ARITARI GATEWAYS

VPN Architecture and Design

ARITARI
NEW WORLD NETWORKS

OVERVIEW

There are a lot of things to consider when designing and developing a regional or global VPN network with SD WAN, and with the popularity of Cloud it's become important to try to extend your predictable network as close as possible to your Cloud applications.

The Aritari Cloud Gateways are designed to make sure you can do what you need by either deploying them yourselves or leveraging one of our public Gateways. This document outlines some of the opportunities presented by Gateways in developing your network.

- Regional Gateways
- Global and Public Gateways
- Cloud Gateways
- VOIP Gateways

ARITARI GATEWAYS

Even though each Gateway is the same in terms of software as the next, we deliver Gateways for different network strategies or to address certain network inefficiencies.

We'll discuss each Gateway at a basic design level to help you decide where they would be best positioned. Keep in mind that Gateways are not an absolute requirement in our software as edge devices can talk to each other, but become practical in larger networks.
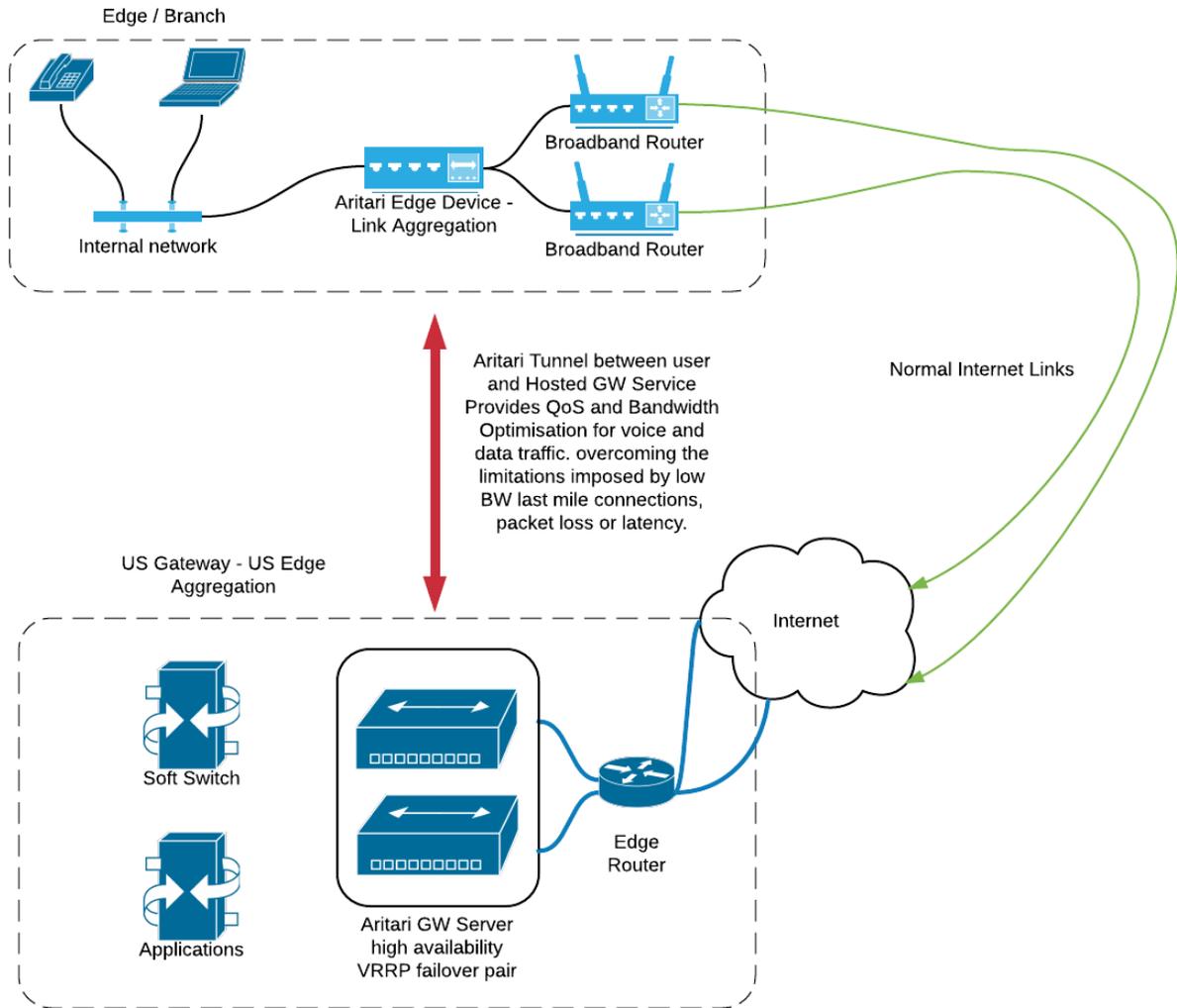
Regional Gateways

A regional Gateway is an aggregation point for many remote sites in a specific region, or an aggregation point for some remote sites to get access to Cloud or a VOIP platform.

If we used an example of the US market and a large retailer which has 30 stores per state, a regional Gateway would connect to the 30 branches within a state, and then the Gateway would connect to another Gateway in another state that has the same design.

This localized traffic per state and reduces overall complexity and often cost. In these designs each state may have a local Internet breakout and services, or all states may come back to a central DC for access to Cloud and shared services.

Diagram 1.1: Basic Regional Gateway Aggregation

Edge / Branch

Internal network

Aritari Edge Device - Link Aggregation

Broadband Router

Broadband Router

Aritari Tunnel between user and Hosted GW Service Provides QoS and Bandwidth Optimisation for voice and data traffic. overcoming the limitations imposed by low BW last mile connections, packet loss or latency.

Normal Internet Links

US Gateway - US Edge Aggregation

Soft Switch

Applications

Aritari GW Server high availability VRRP failover pair

Internet

Edge Router

Another example of a regional Gateway deployment is within the borders of a country for an organisation that has a global network. In this case it makes complete sense to localize Internet breakout and Voice for each country as the cost and overhead to carry this centrally at a global level is not logical in most cases.

In this and further examples the Gateway is almost the same as a traditional MPLS POP in the region.
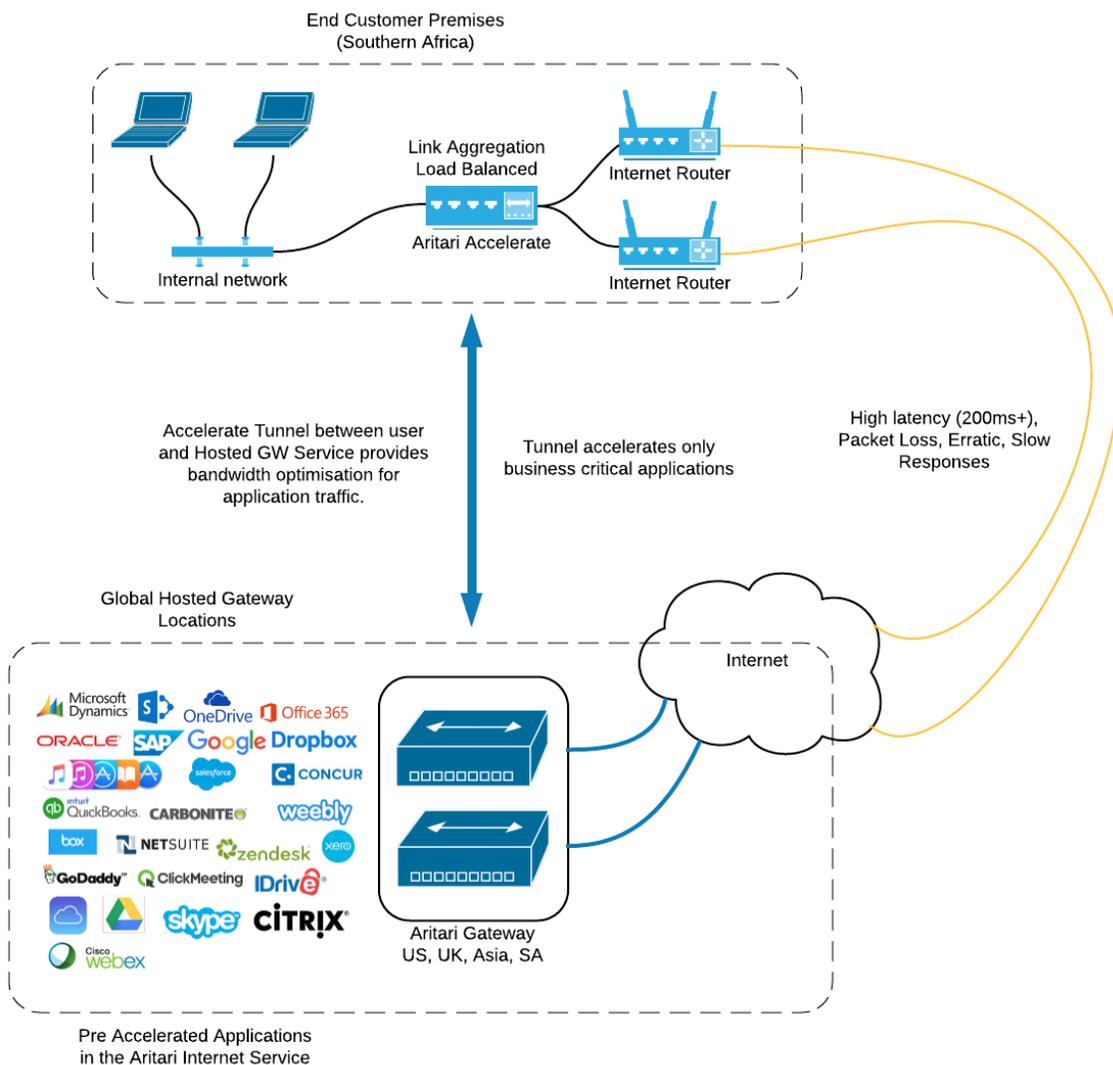
Global and Public Gateways

As in the case of regional Gateways, global gateways can help organisation's globally aggregate traffic to a single (or multiple) key area. In many cases this would be a Cloud application as per diagram 1.2 etc. In this example, we are potentially looking at a company with a global network and centralized access to Cloud.

NB: The Gateway in this design is essential in the sense that it extends all key features of Aritari to as close to the application as possible. In many cases into the same DC as the application. This will improve application performance with TCP Acceleration as well as reduce the effect of packet loss should it arise in the network or Internet.

Diagram 1.2: Global Gateway Design

End Customer Premises
(Southern Africa)

Link Aggregation
Load Balanced

Internet Router

Aritari Accelerate

Internal network

Internet Router

Accelerate Tunnel between user
and Hosted GW Service provides
bandwidth optimisation for
application traffic.

Tunnel accelerates only
business critical applications

High latency (200ms+),
Packet Loss, Erratic, Slow
Responses

Global Hosted Gateway
Locations

Internet

Aritari Gateway
US, UK, Asia, SA

Pre Accelerated Applications
in the Aritari Internet Service

The Gateways can be deployed by a customer on their own resources, or customers can make use of our public Gateways which are available in the US and Europe.

Aritari is also able to deploy managed Gateways in any region subject to the cost of Internet bandwidth and hosting. These costs have already been factored into our Gateway costing based on our costing tool or made available on our website.
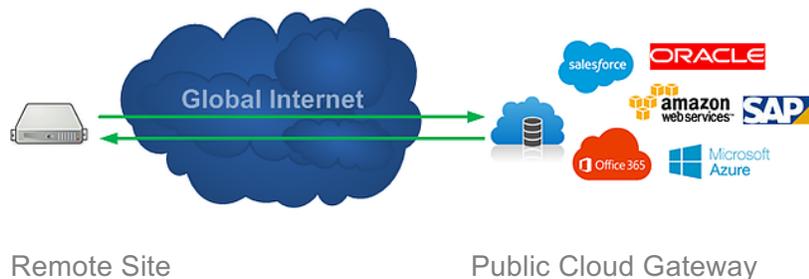
Global and Public Gateways

A Aritari Cloud Gateway is of growing value to organisations that use popular global applications of infrastructure. For many companies situated in Africa, or have very remote branches which are far away from the central application, latency and packet loss in the Internet can destroy the user experience.

Aritari resolve this by deploying public Gateway's in front of the most relevant Cloud IaaS and SaaS to make sure that customers can accelerate their application access.

Up to 20x faster application access is available when using a Cloud Gateway.

Diagram 1.3: Reduce latency and packet loss effects to Cloud

Remote Site   Public Cloud Gateway

To understand why our Cloud Gateways improve your network performance, download our documents on packet loss and latency http://Aritari.weebly.com/tcp-accelerate.html

Global and Public Gateways

VOIP Gateways are also critical for companies struggling with voice quality over the Internet. VOIP Gateways are deployed on behalf of VOIP providers or VOIP customers.

In almost the same way as in Cloud Gateways, VOIP Gateways improve voice quality (MOS) and cut the overall bandwidth required to use the VOIP network through intelligent voice optimisation.

An additional technique and algorithm employed by Aritari to overcome packet loss in the network is to send individual voice packets multiple times. This ensures consistent good quality voice calls whilst still reducing your voice bandwidth requirements by as much as 70%.

CONCLUSION

Cloud Gateways are an essential architecture for customers that are developing large or Cloud reliant networks. They offer simplification and the ability to extend the great features of Aritari up to the Cloud application without the traditional difficulty and high cost of MPLS networks.