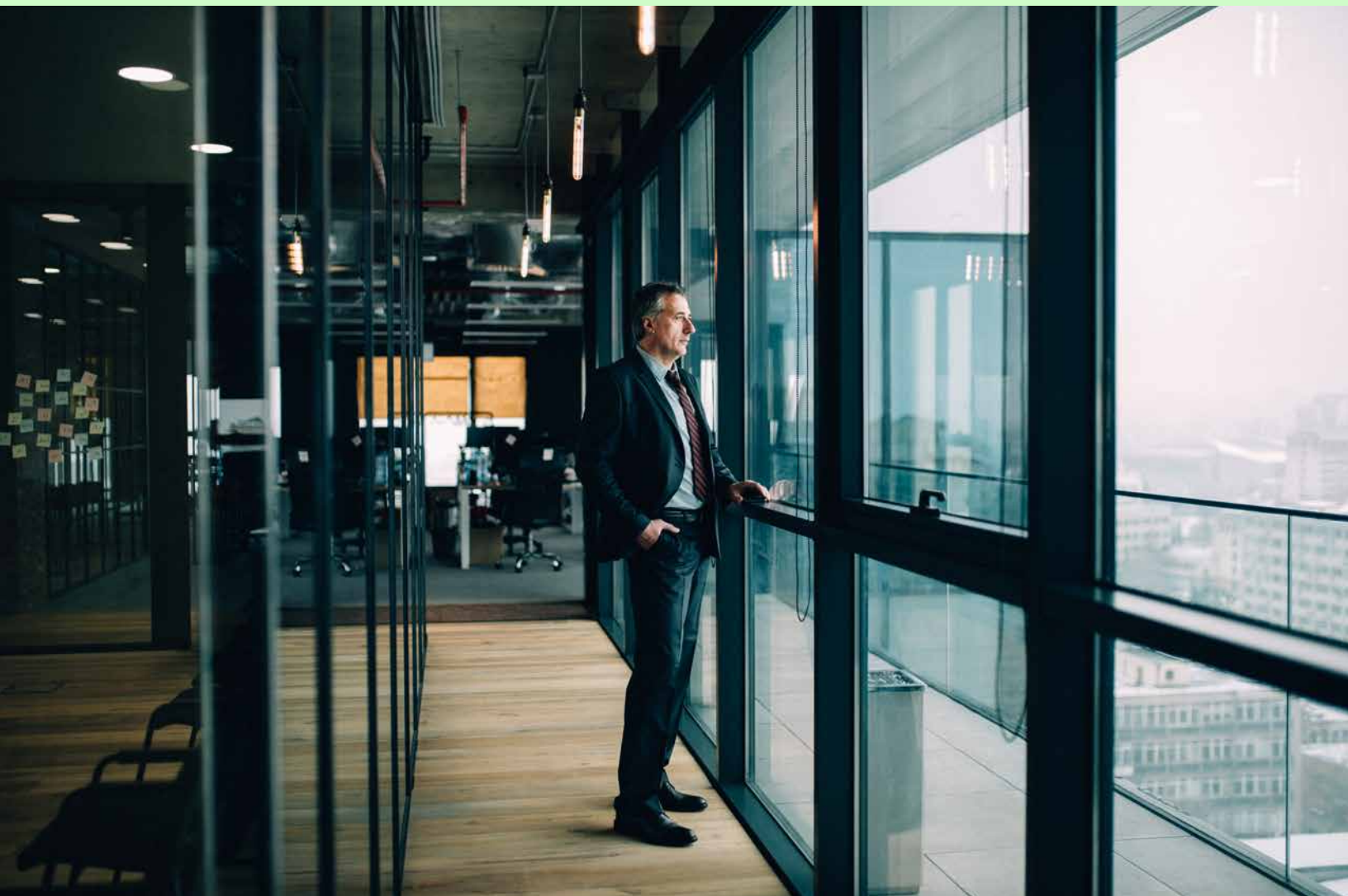


Deliver workspace security and zero trust with Citrix and Google Cloud



About this solution brief

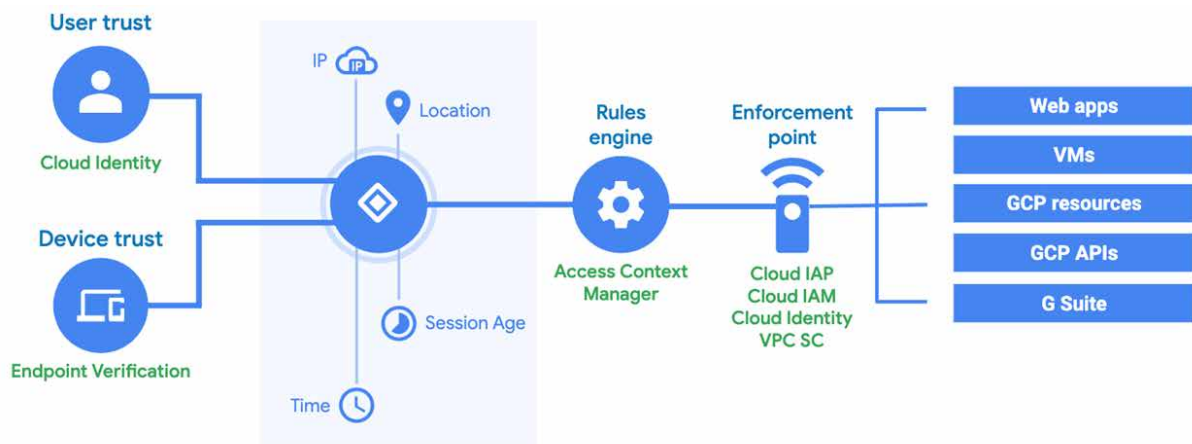
Citrix and Google have been thought leaders, pioneers, and innovators in the secure remote access space for decades, enabling people to do their best work on terms they can influence. When you combine some of the duo's newest, most forward-thinking offerings, the **opportunities to make a difference** — for individual workers, the teams that support them, and the businesses they serve — emerge brightly! This brief explores how the combination of Citrix Workspace and Google BeyondCorp works to provide unified, secure, and intelligent zero trust access to SaaS and web apps, plus Citrix Virtual Apps and Desktops.

Solution overview

For over a decade, Google has been championing a unique, zero-trust based approach to enterprise security. With the publishing of “BeyondCorp - A New Approach to Enterprise Security”, this approach got a name, and was shared with the world. In 2020, this approach, plus the enabling Google technologies and services, was productized and introduced as BeyondCorp Remote Access. The BeyondCorp solution brings together a number of discreet Google services and features to provide secure remote access to web apps **without** deploying a traditional remote access VPN. These services and features include the following Google components:

- Cloud Identity / G Suite identity
- Cloud IAP (Identity Aware Proxy)
- Cloud IAM (Identity and Access Management)
- Access Context Manager (access policy definition)
- Cloud External HTTP(S) Load Balancing
- Chrome and Chrome Enterprise
- Endpoint Verification (Chrome extension, device inventory collection)

The BeyondCorp solution works by publishing an application or resource to the internet via a DNS name/URL that's under your control and configuring/enabling IAP for the application. Users then access the application or resource via a web browser such as Google Chrome, which provides the best user experience and enterprise grade security. The Endpoint Verification extension can be deployed to collect device state information, which can then be incorporated into sophisticated and flexible access policies, enabling fine grained policy definition and enforcement. Google Cloud HTTP(S) Load Balancer calls into IAP to drive authentication, authorization and context-aware access policy evaluation to make a decision whether the request should be allowed or not.



Since well before pervasive corporate internet access was a thing, Citrix has been breaking down the obstacles between users and applications and enabling work to get done. Citrix's application virtualization technology (brought to market in the earlier years under such iconic names as Citrix WinView, Citrix WinFrame, and Citrix MetaFrame) has formed the foundation of many companies' remote access solution for almost 30 years. While Citrix virtualization technology still fills this role for many companies today (now available as the Citrix Virtual Apps and Desktops), Citrix's solution stack has also evolved into an intelligent, comprehensive security solution delivering VPN-less access to all types of applications, and information, including intranet web apps and SaaS applications. It's called Citrix Workspace.

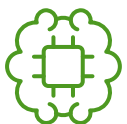
Citrix Workspace:



Is a secure, intelligent, and high-performance digital workspace platform that seeks to replace a worker experience full of distractions, context switches, and complexity with a simpler way to work.



Provides users with a simple, elegant, curated access experience — one they can get to from wherever they make work happen, independent of device or location constraints.



Consolidates the apps, information, and services users need to perform, wraps it all in a comforting blanket of security, and adds intelligence to help users filter out the noise and focus on getting work done.



Helps unlock innovation, engage employees, and drive better business results, while giving IT more visibility and control for simplified management, security, and compliance.

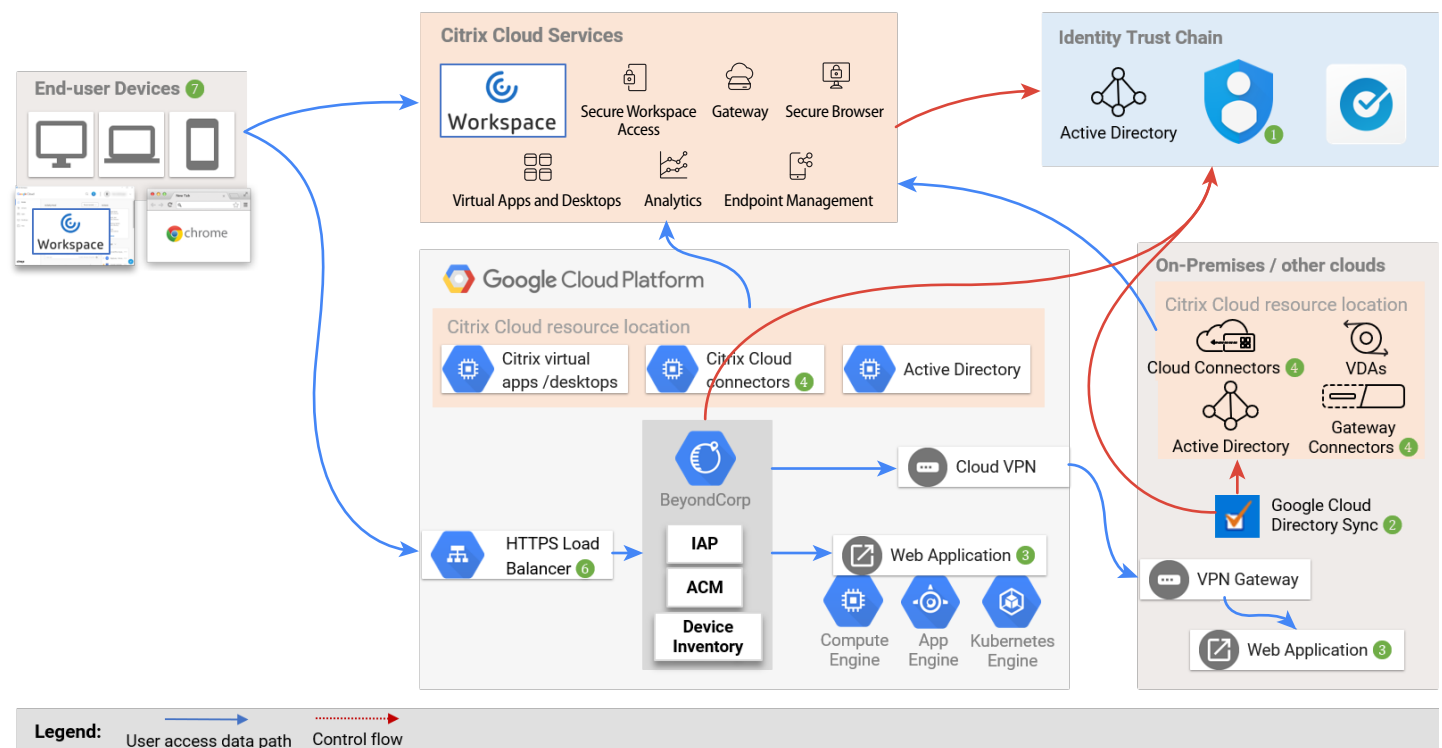
The Citrix Secure Workspace Access service, a component of the Citrix Workspace solution, delivers secure VPN-less access to on-premises web apps, and SaaS apps, with single sign-on (SSO) capabilities which delight users and contextual app controls to govern authorized access to these apps. Administrators get powerful tools — such as policy-based contextual security controls, app protection policies, remote browser isolation, and web-filtering capabilities — to define and enforce corporate policies and protect corporate information assets while enabling users to do their best work.

Web and SaaS applications are defined in the Citrix Workspace Library, where they're authorized for specific subscribers (users/groups) and configured for single sign-on and enforcement of corporate policy. When users log in to the Citrix Workspace, their authorized applications are presented to them in a rich, curated experience that is accessible through the Citrix Workspace native app or web browser. When users launch authorized applications from the Workspace, they are automatically signed on based on their identity, and access is flexibly and dynamically granted to authorized applications. Further access and actions within these authorized applications are enforced based on granular security controls. Web and SaaS applications can be launched using a variety of methods, including a locally installed web browser, the Workspace app's embedded browser (on Mac and Windows devices), a company managed virtualized browser, and/or Citrix's purpose-built Secure Browser service.

The Citrix Workspace + Google BeyondCorp solution for zero trust access leverages the Citrix Workspace app and Google Chrome web browser. Applications protected by Google Cloud IAP are added to the Citrix Workspace library, where they're then presented to authorized users when they log into Citrix Workspace. This provides a simple, unified, and consistent access experience for users inclusive of web, SaaS, virtualized applications/desktops, and corporate file stores.

Solution architecture

The diagram below represents the architecture of the Citrix Workspace + BeyondCorp solution for zero trust access:



The foundation of the solution is built upon cloud services from Citrix and Google, delivered from Citrix Cloud (Citrix's managed service delivery platform) and Google Cloud. Identity is federated between Citrix Workspace and Google Cloud Identity (1), and often leverages Google Cloud Directory Sync (2) (or other 3rd party products/services) to include Microsoft Active Directory in the identity trust chain.

Web (3), SaaS, and virtualized applications and desktops are aggregated and presented to users by/through Citrix Workspace, providing a simplified, curated, single sign-on access experience. Virtualized apps and desktops run in Citrix Cloud 'resource locations', which are commonly deployed next to the apps/data being delivered. Citrix connectors (4) in each resource location securely proxy access to virtualized and web applications without exposing them directly to the internet.

Google's BeyondCorp solution is implemented primarily through Identity Aware Proxy (IAP), which is leveraged to provide browser-based access to web applications. IAP protected apps are 'published' through Google Cloud HTTPS Load Balancers (6) and are accessed using publicly accessible DNS names. Web apps can live anywhere that can be fronted by an HTTPS Load Balancer, including private data centers, Google Cloud, or other public clouds. The BeyondCorp solution applies policy controls based upon contextual information available as the user accesses the application. When using Chrome/Chrome Enterprise as the access point on end-user devices, the Endpoint Verification extension provides additional device-related signals which can be incorporated into policy decisions defined in Access Context Manager. It also facilitates applying additional policy controls and enables ongoing policy evaluation and application without an additional authentication event.

The URL's for IAP protected web apps are published through Citrix Workspace via Library objects, where authorized subscribers are defined as well as where SSO and Citrix Enhanced Security policies are defined. Users access Citrix Workspace from devices with the Citrix Workspace app and/or Google Chrome are installed **7**. For managed endpoint environments, Chrome Enterprise is used to deploy and configure Chrome browser, the Endpoint Verification extension,

the Citrix Workspace app for Chrome OS, and other desired solution components.

End users access BeyondCorp protected web apps via Citrix Workspace/Chrome on various different types of devices, including BYO and managed devices. They're provided with context aware access to all applications, with corporate policy enforced by the Citrix Workspace and Google's BeyondCorp solution.

Use cases

Joint customers can leverage Google's BeyondCorp solution and Citrix Workspace today to publish IAP-protected applications through Citrix Workspace. This provides customers with the following high-level benefits:

VPN-less access to corporate apps, desktops, and data from any device

- Access Citrix Virtual Apps and Desktops, corporate web and SaaS apps with single sign-on from Citrix Workspace.
- Advanced security controls enforce corporate policies, protecting information while allowing access from anywhere.
- Curated access experience available on a broad range of devices, including Chrome OS and thin clients, in addition to desktops and mobile devices.
- Broad range of application support, including locally installed/native apps, client/server apps and files.
- Optimized user experience with low latency, leveraging Google's global scale network.

Consistent and contextual security policies for all apps

- Protect workspace users and data from malware, DLP, phishing and credential theft.
- Protect web and SaaS apps access under different access scenarios and security models with flexible, contextual controls.
- Protect infrastructure from DDOS and other attacks.

Additional information

For more information on Google BeyondCorp solutions, see:

- [About BeyondCorp](#): Google's implementation of the zero trust security model
- [BeyondCorp Remote Access Solution](#) page
- [Context-Aware Access overview](#)
- [Identity-Aware Proxy overview](#)
- Tutorial: [Enable secure access to apps hosted on Google Cloud](#)
- Tutorial: [Secure access to apps hosted on-premises or other clouds](#)

For more information on Citrix Workspace and zero trust access, see:

- [Citrix Workspace](#) product page
- [Citrix Secure Workspace Access](#) product page
- [Citrix Secure Workspace Access Deployment](#) Guide
- [Secure Access to Internal Web Applications with Citrix Secure Workspace Access](#): Proof of Concept Guide
- [Secure Access to SaaS Applications with Citrix Secure Workspace Access](#): Proof of Concept Guide

For more information regarding the Citrix Workspace and Google BeyondCorp solution and how it is evolving, please contact your Citrix or Google account manager.



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