual desktop roaming. This allows people to tap a card, enter a quick code and take their session with them as they go from operatory to operatory, or within the simulation lab as they form different workgroups. Students and faculty can log on to any of 350 workstations in the building, quickly and securely.

TierPoint's data center is central to TCDMs IT infrastructure. TierPoint's entire data center network is interconnected and offers dark fiber, resulting in low latency and high bandwidth availability. The Hawthorne, NY, data center is HIPPA compliant, including disaster recovery and business continuity resources, which Hudson River CIO has used to build an operations center inside the TierPoint facility.

"Knowing that we've got high speed data connections to other TierPoint data centers, it also assures physical security and air conditioning, UPS, power, backup and generators to make sure the systems are always up and running," said Schreibman.

"Whenever we talk to potential clients, they're always concerned about data security, physical security, firewalls, what kind of systems we have to ensure that their data and the equipment are safe. Once we take them through a tour of TierPoint's data center, you can see them start to relax," he said.

Results

Through the partnership with Hudson River CIO Advisors and TierPoint, TCDM has implemented a digital ecosystem for dentistry to be taught and performed with the latest tools, in a way that is reliable and scalable as the industry technology changes. The thin client platform requires lower staff support and is easier to maintain than individual PCs, while using Citrix and GPU-enabled servers to deliver fast, high-resolution graphic modeling and enhanced instruction techniques. Workstation access for users is easy yet secure, and patient records are HIPPA compliant.

About TierPoint

Meeting clients where they are on their journey to IT transformation, TierPoint (tierpoint.com) is a leading provider of secure, connected data center and cloud solutions at the edge of the internet. The company has one of the largest customer bases in the industry, with thousands of clients ranging from the public to private sectors, from small businesses to Fortune 500 enterprises. TierPoint also has one of the largest and most geographically diversified footprints in the nation, with over 40 world-class data centers in 20 U.S. markets and 8 multi-tenant cloud pods, connected by a coast-to-coast network. Led by a proven management team, TierPoint's highly experienced IT professionals offer a comprehensive solution portfolio of private, multitenant, managed hyperscale, and hybrid cloud, plus colocation, disaster recovery, security, and other managed IT services.