

**WHITE PAPER**



## AppBeat™ DC and WAN Optimization Solutions

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## Introduction

The term “application acceleration” has evolved to encompass any number of optimization technologies that strive to accelerate the delivery of content from an application to its users. However, the underlying technologies and the associated product categories that deliver application acceleration can vary greatly, resulting in some market confusion. The two product categories within the application acceleration space most often in need of disambiguation are WAN optimization products, which are deployed symmetrically, at the data center and at each branch office; and Application Delivery Controller (ADC) solutions, such as Crescendo’s AppBeat DC, which are deployed asymmetrically, only at the data center and in front of the servers.

The purpose of this document is to clarify the focus and functionality of each product category and outline common network topologies where both technologies can be applicable.

## Symmetric Solutions: WAN Optimization Technology

Most WAN optimization solutions are primarily intended to accelerate and optimize network traffic between branch offices and a central data center. In a typical deployment, devices are installed at the data center and at each of the branch offices. Each branch office device communicates with the data center device, setting up highly optimized communication channels for data delivery. This is often complemented by local caching functionality for wide area file protocols (e.g. CIFS, WAFS) which can reduce the need for localized servers at each of the branch offices.

Since these products are deployed symmetrically, at both ends of a wide area link, they can use proprietary protocols to create an optimized link between each branch office and the central location. These links can use proprietary compression schemes, accelerated TCP tunnels, and similar technologies to accelerate the delivery of content from the data center to the branch office.

The primary goal of WAN optimization solutions is to accelerate application delivery over private links where the network administrator has access to both sides of the WAN. As such, they support all applications that could be used between a branch office and a central site, with no focus on any specific protocol.

## Asymmetric Solutions: Application Delivery Controllers

WAN optimization solutions address core deficiencies for application delivery to branch office users through symmetric link optimization. However, symmetric WAN optimizers provide no solution for users that are not at a branch office or reside at a location where a device cannot be deployed. Furthermore, they don't address any server-side needs, such as processing offload or high availability.

These areas are precisely what ADCs, such as Crescendo's AppBeat DC, address. In contrast to the deployment model of symmetric WAN optimizers, ADCs are deployed only in the data center, asymmetrically. AppBeat DC, for example, front-ends server farms and provides services for the servers that host the application and its clients, regardless of location. The services provided by the AppBeat DC can be categorized as follows<sup>1</sup>:

- ***Client-side acceleration*** through services applied to connections from clients (e.g. content compression, TCP acceleration for internet connections, etc), regardless of physical location and with no need for a client-side component.
- ***Server-side services*** through features such as load balancing, high availability, and TCP/SSL/compression offload, among others.
- ***Application protection***: through DDoS protection and Crescendo's Application Assurance which creates an environment between AppBeat DC and the servers that is consistent, despite traffic spikes and other erratic network behavior, in order to create a predictable performance profile for the servers.

Furthermore, although AppBeat DC can support all TCP protocols, it provides optimization specific to HTTP in order to accelerate web applications to any user, regardless of location. Content compression is a good example of such services. Since all popular browsers support receiving of compressed content, AppBeat DC can compress data to any client based on user-configurable content compressibility rules. SSL acceleration and offload are other good examples. Many of today's applications use SSL to encrypt web traffic. AppBeat DC can terminate these SSL connections, offloading the encryption task from the servers, while accelerating the delivery of secure content to all users.

In contrast to symmetric solutions that focus on branch office users, AppBeat DC can accelerate application delivery to any user or customer, while providing valuable server-side services and application protection for the servers responsible for content delivery.

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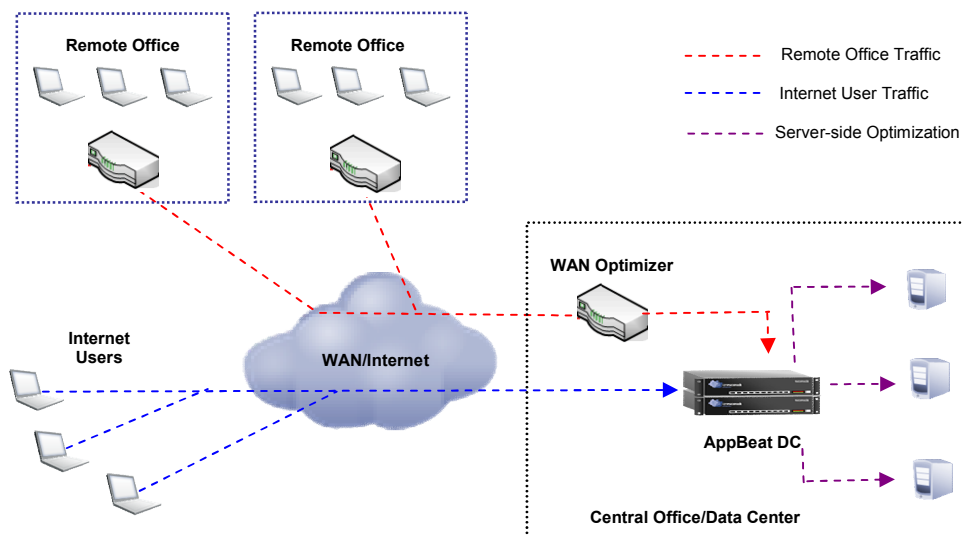
<sup>1</sup> Detailed descriptions of all AppBeat DC functionality can be found at [www.crescendonetworks.com](http://www.crescendonetworks.com)

## Technical Synergy

Although symmetric WAN optimization technologies and ADCs, such as Crescendo's AppBeat DC, both fall under the "application acceleration" umbrella, we've seen that they offer very different services for networks and the applications they deliver. Many networks, however, provide application delivery to both branch office and non-branch office users. As such, the two technologies are often complementary and can work side by side in order to accelerate and optimize the application at all levels to all users.

For branch office traffic, the symmetric WAN optimizers can provide acceleration, optimization and bandwidth control for web and non-web applications. For these application flows, AppBeat DC can provide server-side services such as offload and high availability along with application protection. For non-branch office traffic, AppBeat DC provides client-side acceleration through standard client-side features such as compression and TCP acceleration. Also, since AppBeat DC's server-side and application protection features are independent of the user location, it will continue to provide these services, regardless of where the user is accessing the application from.

The following diagram illustrates a network in which Crescendo's AppBeat DC is deployed together with a symmetric WAN optimization solution, each providing the necessary optimization, acceleration, high availability, and protection services for the entire application:



When deployed side-by-side, the two solutions work together to bring a complete set of optimization and acceleration services to the application, the servers that host it, and the users that access it. This creates a powerful joint solution with an extensive feature set. Highlights of the features for such a solution are shown in the table below:

Feature	Symmetric Solution	AppBeat DC	Joint solution
WAN Link optimization	✓		✓
File caching for server consolidation	✓		✓
CIFS/WAFS optimization	✓		✓
DDoS prevention	✓	✓	✓
Bandwidth management	✓		✓
TCP optimization to the branch office	✓		✓
High availability for the servers		✓	✓
HTTP compression for all users		✓	✓
TCP optimization for non-branch users		✓	✓
Server offload (TCP, SSL, Compression)		✓	✓
Optimization/Acceleration for all application tiers		✓	✓
Application Assurance		✓	✓

## Conclusion

Although the variety of application acceleration solutions has created some confusion in the market regarding product functionality, it's important to understand how different product categories operate and what needs they address. When it comes to symmetric WAN optimization products and ADCs such as Crescendo's AppBeat DC, it's not only critical to understand what the differences are, but also that the two technologies can be synergetic and can work together to bring a complete set of features to any application. This comprehensive feature set can address acceleration and optimization for all users of an application, independent of location, and all the servers which host the application.

## About Crescendo Networks

Crescendo Networks is the recognized performance leader for accelerating and optimizing the delivery of business-critical, Web-enabled applications. The company's unique multi-tier application delivery architecture dramatically improves the operation of today's demanding application infrastructure. The world's largest corporations and fastest growing Web properties rely on Crescendo for the application performance and efficiency needed to ensure usability, facilitate rapid business growth, lower IT costs and capture additional revenue. To learn more about Crescendo Networks' application delivery solutions, visit [www.crescendonetworks.com](http://www.crescendonetworks.com).

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