

# Dedicated Internet Access (DIA) Service: Technician Detail

## SERVICE DESCRIPTION

Dedicated Internet Service (DIA) from Intelligent Fiber Network (IFN) provides a more reliable, simpler, flexible, and higher bandwidth option than T1 and SONET based DIA services.

The service is offered with a 10Mbps, 100Mbps, 1Gbps, and 10Gbps Ethernet User-to-Network Interface (UNI) in speed increments from 10 Mbps to 10Gbps. IFN handles the Border Gateway Protocol (BGP) to ensure speed and reliability.

DIA service provides an Ethernet Virtual Connection (EVC) from the customer premises location to an IFN Internet Point-of-Presence (POP) router.

## TECHNICAL SPECIFICATIONS

**Ethernet User-to-Network Interface.** The service provides bidirectional, full-duplex transmission of Ethernet frames using a standard Institute of Electrical and Electronics Engineers (IEEE) 802.3 Ethernet interface.

**Traffic Management.** IFN's Network traffic-policing policies restrict traffic flows to the subscribed, Committed Information Rate (CIR). If the customer-transmitted bandwidth rate exceeds the subscription rate (CIR) and burst size (CBS), IFN will discard the non-conformant packets. The customer's router must shape their traffic to their contracted CIR.

**Maximum Frame Size.** The service supports a maximum transmission unit (MTU) frame size of 1518 bytes including Layer 2 Ethernet header and Frame Check Sequence (FCS).

**IP Address Allocation.** IP address space is a finite resource that is an essential requirement for all Internet access services. IFN assigns one (1) routable IP addresses to each customer circuit. Customers can obtain additional IP addresses if required based on the American Registry for Internet Numbers (ARIN) guidelines and by completing an IP Address Justification form; additional charges may apply.

**Domain Name Service.** IFN provides primary and secondary Domain Name Service (DNS). DNS is the basic Network service that translates host and domain names into corresponding IP addresses, and vice-versa. IFN does prevent customers from utilizing third-party Domain Name Services, but IFN does not guarantee the functionality of third-party Domain Name Services.

**Border Gateway Protocol (BGP) Routing.** IFN supports BGP-4 routing as an optional service feature. BGP-4 allows customers to efficiently multi-home across multiple Internet Service Provider (ISP) Networks. The service requires that an Autonomous System Number (ASN) be assigned to a customer by ARIN. Customers should also be proficient in BGP routing protocol to provision and maintain the service on their router. See the IFN Border Gateway Protocol Policy section for further details. IFN supports private peering if the customer is multi-homed to IFN's Network only.

## IFN BORDER GATEWAY PROTOCOL POLICY

IFN provides CPE for provisioning its services and the delivery of the UNI. IFN will retain ownership and management responsibility for this CPE. As a result, the CPE must only be used for delivering IFN services. Customers are required to shape their egress traffic to the contracted CIR.

The following information provides the routing requirements to interconnect with the Intelligent Fiber Network (IFN) Network. Additional details of IFN's Border Gateway Protocol (BGP) inbound/outbound network policy and traffic engineering is available upon request.

1. Customers are required to be multi-homed to run BGP, either:
  - a. Within IFN's network or With IFN and another service provider
2. Customers are required to use an Autonomous System Number (ASN) assigned by a regional registrar that is registered to their organization.
  - a. All customer route announcements must be registered with a regional registrar.
  - b. The customer ASN needs to be verifiable in WHOIS database.
  - c. IFN will only accept private peering when the customer is multi-homed to IFN only.
  - d. IFN will support a 4-byte ASN in accordance with the ARIN policy.
  - e. IFN will assign a private ASN in the range of 64512-65534 for private peering and not accept any customer provided private ASN.
  - f. IFN will strip off the private ASN when advertising to peers.
3. Customers are required to use a router that supports BGP Version 4 (BGP4).
  - a. Customers are responsible to ensure their peering routers have adequate Customer Premises Equipment (CPE) processing power and memory space if a full Internet table is requested.
  - b. IFN will employ all best-known practices to establish, maintain, and troubleshoot BGP4 sessions with all BGP4 compliant router vendors. However, IFN makes no warranty that it can establish and maintain BGP4 sessions with any CPE due to vendor interoperability.
4. Customers can specify one of the following received-prefixes options:
  - a. Default-route only
  - b. Full routes
  - c. Full routes + default-route

5. Customers must be capable of configuring their BGP session with IFN. This includes all setup of neighbor statements and all sanity checks on customer CPE.
6. IFN can accommodate the use of a Message Digest 4 (MD5) authentication key for External Border Gateway Protocol (eBGP) sessions. The customer should specify the MD5 password.
7. Customers must prevent redistribution from their Interior Gateway Protocol (IGP) into BGP. Customers should also apply restrictive filters on outbound announcements so that only the customer's intended outbound prefixes are announced to IFN.
8. IFN will assign a /30 IP address for the interfaces that connect to IFN's Network. This will be assigned from an IFN address block publicly registered with ARIN and already advertised as part of a larger aggregate to the Internet.
9. IFN will announce any portable or non-portable netblock so long as this space is larger than /24, and space is assigned to the customer via WHOIS or RWHOIS databases. If the netblock does not belong to the customer and netblock is not already being announced from the customer's AS then IFN will need to have a Letter of Agreement (LOA) from the true owner of the block stating that they are aware and accepting of the fact that our customer wants to make the announcement through IFN.
10. IFN does not alter any of its BGP4 configurations, including route-maps, filter-policies, and communities, for any individual customer, but rather will dynamically alter BGP policy dependent on the customers' employment of predefined IFN BGP communities. This ensures the IFN Network is built and maintained in a strategic, organized, and efficient fashion and reduces mean-time-to-repair for BGP related trouble.