Case Studies
Lenovo Access to the Workday Application
**AppEx CloudWAN optimizes Lenovo’s Cross-boarder Workday Application Access**

As one of the leading providers of enterprise applications, Workday serves more than 1,000 organizations, ranging from medium-sized businesses to Fortune 50 enterprises. Lenovo is one of these customers accessing the Workday applications hosted on the East Coast of the United States.

Lenovo users in China needed to access Workday servers located in Washington D.C. to research, report and transfer files on a daily basis. Webpages were loading slowly and file transfers took a long time because of the network distance and uneven performance of the Internet.

![Figure 1: Original Workday Access Solution](image)

The following data shows the response times with the original access solution.

<table>
<thead>
<tr>
<th>China Telecom connection: ping from users to Workday servers</th>
<th>Best</th>
<th>Worst</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latency</td>
<td>320ms</td>
<td>480ms</td>
<td>350ms</td>
</tr>
<tr>
<td>Packet loss</td>
<td>4%</td>
<td>32%</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Table 1: Workday network performance through the China Telecom Link*
China Unicom connection: ping from users to Workday servers

<table>
<thead>
<tr>
<th></th>
<th>Best</th>
<th>Worst</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latency</td>
<td>290ms</td>
<td>880ms</td>
<td>430ms</td>
</tr>
<tr>
<td>Packet loss</td>
<td>1%</td>
<td>59%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Table 2: Workday network performance through the China Unicom Link

This poor performance impacted employee productivity. To solve these issues and to reduce the MPLS monthly cost, Lenovo decided to try the SD-WAN solution provided by AppEx Networks: **CloudWAN**. Lenovo connected to CloudWAN’s nearest PoP from its Beijing HQ, then connected to Workday through another Cloud PoP near its Washington D.C. servers. To guarantee high availability, a backup PoP was assigned to Lenovo at the same time for redundancy. Lenovo users can now connect to the Workday application quickly and with good performance. Below is a picture of the current configuration:

![Current CloudWAN Workday Access Solution](image)

Figure 2: Current CloudWAN Workday Access Solution

With CloudWAN’s globally distributed PoPs, users based in any branch office of Lenovo can now access the Workday system quickly and with good performance.
The following data shows some examples of the improvement provided by CloudWAN over the original access solutions.

**Homepage Load Time (in seconds)**

<table>
<thead>
<tr>
<th></th>
<th>CloudWAN</th>
<th>China Unicom</th>
<th>China Telecom</th>
<th>MPLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (in seconds)</td>
<td>4.13</td>
<td>12.87</td>
<td>8.95</td>
<td>5.75</td>
</tr>
</tbody>
</table>

**Figure 3: CloudWAN PoPs around the Globe**

**Figure 4: Comparison of Homepage Load Times**
Figure 5: Comparison of Login Times

Figure 6: Comparison of File Upload Times
With CloudWAN, the latency and packet loss were reduced dramatically. The rate of packet loss was almost zero. This clearly shows that CloudWAN provides a stable data transfer rate.

Figure 7: Direct Internet access vs. AppEx CloudWAN: Latency

Figure 8: Direct Internet access vs. AppEx CloudWAN: Packet Loss
Summary:
CloudWAN improves cross-boarder application access in the following ways:

- CloudWAN leverages AppEx asymmetric TCP acceleration technology, which also improves the performance of mobile offices;
- CloudWAN provides dynamic route optimization managed by an SDN centralized controller, which guarantees high availability;
- Global PoP distribution breaks the boundaries between countries. PoPs can be expanded quickly based on business requirements;
- AppEx RTT Tunnel secures customer data with encrypted data transfer;
- CloudWAN can be setup within one day: and there is no setup fee, which can save customers up to 60% in initial costs.

About Lenovo
Lenovo is the world's largest personal computer vendor headquartered both in Beijing, China, and Morrisville, North Carolina, United States. Lenovo now operates in more than 60 countries and sells its products in around 160 countries.

About AppEx Networks
AppEx Networks was founded in 2007 and has become a leader in the field of network performance optimization with its Learning-Based Acceleration™ products for web, mobile and cloud applications. These network acceleration and optimization products ensure that end users in both home and business settings enjoy a smoother user experience -- as though the application were locally hosted.

AppEx’s Learning-Based Acceleration™ products are used by a wide variety of companies, from small to enterprise-level, as well as government agencies, educational institutions, and Internet service providers. Our clients include global Fortune 500 companies.
[http://appexnetworks.com](http://appexnetworks.com)
AppEx Networks Corporation
4010 Moorpark Ave, STE212
San Jose, CA, 95117
+1 408-973-7898

contact@appexnetworks.com
More information can be found at:
www.appexnetworks.com