Safeguarding Protected Health Information with Cerberus FTP Server

A Case Study from the **Duke** University School of Medicine

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CERBERUS

BACKGROUND

As a medical research and teaching facility, the Duke University School of Medicine faced a unique challenge providing students and researchers with access to patient and treatment data in a secure, HIPAA-compliant manner.

Without a centralized environment to store and control Protected Health Information (PHI) and Electronic Health Record (EHR) data, the IT organization traditionally handled each data request on a per-project basis. This ad hoc process impacted the streamlining of security reviews that included vetting of data recipient access levels and the security of independent servers. If a request was approved, transferring the data securely often proved challenging due to the unique configurations for each recipient, and the process opened up new security and HIPAA compliance concerns by transferring PHI to personnel who could potentially mishandle it.
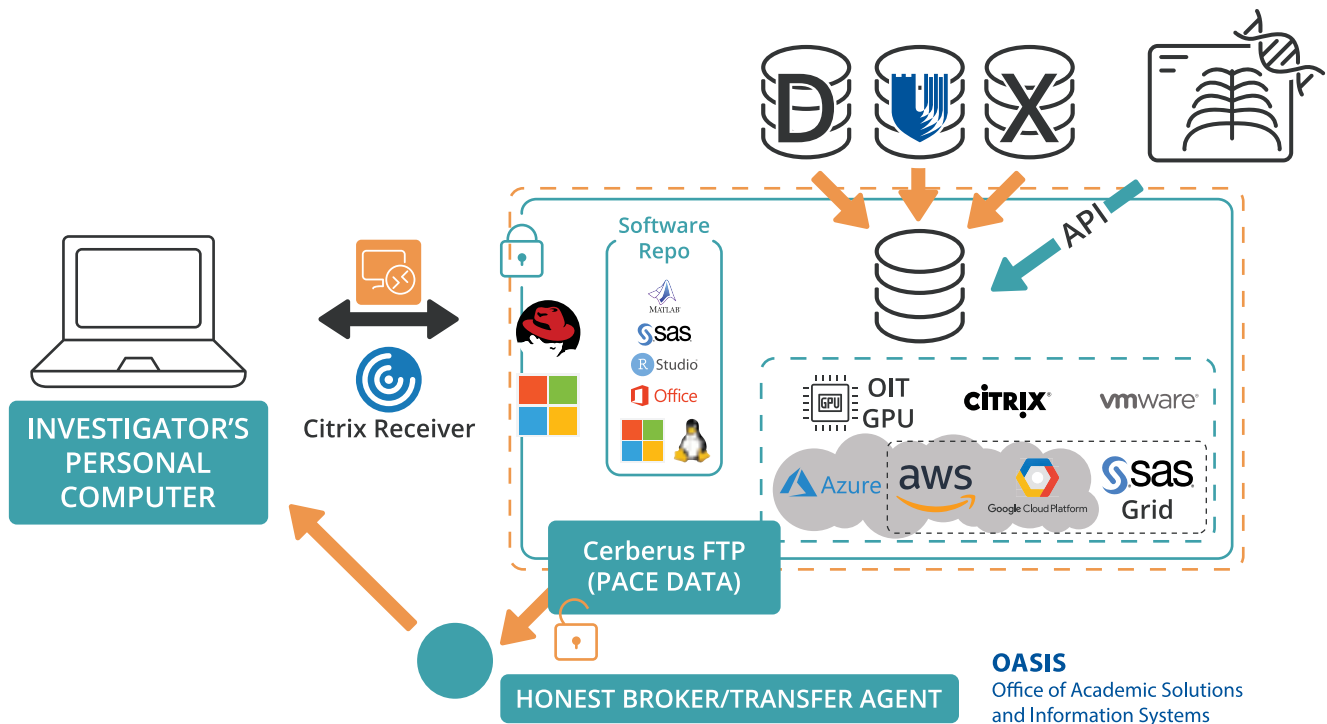
SOLUTION

The Office of Academic Solutions and Information Systems (OASIS) team at Duke developed the Protected Analytics Computing Environment (PACE), a secure marketplace where vetted users could work with PHI and EHR data under supervision without the data ever leaving Duke's environment.

PACE MODEL

PACE's user-facing core is a Citrix-based virtual machine that provides Duo-authenticated users with access to shared drives housing PHI and EHR data based on the user's access level to a given project. Project shared folders are required for project team collaborations and data analysis, using installable software tools (R, SAS, Python, etc.). Each user also receives a unique home drive that they can use to perform data imports, typically non-PHI to PACE.

The system is designed to make data storage sources, such as Duke Health's enterprise data warehouse and Duke's MAESTRO Care (Epic) EHR system, accessible from within the protected environment, but difficult to extricate. Critical to these efforts is the use of Cerberus FTP Server.

How Does Cerberus Support PACE?

Cerberus performs a number of critical backbone actions for the PACE team:

- **Data import** is performed through Cerberus's secure HTTPS transfer feature.
- **Cerberus's Active Directory integration** allows the Duke OASIS team to map virtual drive permissions directly from AD. Currently, PACE supports approximately 200 unique working groups.
- **HIPAA compliance activities** such as auditing and logging are handled through Cerberus's Event Manager, which gives auditors the ability to access every download by date and time.

User setup and group administration is handled within the Cerberus admin interface.

Cerberus and Data Exports

PACE does not fully eliminate the need to download PHI and EHRs; however, it enables strict control of data exports. Each export is reviewed by the "Honest Broker", individuals with compliance backgrounds authorized to approve and examine extraction requests. When a request is approved by the Honest Broker, PACE uses Cerberus FTP to generate a time-sensitive public URL for the requestor to download the approved data. A PowerShell script makes a copy of each download and saves the record in Cerberus's Event Manager for HIPAA auditing purposes.

RESULTS

> "Our users have found Cerberus to be straightforward. We have handled many service tickets over the past three years, and Cerberus has had the least number of issues, by far."
>
> **- James Fayson**
> **IT Service Owner, PACE**
> **OASIS, Duke Health Technology Solutions**

PACE has proved popular with Duke's users, passing a formal HIPAA compliance audit in 2019. The OASIS team continues to improve its features: while 80% of the current user base works in or with the Duke School of Medicine, about 20% of users are affiliates at other medical schools or government users and Duke envisions expanding PACE for these users in the near future.

To learn more about Duke University School of Medicine's PACE system, please visit https://pace.ori.duke.edu/.

To learn more about Cerberus FTP Server, please visit cerberusftp.com.