

# Dedicated Internet Access Options

## *Aggregated Access vs Point-to-Point Access*

While nearly all Internet Service providers market their services under the name DIA or Dedicated Internet Access, the reality is that these services are not all the same. One main difference is the manner in which the services are originated from the customer premises. This is commonly referred to as access topology. Access topologies are grouped in one of two main categories. Each category provides a different level of performance and quality of service.

- 1- Aggregated Based Dedicated Service Delivery
- 2- Point-to-Point Based Dedicated Service Delivery

In Aggregated Service Delivery, the service provider (ISP) generally has one or more points of ingress into the Internet within a given geographic boundary (ie. a Lata). Latas normally cover large areas which may be as big as a county or a complete state. In this scenario, in order for the ISP to provide services to all of the users in a LATA, they must first aggregate all traffic via a primary network such as Frame Relay and/or ATM cloud before directing the traffic to the Internet ingress points.

Naturally, in aggregating this traffic over its Lata based cloud, the ISP routes the traffic based on the least priority, or best effort (no guarantee) class of service. This results in over-subscription within the aggregating network creating a first point of contention, which leads to extended delay, jitter, reduced throughput and packet loss.

In addition, the inherent nature of the Frame Relay or ATM transport results in periods of traffic burst on a non-committed basis, which increases the risk of packet loss. The loss of packets will trigger a retransmission request which will further contribute to the overall delay.

Once the traffic travels through this primary network, it enters the Internet through the ISPs gateway routers. The reverse traffic of the response will have to also traverse the aggregating network before it reaches the end user and will be subject to the same class of service treatments as the originating traffic.

Point-to-Point Dedicated Access to the Internet differs from the above topology, in that it utilizes a dedicated point-to-point access facility between the end user and the Internet gateway. This direct connection bypasses all of the different treatments imposed by the original Frame Relay and/or ATM aggregating network.

In this scenario, the end user will not compromise on delay, jitter, throughput and packet loss within an intermediary network and a far higher level of performance is achieved.

In conclusion, when comparing the Dedicated Internet Access services (DIAs), one needs to look deeper into other parameters such as the carrier's access topology, the multi-homing gateway functionality and the route optimization capabilities of the service provider.

### *About the author:*

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