

Quality and Productivity Commission
33rd Annual Productivity and Quality Awards Program
“Empowering Innovative Solutions”

2019 APPLICATION

Title of Project (Limited to 50 characters, including spaces, using Arial 12 point font):

NAME OF PROJECT: ENTERPRISE VIRTUAL DESKTOP INFRASTRUCTURE (VDI)

DATE OF IMPLEMENTATION/ADOPTION: MARCH 30, 2018

(Must have been fully implemented for a minimum of at least one year - on or before July 1, 2018)

PROJECT STATUS: Ongoing One-time only

HAS YOUR DEPARTMENT PREVIOUSLY SUBMITTED THIS PROJECT? Yes No

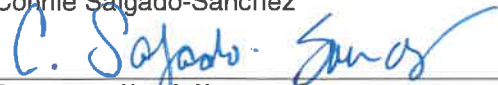

EXECUTIVE SUMMARY: Describe the project in 15 lines or less using Arial 12 point font. State clearly and concisely what difference the project has made.

1 The DHS Enterprise Virtual Desktop Infrastructure project is a solution to empower
 2 clinicians to quickly and securely access their applications and data from any properly
 3 configured computer, whether from any DHS facility or remotely worldwide.
 4 The solution provides the clinician user with a computer desktop session that follows the
 5 user, delivers a consistent “look and feel” experience where their application icons,
 6 folders, and data appear where they expect it; facilitates a single sign on (SSO)
 7 capability, eliminating the need to memorize multiple usernames/passwords for enabled
 8 applications; and simplifies the login/logoff process via the use of a tap card.
 9 The project has improved clinician productivity and satisfaction by reducing the time
 10 spent waiting for application login/logoff processes to complete, eliminated the need to
 11 memorize and enter credentials for the multitude of applications they access constantly
 12 as part of their daily tasks, and reduced confusion by eliminating the differences logging
 13 on to multiple shared computers. These improvements have improved the delivery and
 14 quality of patient care by enabling clinicians to see additional patients during their shift,
 15 and devote additional time to diagnose and treat their conditions.

BENEFITS TO THE COUNTY

(1) ACTUAL/ESTIMATED ANNUAL COST AVOIDANCE	(2) ACTUAL/ESTIMATED ANNUAL COST SAVINGS	(3) ACTUAL/ESTIMATED ANNUAL REVENUE	(1) + (2) + (3) = TOTAL ANNUAL ACTUAL/ESTIMATED BENEFIT	SERVICE ENHANCEMENT PROJECT
\$	\$	\$	\$	<input checked="" type="checkbox"/>

ANNUAL = 12 MONTHS ONLY

SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS Department of Health Services 313 N. Figueroa St. Los Angeles, CA 90012	TELEPHONE NUMBER (213)288-8236
PROGRAM MANAGER'S NAME Brenny Ortega	TELEPHONE NUMBER (213) 288-8236 EMAIL
PRODUCTIVITY MANAGER'S NAME AND SIGNATURE <small>(PLEASE CALL (213) 893-0322 IF YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME)</small> Connie Salgado-Sanchez 	DATE 06/06/2019 TELEPHONE NUMBER (213) 288-8483 EMAIL
DEPARTMENT HEAD'S NAME AND SIGNATURE Christina R. Ghaly, M.D. 	DATE 6/20/2019 TELEPHONE NUMBER 213-288-8050

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1st FACT SHEET – LIMITED UP TO 3 PAGES ONLY: Describe the **challenge(s), solution(s), and benefit(s)** of the project to the County. What quality and/or productivity-related outcome(s) has the project achieved? Provide measures of success and **specify assessment time frame**. Use Arial 12 point font.

Challenges:

DHS IT has experienced a multitude of challenges with clinician users (doctors, nurses, therapists, etc.) needing access to numerous systems to perform their daily tasks, but with a lack of centralized AAA (authentication / authorization / accounting) mechanisms and processes, coupled with applications that were not developed to leverage external/integrated AAA methods, clinicians are forced to maintain multiple credentials (usernames and passwords), and due to the complexity of these sometimes hard-to-remember credentials, security is weakened and potentially compromised by users writing down credentials or leaving them in unsecured areas.

Additionally, most clinicians need to roam throughout their facilities, so the notion that they can use a dedicated computer becomes impractical, and many shared computers are set up as kiosks from which multiple applications are accessed, but requiring each user to login to each application to perform their tasks, and logoff upon completion, to secure their credentials from being misused and allow another user to use that computer. This constant logging on and off, plus the loading and closing of applications, multiplied many times throughout the day, consumes significant amounts of time that could be better utilized to perform direct patient care activities.

Finally, as computers are generally not replaced and refreshed all at once, there will be variations on the different models of computers and applications deployed in the enterprise. This lack of ease in maintaining a single version of applications and operating systems introduces additional complexity and overhead, contributing to longer support time resolutions from help desks, increased site visits from local IT resources, and confusion from users when they do not see what they expect.

Solution:

The DHS EVDI (Enterprise Virtual Desktop Infrastructure) team developed a solution to address these specific challenges and improve IT productivity by simplifying mundane IT tasks:

- create the ability for the clinician to leave one computer and go to another and have the work they left at the previous computer “follow them”, so they will not need to save, close, and re-open applications at the new computer (and save

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- provide clinicians with a consistent user experience (UX) while performing tasks on their computer (same desktop look-and-feel (icons / home directories / web shortcuts & favorites);
- provide a single sign on (SSO) capability to automatically enter and maintain the many credentials they would otherwise have to constantly input at every computer they would use throughout the day, and reduce or eliminate bad password entry;
- reduce the complexity and time/skill demands for local desktop IT staff by eliminating the many applications that would need to be installed, maintained and supported on every computer that every clinician may access, and enabled local IT to quickly replace and restore failed computers, thereby reducing the workload and simplifying the process of re-provisioning computers to their service locations

EVDI's solution is innovative because it is robust, and yet flexible. It is a platform that provides to every DHS clinician the ability to access all their applications and data from any DHS VDI-enabled computer throughout the enterprise, without regard to the clinician's physical location. It is designed to provide a consistent user desktop that looks and feels the same on any computer, where their icons and shortcuts are where they placed them, and their folders and data are on the drives they expect. It also is built to enable the clinician the ability to stop their work at one computer, switch to some other task (clinical or otherwise), and resume their work from where they left off without needing to save it and close their applications. The system also utilizes a tap card to perform login and logoff functions, simplifying the login/logoff process.

The solution has been developed to allow users to connect to this platform from anywhere in the world, to securely access their applications and data remotely as seamlessly as if they were in their office or clinic. The infrastructure is built to be highly available, with redundant components deployed to reduce the risk of service interruption, while being transparent to the users it serves.

In addition, the solution incorporates Cerner Millennium, DHS' hosted Electronic Medical Record (EMR) platform, providing seamless integration between Cerner apps, DHS in-house applications, and other essential applications, such as Microsoft Word and Excel.

Recent enhancements include the successful implementation of Electronic Prescribing of Controlled Substances for authorized clinicians.

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The solution consists of four core technologies:

- Compute resources in the datacenter are powered by Nutanix hyper-converged servers;
- VMware Horizon software provides the desktop virtualization capabilities (hosting computer sessions in the datacenter while presenting the desktop screen to the local computer);
- Ivanti AppSense software delivers the user personalization and consistent desktop experience (“look and feel”);
- Imprivata OneSign software, tap cards, and readers enables the single sign on enhancements to applications, and simplified tap in/tap out login/logoff process. Imprivata ConfirmID provides the Electronic Prescribing of Controlled Substances (EPCS) ability for the Cerner Millennium EMR system
- F5 Big-IP appliances providing application load balancing services, which supports system redundancy and high availability, and enforcing multi-factor authentication, as required by DHS/County security policies.
- Additional services the project relies on are Microsoft Active Directory, hosted by ISD, and various networking services provided by DHS Security Operations.

Benefits:

This project provided significant enhancements in health care service delivery, by improving the efficiency/productivity of clinicians via:

- reduction of time spent waiting to access IT resources required as part of their duties via elimination of the need to constantly logon/logoff and open/close applications at every computer they utilize
- enabling of clinicians to securely access applications and data remotely, in support of telemedicine initiatives
- improvement of workflow processes by reducing/eliminating the need to memorize/track multiple credentials via single sign on access to applications
- improvement of clinician satisfaction by providing a consistent user experience via “follow me” desktop capabilities across all DHS enterprise-wide VDI-enabled computers, which minimizes confusion and the need for “search for my stuff”

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Linkage to the County Strategic Plan – 1 page only. Which County Strategic Plan goal(s) does this project address? Explain how. Use Arial 12 point font.

This project addresses Goal III.2.3 (Prioritize and Implement Technology Initiatives That Enhance Service Delivery and Increase Efficiency) - Support implementation of technological enhancements and acquisitions that increase efficiency (e.g. infrastructure, software, hardware, applications) including replacement of legacy systems.

As previously mentioned, this project provided significant enhancements in health care service delivery, by improving the efficiency/productivity of clinicians via:

- reduction of time spent waiting to access IT resources required as part of their duties via elimination of the need to constantly logon/logoff and open/close applications at every computer they utilize
- enabling of clinicians to securely access applications and data remotely, in support of telemedicine initiatives
- improvement of workflow processes by reducing/eliminating the need to memorize/track multiple credentials via single sign on access to applications
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Additionally, this project provided secure remote access to County contract workers supporting IT development efforts, enabling collaboration of physically separated team members.

DHS Employees responsible for this service enhancement areas follows:

“DHS Enterprise Technology Services”
Enterprise Virtual Desktop Infrastructure Group

ETS Manager: Brenny Ortega
EVDI Supervisor: Sergio Aguilar
EVDI Project Manager: Samuel Lee
EVDI Admin: Atif Saleem
EVDI Admin: Anthony Meas
EVDI Admin: Hannah Bai
EVDI Admin: Gil Erese II
EVDI Admin Ali R. Karimi
EVDI Admin: Simon Tecson

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COST AVOIDANCE, COST SAVINGS, AND REVENUE GENERATED (ESTIMATED BENEFITS TO THE COUNTY): If you are claiming cost benefits, include a calculation on this page. Please indicate whether these benefits apply in total or on a per unit basis, e.g., per capita, per transaction, per case, etc. You must include an explanation of the County cost savings, cost avoidance or new revenue that matches the numbers in the box. Remember to keep your supporting documentation. Use Arial 12 point font

Cost Avoidance: Costs that are eliminated or not incurred as a result of program outcomes. Please indicate whether these are costs to the County or to other entities.

Cost Savings: A reduction or lessening of expenditures as a result of program outcomes. Please indicate whether these were expenditures by the County or by other entities.

Revenue: Increases in existing revenue streams or new revenue sources to the County as a result of program outcomes.

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