SD-WAN Connects Branch and Central Offices Cost-efficiently & Reliably

GFI Software™

Table of Contents

Introduction

The Exinda SD-WAN Network Appliance provides enterprise branch offices with reliable, high-performance data connectivity to the headquarter office datacenters and to the public Internet. And it does so at a reasonable cost.

You can enable each branch office with a fast Internet pipe by bonding multiple, cost-effective transport technologies, such as DSL, 3G, 4G etc, using Exinda SD-WAN. The Internet lines bonded in this way may be from different carriers for ISP diversity to increase reliability. By leveraging the high bandwidth connectivity present at the main office of an enterprise, Exinda SD-WAN can provide the branch office facility with reliable, high performance Internet access at a fraction of the cost of single provider solutions.

In this whitepaper, we explain how Exinda SD-WAN can help an enterprise with branch offices save on their monthly Internet access cost, with a return on your Exinda investment in as little as under five months.

Challenge

Data connections between an enterprise headquarters facility and branch offices are often unreliable, not fast enough, and expensive. Enterprises that have a headquarter facility (such as a main office or data-center) and various branch offices need to be able to communicate between all offices as well as with devices and servers on the public Internet. With the proliferation of cloud services based on private and public clouds, as well as services that are heavily dependent on reliable and high-performance applications, you may have hit the limits of available WAN (Wide Area Network) services.
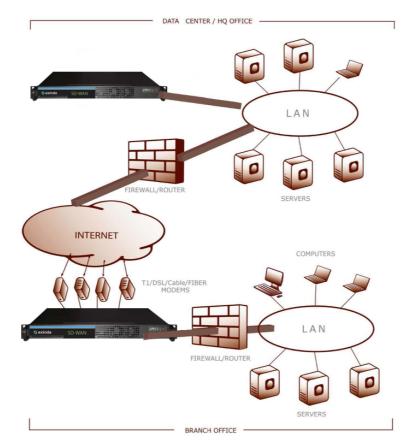
Although it may be economically feasible to provide high bandwidth Internet connectivity to the main office, providing the same speed connections to each branch office is prohibitively expensive. There may be many branch offices and the available Internet services might be limited or costly. For security considerations, data communications between offices are typically transmitted via VPN, sometimes including Internet access, and funneled through the main office facility. It is critical to have a high-throughput IP tunnel that is reliable for this data connection.

If the branch office uses a single DSL, T1 or cable modem connection to communicate with the headquarter office, this may offer insufficient throughput and speed, particularly for uploading data from the branch office to the main office. Similarly, a single broadband line at the branch office will not provide the adequate up-time that business-critical applications demand.

Solution

Leveraging low cost transport technologies and carrier diversity for fast and reliable connectivity between branch offices & datacenter.

Exinda SD-WAN enables bonding of multiple Internet access resources such as DSL, Cable, Cellular or any other IP transport, to provide reliable high throughput data channels. Exinda SD-WAN can be installed at the main-office/datacenter (master unit) and at a branch office as illustrated below. This architecture will enable a high-speed IP communication framework between the branch office and the headquarters, as well as among branch offices.

The two Exinda devices form a transparent, high-speed data tunnel between them by combining access resources on each side.

To illustrate, suppose the enterprise datacenter has a DS3 (or fiber) connection that provides the datacenter with a symmetric 45 Mbps pipe to the Internet. At the branch office, suppose four ADSL lines are plugged into the WAN ports of the Exinda SD-WAN device. Suppose each of the ADSL lines provides a 6 Mbps pipe in the downlink direction and a 768 kbps pipe in the uplink direction.

Let's calculate and examine the benefits of using Exinda SD-WAN to bond and combine these network resources.

Benefits

✓   **High speed connectivity from branches to the headquarters/datacenter**

In this example, the four ADSL lines provide an aggregate capacity of 3 Mbps (4 x 768 Kbps) in the uplink direction and 24 Mbps (4 x 6 Mbps) in the downlink direction. These lines are in fact aggregated by Exinda SD-WAN. They provide a 3 Mbps pipe from the branch office to the main office and a 24 Mbps pipe from the main office to the branch office.

✓   **High speed general Internet access at the branch office**

If desired, the branch office can use the 24 Mbps/3 Mbps pipe that connects it to the main office for general Internet access. The Exinda SD-WAN device at the branch office can leverage the 24 Mbps aggregate download capacity for HTTP downloads directly rather than being routed through the main office. Thus, the users at the branch office facility can enjoy Internet access with downloads up to 24 Mbps and upload speeds of up to 3 Mbps.

✓   **High 9's reliable WAN connectivity for all branch offices**

The overlay bonding tunnel is similar conceptually to a VPN tunnel. There is a logical connectivity path between the two Exinda SD-WAN points. This enables the tunnel to shield against any ISP outages from the applications that are using the bonded tunnel. For the branch office to lose its application session, all of the ISPs that are bonded would have to experience disconnect events at the same time. This is an extremely low probability event compared to a single Internet connection disconnecting. Exinda SD-WAN can bond various types of Internet connections from any service provider including DSL, Cable, MPLS, T1, E1 or any other IP-based Internet connectivity.

✓   **75 percent cost reduction on monthly Internet access fees & quick ROI (Return on Investment)**

Compared to using a T1 line or a bonded T1 line, an SD-WAN solution provided by Exinda SD-WAN can save up to 75 percent on bandwidth expenditure per month. Let's use the example of a typical price for bonded T1 service at $900 per month. Rather than using bonded T1, which has a throughput of 3 Mbps in each direction, the business can use four 6 Mbps/768 kbps DSL lines with the Exinda SD-WAN solution. This provides the branch office with a faster 24 Mbps/3 Mbps data connection at a fraction of the cost. A typical price for business DSL is $60 per month. The cost of four DSL lines is approximately $240 per month. This results in a savings of $660 per month, or a 75 percent reduction in monthly fees.

Your savings could pay for the ◆ exinda SD-WAN *equipment in a few months.*

Similarly, consider the case where a T1 line is used, with typical costs of about $500 per month. This could be replaced by two DSL lines. The result would be a savings of approximately $350 per month. This ROI does not factor in the added value of high-speed general Internet access at the branch office that is enabled by Exinda SD-WAN's solution. In the example above, a 24 Mbps down / 3 Mbps up Internet access service is delivered at a cost of $200 per month. The ROI calculations also do not take into account that Exinda SD-WAN provides highly reliable service by combining different types of services from different carriers and providing session continuity for applications even during ISP failures.

✓ **Plug-and-play transparent installation & advanced router and advanced QoS features**

In situations where the branch office has an existing local network with a single WAN connection, you can install Exinda SD-WAN without modifying the existing network, assigning or re-assigning IP addresses or changing the existing firewall configuration. This makes installing the SD-WAN solution easy and quick with minimal down time of an operational network.

Exinda SD-WAN has advanced router features that can be optionally enabled at no additional cost. One feature of note is Adaptive Quality of Service. This enables dynamic bandwidth reservation for selected applications and traffic types. This feature adaptively reserves bandwidth only when that traffic type is detected. One can also limit inbound/outbound traffic to defined bit rates, bind certain traffic types on to specified WAN links, manipulate traffic based on TOS identifier, and block certain traffic types. An example use case for this is for VoIP traffic. VoIP traffic is protected from congestion due to other inbound/outbound traffic. Many company network administrators currently provision dedicated access lines that only carry VoIP traffic to prevent QoS degradation. The VoIP module present on Exinda SD-WAN lets you define rate limiting of non-real-time traffic so that real-time traffic, such as VoIP, does not suffer unacceptable QoS degradation from other applications, such as file downloads.

Exinda SD-WAN includes a full-function stateful firewall that can be optionally enabled. You can define flows by source IP address, destination IP address, source port, and destination port, and protocol number, and each such flow can be selectively blocked (outgoing) or selectively unblocked (incoming).

Exinda SD-WAN can be easily configured so that traffic to certain external public IP addresses and port numbers can be forwarded to local servers and hosts with internal private IP addresses and ports. This feature is called port forwarding. It also includes a DMZ feature so that all incoming traffic not matching certain criteria are sent to a DMZ server to enable advanced security.

Exinda SD-WAN also supports a feature called Interface Binding, which gives an operator control to pin down certain types of traffic to a particular interface during normal conditions. This allows the operator maximum flexibility for configuring Exinda SD-WAN for operation in many application environments.

The Exinda appliance can be configured to send out email alarm messages automatically after critical events. You can manage Exinda SD-WAN through an easy-to-use, web-based graphical user interface, which can either be accessed locally, or remotely, via a password. It includes SNMP support (MIB 2, read-only).

The Traffic Monitoring module provides application-specific layer 7 identifiers, ensuring pin-point control of your traffic within the network. Graph-based traffic monitoring is also available with histograms over seconds, minutes, hours, days, months and years. The scalable design of Exinda SD-WAN lets IT personnel easily and quickly deploy the appliance in large scale. The remote manageability, remote firmware upgrades, configuration backups, CLI scripting options, hot failover, and dual install options deliver the highest level of uptime with ease to enterprises.
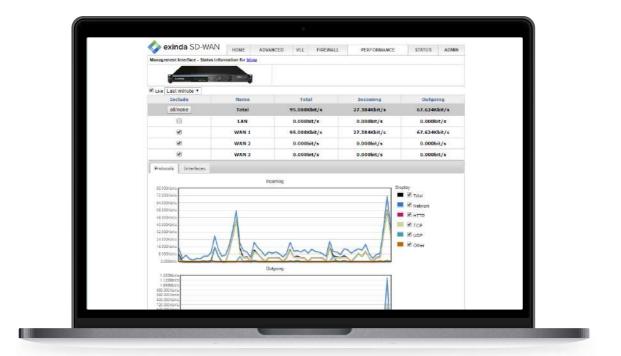
Conclusion

Exinda SD-WAN provides uniquely fast, high-9s reliable, and inexpensive data connectivity between the main office/data-center of an enterprise with its branch offices by bonding low-cost transport technologies, such as DSL, cable, cellular or any other IP based Internet connection. Compared to the alternative of using a single and expensive Internet line, an SD-WAN solution can cut WAN expenses for an enterprise by upwards of 75 percent per month. Beyond such cost savings, you receive reliable, general Internet access for the branch office through the Internet connection at the main office.

exinda SD-WAN

Talk to our team and see how Exinda SD-WAN works for you.

Request a demo

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