Accelerate Training in Government Agencies

Secure, remote access to learning environments

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The technology choices of a governmental organization greatly impact its ability to transform operations, improve productivity, and efficiently and effectively train staff for the skills they need to meet the demands of their positions. And while goals for successful training delivery focus on the needs of employees, additional requirements for security of information, cost efficiencies, ease of management and other strategic IT initiatives run in parallel.

According to Gartner's 2021 CIO Agenda Survey with 1,877 CIO respondents in 74 countries, "CIOs reported investment shifts toward technologies that support digitalization. With the opening of new attack surfaces due to the shift to remote work, cybersecurity spending continues to increase. 61% of respondents are increasing investment in cyber/information security, followed closely by business intelligence and data analytics (58%) and cloud services and solutions (53%)."

We will address these priorities throughout this paper and explain how governmental organizations can meet them by leveraging remote workstations in a variety of training and administrative scenarios.

First, let's take a look at some trends and initiatives driving change in government resources and how these trends can present challenges for IT leaders.

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Key trends and initiatives driving change in government IT resources

Harnessing the operational efficiencies of the cloud

On-premises IT infrastructure requires large upfront capital expenditures and yet a common mandate within governmental institutions is to save on costs, maintenance, and improve automation as it relates to computing resources. Utilizing the private or public cloud is a way to reduce capital expenditures and instead shift the conversation to an OPEX model, where costs can be closely scrutinized, controlled, and adjusted. Many organizations are adopting a hybrid or multicloud approach - for the benefits of flexibility and additional cost savings or performance enhancements each cloud offers. When highly classified information needs to be secured, darksite deployments can be utilized to connect to on-premises, government clouds.

### Accurately assessing the effectiveness of government training programs

Investing in training programs is a costly endeavour and without ROI tracking, it is difficult to receive additional funding. According to a U.S. White House report from the Council of Economic Advisers, "few rigorous evaluations exist to measure the success of government-funded training programs. Until recently, many job training programs frequently failed to track metrics that allow researchers to evaluate program returns to taxpayer dollars expended. Many public training programs have not undergone rigorous evaluation and therefore a framework needs to be established for evaluating trainee success, both by incorporating randomized control trials into program design and by improving data collection and long-term tracking of participant outcomes."

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Training methods with graphics-intensive and high computing power requirements

Many governmental organizations are developing courses and programs that involve intensified hands-on learning and interactivity with computer graphics. Imagine program participants creating or analyzing intricate models and simulations that require access to computing resources that are capable of handling data-intensive workloads. Ensuring the necessary power for these computing devices and training scenarios is important - even when the employees are geographically-dispersed and also using a mix of computing hardware.

Blurring the boundaries of the office environment
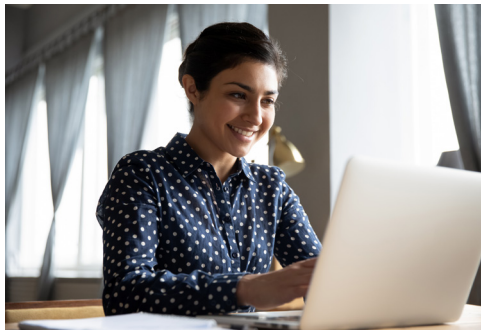
There is an appetite to extend learning beyond the physically-bound classroom or lab to anytime, anywhere access for employees of all kinds. Thanks to advances in Internet connectivity and computing technology, remote access to resources in the classroom or lab can be more easily realized from any location. For employees who need to upgrade their skills or competencies, this also means learning and collaboration with other employees can take place outside of the office. Adequate computing resources necessary to complete this work can make all the difference. Allowing employees to work at their own pace for their coursework, or allowing students who have mastered topics to move on are also added benefits.

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Strengthen control of confidential data and exams

Governments are no less vulnerable than other industries when it comes to cyber security attacks including malware, phishing, and unsecure personal devices. The consequences of an attack are significant. Consider the financial loss from replacing damaged equipment or facing regulatory fines, or potential litigation if personal, financial, or exam data is exposed. Even reputational damage to the governmental organization can reduce qualified employee intake or damage business or intergovernmental relationships.

No matter the trend or initiative, there is a set of challenges of frequent concern with educational institutions. It's not surprising to see similarities with the IT priorities mentioned at the start of this guide: ① cybersecurity; ② cost-effective budgeting; and ③ data-driven instruction & decision making.

Key challenges in training environments

Secure training delivery and protection of information

Many organizations span multiple locations managed by a single IT department. For example, separate departments within an agency, or multiple employee sites—plus online computing environments. Information traveling between these locations can create the opportunity for data breaches. Valuable intellectual property, such as employee data, exam information, or classified documents, need to be tightly controlled and securely accessed. Without data or delivery encryption, interceptions can occur with serious consequences.

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Costly hardware refreshes and lab environment constraints

Existing computer labs may already have outdated hardware with limited computing capabilities. New applications may not be able to run on existing hardware, perhaps for reasons of an outdated GPU. Constant upgrades to hardware is costly and so organizations are carefully considering options to extend the life of existing hardware.

Other challenges include:

① Determining the level of computing power needed when there is a mix of graphics and non-graphics workloads;

② Working with limited physical space for lab environments that rely on legacy hardware such as servers.

Labor constraints

Setting up a training environment presents staffing challenges such as limited manpower or expertise. Here are three common scenarios:

① Ongoing maintenance that is time consuming due to manual steps (e.g. OS application patching, hard drive cloning, and on-site visits);

② Management of computer lab and training center environments - an onerous responsibility for organizations with large training programs; and

③ Inexperience or inability to define, manage, and drive IT initiatives despite receiving project funds.

Now that we've presented some key challenges, it is easy to see how remote desktops and workloads can help solve these issues. By removing the physical component of computing, savings can be realized in terms of time, cost, and complexity. The next section explains how this is possible.

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Typical training environments and the case for remote desktops

It's easy to imagine a room of applicants or program participants taking exams by pen and paper, or a computer lab where tower PCs or laptop computers line the tables. However, today's learning delivery methods span well beyond these two approaches. Let's look at five training scenarios that can be greatly impacted by remote desktops and how each scenario addresses top IT priorities.

Exam delivery

Rather than distributing exam data to a local computer, in a remote work environment the exam is hosted remotely and accessed from secured endpoints. This ensures the integrity of the test taking process and allows administrators to "lock down" the environment, whereby users can complete an exam without the ability to copy it.

Learning labs

Imagine a computer lab where employees are traditionally limited to the potentially outdated and underpowered computing power of the hardware that exists in the room. In a remote lab environment, the computing capabilities are boundless in that endpoints connected to the cloud can access a variety of computing resources including powerful GPU-enabled remote workstations. These can be persistent or non-persistent desktops, scaled up or down as enrollment changes and used for only preferred time periods if needed to manage costs effectively.

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Instructional staff use and collaboration

An instructor and researcher is running a series of highly-complex statistical and data visualization models. She wants to ensure that her models can be accessed anywhere, whether she is using a desktop computer at the office or at home on her laptop. She also wants to occasionally share the findings with her colleagues. Rather than transferring the data back and forth, she and her peers can securely access the data centrally located in the cloud, leveraging resources that can handle the compute needs of the workload.

Distance education course delivery

Online courses are becoming increasingly popular, as employees have the flexibility to complete their coursework on their own schedule. However, organizations are adamant in ensuring that the learning experience and execution of the course delivery is on par with classroom learning. For distance learners, access to a remote workstation in the cloud delivers the applications and computing power fit for their courses. An investment in an expensive local workstation is unnecessary and IT administration is reduced.

Video game simulation training

Military departments are actively using immersive remote game environments for training real-life combat scenarios and tactics. If personnel require a consistent gaming experience across geographies or flexibility for remote play, then remote desktops need to offer high frame playback with extremely low latency, an excellent user experience, and sufficient console controller support. For instructors and players alike, they require the local, under-the-desk experience of a workstation wherever they are situated.
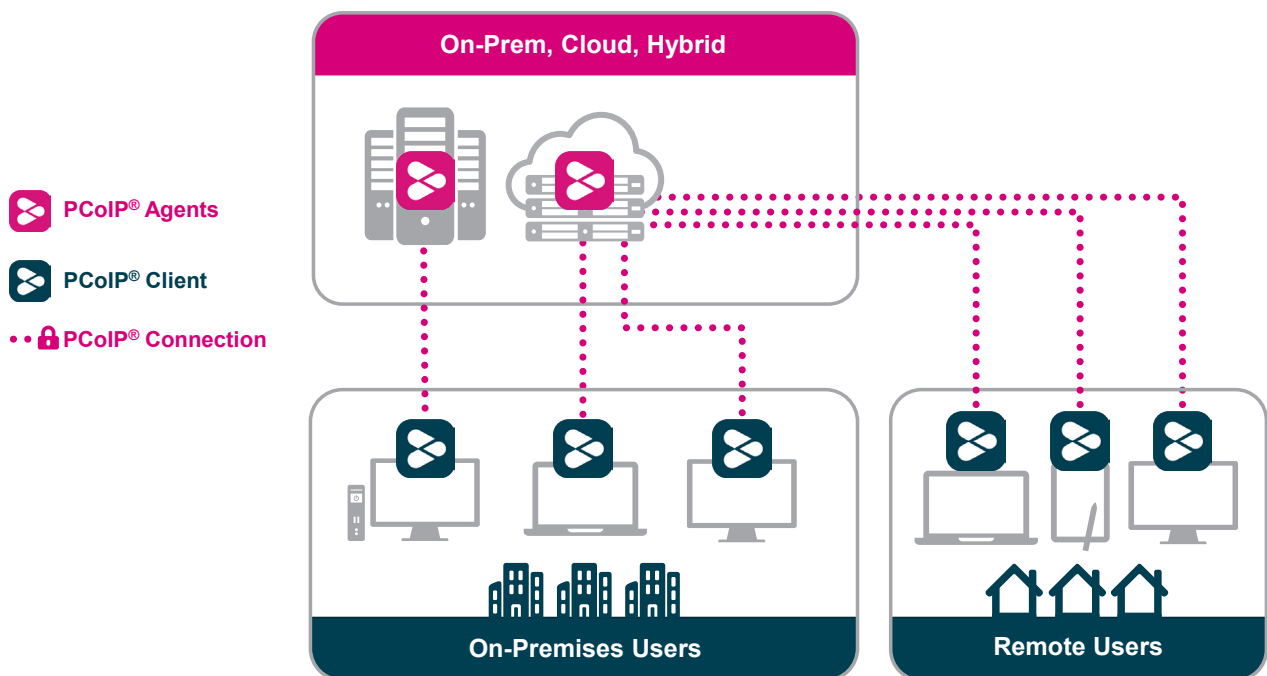
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Answer the training challenges with Teradici CAS

Remote computing allows instructors and users to have unparalleled access to applications and data with improved security. Teradici CAS can provide users with more opportunities for learning, certifications, and supplemental education beyond the confines of the learning center.

With CAS, securely deliver high-performance desktops to program participants and instructors who require even the most graphics-intensive applications. For users in ongoing training programs, access to specific government simulations and other interactive applications is mission critical.

Built on industry-leading PCoIP® technology, CAS delivers high-performance remote workstations from the cloud or your data center to the endpoint of your choice. One of the unique security features of PCoIP is that only encrypted pixels are ever transferred from the host desktop environment to the endpoint device, thus ensuring data cannot be compromised during the remote delivery. And with PCoIP Ultra feature enhancements, CAS now delivers high frame rate 4K/UHD graphics workloads without compromise.

On-Prem, Cloud, Hybrid

PCoIP® Agents

PCoIP® Client

🔒 PCoIP® Connection

On-Premises Users

Remote Users

CAS deployment scenarios: ultra-secure access to on-premises or public cloud workstations from a broad range of endpoints.

Create remote environments on AWS, Google Cloud, Microsoft Azure, or your own on-premises infrastructure. With simplified and flexible multicloud support, CAS gives you the power to deploy and manage end user desktops from any combination of public clouds or private data centers. Remote desktops can be accessed via a variety of endpoints, including PCoIP Zero Clients and PCoIP-enabled PCs, iOS/Android devices, Chromebooks, and other tablets.

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Teradici CAS with PCoIP Zero Clients is an IT security game-changer, providing government organizations with the world's most secure remote desktop solution. It supports remote system access via CAC/PIV smart cards, bolstering endpoint security.

PCoIP Zero Clients are ultra-secure stateless endpoints that are ideal for connecting to remote desktops hosted anywhere, including government clouds, dark site environments or on-premises data centers. Paired with CAS, the solution reduces IT complexity and costs while still providing a seamless desktop experience. CAS with zero clients strengthens IT security and ensures there is no data at rest, classified information is not stored on endpoints and never leave your cloud or data center.

Top considerations of a remote workstation solution

Selecting a remote solution that fits your performance, cost, and security requirements can be challenging, so this checklist is a good starting point when considering a remote desktop partner.

- ☐ Is the technology well-suited to meet your full set of use cases and workloads?

- ☐ Will sensitive data remain completely secure?

- ☐ Does the solution improve efficiency of ongoing maintenance and management of the training environment?

- ☐ Can both Windows and Linux operating systems and applications be utilized?

- ☐ Is there a wide range of endpoint device options available for users and can USB devices and other peripherals be locked down?

- ☐ Is user experience maintained even under challenging network conditions?

- ☐ Can the remoting technology be utilized for disaster recovery or business continuity scenarios?

- ☐ What deployment options are available? Is the solution flexible enough to work with multiple public clouds, hybrid and/or on-premises deployments?

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Innovative Government agency utilizes remote training programs with ease

Government employees require specialized training, such as mission simulations, through graphics-intensive applications.

Challenges

Because the training programs are often specialized and confidential, the teaching applications and data must be hosted in a secure "vault" or data center.

Solution

Applications are installed on remote workstations in a secured facility. Teradici CAS enables access to these remote workstations from the employees' location, wherever they may be. Only pixels are transmitted between the device and remote desktop, keeping all data protected and confidential.

Results

Employees can run the required specialized training modules from their desk or classroom using ultra-secure PCoIP Zero Clients while the applications and data stay in a secure "vault" or data center.

- CAS enabled both Windows and Linux desktops and applications in the cloud and GPU instances in the cloud supported the graphics-intensive applications.
- The agency saved money by enabling students to access curriculum-required applications using existing hardware.
- The IT department was able to streamline management of computing resources while controlling costs. The number of remote desktops could be easily scaled up or back as enrollment changed.

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Learn more about how Teradici CAS can benefit your educational institution

→ Start a conversation with Teradici
Book a meeting with a Teradici sales representative

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