Support Remote Workers with AT&T SD-WAN
Executive Summary

In an environment where business continuity is of paramount importance, enterprises are looking for technologies that enable and enhance their employees’ productivity, while working away from a traditional office setting. Although increased workforce mobility delivers proven benefits, it also presents some challenges related to enabling remote access to corporate communications, applications, and data.

Using software-defined networking (SDN) principles, SD-WAN addresses workforce mobility challenges by enabling IT organizations to dynamically mix and match connectivity options to optimize traffic, improve application performance, and help control expenses. These are essential capabilities for organizations looking to deploy and manage connectivity for small office/home office (SOHO) workers.

The rise of cloud computing, mobile access, and unified communications has contributed to remote work capabilities. However, these changes have also dramatically increased network traffic and intensified connectivity demands in ways that outstrip legacy WAN capabilities. This can be particularly problematic for SOHO workers, who generally have access to residential-grade internet connections. Connecting to an IP phone system via the typical broadband internet service often results in garbled calls, delays, echoes, and other issues.

The AT&T SD-WAN Work from Home offer

One of the critical advantages of the AT&T SD-WAN Work from Home offer is that it delivers an enterprise-quality networking experience to work-from-home users in an environment where business applications, education, and entertainment use are competing for available internet bandwidth.

Automatic recognition and prioritization

The AT&T SD-WAN Work from Home offer powered by the VMware platform can prioritize critical business and education applications over others, such as entertainment and web surfing. Deep Packet Inspection (DPI) utilizes databases of 3000+ applications to lay a foundation for network management tools, like application recognition and prioritization. As per the depiction below in Figure 1, the solution offers a 10X enhancement to Office365 usage, even during network brownout conditions.

Figure 1: SD-WAN Throughput Enhancement over Single WAN Link

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office 365 on a Single Link (Brownout condition) from Branch in Thailand to Gateway in Singapore</td>
<td>10X Higher average throughput with VMware SD-WAN</td>
</tr>
</tbody>
</table>

For on-premises and cloud apps

- **VMware SD-WAN**
- **Non-SD-WAN**
High quality voice and video using Dynamic Multi-Path Optimization

SD-WAN delivers highly reliable and assured performance for applications such as Voice over Internet Protocol (VoIP), Unified Communications as a Service (UCaaS), Virtual Desktop Infrastructure (VDI), and Software as a Service (SaaS) to work-from-home users through Distributed Multi-Path Optimization (DMPO) continuous link monitoring, dynamic per packet-based steering, and on-demand remediation based on application priorities dictated by business policies. This is important for voice and video applications, which are latency sensitive.

Figure 2 depicts how the user experience is enhanced during a live video session in which the performance of the voice and video streams were significantly enhanced by SD-WAN, even on a single link, with brownout conditions.

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**Figure 2: QOE Improvements – Voice/Video**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Video Meetings</th>
<th>Resolution</th>
<th>Flows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latency</td>
<td>93 msec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Download Rate</td>
<td>7Mbps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upload</td>
<td>1.43Mbps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packet losses</td>
<td>0.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **SD-WAN** VP/FO Voice Quality Improvements
- **Non SD-WAN**

- **Video Quality Improvements**
- **SD-WAN** 1080p Full HD video, 35% better performance
- **Non SD-WAN**

* Performance based on latency, jitter, packet loss and other network measures from VCO

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*Over half of employees globally are working outside of their main office headquarters for at least 2.5 days a week.*
Flexible transport options

In many cases, a work-from-home user will need access to their enterprise’s traditional applications in a datacenter that has no SD-WAN presence. AT&T SD-WAN Work from Home offers a secure VPN-like connectivity to the corporate network, thus eliminating the need for additional VPN software on home computing devices. It also provides a highly secure, highly reliable access through IPSec tunnels between gateways located near the datacenter, where the application resides. No new equipment is needed in the data center for the work-from-home users. A user can also increase the service continuity by augmenting wired connections with 4G/LTE using the DMPO capability that aggregates multiple transports, including private lines, broadband internet, and LTE.

Simplified monitoring and troubleshooting with cloud-based management

The AT&T SD-WAN Work from Home offer enables the organizations to dynamically scale and easily manage work from home deployments. It provides seamless support including monitoring, troubleshooting, and ongoing management of the home network SD-WAN component.

Application-based policies are pre-defined to provide a standardized template for simplicity and ease of use. These policies are customizable, allowing for flexibility when needed.
Simplified Deployment

The AT&T SD-WAN Work from Home offer provides organizations with one of the fastest and easiest ways to stand up a home office, reducing provisioning and deployment time from days to hours or minutes, thus simplifying provisioning and configuration through Zero Touch Provisioning (ZTP). This allows home users to initiate a deployment by clicking on the activation link in an email and pulling the configuration without the need for a network administrator/expert. Shown below is an illustration of a typical customer deployment, which involves an easy plug-and-play SD-WAN device deployment, with no significant changes to an existing home network.

Conclusion

The AT&T SD-WAN Work from Home offer helps work-from-home employees with quick deployment of a highly reliable SD-WAN networking solution. It plugs right into their existing home networks and caters to both business and residential demands for access to applications and data using residential-grade internet service, thus offering a superior user experience for employees, the enterprise, and customers.

For more information contact an AT&T Representative or visit https://www.att.com/sdwan

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* & ** Source: “The IWG Global Workspace Survey, March 2019”