



# Exinda Competitive Positioning

## Exinda SD WAN compared to competitors

	Exinda	Viptela/ Cisco	Silverpeak	Versa	Velocloud	Peplink	Talari	Citrix
Per-packet Real-Time steering	Yes	No	No	No	Basic	Basic	Yes	No
Optimized tunnels	Yes	Delayed	No	No	Basic	Basic	No	Basic
Session Continuity	Yes	Slow	Slow	Slow	Slow	Slow	Slow	No
Relay/Controller Failover	Yes	No	No	No	No	No	No	No
Standalone	Yes	No	No	No	No	Basic	No	No
LTE failover	Yes	No	No	No	No	Yes	No	No
CPE redundancy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sticky Routes	Yes	No	No	No	No	No	No	No
Application centric tunnels	Yes	No	No	No	No	No	No	No
HTTP bonding without overlay tunnels	Yes	No	No	No	No	No	No	No
Application centric VNFs	Yes	No	No	No	No	No	No	No
Pass-through	Yes	No	No	No	No	Yes	No	No



### Exinda Value proposition

User level, visibility-based policies

- That drive network shaping, acceleration & reporting
- For Internet and WAN assets

A simple, integrated, single box solution.



### Exinda Strengths

**Simple:**

To configure and manage

**Integrated:**

Manage NW assets via one console

**Price:**

Priced at an advanced versus competition

# Exinda SD-WAN can cut WAN expenses for an enterprise by upwards of 75% per month.

## Exinda Competitive Positioning

SD-WAN solutions provide the ability to intelligently manage multiple WANs to provide:

- a) Better uptime, i.e. reliability and failover.
- b) Better end-user experience, i.e. application SLAs.
- c) Automation of WANs, i.e. easy setup, management and problem resolution.
- d) Cost reduction, i.e. lower total-cost-of-ownership per bit.

We will analyze the competitive landscape with respect to these 4 main drivers of SD-WAN.

See how Exinda SD-WAN lets you leverage low-cost transport technologies and carrier diversity to enable fast and reliable connectivity between branch offices and data center.

## Competitive Analysis with respect to Reliability & Failover

**Reaction to WAN blackout:** When a WAN link fails, it disrupts all the application flows that are going through that WAN link. With the appropriate Exinda overlay tunnel, blackouts can be shielded from application flows in near-real-time without impacting the application SLAs.

During a WAN blackout, companies such as Viptela, Silverpeak, Versa, Fortinet will failover to another WAN, however their failover will drop all the application flows that were on the WAN link that just failed. Therefore, user driven re-starting of those sessions are required for the failover to be achieved. This also frequently disrupts certain types of applications because of the source IP change (since the WAN IP of the failover WAN will be different). As an example Viptela's route updates for a specific application can take up to several minutes.

Velocloud and Peplink claim to offer a rudimentary packet replication tunnel on more than one path to address this problem. Even though Exinda also provides a similar tunnel option, this approach is clearly wasteful in terms of bandwidth utilization and only has limited use cases such as for voice flows with only a low number of VoIP phone calls. When there are more than a few VoIP calls, the replication tunnels, will become impractical because of the inefficient bandwidth usage.

Talari is the only other company that claimed to offer per-packet real-time steering for VoIP flows other than Exinda, however, they have been purchased by Oracle and are being integrated into Oracle's SIP SBC product. Therefore we believe going forward Talari will no longer be present in the SD-WAN competitive landscape.

To the best of our knowledge Big Leaf and CloudGenX do not have per packet flow steering in case of a WAN blackout.

**Reaction to WAN brownout:** WAN brownouts are more common where the WAN path still has connectivity, however the performance of the path is severely degraded because of some network problem such as packet loss, increased latency or jitter. WAN brownouts are more challenging and no other company other than Exinda offers a comprehensive, near real-time solution that works.

Viptela claims to offer path optimization for application classes. However, since their design is based on legacy routing protocols they also inherit their slow reaction times. In their marketing, the time for a path to switch over to a "better" path can take minutes. This of course will not correctly work for all types of WAN fluctuations. As an example, WAN fluctuations that happen in a smaller time scale, such as path degradations lasting less than a few minutes at a time but frequent through out the day, can not be resolved with such large granularity reaction times.

Again, packet replication (Velocloud, Peplink) can help in theory, however the applicability of that approach is highly limited as explained before.

Exinda has engineered an overlay tunneling technology that can do in-band and out-of-band measurements, in both directions of the paths. The metrics measured include packet loss, one-way delay as well as more advanced metrics such as recent history of the path performance. A subset of these metrics (depending on the application flow at hand) are utilized to make the optimum decision on a per packet level with respect to the metrics that matter for that application flow to steer the traffic in near-real-time. In other words the overlay tunnels are optimized specifically for the application class. While the flows in the competitors networks will suffer a brownout, Exinda's SD-WAN instead will steer the flows onto the better path in near-real-time.

**Session continuity:** Because of Exinda's overlay tunnel technology, the application flows can be kept alive even during WAN blackouts or brownouts. Competitive solutions will have slower reaction times or will not seamlessly fail over the ongoing sessions.

**Relay/Controller failover:** If so desired, Exinda allow for CPE units to be peered to multiple Relays simultaneously. This enables the standby overlay tunnel to the secondary Relay to kick-in in the event of primary Relay failing. Competitor solutions do not allow such graceful Relay failover.

**Standalone:** When peering to a Relay fails, Exinda's CPE devices fall back to the standalone-mode operation. Velocloud, Viptela, Silverpeak, Versa, Fatpipe, Big Leaf, CloudGenX either do not support standalone, or significantly loose capabilities without a Relay. Peplink and Fortinet do offer modes without peering to their relays, but fall back to features similar to a legacy load-balancing device. On the other hand, Exinda's standalone-mode offers a very graceful fallback mode and even continues to support features such HTTP downlink bonding in the standalone mode. HTTP downlink bonding enables HTTP downlink traffic to be bonded without requiring peering to a Relay and can take advantage of localized content served by CDN providers with lower latencies. This patented technology is unique and no other competitor device offers this type of functionality.

**LTE failover:** Wireless failover is usually an after thought for many SD-WAN vendors and they certainly can not combine 2 or more cellular cards to provide more robust connectivity. Other than Exinda, the only other vendor that has an all LTE based appliance is Peplink and the performance of their device and its ability to manage LTE WANs is inferior to Exinda's LTE solution. Exinda not only has native LTE failover capabilities in all of its products, it has products that have all LTE based WANs and can support the most challenging applications such as live broadcast quality video streaming. This proves the superiority of Exinda's SD-WAN overlay tunneling technology compared to any other in the market.

**CPE redundancy:** Most vendors offer some level of CPE redundant operation, including Exinda's VRRP based CPE redundancy.

**Sticky routes:** Sticky routing is the ability for a flow be assigned back onto the original WAN path once that WAN is restored from a blackout. Exinda both provides sticky routing as well as non-sticky routing configuration options for flows that provides another level of granular control to the flow management, which is unique compared to competitors.

## Competitive Analysis with respect to Application SLAs

**Application centric tunnels:** One of the top premises of SD-WAN is intelligent WAN orchestration for optimum application performance. Exinda's overlay tunnels provide application specific algorithms for per-packet steering in real-time. Many of the advanced algorithms that the Exinda overlay tunnels implement are unique in the industry and no other competitor has such an advanced technology. Exinda's overlay tunnels can monitor one-way metrics of various characteristics of the available paths, including the recent performance history, as well as the more direct measurements of packet loss, latency and peak rate. The overlay tunnels then leverage advanced algorithms that are specifically designed for different application flows, in order to truly optimize application performance over the multiple WAN paths. Some of Exinda's tunnels are even capable of forward error correction, such as the live video streaming tunnel named, Video Armor.

**Traffic shaping & Dynamic Bandwidth Reservations:** Other products including other SD-WAN vendors offer QoS and traffic shaping. Exinda however has a unique QoS approach that combines traffic shaping for inbound as well as outbound traffic, with dynamic bandwidth reservations. Bandwidth reservation carves out guaranteed bandwidth for the desired type of flows, only when those flows are detected in the network. If those flows are not present in the network, the carved out bandwidth is not wasted and is available for consumption by other types of traffic flows.

**Automated MTU detection:** Exinda's overlay tunnels detect a range of problems that exist in the public Internet including network problems stemming from network MTU (Maximum Transition Unit). Once detected, Exinda's tunnels auto-adjust its tunnel MTU to work around the problem. Fully automated MTU problem detection and resolution is unique to Exinda.

**Tunnel overhead:** Some of the SD-WAN vendors, such as Peplink, are repurposing modified IPSec VPN as their overlay tunneling. This has several shortcomings. These tunnels have high overhead, in general as high as 20%, compared to Exinda's low single digit tunnel overhead. Secondly, if the end-user wants to leverage their own VPN, there is redundant encryption that cannot be avoided and the overhead can jump above 40%. Exinda allows end-users to use any third-party VPN tunnel if they choose to, avoiding redundant encryption and associated overhead. Thirdly, unlike Exinda's Relays, because of the lack of any graceful IPSec concentrator failover mechanisms, in the case of the IPSec concentrator failure, all client tunnels get disconnected.

**HTTP bonding without overlay tunnels & Broadband Bonding:** Exinda devices can uniquely bond Internet access lines for all types of traffic (including encrypted traffic such as VPN) for aggregated downlink and uplink capacity when peered over the Internet to an Exinda Cloud Relay. Without peering to a Relay, all HTTP downlink sessions are still bonded for faster file downloads. Even in cases of single HTTP session (such as a single file download), all Internet access lines

are simultaneously and intelligently combined together to provide a faster data transfer for that single session. This also enables for the CPE device to leverage lower latency paths to the content sources by the CDN providers (such as Akamai etc). Without the optional peering to a Relay, non-HTTP downlink sessions and all uplink sessions initiated from the Local Network, will be intelligently session based load preserved for sites such as banking sites. Only other company that claims to be doing true bonding is Peplink and their bonding performance is not at par with Exinda's performance.

## Competitive Analysis with respect to Automation

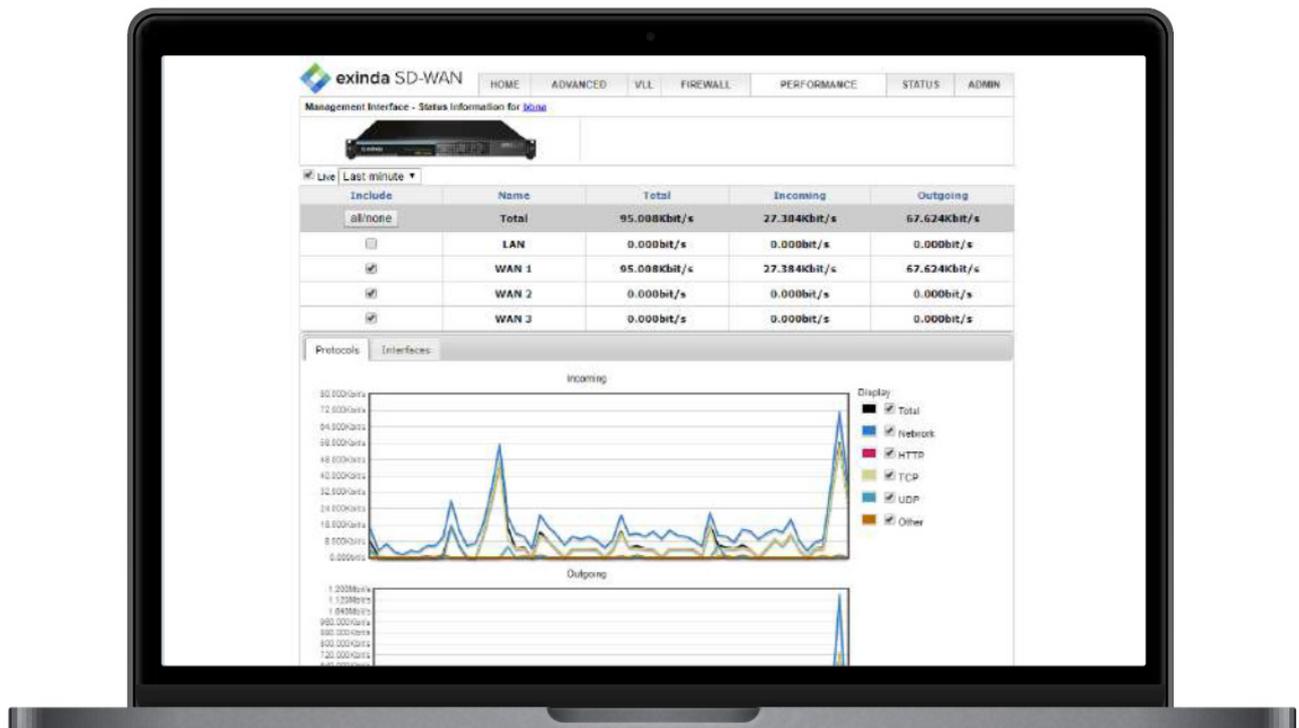
**Application centric VNFs:** Exinda's application specific overlay tunnels orchestrates the WAN resources to work around networking problems without needing human intervention. No other vendor has WAN orchestration capabilities at a level that can react quickly with complex decision making ability that can take into account the various transport parameters it monitors. As an example one of the Exinda tunnels has the ability to keep track of recent throughput performance of a path (alongside many other first level parameters such as latency and packet loss) and accordingly skew its white-listing / black-listing algorithm (increasing its bias to avoid blacklisting when its latency increases in case recent peak throughput has been high for that path). These type of complex and cognitive algorithms are made possible via Exinda's VNF Design Studio, a drag-and-drop design framework for creating overlay tunnels that does not require any coding.

**Interface grouping:** In line with the advanced overlay tunnels, the various tunnels and the physical WAN interfaces can be grouped into logical virtual interfaces supporting various failover and load-balancing logic underneath. This unique capability combined with the overlay tunnels provides a flexible yet easy to deploy WAN automation.

**Pass-through:** Exinda's appliances allow the main WAN interface to be installed in pass-through mode to the existing LAN network. This enables installation that can avoid any changes in an existing firewall or the existing LAN network. Peplink has a somewhat comparable feature, which still lacks in terms of the IP addressing scheme and is not 100% transparent. Other vendors may require you to change your existing setup completely.

## Competitive Analysis with respect to Price

Exinda support CAPEX and OPEX pricing models. Even though Exinda rarely positions its solutions as the cheapest in the market, in terms of the TCO (Total Cost of Ownership) Exinda's value proposition is one of the most competitive in the industry.



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