

Citrix SD-WAN for Citrix Workspace

Connectivity Made Simple

Citrix SD-WAN: Connectivity to Citrix Workspace Made Simple

Citrix Workspace is a complete digital workspace solution that allows you to deliver secure access to the information, apps, and other content that are relevant to a person's role in your organization.

Citrix Workspace has been used successfully by enterprises of all sizes for nearly three decades. Customers have choices in how they license, deploy, integrate and manage these technologies. This flexibility allows Citrix technologies to serve a variety of use cases, business types, integration requirements and deployment models. Broad enterprise adoption has led to a diverse set of deployments to meet use cases and evolution of networking technologies. Many different factors drive deployment selection including: location of data centers (on-prem, clouds or hybrid model), users, branches, management service, and choices for networking connectivity.

Enterprises continue to look for ways to improve the application experience for users in geographically dispersed locations. Networking technologies used for connecting to virtual apps and desktops can make a huge difference in a user's experience. Existing customers looking to modernize their infrastructure and new customers deploying Citrix virtualization are seeking better connectivity options.

There are three main factors that customers consider:

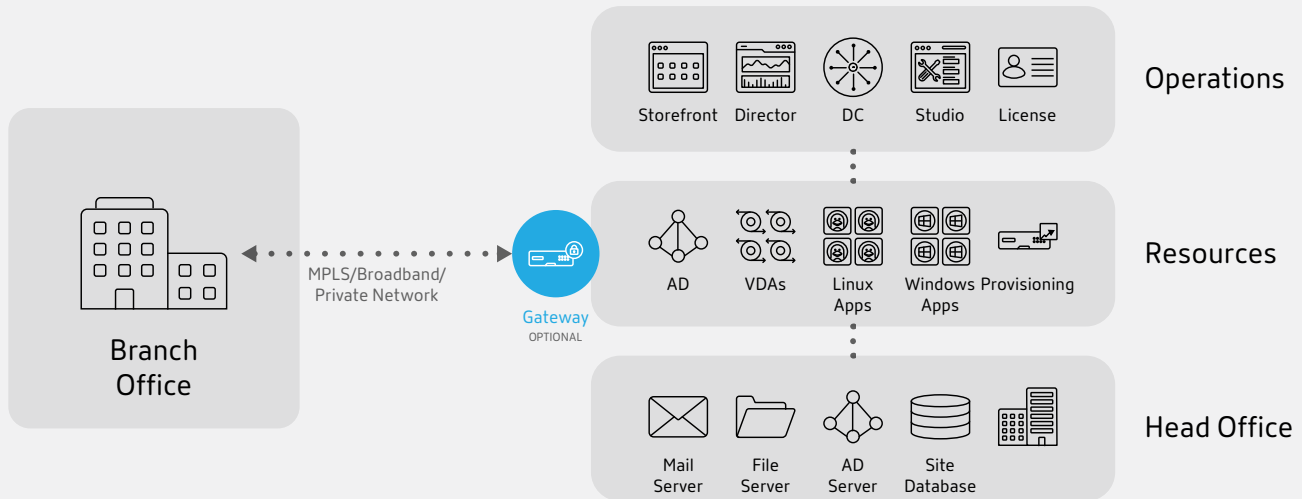
- **Value:** Includes reliability, security, and Quality of Service, and more
- **Cost:** Customers are looking for a better solution but with a reasonable cost
- **Ease of deployments:** Simplified deployment and management of network service

Citrix SD-WAN is a proven, cost-effective solution that has helped companies around the globe in improving the user experience and delivering virtualized desktops and apps in a secure and reliable way. SD-WAN gives IT control and choice of robust connectivity options including Virtual Paths, Cloud Direct Service, Microsoft Azure Virtual WAN, or Direct Internet breakouts. In this brief, we cover how to choose the best way to deploy Citrix SD-WAN to suit your unique network connectivity needs.

Deployment 1: Management and resources are both located in HQ/data center

Until recently, you'd find that all of the resources (VDAs, AD, and data servers) and managing operations (licensing, StoreFront, and Director) resided in the data center. Citrix technologies have evolved since then and we recommend that most organizations use or should plan to use cloud services when feasible. Although we recommend using the cloud service, customers can choose to continue using the on-premises or hybrid cloud solution.

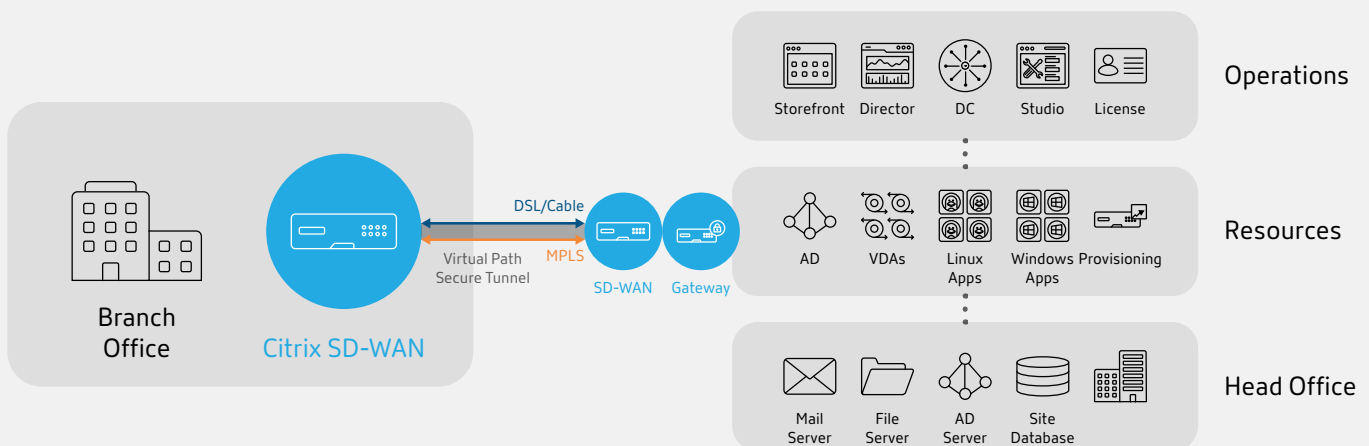
Deployment 1: Both management and resources are located in HQ/data center



Normally, a branch was connected to the data center through MPLS links. MPLS links are reliable; however, costs are significantly higher than broadband connections and MPLS links take longer to implement. Citrix SD-WAN helps reduce the cost by allowing you to leverage broadband alongside or instead of your MPLS while ensuring the reliability and security of your private WAN. This use case can be implemented rapidly, and it provides many benefits:

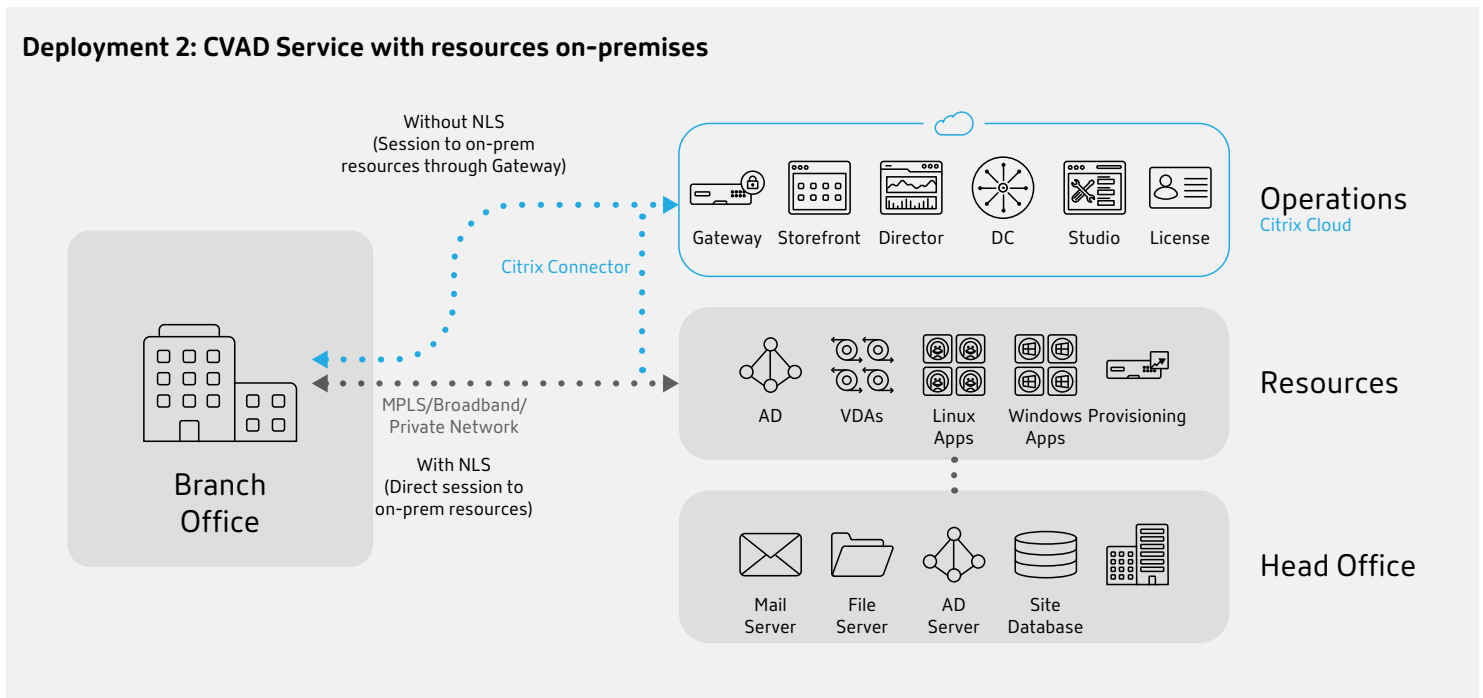
- **Reduced connectivity cost:** Replace MPLS with multiple broadband links
- **Reliability:** Redundancy with active failover/brownout detection
- **Increased bandwidth:** Via link aggregation/smart load balancing
- **Enterprise-grade QoS:** Bi-directional QoS/HDX classification/MSI QoS

Deployment 1 with Citrix SD-WAN



- **VoIP call protection:** QoS and re-routing without drops
- **Extended visibility:** Benefit reporting beyond the edge
- **Security:** Provide additional security

Deployment 2: CVAD Service with resources on-premises



Deployment 2: Citrix Virtual Apps and Desktops (CVAD) Service with resources on-premises

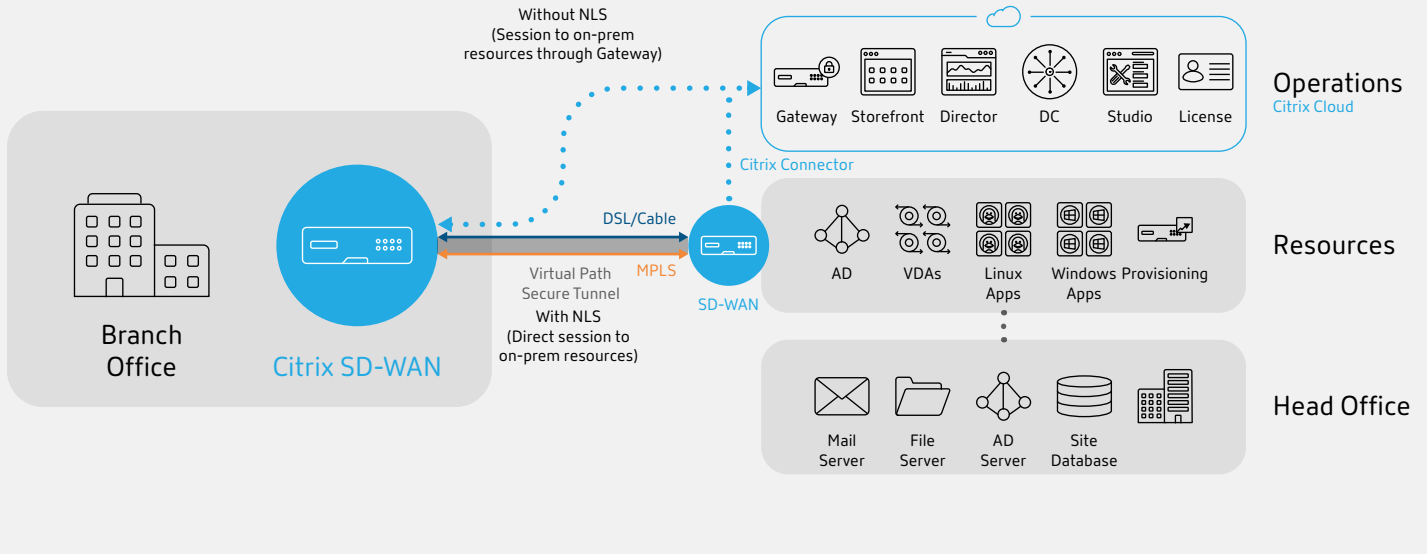
As Citrix customers move to the cloud, their first step is often to use the Citrix Virtual Apps and Desktops service to manage their virtual apps and desktops at their on-prem locations.

Although managing operations through the [Citrix Cloud](#) service was simplified, network connectivity remained a challenge. First session traffic is directed to the nearest Gateway service PoP. From the gateway, it traversed to the resource locations, that could add latency in many cases. Citrix introduced Direct Workload Connection via a new [Network Location Service \(NLS\)](#) that helps the traffic to go directly to the resources; however, branches configured with dynamic IPs would not benefit from this service.

Citrix SD-WAN offers a solution to the above scenario by:

- Providing direct internet breakout for traffic destined to the Gateway service in Citrix Cloud and reliability using multiple links
- Providing replacement of the high-cost MPLS links to HQ/data centers
- Reducing latency through NLS and updating the NLS automatically through Citrix SD-WAN, helping to resolve issues where dynamic IP addresses are used
- Providing deep visibility into HDX traffic

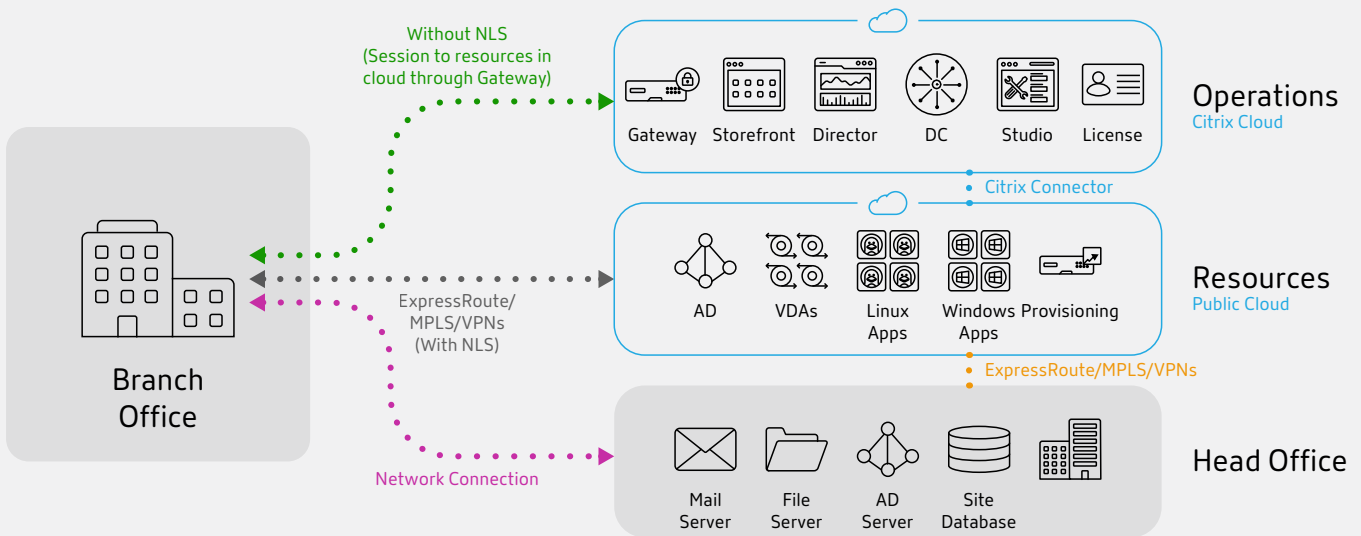
Deployment 2 with Citrix SD-WAN



Deployment 3: CVAD Service with VDAs in the cloud, other resources on-premises

In this deployment, Citrix provides a service to manage resources located both in the cloud as well as on-prem locations. The adoption rate of this deployment is high due to benefits including reduced complexity and cost. Nonetheless, complexity around the network connectivity continues to provide some challenges. Citrix SD-WAN offers a simple, cost-effective solution. The figure below is a typical topology without Citrix SD-WAN where VDAs are in clouds, but data servers and the AD are located at the customer's location.

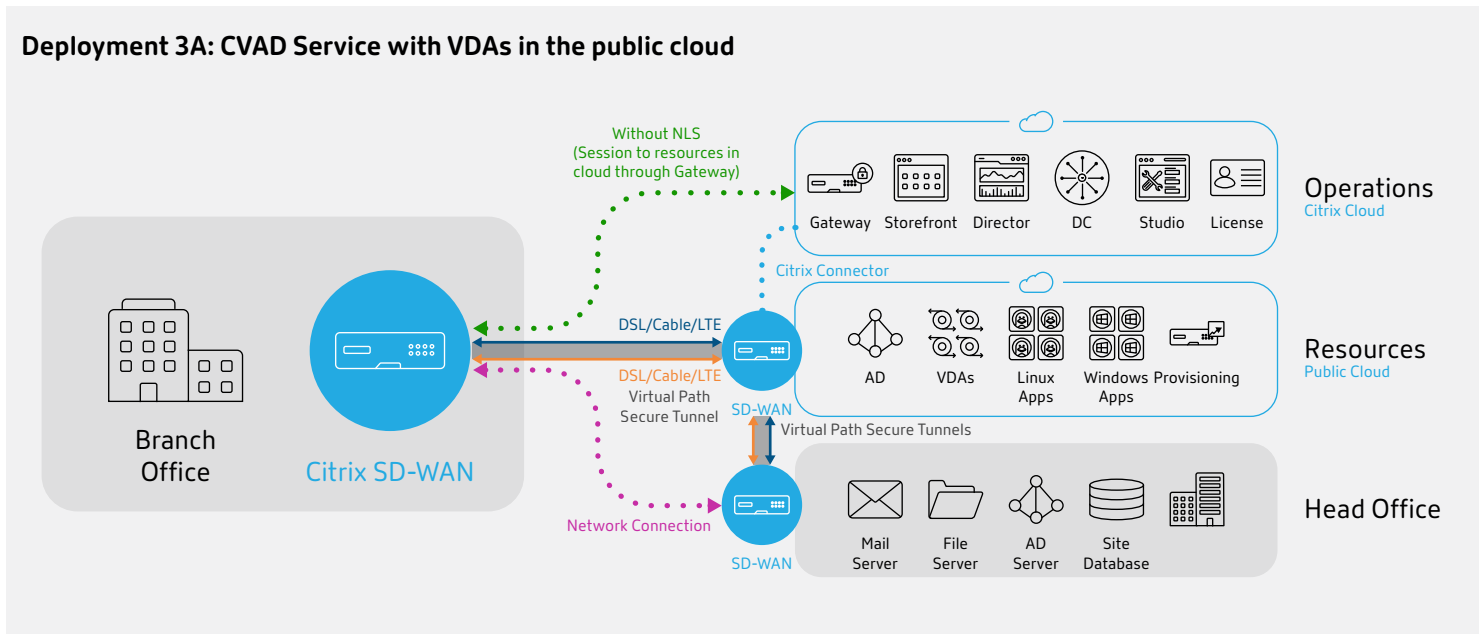
Deployment 3: CVAD Service with VDAs in the cloud, other resources on-premises



Citrix SD-WAN offers two solutions to the scenario above:

Public cloud to data centers

It takes additional time and costs to deploy MPLS-based connectivity options such as Microsoft Azure ExpressRoute and AWS Direct Connect, but most customers are looking for quick and inexpensive connectivity from HQ data centers to public clouds. When using SD-WAN, these benefits can be achieved in a few hours, rather than months in many cases. SD-WAN management operations provide auto-provisioning of SD-WAN in popular clouds such as Azure.



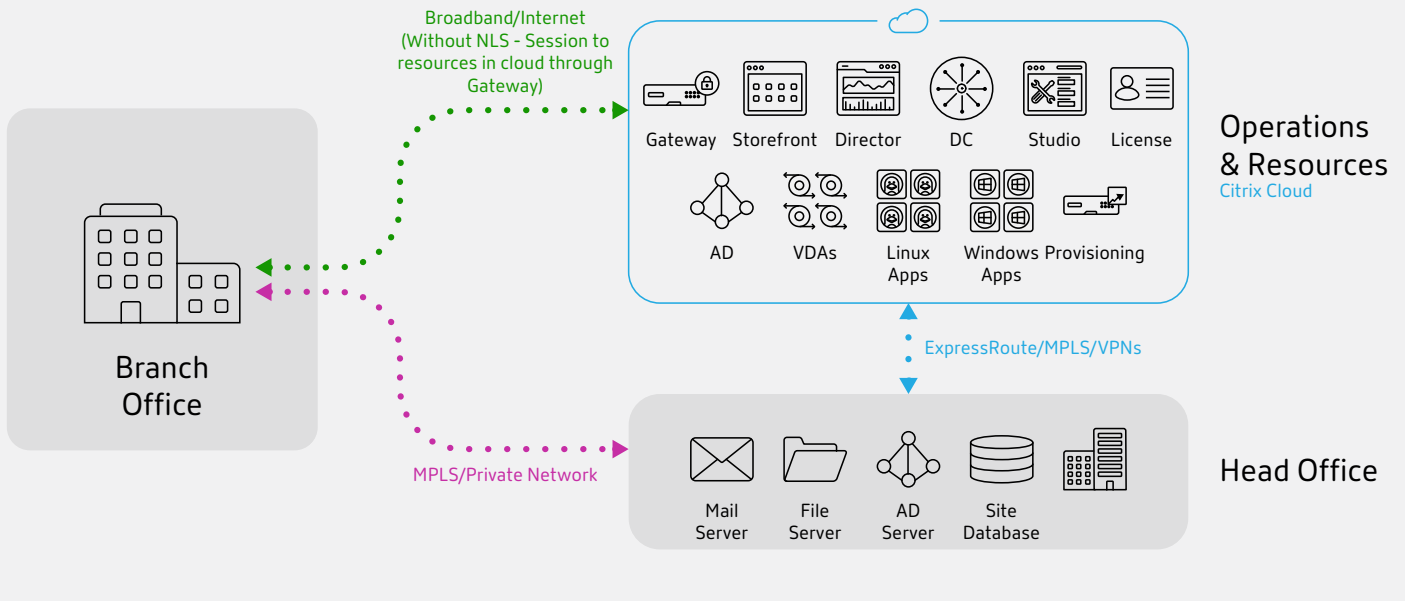
Branch to VDAs in public clouds

The second scenario in this deployment is the connectivity between branches and VDAs in the cloud. The normal path for a branch user is through Citrix Cloud using Gateway service, which is connected to VDAs through Citrix connector. In most cases, Citrix Cloud and VDAs exist in different locations and different clouds, however added latency can disrupt user experience. Citrix SD-WAN, along with Direct Workload Connection, can improve the users experience by reducing latency and significantly cut down the egress bandwidth cost since traffic is traversing out of one cloud.

Deployment 4: Citrix Managed Desktops (CMD) Service

Citrix Managed Desktops (our DaaS offering) makes it easy to deliver secure Windows apps and desktops from the cloud. Both management operations as well as VDA resources run inside virtual machines on the Azure public cloud that Citrix owns and manages. The figure below is a typical topology with connectivity from branch users.

Deployment 4: CMD Service



SD-WAN technology is now integrated in Citrix Managed Desktops to simplify network connectivity from your cloud-hosted desktops to both:

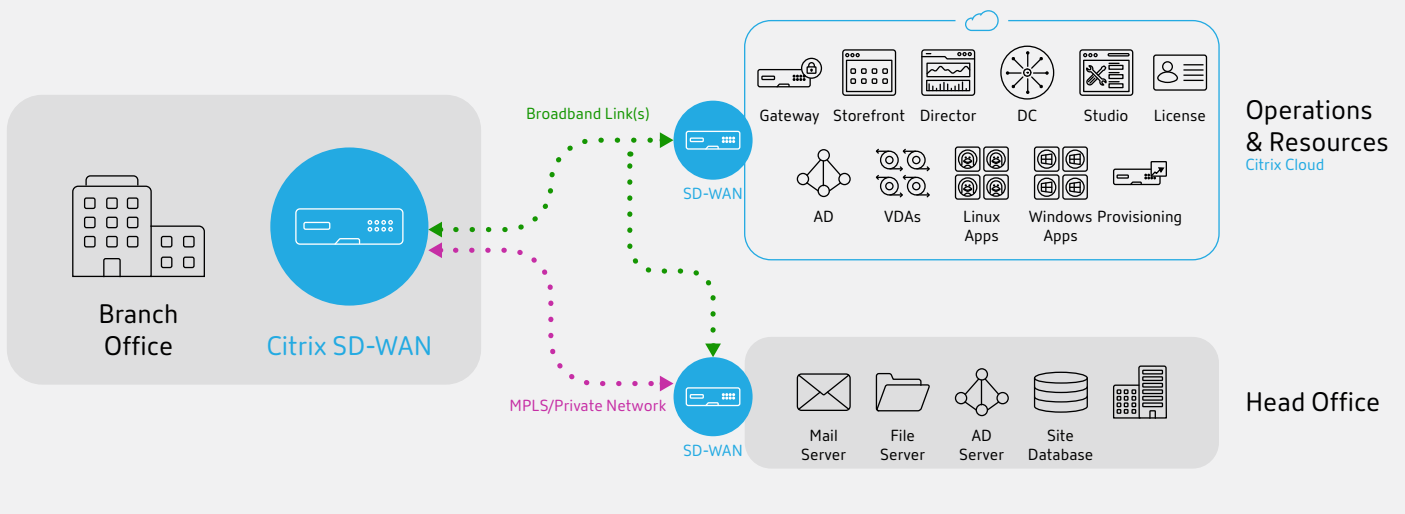
- On-premises resources such as Active Directory and data sources
- Branch users

The integrated SD-WAN solution also significantly cuts down the network connectivity cost and enhances the user experience.

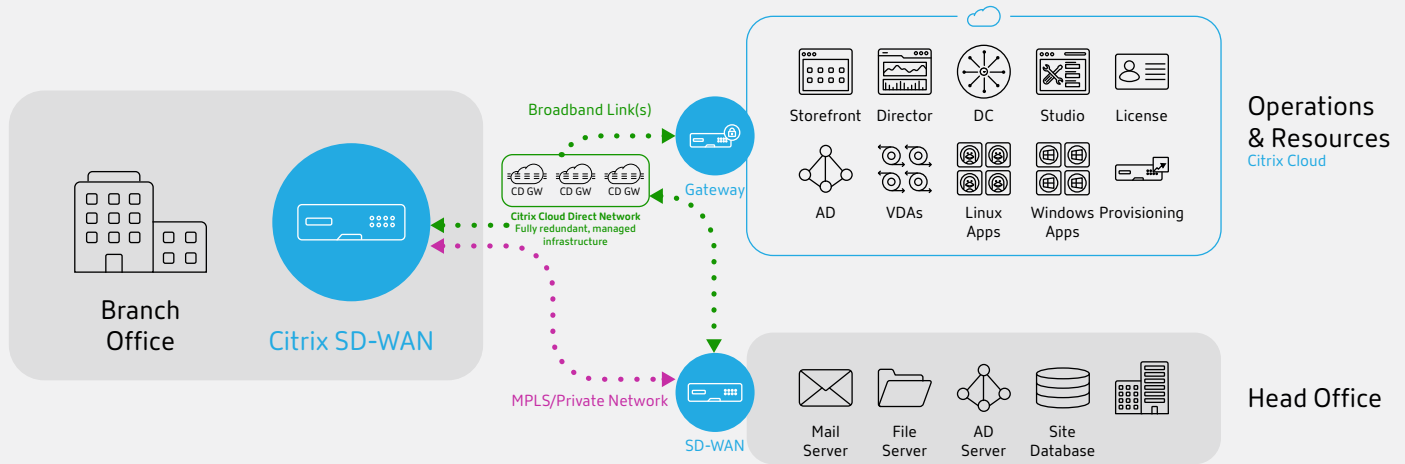
In addition, customers connecting to CMD/CVAD can access the below services:

- Connectivity to other important SaaS applications

Deployment 4 with Citrix SD-WAN



Deployment 5: Citrix SD-WAN Cloud Direct service for CMD



- Data centers in different clouds
- Use of cloud network backbones

Deployment 5: Citrix SD-WAN Cloud Direct service for CMD and CVAD use cases

SD-WAN Cloud Direct is a service that provides many of the benefits of SD-WAN virtual paths without the need to install SD-WAN in the cloud. Cloud Direct is a great option for connecting to virtual desktops in the cloud, including Citrix Virtual Apps and Desktops (CVAD), Citrix Managed Desktops (CMD) and Microsoft Windows Virtual Desktops (WVD). Complementing Cloud Direct, Citrix SD-WAN also supports connectivity from virtual apps to on-prem resources (e.g. databases, backend servers).

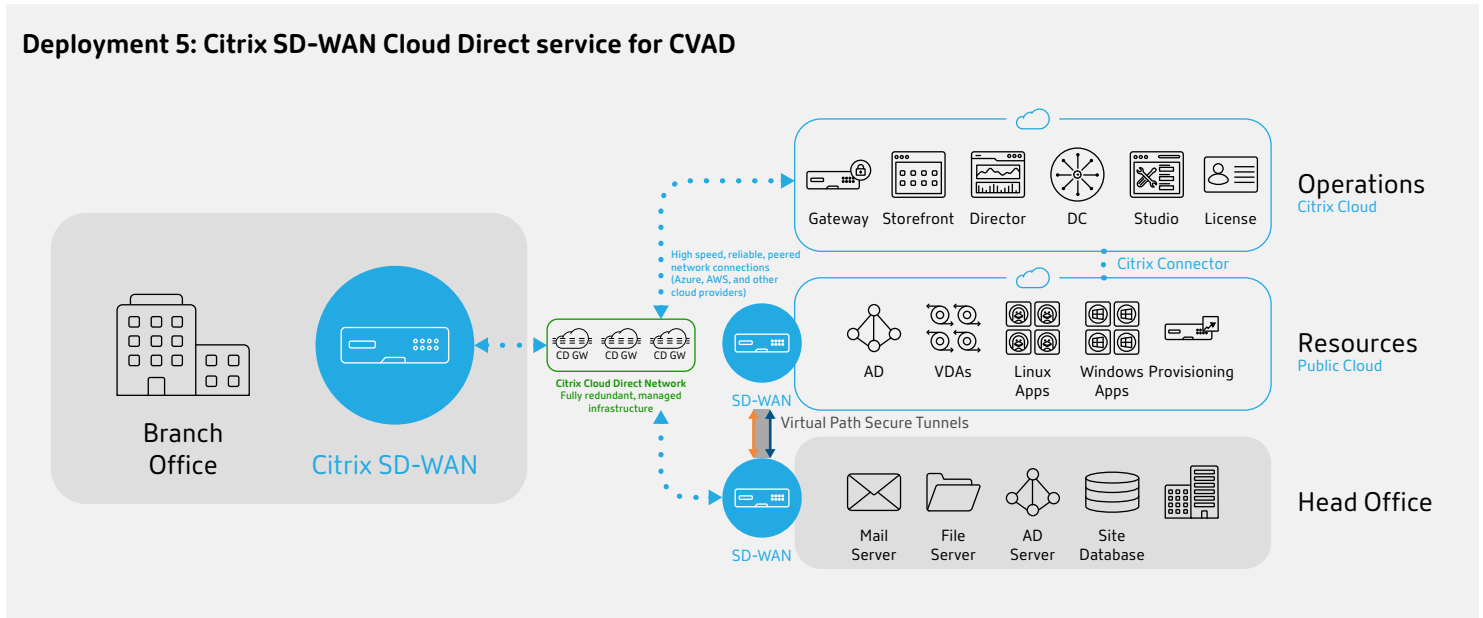
Citrix has multiple Cloud Direct PoPs around the world that are well peered with most public cloud and SaaS providers. Customers providing access to SaaS applications, CMD/CVAD/WVD and other cloud providers should use this service. It is especially valuable for accessing applications that are hosted by third parties. Most cloud providers charge for data leaving the cloud. So, putting SD-WAN in the cloud could add extra cost to the customer. These network bandwidth charges could be avoided using Cloud Direct service.

Here are a few benefits using the Cloud Direct service:

- **Improved SaaS performance:** Provides end-users an uninterrupted app experience that drives adoption, not complaints. Cloud Direct service can identify your most critical application traffic and ensure that it's always prioritized
- **VoIP and UCaaS protection:** Provide a consistent VoIP and UCaaS connection regardless of outages, lag, packet loss or jitter
- **VPN enhancements:** Keep your site-to-site VPN connections and performance stable without the cost and hassle of MPLS

- **Reliability:** Redundancy with active failover/brownout detection
- **Increased bandwidth:** Via link aggregation/smart load-balancing
- **Enterprise-grade QoS:** Bi-directional QoS/app classification
- **Extended visibility:** Benefit reporting beyond the edge

Citrix Managed Desktops is another SaaS application. Here's how the Cloud Direct service is used for connecting to virtual desktops.



Getting better experience to CVAD through Citrix Cloud service is no different. Customers have the option to choose SD-WAN book-ended solution for network connectivity between Head office and Cloud DC.

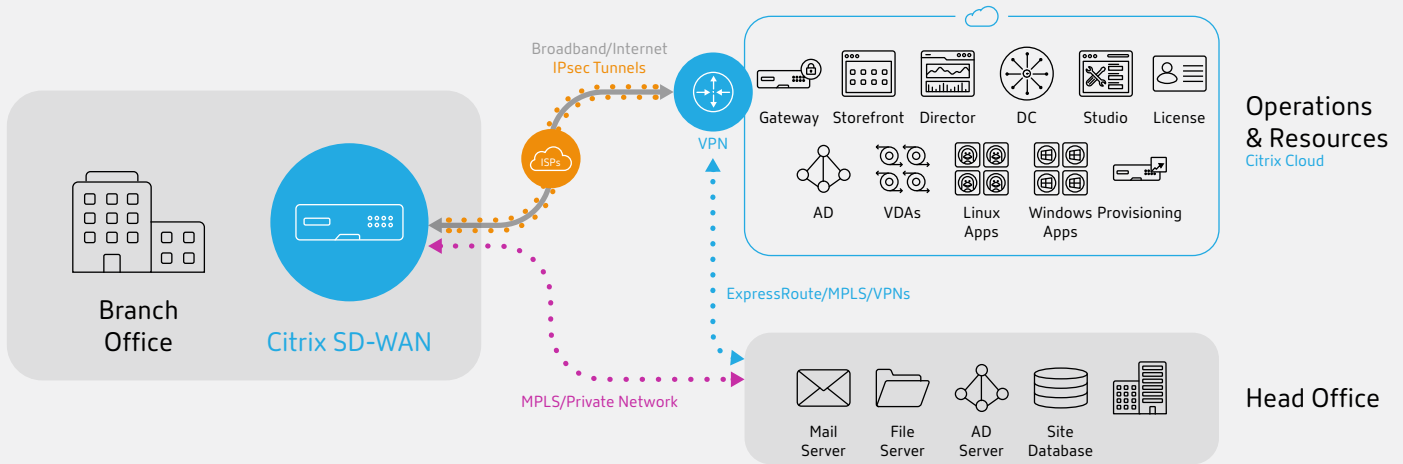
Solution for Remote Workers

In the wake of recent events, many remote users experiencing poor call and video conferencing quality in their home offices. Accessing critical SaaS applications, including Unified Communications as a Service and Citrix virtual applications and desktops with quality performance and experience is of the utmost importance. The majority of home users have a single broadband Internet connection. Citrix SD-WAN Cloud Direct solves some of the most common home networking challenges by using QoS to prioritize business apps. Citrix SD-WAN Cloud Direct has a built-in capability to identify and prioritize traffic to CMD/CVAD, hence significantly improving the user experience.

Deployment 6: Citrix SD-WAN for Microsoft Virtual WAN

Citrix is one of the preferred Microsoft partners for connecting to Azure Virtual WAN. The Citrix SD-WAN has an integrated and simplified deployment for connecting to Azure. If customers are already using Microsoft Azure Virtual WAN for connecting to their workload, Citrix SD-WAN can help optimize connectivity from the branches.

Deployment 6: Citrix SD-WAN for Microsoft Virtual WAN



Conclusion

Citrix Workspace customers have diverse network connectivity requirements due to diverse deployments. Citrix SD-WAN offers many connectivity options to meet your unique requirements. It provides simplified, secure, reliable connectivity to Citrix virtual applications and desktop with very low cost. No matter how complex the deployments for CMD/CVAD is, Citrix SD-WAN has a solution for your network connectivity needs.

Visit Citrix.com to learn more about the [Citrix Workspace](#) and [Citrix SD-WAN](#) solutions.



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