

Virtual Office:

A Secure and Consistent Network Experience for Remote Employees

*A cloud-based solution for
hybrid in-person and
remote work environments*

wave
business

Executive Summary

As IT departments adapt to a new business environment that includes the need for employees to collaborate from home, IT administrators need a way to ensure a secure and consistent managed solution to extend the corporate network infrastructure to remote employees. Most IT administrators do not have visibility into home environments, wireless access points, and peripheral devices with so many people spread across disparate networks.

Meanwhile, remote workers are fighting for bandwidth resources with family members, getting frustrated with dropped calls and frozen videos. They are using unsecured home networks to send sensitive company information, creating security headaches. When organizations began to move to a remote work environment, IT teams quickly cobbled together packages to deliver basic functionality to home-based employees, but there was no consistency among hardware, software, and certainly no blanket security fabric.

With these work-at-home trends becoming semi-permanent for at least a percentage of the workforce, IT teams are looking for a safe, repeatable, standardized solution that enables organizations to easily deploy a secure remote workspace.

Through Virtual Office, Wave offers a secure and consistent network experience that provides a safe, virtual private connection to and from the home and a corporate wide area network (WAN). The self-installed solution offers IT teams the network access, control, and visibility required to ensure a better work-at-home environment.

This white paper explores the genesis of such a solution, and how the Wave Virtual Office product meets the needs of IT leaders seeking an easy to install, secure solution that gives remote workers a productive network experience.





EMBRACING THE NEW WORK ENVIRONMENT

In today's business climate, there is a need for business-class networking and communication tools connecting home-based workers to their offices, colleagues, and customers. According to a recent survey conducted by YouGov, in partnership with USA Today and LinkedIn, 54% of professionals ages 18 to 74 say that working from home has had a positive impact on their productivity.¹

After a rocky start for many employees who were new to the work-at-home concept, most have warmed up to the experience. A Gallup poll found three in five U.S. workers who have been doing their jobs from home during the coronavirus pandemic would prefer to continue to work remotely as much as possible.² Employees are embracing flexible work schedules and enjoying a better work-life balance. They are getting an extra hour of sleep instead of commuting, saving thousands of dollars on gas and bus fare, business attire, and lunches while citing fewer workplace distractions. CFOs, already under pressure to tightly manage costs, sense an opportunity to realize the benefits of a remote workforce by reducing leased office spaces and associated overhead expenses. Work-at-home can also be a valuable recruitment tool, especially when trying to attract millennial or out-of-town talent. A Gartner survey of 317 CFOs and business finance leaders in March 2020 found nearly a quarter of respondents said they will move at least 20 percent of their on-site employees to permanent remote positions. Further, an earlier Gartner survey found that 20 percent of respondents have already deferred on-premises technology spending, and another 13 percent of respondents have already cut real estate and facility expenses.^{3,4}

The bottom line is that a lot of businesses are considering a shift to permanent home-based employees for a least a percentage of their workforce. Companies like Facebook, Yelp!, and Slack are considering shifting a large chunk of employees to remote work permanently. Some companies like Crunchbase predict only 15% of their employees will work in the office on a daily basis going forward, and Twitter just announced plans to allow employees to work from home *forever*.¹

This change is not without its drawbacks and is by no means right for every business. A poll conducted by USA Today in April 2020 found 25% of respondents say working from home has had a negative impact on their productivity, mainly because it takes longer to get answers and information from co-workers. (Is that because they don't have the right tools in place yet?) Another 43% of those working from home say they are communicating with their colleagues less than they did before. This leads to isolation, with most survey respondents (51%) reporting they miss the comradery of the office and feel lonely working from home. To compensate, these workers spend more (unproductive) time on social media platforms or phoning family and friends—confirming the worst fears of remote work opponents.³

To be fair, part of the problem is that many of these employees have never worked from home on a regular basis, and are not prepared for such a shift either emotionally or technologically. From an employer/IT perspective, shifting to a hybrid in-person and remote work environment comes with a tremendous amount of logistics support that requires consistency, control, and security.



With the task thrust upon them, IT personnel find themselves cobbling together remote networking solutions on the fly, sourcing components from wherever they are available. The priority is typically function over form. *Just get everyone up and running to enable basic business communications from home and we'll worry about prettying it up later.* Employees take their laptops and printers home and swap cubicles with assigned PBX extensions for kitchen tables and cell phone connections. Some are given external cameras and headsets for higher quality telecommunications and video conferencing, others use built-in hardware. Some have fast internet access, others not so much. And what about security? Virtually impossible to guarantee. Overnight, it seems every employee working remotely has become a new IT client. While in some instances the more proficient end-users help novice co-workers connect from home, others without networking expertise lean harder on IT than ever before. And they all want to use their preferred printer driver, web client, and video conferencing tools, which means lots of different plug-ins and settings to manage. The expanded IT support burden of trying to maintain such a disparate network environment, scramble for hardware, and manage credentials and licenses for consumer solutions suddenly drafted into business service is a recipe for both remote workforce and IT staff chaos.

To what extent employers and employees embrace this work-at-home approach on a permanent basis remains to be seen, but clearly the office will never be the same. However, IT teams are now stepping back and looking at what is really needed for remote worker productivity. Recognizing these work-at-home paradigm shifts are here to stay for some, it is time for a simple, standardized solution that enables organizations to provide a secure workspace to address the new realities of large remote worker populations.





LESS TRAFFIC ON THE FREEWAYS, MORE TRAFFIC ON HOME NETWORKS

The result of this shift to remote work environments means less traffic on the freeways (hooray!), but more traffic on home networks. Instead of jockeying for position in rush hour jams, employees are competing for bandwidth in a very small pipe. That's because most residential internet accounts are not set up to handle the data volume and multitasking required to conduct business from home.

Depending upon geography, some employees may have fiber to the home, others may be connected by copper, or wirelessly. Everyone is using different hardware and routers in their house supplied by a mix of service providers. You can't possibly have total visibility into every home to monitor wireless access points and peripheral devices with so many people on disparate networks. And you can't—legally—as that qualifies as an invasion of privacy. Yet employees are using home networks to send sensitive company information across work locations, creating security concerns. But you cannot implement blanket security protocols at the same time you are opening hundreds or thousands of unsecured connections to your corporate WAN, making it more susceptible to malware and cyberthreats. In fact, you are losing more control with every step you take to enable remote worker productivity.



Meanwhile, the remote worker is fighting for bandwidth resources with multiple home devices. They are competing with family members for network capacity and getting frustrated with dropped calls, spinning wheels while web pages load, and frozen videos. The kids are downloading movies, chatting with friends, or playing video games at all hours and the network does not have the intelligence to prioritize bandwidth for business over personal data. Back in the office, IT staff could see exactly how much bandwidth each employee consumed, the applications in use, and adjust capacity accordingly. The network was smart enough to move incoming calls to voicemail while employees were on a conference call. Not now. Cell phones

chirp with calls and text message alerts while meetings are in progress. IT has no insight into network metrics, and cannot allocate more bandwidth to a video conference over a video game.

The additional burden of remote learning strains residential networks further. Currently, home-based teachers and one or more students in a home are online for five to six hours each day in virtual classrooms or doing online modules, impacting not just bandwidth, but cost. Many families are experiencing inflated ISP bills as data caps are exceeded and accounts are hit with overage fees. This may be a temporary spike, but it is clear the need for unlimited remote communications capable of handling business-class applications and data volumes from the home will only increase going forward.



As a result, IT departments with a network environment that includes remote workers are looking for new ways to achieve safe, consistent, and reliable connectivity. They require visibility into the home-based employee environments they support to deliver a network experience equal to what they had in the office.

MIGRATING BUSINESS-CLASS CONNECTIVITY TO THE HOME

The widespread adoption of cloud-based technology has revolutionized communications in countless ways. As organizations adapt to a new business work climate, it is abundantly clear we must reach each and every endpoint with business-class connectivity.

We're off to a good start. Many ISPs and telecommunication companies now offer fiber to the home, delivering increased bandwidth and faster upload/download speeds. However, fiber optic is expensive and time consuming to install to individual homes. There are often long lead times for installation, and it may not be available in every neighborhood yet. There's 5G, the next-generation network that allows for faster, more robust wireless communications. But users need new 5G-capable devices to access the network, and it too is not yet available in every market. Then there's UCaaS, a cloud-based service supporting multiple messaging modalities and secure video conferencing. It's an excellent solution, but may not be the complete answer. All these things have great potential, but we need a solution today that is right-sized for the new home-based remote worker's daily routine.

The challenges of implementing a secure remote workspace solution are common knowledge to people in the IT world. But the average new remote worker may not have the slightest idea how to configure a router or install an application. This can become a huge IT headache for companies equipping large remote workforces. Therefore, any proposed solution must remove those variables from the equation and be:

- Easy enough for anyone to install and use in order to minimize rather than contribute to IT's support burden.
- Capable of emulating the corporate WAN to deliver a business-class network experience from any remote location.
- Secure and protected from outside threats.
- Able to deliver visibility into the home network environment. This will allow IT staff to make recommendations to the remote worker to improve performance when necessary. For example, IT can direct the user to allot more bandwidth to their laptop for an upcoming video conference versus another device in the house being used for gaming or shopping.

In sum, today's new work environment demands a solution offering a secure and consistent network experience that provides a virtual private connection between every remote worker and the corporate wide area network. We've got one, and we call ours the **Virtual Office**.



VIRTUAL OFFICE: A SECURE AND CONSISTENT NETWORK EXPERIENCE

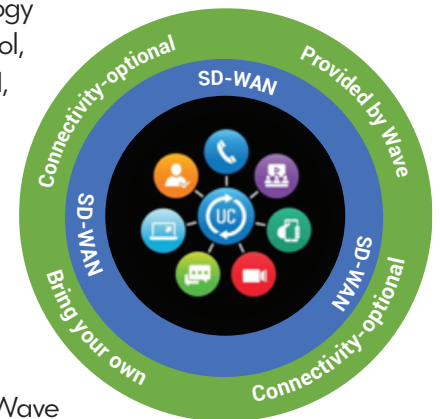
Virtual Office is a cloud-based integrated communications platform expressly designed for organizations migrating to or increasing a distributed workforce. It's a simple way to maintain efficiency and employee effectiveness by providing the remote worker with a network experience that is as close to being on the corporate WAN as possible.

This solution streamlines the process to get entire remote workforces onto a single, repeatable technology in which everyone is using the same tools for seamless unified communications.

Virtual Office offers a separate and standalone bandwidth package that sits on top of remote employees' existing internet service. This provides stronger and better security for the business, improved network performance for the remote worker, and gives IT more control and visibility to the work-at-home environment.

Virtual Office combines three technology components to offer businesses a turnkey, remote communication solution while ensuring compliance to standards set for the corporate wide area network (WAN).

1. The core of Virtual Office is a **self-configuring SD-WAN appliance** for rapid deployment at remote locations without any assistance from end-users. Managed over the web, SD-WAN technology gives IT administrators visibility into the home network environment to provide control, security, and bandwidth management for all devices on the network. With SD-WAN, administrators can pinpoint areas of bottlenecks on the network rather than just guess at a solution.
2. These capabilities can be supported with a **complete messaging toolkit** for facilitating different kinds of text and voice communications, including unlimited calling, a soft phone, a web client, chat/presence, a web-based call manager, plus integrated video conferencing with collaboration.
3. **Internet connectivity** is the final layer. Broadband access can be provided by Wave for a totally independent business solution running in parallel to the home network, or, a portion of bandwidth can be carved out of the remote worker's residential router and dedicated to Virtual Office. In either case, business traffic is totally segmented from personal traffic.



For the former, Wave provides the cable modem and connectivity to the home, and manages all support and troubleshooting for a complete turnkey solution. It's an extension of the corporate WAN right into the remote worker's home with centralized control for IT. Any performance issues can be addressed directly by Wave.

For the latter, remote workers can choose to use their existing ISP, but network speed and performance cannot be guaranteed by Wave. IT staff will be able to see if there is problem with the network, and advise the user to contact their provider to fix an issue or allocate more bandwidth to traffic running on the business domain. However, they cannot see exactly what the user is doing online or make the adjustment directly.



Designed to be easy enough for novice end-users to install, Virtual Office gives IT teams the network access, control, and visibility they require into the remote worker environment. It enables remote workers to seamlessly connect to the corporate WAN and access needed UC capabilities with little IT assistance. More importantly, it gives IT administrators peace of mind by delivering transport, network-edge, and core layer protections consistently across all connections. IT sees all connected endpoints on a single dashboard and can easily identify locations that are experiencing problems or underperforming, and reach out to correct the situation.

What's In It For The Remote Worker?

You're an employee working from home. You have some degree of tech savviness, but not a lot. You've set up a makeshift office, but your internet connection is slow and you are competing with family members for bandwidth to get your job done.

Then a package arrives at your door. It's a kit from your employer with an SD-WAN appliance, VPN, and wireless access point. Simple installation instructions are included to remove the intimidation factor. Plug everything in, load the pre-approved software applications onto your endpoint devices, turn on your wireless AP and Virtual Office ...

- ✔ Connects to the corporate WAN and establishes a secure connection between your home and the office that separates business from personal data traffic.
- ✔ Provides a reliable business-grade Wi-Fi connection to your home dedicated to business traffic.
- ✔ Supports the same video conferencing and messaging applications that everyone else in the organization uses.
- ✔ Eliminates issues of grainy video, choppy audio, and shaky cameras by providing high quality hardware (select packages).
- ✔ Allows for collaboration anywhere, in or out of the home office, through integrated mobile apps for Android or iOS.

As an employee, you feel valued because the company cared enough to provide the tools that allow you to be productive while away from the office. The system is unobtrusive and easy to deploy. Everything is familiar and works just like it did in the office, so you're able to communicate with remote colleagues easily, which eases the sense of isolation. Lastly, there are no worries about corporate IT poking around your personal traffic; everything is segregated.



What's In It For The IT Leader?

You've been tasked to equip your workforce with the tools necessary to work remotely. The solution must allow for network visibility into every location, and it must be easy to install.

You're going to have to shop for cable modems, phones, headsets, and cameras. You'll need a video conferencing platform and a cloud-based phone system to replace the PBX in your building. You'll need to load the apps for unified communications, merge contacts, manage software licenses, and then figure out how to make it all work together securely using the hardware you found from big box stores. And you need to do it all for one hundred, one thousand, or maybe ten thousand employees? Help!

Or, you could implement a solution that checks all those boxes and collapses that complexity into one preconfigured solution. Virtual Office is designed to provide an identical, secure network experience for all employees through:

- ✔ **Control.** Quickly adapt to the needs of home-based workers with an effective and centralized policy.
- ✔ **Visibility.** Gain insight into disparate home networks and be able to support large populations of remote workers.
- ✔ **Analytics.** Take guesswork out of the equation. Empirical data on a centralized dashboard allows you to make bandwidth adjustments as needed.
- ✔ **Security.** Protect the network from the latest threats and know that WAN traffic is secure with zero-touch security updates.
- ✔ **Standardization.** Spend less time triaging unknown equipment and home network setups.
- ✔ **Fully Automated Management & Monitoring.** Optimize productivity with automated proactive monitoring.
- ✔ **Simple installation.** Lighten your load. Novice users can set up the system without assistance from IT.

Virtual Office – A Secure, Remote Workspace



Without on-premise solutions, IT administrators are unable to see and monitor the employees' peripheral devices. Wave's Virtual Office solution addresses six key deployment aspects for IT departments wrestling with how to manage a remote workforce while providing an experience close to what employees had in the office:

1. **Bandwidth.** A separate bandwidth package and cable modem dedicated to business traffic ensures remote workers have the capacity for maximum application performance and high quality audio/video communications.
2. **Over-the-Top (OTT) delivery.** All elements of Virtual Office (except bandwidth) will work even if Wave is not the service provider.
3. **Security.** SD-WAN appliance is a safe platform and go-to-market strategy. Included are POE ports, connectivity, security, and compliance for control and visibility into the remote environment. The SD-WAN controller provides transport, network-edge, and core layer protections.
4. **Unified Communications as a Service.** UCaaS is the communication portion of the solution. It delivers phone connectivity, online presence, and chat functionality. Wave can also provide dial tone, unlimited long distance calling, and video conferencing with presence.
5. **Telecommunications hardware.** Depending upon the package selected, Virtual Office can include a high quality video camera, headset, and telephone.
6. **24/7/365 local support.** Count on Wave to deliver unmatched support for your extended network and remote workforce. The entire concept of Virtual Office is built around minimizing any impact to your business.

EXTEND YOUR NETWORK WITH WAVE VIRTUAL OFFICE

Wave is helping companies adapt to a new business environment by delivering technologies specifically designed to help businesses manage a remote workforce and maintain staff productivity. In fact, this is a perfect opportunity to embrace the cloud and prepare your organization for whatever changes lie ahead.

When combined with our sister companies, RCN Business and Grande Communications, we offer fiber-rich, coast-to-coast connectivity solutions, serving seven of the top ten U.S. metropolitan markets, so we can connect your remote workers to the corporate WAN from virtually anywhere.

Let us help you manage your work-at-home environments. Get the consistency of hardware, software, and management all from one vendor. Wave offers maximum flexibility and portability in a secure, robust, and highly managed network solution. Contact Wave at resources.wavebroadband.com/virtual-office today to learn how you can get started with Virtual Office.



Sources & Acknowledgments

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