

## Proper Planning Produces Successful, Secure Global Virtual Desktop Deployment for Defense Agency

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*-Michael Dankwa, Director of Engineering  
DH Technologies*

Organization:  
U.S. defense agency

Virtual Desktop Users:  
1,500, expanding  
to 10,500 worldwide

Products:  
Stratusphere FIT™  
ProfileUnity™  
Stratusphere UX™

### Overview

An agency within the U.S. Department of Defense was faced with demanding performance requirements, strict and specific security regulations, and a skeptical user base when it wanted to deploy its first virtual desktop infrastructure. Excellent planning, helped by in-depth research into its desktop operations and needs, helped the agency overcome its many challenges to deliver high-performing virtual desktops to a global user base.

### The Challenge

The defense agency, with operations worldwide, saw virtual desktops as a way to reduce its substantial desktop support burden and improve performance for users. However, the agency faced strong obstacles to creating a VDI, including the scope and complexity of its computing environment and the need to comply with DoD network and information security regulations. IT planners also had to contend with a user base that was unenthusiastic about any changes to their computers. So planners had to get the VDI right the first time, both on the back-end infrastructure and for the user experience.

## The Solution

The agency conducted an extensive study to determine why virtual desktop environments succeed or fail. It also worked with a contractor to help plan the desktop transformation, but the company was unable to design and deliver a VDI that would meet the agency's technical and user-experience requirements. The agency turned to a second contractor, federal systems specialist DH Technologies, a Liquidware Labs Acceler8 partner and Center of Excellence. Soon after starting to work with DH Technologies, the agency realized it could move forward with its virtualization vision, because it had gained clarity into its current desktop environment and virtual desktop needs. It also gained the metrics it needed to properly specify a virtual environment that would give users faster, more responsive desktops.

DH Technologies began building the foundation for successful virtual desktops by conducting an in-depth assessment of the agency's current physical desktop configurations and performance, using Stratusphere FIT from Liquidware Labs. The assessment collected and analyzed data from more than 10,000 users.


Stratusphere FIT can be used on physical or virtual desktops. It captures details about the applications and processes that run on the desktop and also quantifies the

baseline user experience, which is essential so the experience is improved in the next-generation desktop. Stratusphere FIT collects and reports information about the applications and versions on each desktop (including identifying applications that users installed themselves), consumption patterns for CPU, RAM, disk, graphics (GPU), network bandwidth, IOPS and more. It helps administrators determine the breadth of resources each user needs, along with bandwidth, storage, processing and other resource needs at the individual, group and agency-wide levels.

Liquidware products have been certified for use in the Department of Defense (DoD) and all branches of the U.S. military. The company also holds Authority to Operate (ATO) certification for the U.S. Air Force, Navy and Marines, in addition to holding the U.S. Army's Certificate of Networthiness (CON).

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The data and reports helped DH Technology and the agency plan virtual desktop images and the back-end infrastructure to efficiently meet all user needs. They



decided to create three standard desktop images, one each to support task users (who do most of their work via Microsoft Office), knowledge users, and power users. Desktop images were provisioned accordingly.

“When virtual desktop projects fail, it’s usually because desktops aren’t provisioned with sufficient resources, which leads to poor performance, or resources are over-allocated, which makes VDI expensive,” said Dankwa. “The successful assessment helped the agency solve the problem of just making everyone a power user to make sure they’d have enough resources.”

Working together, the agency, DH Technologies and Liquidware determined that non-persistent virtual desktops delivered by PCoIP to zero-client laptops would best meet the needs of the user base. The working group also planned changes to the storage network to better accommodate virtualized desktops. The next step was to conduct a pilot.

Though the agency was confident it could configure, provision and deploy high-performing desktops, user acceptance was still a risk. “The last time the agency had upgraded its desktop operating system, it didn’t go well, and users remained reluctant about IT making any more changes to their computers. There was also a lot of talk about virtual desktop projects that had gone wrong at other places,” said Dankwa. “We had to deliver a great user experience right from the start.”

Assessment data from Stratusphere FIT helped identify 300 users for the virtual desktop pilot, which included task, knowledge and power users. Pilot participants were not simply switched over to all new virtual desktops. Before the transition, DH Technologies used Liquidware Labs Profile Unity environment management solution to capture each user’s preference settings from their physical desktops and import them to the virtual desktop.

“When users logged onto virtual desktops the first time they couldn’t tell the difference,” said Dankwa. “All their customizations, settings and preferences were there.”

“There was fear about the transition among the users. They were apprehensive, and there were rumors going around that users were going to lose all their settings,” said Liquidware Labs Sales Engineer John Flatbush, who supported DH Technologies and the agency on the project. “We made that fear go away very quickly the first time they logged in to their virtual desktops.”

Because the agency opted for non-persistent desktops, users get a fresh desktop every time they log in, which helps performance by preventing profile bloat. And although the desktops are new each time, they are far from standard or generic. ProfileUnity enables users get their personalized desktop every time, and all files and applications that were open when they powered their desktops down re-appear when the new one is powered up.

“On the day the pilot was scheduled to end, a general came into the agency cafeteria where one of the virtual desktops was set up. He logged in and instantly got his desktop with everything he had been working on. When he saw that, and saw how fast it was, he didn’t want the pilot to end and tried to get it extended,” said Dankwa. “That session persistence really stole the show.”

### The Result

The highly successful pilot experience led the agency to commit to rolling out virtual desktops. First, it carefully assessed the pilot results and tweaked its plans to ensure that the architecture would successfully support a production environment. The agency scaled up to support 1,500 virtual desktop users at two sites, with plans to expand to 10,500 users. ProfileUnity is now a part of the environment for ongoing management of user profiles, and the agency added Stratusphere UX for performance monitoring and management.

“By using Stratusphere UX, the service desk can easily monitor the environment and be proactive,” said Dankwa. “It has helped prevent many issues from escalating into something that would need Level 1 or Level 2 support.”

Virtualized desktops are popular with the support team, because they are easier to manage, *and* they are popular with once-skeptical users because of the convenience, reliability and responsiveness they provide.

