

Technology Information Brief

GRE Optimization

Automatic Optimization of GRE Encapsulated Traffic

GRE Optimization is a feature of XipLink XA appliances that provide optimization of TCP/IP, encapsulated in Generic Routing Encapsulation (GRE) tunnels. GRE tunnels are sometimes used as a mechanism for multi-service provider networks to share a common communications platform, or government networks that wish to control the local networks independent of intermediate routing. Without this feature, encapsulated tunnels would be forwarded without optimization. In short, this feature enables XipLink Optimization System ("XipOS") to unpack GRE encapsulated TCP/IP streams, perform optimization, and repack it with the same GRE headers.

Key features of the solution are:

No configuration - automatically processes GRE encapsulated TCP packets

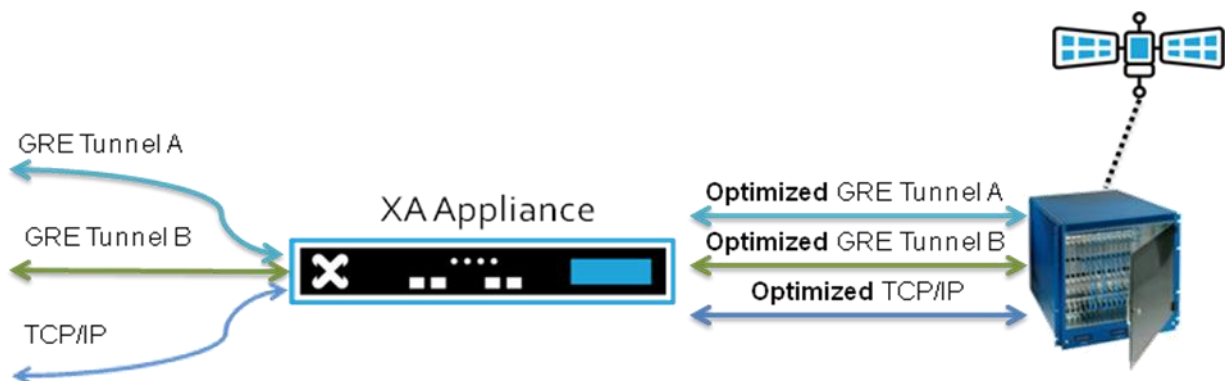
Directly forwards non-TCP packets - minimizing latency

Provides statistics - on GRE processed traffic

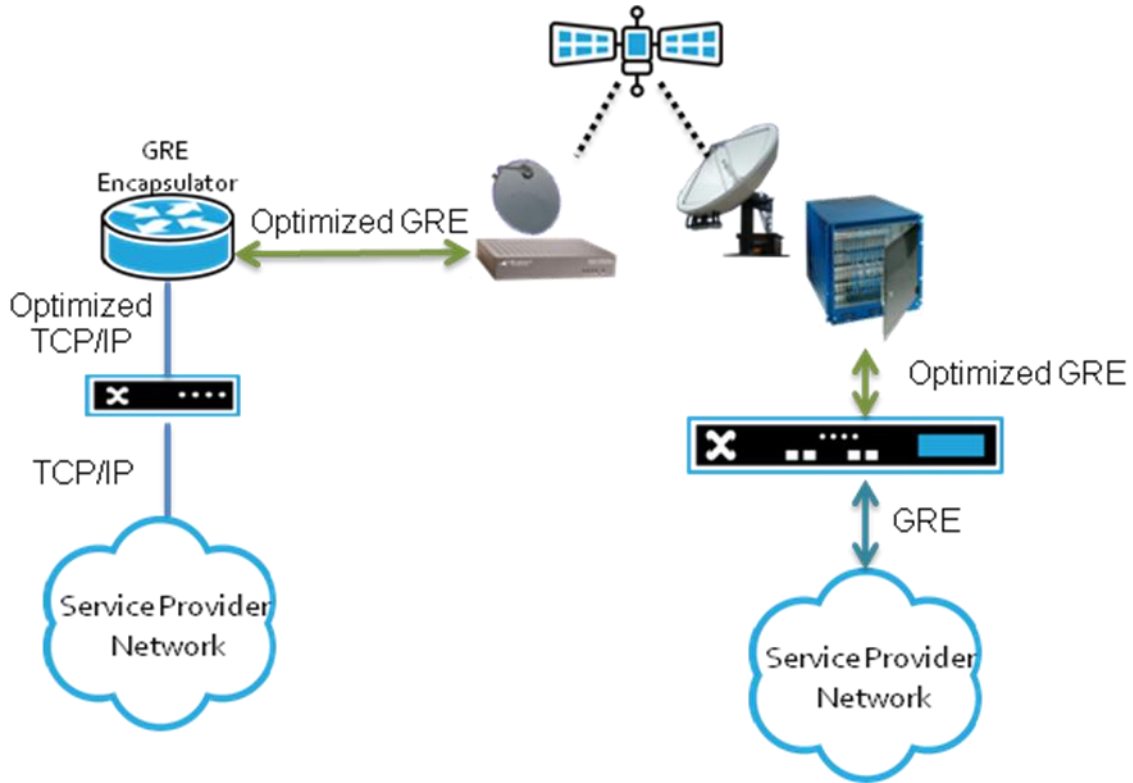
Up to 100 simultaneous tunnels - scalable for large networks with multiple service providers or private networks

DSCP tags are automatically retained - maintaining QoS through the network

This feature is enabled by default. Optimization of non-encapsulated TCP/IP traffic can occur simultaneously. Internally, the XipOS system inspects incoming packets that use the GRE protocol and if the payload is TCP/IP, it dissects the packet, marks it with a session label to track the GRE tunnel, performs the optimization, and then encapsulates the outgoing stream within the same GRE tunnel headers using the session label. XipLink's Web Cache option and VPN option cannot act on GRE encapsulated traffic. No changes are needed to the GRE tunnels, and the optimization process occurs transparently to the GRE streams.



The feature is performed locally and requires no configuration or negotiation with other XA units. This enables topologies where the GRE tunnel may occur in a router after a remote XA performs the optimization, but then the optimized GRE encapsulated IP arrives together at another XA unit. An example topology is shown below.



GRE Optimization is available on XipLink XA appliances as of XipOS version 3.2.