AppLogic NETWORKS

Carrier Grade NAT

Mitigate IPv4 address exhaustion while maintaining network visibility

CGNAT 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
- Support for 100GE interfaces enables service providers to support high-bandwidth deployments with ease

MARKET OVERVIEW

IP address exhaustion has plagued networks for a number of years. Further compounding this problem is skyrocketing bandwidth usage and the challenge of migrating from IPv4 to IPv6.

The band-aid for this ongoing problem has been the use of clusters of enterprise NAT solutions, which scale poorly and require complex network designs. Although effective for an enterprise, these widely deployed solutions are not up to the task of handling current network challenges.

These solutions are not subscriber aware, and they lack the subscriber enrichment network visibility required to help the service provider maintain a good quality of experience. These single-use boxes fail to scale to the Tbps (terabits per second) required for today's networks and are unnecessarily complex to manage operationally. Aside from the complexity and scaling issues, these solutions require load balancers or complex policy-based routing and numerous infrastructure ports to deliver a NAT service, increasing the total cost of ownership (TCO).

To truly deliver a Carrier Grade NAT (CGNAT) solution that can meet the large scale for service providers, a scalable, contextually aware solution that can efficiently handle carrier-grade traffic volumes is needed.

USE CASE OVERVIEW

AppLogic Networks' CGNAT provides service providers an alternative solution to managing IPv4 exhaustion. Unlike traditional solutions, AppLogic Networks delivers a contextually aware, highly scalable, and cost-effective method that can be easily layered on top of any existing ActiveLogic deployment.

Simply put, AppLogic Networks' NAT process is an uncomplicated action for ActiveLogic's existing stateful processing, enabling it to meet carrier-class performance and scale requirements.

AppLogic Networks' CGNAT Key Capabilities:

Contextual Awareness
Integrates with PCC and B/OSS systems, this use case ensures that subscriber identity and visibility is maintained throughout the infrastructure even with a NAT deployment.

NATSync
Synchronizes session states between multiple systems processing NAT traffic, providing a significant advantage for asymmetric NAT deployments. It removes the requirement for IP address load balancing between NAT devices, saving CAPEX cost and operational complexity.

Flexible Logging
Supports extensive logging options, including configurable attributes. Data format options include Syslog (TCP/UDP) port block allocation logging and IPFIX flow-based logging with configurable attributes.

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Deployment Options:

Subscriber-Aware NAT Analytics

Service providers can deploy this use case either inline or passively to augment analytics and improve the real-time visibility of existing NAT solutions. Specifically, AppLogic Networks' ActiveLogic devices can receive NAT port block allocation information, subscriber, and other network attributes that are used to perform "real-time" correlation with post-NAT traffic. The resulting data can be used for network capacity forecasting, quality analysis, and information for service planning.

With this use case, engineering and customer care professionals have real-time visibility and analytics on NAT'ed traffic, including a breakdown of subscriber, services, plans, NAT IP, port, and flow-level details.

NAT Offload

Service providers can offload high-bandwidth application traffic (i.e., 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.

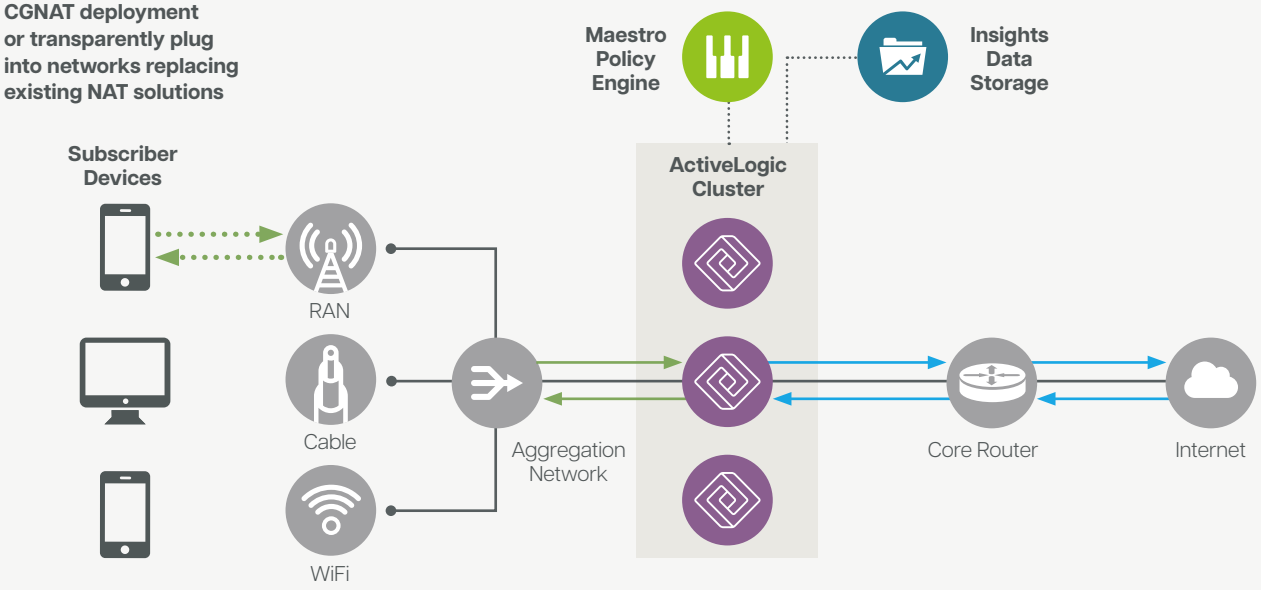
Full IPv4 NAT

AppLogic Networks' 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 AppLogic Networks system replaces these multiple systems as well as enables new use cases for the service provider, also increasing the return on investment (ROI) of the deployment.

AppLogic Networks' CGNAT use case maximizes ROI on CGNAT by transforming it into a single, packet intelligence solution that can reduce cost and network complexity as well as provide valuable analytics and closed-loop actions.

Figure 1

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



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ABOUT APPLOGIC NETWORKS

AppLogic Networks' cloud-based App QoE 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 **https://www.applogicnetworks**.com or follow AppLogic Networks on X **@AppLogic Networks**.

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