

TCP Optimization



KEY BENEFITS

- **Deferred CAPEX from utilizing existing resources:** By optimizing TCP traffic, Sandvine TCP Optimization can help you get the most out of your existing network infrastructure, delaying the need to invest in new hardware
- **Enhanced network performance:** Sandvine TCP Optimization can improve network performance by reducing latency, increasing throughput, and improving reliability
- **Improved subscriber QoE:** By improving network performance, Sandvine TCP Optimization can also improve subscriber QoE, leading to increased customer satisfaction
- **Closed-loop optimization that adjusts to new network conditions:** Sandvine TCP Optimization is a closed-loop system that continuously monitors and analyzes network traffic, making adjustments as needed to maintain optimal performance
- **Greater capacity and better performance:** Sandvine TCP Optimization can help you increase the capacity of your network and improve its performance, allowing you to handle more traffic and support more users

Network performance and optimization engineers are always looking for ways to optimize their network's performance. With many applications still running on TCP, it is often overlooked how much unnecessary traffic is being used.

The very characteristics of TCP that made it very popular and successful led to its performance challenges in modern day networks. TCP is largely focused on providing fail-safe traffic delivery, but this reliability comes at a cost: lower performance, subpar customer experience, and underutilized network assets. Insights into the customer experience are necessary to provide the best possible service to your subscribers.

SOLUTION OVERVIEW

Sandvine's TCP Optimization takes a different approach when it comes to the use of older protocols such as TCP. It takes an understanding of applications to determine the network requirements to improve the overall goodput, and payload without retransmissions.

TCP Optimization uses intelligent management of TCP traffic to mitigate buffering and lag to effectively augment your network's capacity to balance the distribution of bandwidth equally among your subscribers, thus enhancing QoE.

From a pure network efficiency perspective, Sandvine's TCP Optimization improves TCP:

- When additional bandwidth is available, ensuring TCP doesn't become a bottleneck by accelerating the slow-start phase and by ensuring there is always enough data ready to be served.
- When too little bandwidth is available (e.g., caused by congestion, spotty mobile coverage, etc.), the Use Case reduces effective latency by preventing buffer-bloat in access network resources.
- By transparently bridging the access network with the transit network, sitting in a position to manage all the network's TCP connections as a collective whole ensures maximum efficiency.

Sandvine's TCP Optimization is an inline solution that allows you to improve:

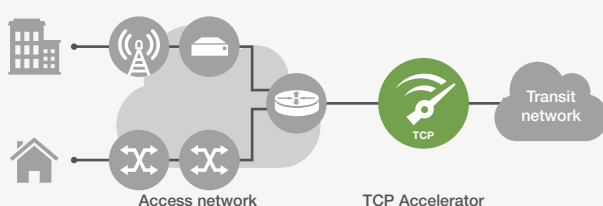
- **Performance:** Determining the overall Goodput by TCP connection and taking action to reduce the number of retransmits
- **Capacity:** Optimizing the slow TCP ramp-up to get to maximum transmission rates faster. This is a great solution for connection that must travel long distances over the network
- **Quality of Experience:** Acceleration of TCP data transmissions will allow applications to perform at optimal rates. Sandvine's solution minimizes the lag that introduced in streaming and interactive application common in buffered applications in a network's last-mile

REQUIRED SOLUTION COMPONENTS

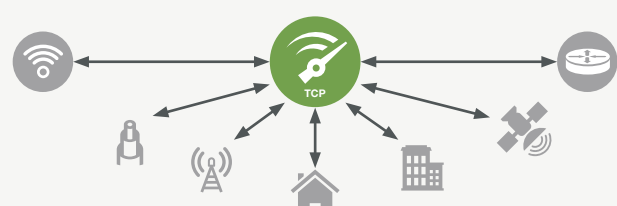
- ActiveLogic
- Maestro Policy Engine
- Deep Insights
- Elements

Figure 1

Typical TCP Accelerator Deployment



TCP Accelerator Solution is Access-Agnostic



ABOUT SANDVINE

Sandvine's cloud-based Application and Network Intelligence portfolio helps customers deliver high quality, optimized experiences to consumers and enterprises. Customers use our solutions to analyze, optimize, and monetize application experiences using contextual machine learning-based insights and real-time actions. Market-leading classification of more than 95% of traffic across mobile and fixed networks by user, application, device, and location creates uniquely rich, real-time data that significantly enhances interactions between users and applications and drives revenues. For more information visit <http://www.sandvine.com> or follow Sandvine on Twitter @Sandvine.



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