



# Traffic Steering/Diversion

## Intelligently redirect traffic and better allocate network resources

### TRAFFIC STEERING/ DIVERSION BENEFITS

#### Reduced Steering-Associated Costs

Granular visibility and surgical enforcement ensure only desired flows are redirected, significantly minimizing the service and network resources consumed

#### Deploys with More Third-Party Elements

Proven interoperability with more third-party elements to support a greater number of VAS offerings, such as video optimization, network security, and caching

#### Carrier-Scale Traffic Steering

Hyperscale data plane delivers terabits of capacity to process divert traffic as it enters and exits network elements

### MARKET OVERVIEW

Network engineers always try to simplify modern networks by reducing the number of inline elements, while still offering more network services targeting specialty functions to increase value to their users. Traffic steering/diversion is a technique applied to very specific network traffic when additional filtering, modification, or optimization is needed.

Service providers create service chains by steering traffic for multiple value-added services (VAS) like security, caching, and enrichment to a specific subscriber or even specific traffic flows. Service providers rely on an intelligent data plane element to steer/divert network traffic through one or multiple service functions that resides in an "overlay" network.

Traffic steering takes many forms. It can be provided as a relatively rudimentary port-based protocols; however, with the rising level of encryption, this is no longer an effective method. Instead, service providers need a solution based on extensive traffic intelligence and machine learning to identify and manage granular traffic flows to minimize network inefficiencies.

### USE CASE OVERVIEW

Sandvine offers the industry's most intelligent traffic steering/diversion, redirecting highly specific application, protocol, and user traffic, ensuring only the desired flows are diverted to network service nodes. This intelligence-based approach significantly minimizes the number of service nodes and other network resources (e.g., load balancers) required to support diverted traffic.

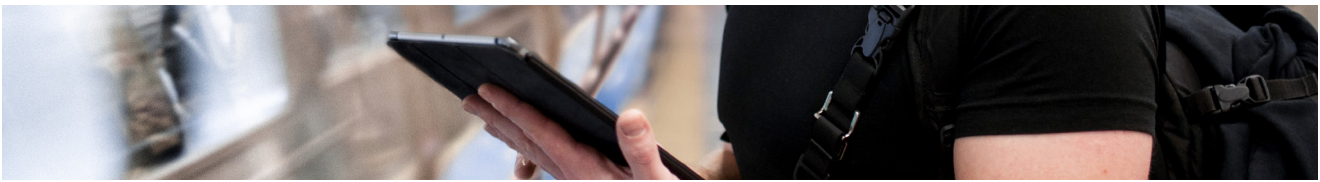
#### Sandvine's Traffic Steering/Diversion Key Capabilities:

##### Steering for Encrypted Traffic

Diverting traffic for VAS often requires steering at the application level, which has become increasingly difficult to do with the continual rise of encryption. Sandvine's Active Network Intelligence Classification Engine uses machine learning to ensure accurate traffic classification in spite of encrypted DNS and TLS 1.3. This ActiveLogic function delivers the maximum achievable efficiency for traffic redirection, far beyond imprecise, port-based approaches, reducing the number of router ports, load balancing devices, and VAS elements needed.

##### Simplified Architecture

ActiveLogic sits inline and therefore does not need to add "bumps" in the wire to enable third-party divert partners. Reducing the number of inline elements streamlines operations, improves latency, and provides higher availability at a lower cost.



### Granular Traffic Steering

This use case ensures that only the desired traffic is redirected to the appropriate VAS (See Figure 1).

Figure 1

Traffic Steering/Divert Based on Traffic Type and VAS

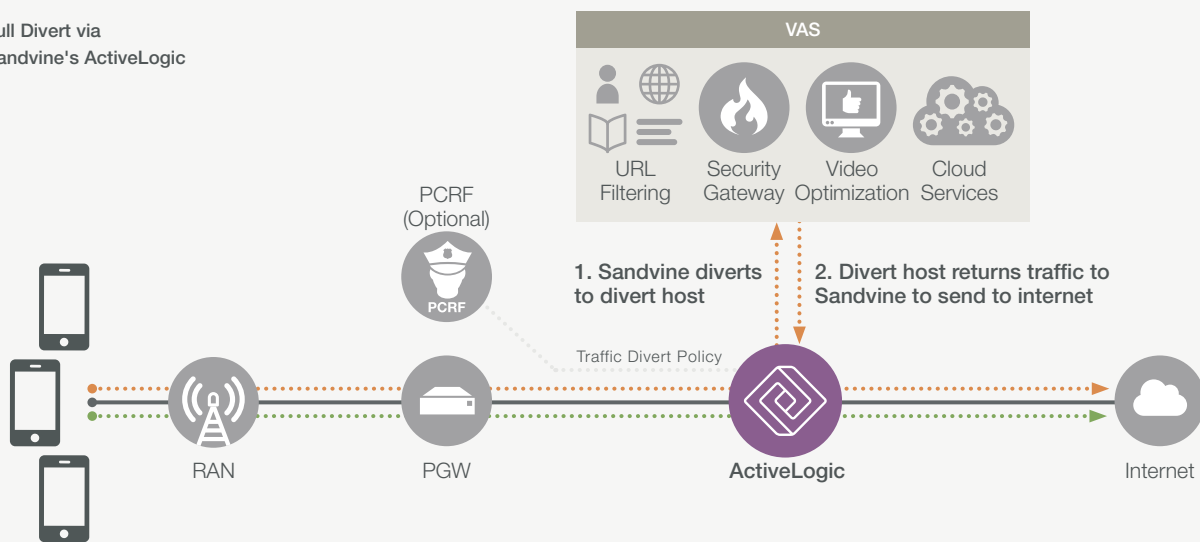
Traffic Type	VAS Example	Sandvine's Technical Differentiators
Peering	DDoS scrubbing or caching	Traffic enrichment with real-time peering data
Location	Law Enforcement Agency compliance	Traffic enrichment with real-time location data
Service Plan	Plan-based service chains	Traffic enrichment with plan information
Subscriber	Customer care troubleshooting or WiFi portal redirect	Real-time visibility at the flow level
Protocol	URL filtering and caching	Scale with uncompromised performance
Application	DDoS Scrubbing or Video Streaming Management	Divert after application identification (i.e., mid-flow divert)

### Asymmetry Removal

Service providers have large amounts of traffic, which in many cases is asymmetric (upstream is transported over a different physical link than downstream). In most cases, traffic steering requires both directions of the flow to be seen. Sandvine delivers asymmetric traffic steering, recognizing and diverting traffic flows in both directions, all at carrier scale.

Figure 2

Full Divert via Sandvine's ActiveLogic

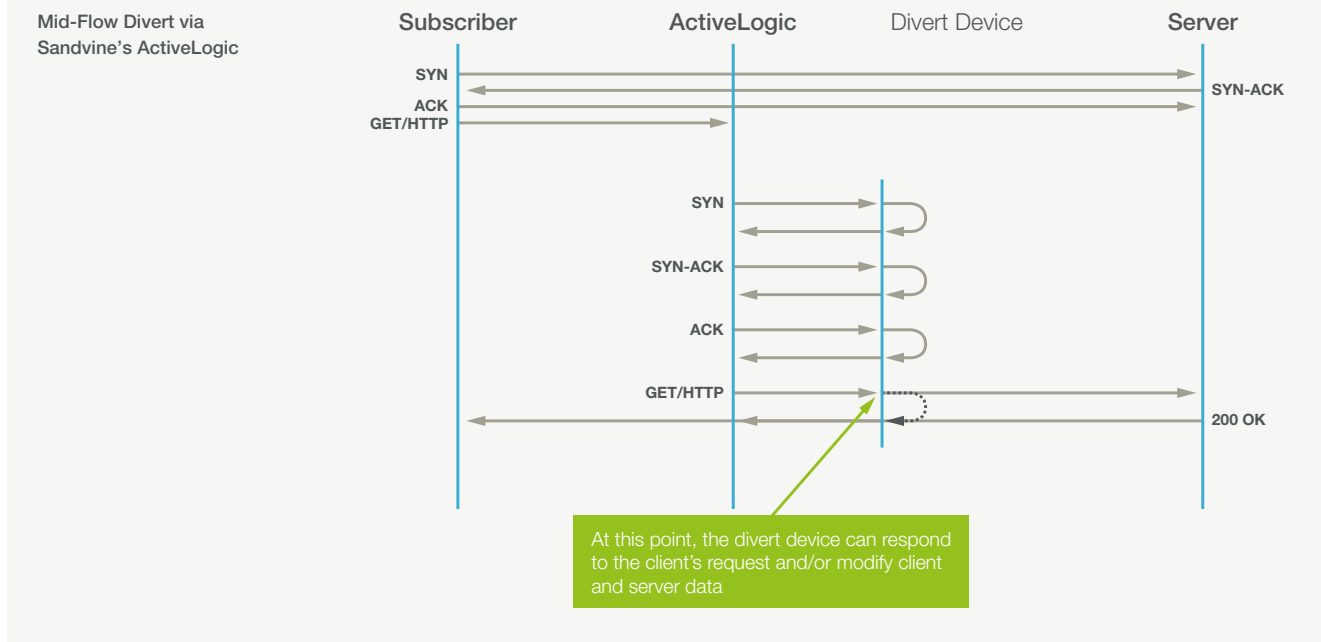


### Traffic Steering/Diversion Options

- **Full Divert:** Internet- and user-originating traffic is sent to the divert host, allowing the divert to act in a transparent manner, with L3 and L2 flipping supported.
- **Half Divert:** Traffic is sent to the divert host, which terminates the TCP session, and the divert host owns the path to the internet.
- **Mid-Flow Divert (mid-session or late divert):** Initiates the divert after the first packet once the traffic has been classified into a specific application. This option enables true application-based steering, allowing for multiple VAS offerings, while drastically reducing total cost of ownership and increasing return on investment.



Figure 3



Sandvine's Traffic Steering/Diversion use case allows service providers to reduce the number of inline elements, streamlining operations and providing higher availability at a lower cost, all while supporting network actions that require granular intelligence.

## 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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