

# Powering America's Cybersecurity Readiness with Private Cloud

Private Cloud – The Backbone of America's Global Cyber Training Platform, PCTE

## The Frontline of America's Cyber Readiness

In a world of increasingly sophisticated and relentless cyberattacks, U.S. national and economic security hangs in the balance. To counter these evolving threats, the U.S. Department of Defense (DoD) responded with a ground-breaking initiative: a virtual training range to allow our military cyber forces to prepare for digital warfare by replicating the complexities of modern and future cyberattacks in real world conditions.



## PCTE

The U.S. Cyber Command's premier training system, the Persistent Cyber Training Environment (PCTE) is the apex of an extraordinary collaboration between U.S. government agencies, private sector enterprises, including VMware by Broadcom, and project lead Cole Engineering Services (CESI), and international agencies from the Five Eyes Intelligence Oversight and Review Council (FIORC).



### Mission

The mission of PCTE is to prepare U.S. and allied cyber defenders to confront current and future cyber threats and attacks. Virtual training ranges within PCTE simulate real-world IT environments where cyber warriors practice how to detect, intercept, or mitigate attacks on IT infrastructure.

### Number of Cyberattacks by foreign adversaries against the U.S. in 2024:

44

cyberattack campaigns  
on behalf of nation-states

33

cyberattacks  
by criminal organizations from outside the U.S.

### Number of global organizations reporting an increase in cyberthreats since the start of the Russia-Ukraine war:

97%

## U.S. Cyber Command

Established in 2010, **US Cyber Command** unifies the direction of cyberspace operations, strengthens DoD cyberspace capabilities, and bolsters DoD's cyber expertise

- A fully operational combat domain command unit within the U.S. Military Services alongside the U.S. Army, Navy, Air Force, Marines, and Space Force.

133

individual teams

6200

military and civilian personnel



### Project Goal

To build a platform that allows operators to protect sensitive data without compromising performance. Managing such scale and complexity demanded a cloud infrastructure capable of seamless collaboration at high speed.

## PCTE Architecture

Broadcom's **VMware Cloud Foundation (VCF)**, a private cloud platform, is the backbone of PCTE. VCF is a cloud operating model that combines the scale and agility of public cloud with the security and performance of private cloud.

### Building Block Structure

1 enterprise platform = 1 block

Each block:

7,000 concurrent users

56,000 powered on VMs

10 server racks

8 management hosts

224 workload hosts

21,000 concurrent consoles



PCTE leverages the VCF backbone to deploy a block level architecture that can be replicated to deploy additional blocks as necessary.

## Built to Scale

PCTE is currently designed to grow by a factor of 10x by 2027.

- 12,000 soldiers (users)
- 100,000 Virtual Machines
- 4,500 concurrent users
- 4 Petabytes of data
- 45,000 CPU cores

2025

2027

- 100,000 soldiers (users)
- 300,000 Virtual Machines
- 36,000 concurrent users
- 12 Petabytes of data
- 75,000 CPU cores

10X

PCTE growth by 2027

PCTE enables U.S. cyber forces to have an actual, operational, globally distributed exercise range. This is a whole new world for that kind of ability to collaborate with globally distributed and disparate organizational forces."

Lewis Shepherd  
Chief Technology Officer  
VMware Federal Solutions  
Broadcom



## Benefits of the PCTE Private Cloud Platform



### Global Access

A single portal provides simultaneous access to tens of thousands of U.S. and allied cyber forces worldwide.



### Shared Resources

A centralized interface enables users to share training ranges, databases, and operational controls.



### Rapid Scalability

Platform effortlessly scales to accommodate high-stakes training surges.



### Platform Security

Advanced VCF security features integrated throughout the PCTE platform.



### High Availability

Continuous operations from large-scale training exercises to individual on-demand training sessions.



### Open Ecosystem

Easy integration of Best-of-Breed applications and services, including AI and ML.

### VMware VCF Private Cloud

Foundational to America's Cybersecurity Readiness

The Future of Federal IT is Private

Learn more at [www.vmware.com/federal](https://www.vmware.com/federal)