

Client Spotlight: Regional Health



In August 2016, Regional Health partnered with T2 Tech Group (T2 Tech) to implement a virtual desktop infrastructure (VDI) and a secure printing solution to improve clinical workflow at their flagship Rapid City Regional Health (RCRH) facility. For the project, T2 Tech supported RCRH in the assessment, implementation planning and rollout of a VMWare Horizon 7 virtual desktop infrastructure to 22 separate departments. Additionally, T2 Tech played an integral role in providing guidance to optimize the backend infrastructure that supports the health system's end-user computing (EUC) environment. The total project scope included approximately 1,000 VDI endpoints, 200 printers and roughly 1,900 clinical users across 19 departments.

The VDI and secure printing solutions provide the hospital with many benefits, including:

- Operational savings from enabling clinicians to spend more time with patients
- Reducing endpoint replacement costs
- Centralized pools of utilization vs. individual users/seats, which improved IT's ability to distribute updates and security patches, perform upgrades and monitor desktop utilization
- Reduced security risk by removing unsupported, obsolete equipment and software
- Improved desktop performance and reliability

With VMWare Horizon 7 and OM Plus in place, RCRH was able to focus on its next initiative of implementing a new Epic electronic health record (EHR) system.

A Solution for Workflow Needs

T2 Tech managed and coordinated different aspects of the implementation by meeting with all relevant stakeholders, including department heads and c-level leadership, to confirm all requirements were met, work through go-live scheduling, and receive sign off prior to go-lives. T2 Tech also implemented a structured testing strategy and mapped solutions to different clinical workflows and workstations.

Effective Project Management

T2 Tech's hybrid approach to project management included upfront planning along with agile-based execution. The flexible approach incorporated lessons learned before closeout and helped the team execute the initial scope of work well before the committed timeline and 30% under budget. RCRH has encouraged its employees to use this project management methodology with other initiatives.

A full-platform strategy to maximize VDI benefits

T2 Tech and RCRH formed a strategy to integrate VMware's Horizon 7, Plus Technologies' OM Plus Delivery Manager (OM Plus), Imprivata's Onesign Single-Sign On solution (SSO), RES' Profile management (RES) and Lenovo's LeTOS Thin Clients. This maximized the benefits of the VDI system investment and improved IT and clinical workflows.

The new VDI infrastructure replaced existing physical personal computer (PC) workstations with more secure and versatile VDI endpoints (Lenovo M600 Thin Clients running LeTOS OS). In addition to providing a centralized platform for user provisioning, virtualizing desktops provided clinical staff with the ability to roam between locations and access their current desktop sessions from any VDI-enabled station. By executing this implementation, RCRH stands to realize significant workflow efficiency and productivity from the care provider as well as improving ongoing maintenance and application updates.

The OM Plus solution selected by RCRH simplifies printer access across departments, allowing for increased efficiencies and creating a printing workflow where patient health information is not left unattended. OM Plus also helps facilitate a smoother transition to VDI as traditional print mapping within VDI creates a large administrative burden and adds significant complexity to the technical solution.

Upgrades were made to RCRH's current SSO solution to ensure it was compatible with the new desktop environment. SSO reduces complexity and the administrative burden on end users who otherwise would have to login repeatedly to multiple systems throughout the day. Coupled with VDI and tap and release printing, SSO helps make up the core of the platform that allows users to roam between desktops and print on any OM Plus-ready printer throughout the in-patient units.

In addition, T2 Tech helped RCRH to integrate the core platform with Bitdefender's agentless anti-virus GravityZone and RES' profile management tool One Workspace (RES), in order to optimize the performance and usability of the environment.

Finding the right secure printing solution

Following a vendor agnostic approach, the secure print system implementation required a thorough evaluation of all potential vendors. This evaluation ensured the procurement of an optimal solution that could be implemented with minimal end-user disruption and allow for seamless future rollouts at other facilities.

T2 Tech's first step in the secure printing project was to assess the work effort by documenting the current printer environment in all 22 departments. This included compiling an inventory of printers and drivers and documenting printing requirements based on clinical need. Once a printer requirement list was obtained, the team was equipped to assess and recommend an optimal secure printing solution based on workflow need.

The solution had to ease user workflows, help the hospital protect patient information, facilitate easy maintenance and provide the necessary integration to current applications. T2 Tech helped RCRH find a solution that would allow user mobility, secure printing of sensitive documents, and minimal support and maintenance. Additionally, T2 Tech had to assess the technological integration into SSO and current and future-state EHR plans.

End-to-End Expertise

T2 Tech oversaw the VDI and OM Plus initiatives from assessment to implementation. Additionally, T2 Tech met with department heads and leadership and organized a testing strategy to ensure the optimal solution was efficiently integrated into user workflows.

Vendor Management

T2 Tech orchestrated the necessary due diligence around procuring a secure printing solution and presented a vendor recommendation that RCRH acted on. After a solution was chosen, T2 Tech negotiated the contract and pricing with the vendor and saved RCRH tens of thousands of dollars. T2 Tech also worked directly with the different vendors during the troubleshooting and root cause analysis.

Many technology vendors are constantly adapting premium solutions for healthcare environments. After looking at the print solution market, the team shortlisted six vendors. To assess these potential candidates, T2 Tech created a scoring criteria that factored in relevant items, such as integration with current and future systems, capabilities, costs and hardware requirements.

It was ultimately up to RCRH to decide which solution best met their overall needs. To help RCRH make an informed decision, T2 Tech prepared a recommendation report that demonstrated a thorough evaluation of the best suited vendors and provided a budget comparison for each candidate.

In the end, T2 Tech recommended OM Plus as the final solution. This print solution allowed RCRH to repurpose and integrate their existing badges and badge readers. Plus Technologies also offered valuable experience and expertise that could help streamline the EHR migration from Meditech to Epic. RCRH saw the value in T2 Tech's recommendation, and during negotiations, T2 Tech was able to save the provider over 25% when procuring the printing solution.

Assessing VDI to prepare for rollout

To implement the new desktop infrastructure, RCRH needed a partner who could assist with the entire life cycle of the VDI initiative. Starting from the assessment stage, T2 Tech's engineers and project managers helped RCRH develop a new VDI deployment strategy.

This proven five-step VDI deployment strategy was used to rollout secure and versatile VDI endpoints. Before completing the five steps for each department, there were prerequisite requirements which needed to be fulfilled:

- Assess, Design and Plan
- Build
- End-to-End Testing

To kickoff the effort, T2 Tech met with leadership from each of the 22 departments to discuss and assess the existing environment and identify key requirements. This included reviewing clinical workflows to determine VDI feasibility, building a list of applications and services to be included in the VDI image, as well as reviewing the existing hardware and network infrastructure of both regular PCs and workstation on wheels (WOW).

The assessment of the existing environment required a holistic approach of reviewing and documenting RCRH's current environment, including the current VDI architecture, host utilization, image, applications, network connectivity, fault tolerance and redundancy. After the assessment, the team was able to further understand the needs of the current environment and to plan ahead for the additional load the system would need to sustain.

To aid the transition from workstations to VDI and typical desktop printing to OM Plus, T2 Tech worked with the application analyst group to implement a structured testing plan and printing process. By allowing the team to vet every application and functionality associated within each iteration for building the VDI image, the structured plan ensured the team could successfully rollout the new desktop image. Once the build was completed, T2 Tech and RCRH worked closely

Desktop Roaming

With VDI in place, hospital staff can seamlessly roam their own desktops from their current location into the patient rooms. Combined with SSO, this allows the care providers the ability to queue up the patient's chart and simply tap their badge to instantly bring that information up when providing care in the patient's room.

Security

The centralized VDI infrastructure improved IT's ability to distribute security patches and allowed RCRH to replace unsupported, obsolete equipment and software. Additionally, the printing solution allows for more secure printing of sensitive documents.

with a pre-identified pilot department to resolve issues that were identified during a two week pilot go-live. This pilot phase helped streamline the rollout process that was created for the remaining units.

A cutting-edge virtualized backend and end-user computing environment

As part of the EUC strategy, RCRH configured their backend using VMware's vCenter 6.0 to manage the virtual infrastructure and Horizon View 7 for the VDI solution.

RCRH is using VMware's vSAN storage solution to host the VDI desktop environment. Each data center is currently hosting one vSAN per site, one at RCRH and one at Black Hills Medical Building. A hybrid flash/hard disk approach was used in order to minimize cost yet allow for performance goals to be met.

To manage applications outside of the VDI image, RCRH utilizes VMware's App Volumes and RES to deliver on-demand applications to individual Active Directory Security Groups (AD). App Volumes focuses on application installation, removal and updates, whereas RES is used to deliver web links and printer settings. Both of these applications allow updates for users in real time without the need to make modifications to the VDI image.

To simplify the management and ongoing maintenance, the VDI images were reduced to only two in the production environment: one for roaming in the in-patient units and one for kiosks in the outpatient clinics. These images were built and optimized to include the latest versions of each application required for the clinical workflows.

The team also implemented changes to simplify the user login process. These changes included streamlining group policy object settings, revamping roaming profile management, removing outdated applications and improving login scripts. With all these modifications and efforts, care providers at RCRH can more efficiently login, roam between desktops and access critical applications that IT can centrally manage. Moving forward with the knowledge gained from collaborating with T2 Tech, RCRH will continue to maintain an optimal EUC environment and rollout VDI to other locations for future phases.

A tailored, user-centric approach to implementation

A detailed approach was needed to ensure the new technology brought real benefits to clinical staff. Leveraging expertise in VDI rollouts within a hospital setting, T2 Tech managed and coordinated different aspects of the implementation. Meetings were held with all relevant stakeholders, including department heads and c-level leadership to confirm all requirements were met, to work through go-live sequencing and scheduling and to receive sign off prior to their respective go-lives.

Attaining a clinical understanding was significantly important for an efficient end result. To better assess the workflow integration, T2 Tech analyzed department specific applications, printing needs, workflow concerns and float staff roles. By documenting the associated requirements, T2 Tech was able to assist RCRH in

sequencing the departments in a way that allowed for the needed time to test department specific applications without disrupting workflow. Furthermore, with this knowledge the team was able to train care providers based on their specific solution needs.

Although VDI allows care providers to access the system throughout the hospital, the virtual infrastructure was not feasible for every workstation due to certain workflow requirements and incompatibilities with third party vendor applications. Given this understanding, three units were omitted from the rollout due to the fact that VDI would hinder end-user productivity. By meeting with unit leads, care providers and end users, T2 Tech was able to tailor the new infrastructure to boost overall productivity throughout the hospital.

The two teams continued to follow T2 Tech's proven five-step VDI deployment strategy led by an agile approach. This approach incorporated the principles of vertical slicing, ensuring the completion of each department before moving to the next. Each department followed the same steps:

- Communicate and train
- Document department specific requirements
- Build department specific requirements
- Deploy endpoints and go-live
- Remove old workflow equipment

Rolling out the new secure printing solution

Working with Plus Technologies and RCRH, T2 Tech managed the OM Plus implementation. This included coordinating work efforts for building the server environment, installing and configuring the application, solution testing, and training events.

As a result of T2 Tech's user-centric approach, the end-user print environment was aligned to fit the workflows of RCRH's staff. The environment was designed so all provisioned care providers can tap their badge and securely print documents on any OM Plus configured printer. Only managers and non-clinical users who often use an exclusive printer were given access to add their own printers. In order to help operationalize the system, the team set up a standard process to allow users or departments the ability to use mapped printing instead of using tap and release printing.

A seamless VDI go-live

Prior to the go-live, T2 Tech coordinated communications to make all relevant parties informed of incoming changes in workflows and technologies. This helped manage expectations prior to deployment.

To ensure the new infrastructure was implemented with minimal interruption during the actual go-live, RCRH and T2 Tech provided 48 hours of continuous in-unit support for each department and additional support where needed – such as 96 hours of support for the Emergency Department. This support involved in-person training, as well as troubleshooting technical issues that occurred during the go-live.

An efficient methodology for a successful project

T2 Tech's hybrid-agile methodology for project management was critical for ensuring the new VDI environment. The VDI solution, OM Plus printing solution and SSO updates were rolled out within budget and on time prior to the initiation of RCRH's Epic migration. This PMI-backed waterfall methodology was used to ensure appropriate processes were in place, such as: project scope, timeline, budget, communication plan and risks. With the proper upfront planning and dependency planning, an agile approach to execution was used including daily standing scrum calls, biweekly team planning sessions, and biweekly stakeholder meetings.

Using the hybrid-agile methodology, T2 Tech's project management resources documented all requirements from the planning and assessment stages, formulated a project timeline, created a rollout strategy, and documented a list of implementation tasks. Additionally, the project manager built and managed the project timeline and schedule, presented documentation to RCRH leadership, and controlled and coordinated the rollout. Due to the success of the methodology, RCRH has encouraged its employees to use it in future initiatives.

A solid partnership

By partnering with T2 Tech for the implementation of VDI and OM Plus, RCRH was able to gain insight into an effective project management methodology. Together, the two teams rolled out the new solutions well before an aggressive eight-month timeline, procured an optimal secure printing solution, and customized the upgraded desktop environment. RCRH was able to save a significant amount of funds in vendor negotiations, finish the initial scope of work well before the committed timeline, and ended the original scope 30% under budget.

Due to the success of the rollouts within the initial scope of work, RCRH extended T2 Tech's services in order to continue optimizing the current live environment. As RCRH continues to expand its facilities to better provide care for its patient populations, T2 Tech will be a valuable partner for future technical and project management support.

ABOUT T2 TECH GROUP

T2 Tech Group specializes in tackling difficult technology challenges and transforming IT liabilities into valuable assets for clients in a range of industries. Since its founding in 2006, T2 Tech has built a reputation for delivering high-quality technology consulting and management advisory services to executives and IT leaders in a range of industries. Unlike many consulting firms, T2 Tech has no financial interest in vendor selection, freeing the company to focus completely on realizing customer goals. At T2 Tech, we advocate for our clients; approach each project with no bias; and practice the highest levels of integrity, experience and expertise.

For more information about T2 Tech Group, visit t2techgroup.com and connect with us on Twitter @T2TechGroup.