Carrier-Grade NAT

KEY BENEFITS

- Provides superior flexibility and control for NAT deployments by maintaining subscriber identity and visibility throughout the infrastructure. Enriched with application awareness, NAT bindings can be carefully adjusted for applications where the bindings timers can be drastically reduced, maximizing port block allocation efficiency

- NATSync enables CGNAT deployments that scale up and scale out as capacity is needed and allows geographic diversity with support for asymmetric network architectures

- Supports high-volume logging that scales for the most demanding networks, providing peace of mind for service providers with rapidly growing traffic

- Offers support for 100GE interfaces and enables service providers to support high-bandwidth deployments with ease

- Full-cone, Port-restricted, EIM, EIF, Non-port reservation, Port-parity preservation, Hairpinning, deterministic and non-deterministic. NAT44 and NAT64 support.

This is a world where cost cutting is a must and service providers need to comply with ESG (Environment, Social and Government) regulations. They are looking at ways to reduce the amount of equipment needed while ensuring their subscribers are satisfied.

Managing IP address exhaustion fuels the fire as it creates more complexity with scaling, having to add unnecessary demand for load balancing equipment or complex policy-based routing. The ever-increasing consumer bandwidth usage on top of the challenge of migrating from IPv4 and IPv6 service providers is increasing their total cost of ownership (TCO). A new approach is required.

IP address exhaustion has plagued networks for several years. An added layer to this problem is the task of migrating from IPv4 to IPv6. Network operation and engineering groups have the challenge of managing IP addressing.

They are often forced to use clusters of enterprise NAT solutions that:

- Fail to scale to the terabytes per second required for today's network demands
- Require complex network designs
- Are not subscriber aware
- Are complex to manage operationally
- Require load balancers or complex policy-based routing

SOLUTION OVERVIEW

Sandvine's CGNAT provides service providers with an alternative solution to managing IPv4 exhaustion. Unlike traditional solutions, Sandvine delivers a contextually aware, highly scalable, and cost-effective method that can be easily deployed.

Sandvine offers 3 main capabilities:

1. **Contextual Awareness:** This is key in understanding what is on the network to properly manage subscribers throughout their network journey even with a NAT deployment.

2. **NATSync:** This Sandvine feature removes the requirement for IP address load balancing between NAT devices saving CAPEX cost and operational complexities. It synchronizes session states between multiple systems that process NAT traffic and is ideal for asymmetric NAT deployments.

3. **Flexible Logging:** This Sandvine feature supports logging options with configurable attributes to fit the service provider's requirements. It includes data format options such as Syslog (TCP/UPD) port block allocation logging and IPFIX flow-based logging.

CGNAT can be deployed inline making it usable for network capacity forecasting, quality analysis, and acquiring information for service planning. This equips engineering and support teams on what is being translated, providing a breakdown of subscribers, services, plans, NAT IP, port and flow-level details.

With CGNAT you can:

NAT Offload

Service providers can offload high-bandwidth application traffic (e.g., video CDNs) while maintaining their investment in existing NAT solutions. These high-bandwidth applications can easily be offloaded to an ActiveLogic instance inserted into the network for NAT as well as other analytics and network optimization Use Cases.

Full IPv4 NAT

Sandvine's CGNAT can transparently plug into networks, managing address pools and port block assignments, fully replacing existing NAT solutions. This option reduces TCO by eliminating the need for router ports and NAT devices and the operational complexity of managing these devices. A single Sandvine system replaces these multiple systems as well as enabling new Use Cases for the service provider, also increasing the return on investment (ROI) of the deployment.

Figure 1

Can be deployed as a new CGNAT deployment or transparently plug into networks replacing existing NAT solutions
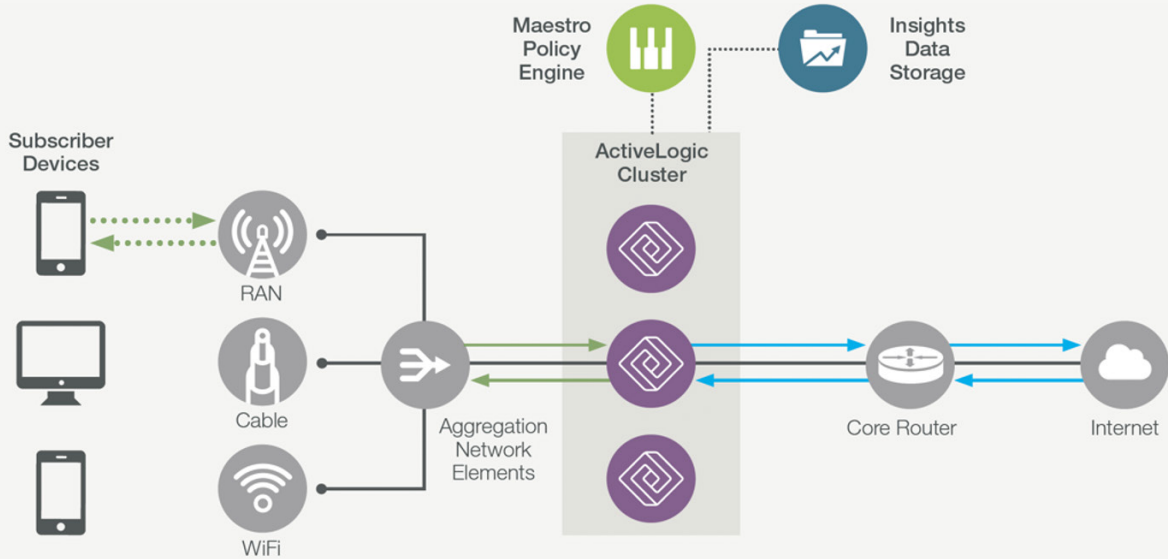
REQUIRED SOLUTION COMPONENTS

- ActiveLogic
- Deep Insights
- Elements

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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