I. Service Overview

AT&T’s Business Voice over IP (“AT&T BVoIP”) portfolio of services enable the transmission of voice telephone calls in IP format over a BVoIP compatible transport service to and from Sites where both AT&T BVoIP and a BVoIP compatible transport service have been installed.

AT&T IP Flexible Reach is an integrated access, converged solution designed to deliver outbound, inbound, local and long distance calling over AT&T’s Internet Protocol (IP) and Virtual Private Network (VPN) services. AT&T IP Flexible Reach can also be referred to as a Session Initiation Protocol (SIP) Trunking solution. It is deployed in situations where customers own their own premises telephony (analog phones, key system, TDM PBX, or IP PBX) equipment. IP Flexible Reach provides “trunk service” over integrated access. (AT&T Voice DNA is a network-hosted SIP solution, eliminating the need for a PBX or IP PBX on the customer’s premises.) IP Flexible Reach with Managed Internet Service (MIS) or Private Network Transport (PNT) is only available with AT&T Managed router. IP Flexible Reach on AT&T VPN (AVPN) Transport is only available with client managed router.

AT&T’s IP Flexible Reach solution provides Local, US Long Distance, International voice and fax calling, delivered via AT&T’s advanced VoIP infrastructure. This service offers three calling plans as described in the Service Components section: LD Only (Plan A), Local and LD (Plan B) and Local and LD (Plan C).

On-Net Calls

Calling Plans are based on the number of Concurrent Calls selected by Customer for that Site. All Calling Plans include unlimited outbound On-Net Calling. On-Net Calls between Customer IP PBX sites will only complete On-Net if the vendor, model and software version are the same.
AT&T IP Flexible Reach Service

Off-Net Calls

Outbound long distance Off-Net Calls that originate and terminate within the United States are billed at the same per minute rate regardless of where in the United States they originate and terminate. Calling Plan C includes a bundle of such outbound Off-Net Calling minutes, and those bundled minutes are aggregated across all Customer Sites. If the aggregated minutes exceed the contracted number of bundled minutes, Customer will be billed the applicable per minute rate for the excess.

II. Service Components, standard and options

Architecturally, IP Flexible Reach replaces dedicated, physical TDM voice trunks with logical, or virtual, Voice over IP (VoIP) circuits. The logical voice traffic flows can then be implemented on a variety of IP-based network access media or services. This “new” voice traffic can also be integrated with other types of data traffic, such as site-to-site data traffic and Internet traffic, to take advantage of the lower cost capacity in those existing fat pipes. An important result is the consolidation of disparate local/toll, long distance and on-net/on-net voice facilities onto the existing IP-based network access the site already has. This is called integrated access.

AT&T IP Flexible Reach supports voice traffic that is converted to data packets, allowing Customers to use their AT&T MIS, AT&T MIS with MPLS PNT or AT&T VPN connection for data, voice and fax traffic. Customers choose the calling capacity they require in six or more units of Concurrent Calls, which are similar to simultaneous calls and can be engineered using standard voice traffic tools or by using the Customer’s existing voice channel capacity. AT&T IP Flexible Reach terminates on the Customer premises in the AT&T CPE managed router or Customer-managed router, as applicable, and requires the Customer to provide its own telephony functionality on its premises via a TDM or IP PBX.

Underlying Transport Service for AT&T IP Flexible Reach

The compatible Underlying Transport Services for AT&T IP Flexible Reach are AT&T VPN, MIS and MIS/PNT. Voice must be the only type of traffic assigned to Class of Service 1 at the Customer Site.

Compatible CPE and PBX Models

AT&T IP Flexible Reach interoperates with key systems, traditional digital TDM PBXs, as well as IP PBXs. AT&T IP Flexible Reach operates only with certain makes and models of PBXs and key systems. AT&T IP Flexible Reach does not support On-Net calls between different makes, software versions and...
models of IP PBXs, and such calls may fail to complete or be completed as Off-Net Calls. Customer may obtain CPE from AT&T for use with AT&T IP Flexible Reach, or may obtain CPE from third parties.

TDM Based PBXs

AT&T IP Flexible Reach supports two interface options between the Customer’s PBX and the router/gateway: (i) Channel Associated Signaling (CAS) and (ii) Primary Rate Interface (PRI). In a TDM PBX environment, the chosen interface used can be sized to support Concurrent Calls as specified in Supported Concurrent Calls.

IP PBXs

An IP PBX originates calls using IP packet technology. Since both the IP PBX and router reside on the Customer’s local area network (LAN), there is no need for either of the two TDM interface options (CAS or PRI) mentioned above. The BVoIP option used in an IP PBX environment can be sized to support from 6 to 360 Concurrent Calls in single increments depending on Customer need (and up to 800 Concurrent Calls with custom arrangements). For IP PBX equipment, the amount of bandwidth subscribed to is the key factor in determining how many Concurrent Calls can be supported. The Customer’s IP PBXs must be the same vendor/model/version in order for calls between On-Net Customer BVoIP Sites to be completed as On-Net Calls.

Key Systems Interface Support

A key system or key telephone system is a multi-line, analog-interface based telephone system typically used in small business environments. AT&T IP Flexible Reach interoperates with key system premises CPE that provides analog telephone access with VoIP capability and optional switching for redundancy or survivability. Depending on the CPE device, AT&T supports 6-24 Concurrent Calls. Customer is responsible for configuring these CPE devices.

Voice Quality Monitor (VQM) Support

The VQM is AT&T CPE that monitors call quality metrics such as packet loss, latency and jitter, and acts as an AT&T IP Flexible Reach troubleshooting point. The VQM is located on the Customer premises between the router and the PBX. Certain troubleshooting functions are performed remotely through the VQM using packet capture. The VQM may sometimes be referred to as a “LAN Probe.”

Supported Concurrent Calls

Customer is responsible for determining the number of Concurrent Calls needed at a Customer BVoIP Site; determination should be based on Customer’s monthly busy hour traffic. If Customer does not order enough Concurrent Call capacity, BVoIP calls may be blocked if Customer or Users attempt more than the number of Concurrent Calls selected.

The Concurrent Call Table, below, provides an overview of the type of interface, bandwidth and number of Concurrent Calls supported. Concurrent Calls for TDM PBX shown must be ordered in even increments, but Concurrent Calls may be ordered in single increments for IP PBX.

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>TDM PBX with Channel Associated Signaling (CAS)</th>
<th>TDM PBX with Primary Rate Interface (PRI)</th>
<th>IP PBX</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>6 to 48</td>
<td>6 to 46</td>
<td>6 to 50</td>
</tr>
<tr>
<td>T3</td>
<td>6 to 240</td>
<td>6 to 230</td>
<td>6 to 1,000</td>
</tr>
<tr>
<td>Ethernet</td>
<td>6 to 240*</td>
<td>6 to 230*</td>
<td>6 to 32,000*</td>
</tr>
<tr>
<td>MLPPP (NxT1)</td>
<td>6 to 192*</td>
<td>6 to 184*</td>
<td>6 to 350*</td>
</tr>
</tbody>
</table>
## AT&T IP Flexible Reach Service

<table>
<thead>
<tr>
<th>Concurrent Call Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bandwidth</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>OC3-OC12</td>
</tr>
<tr>
<td>(OC48 Custom)</td>
</tr>
<tr>
<td>(AT&amp;T IP Flexible Reach &amp; AT&amp;T IPTF only)</td>
</tr>
</tbody>
</table>

Notes: * Maximum number of concurrent calls dependent upon equipment limitations and bandwidth purchased.
All maximum numbers of concurrent calls shown are based upon G.729 Compression Encoding.

### BVoIP Calling Plans

The number of potential On-Net and Off-Net Concurrent Calls at a Customer BVoIP Site is limited to the number of Concurrent Calls specifically ordered by Customer for that site.

**Calling Plan A (LD only)**
- Unlimited outbound On-Net Calling,
- Outbound United States Off-Net Calling for a single per minute rate, and
- Outbound International Off-Net Calling at per minute rates based on the country called.

**Calling Plan B (Local and LD)**
- Unlimited Outbound On-Net Calling,
- Unlimited Outbound Local Calls,
- Outbound Interstate (Inter- and IntraLATA) and Intrastate Toll (Inter- and IntraLATA) United States Off-Net Calling at a single per minute rate,
- Outbound International Off-Net Calling at per minute rates based on the country called, and
- Directory Assistance, Operator Services, and Directory Listing at per use or per number rates.

**Calling Plan C (Local and LD Package)**
- Unlimited Outbound On-Net Calling,
- Unlimited Outbound Local Calls,
- 300 minutes of Outbound Interstate (Inter- and IntraLATA) and Intrastate Toll United States Off-Net Calling per month per Concurrent Call ordered,
- Outbound Interstate and Intrastate Toll U.S. Off-Net Calling above 300 minutes per month per Concurrent Call ordered at a single per minute rate,
- Outbound International Off-Net Calling at per minute rates based on the country called, and
- Directory Assistance, Operator Services and Directory Listing at per use or per number rates.

### Dial Plan Setup

When BVoIP is used in conjunction with a customer-owned PBX, AT&T will develop and present to Customer for implementation a PBX dial plan or private dial package based on information provided by Customer. The dial plan/package will indicate AT&T’s recommended routing scheme for outbound calls based on the digits dialed. If required by Customer, the dial plan/package will include alternate PSTN routing. The BVoIP one-time charge includes the initial setup of Customer’s dial plan.
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**Virtual Telephone Number (VTN) Feature**

The VTN Feature permits Customer to choose local telephone numbers from any customer-selected Local Calling Area within the AT&T BVoIP local footprint for use at a Customer BVoIP Site physically located in a different Local Calling Area. Customer may use the VTN Feature with Calling Plans B or C to centralize call delivery by routing calls originating from multiple Local Calling Areas to one, centralized Customer BVoIP Site. The VTN Feature is available only for telephone numbers from Local Calling Areas and for Customer BVoIP Sites using Calling Plans B or C located within the AT&T BVoIP local footprint.

For VTNs, the classification of Off-Net Calls as “local” or “toll” is based on the Local Calling Area normally associated with the assigned telephone number, not the geographic area where the VTN is being used.

**Branch Office IP PBX Extensions**

This configuration is available to Customers subscribing to IP Flexible Reach with Calling Plans B or C, and enables telephone numbers for all the branch office Customer BVoIP Sites to be supported by a single, Customer-designated IP PBX. The Branch Office IP PBX capability enables a Customer to use its existing data network to distribute the calls to its branch office Customer BVoIP Sites. This configuration uses the IP PBX to support SIP-based IP phones in a “plug-and-play” manner and does not require any additional premises-based hardware. Customer can assign the normal local calling capability to each branch office location. Address data is maintained for the branch office, which means appropriate directory listing, taxing, regulatory fees, and TN assignments can be associated with the branch office location. Branch office locations must be within the footprint of AT&T’s service area for AT&T IP Flexible Reach with Calling Plans B or C. The Customer is responsible for providing accurate branch address and telephone information, and Customer’s IP PBX must have the capability to transmit the necessary address information.

**Inbound Alternate Routing**

Inbound Alternate Routing (“IAR”) is an optional feature that redirects incoming calls, intended for call completion at one Customer AT&T IP Flexible Reach Site (primary location), to another pre-defined alternate Customer AT&T IP Flexible Reach Site (secondary location) when there is a busy condition or Service or equipment failure at the primary location, or a failure of the AT&T Network that does not allow call completion at the primary location. IAR is only available where AT&T IP Flexible Reach Service is provided to the Customer at both the primary and secondary locations; however, each Customer AT&T IP Flexible Reach Site can be both the primary and secondary location to another Customer AT&T IP Flexible Reach Site.
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IP Flex has been generally available (GA) for several years over MIS and PNT transport, but is currently in a controlled introduction (CI) status with using our AVPN transport. Thus, each IPFR opportunity with AVPN transport must currently be reviewed by a custom board of AVPN / IPFR product folks.

When we sold IPFR with MIS and PNT, we were required to provide an ATT Managed Cisco router as part of the transport and IPFR solution. With AVPN, that is not the case, but there are many limitations that you need to be aware of relative to MACD and MRS (Managed Router Service). There are many MACD limitations, as well as the need for managed lan probe and CER router support. We do not want to get into situations where you convert an existing FR circuit to an AVPN T1, and then we want to add IPFR to that AVPN circuit which requires more bandwidth, only to find out that there is no MACD process to upgrade an AVPN from a T1 to a bonded N x T1, as an example.

Some key limitations are listed below, but realize that this is a rapidly changing list since we are moving from CI to GA over the next several months:

- MACD limitations for upgrading AVPN circuits from T1 to NxT1
- MACD limitations to upgrade from N x T1 to T3 and T3 to Ethernet
- Limitations on outside moves (some scenarios supported, others are not)

(The above limitations will require a disconnect / reconnect to accomplish and potential billing issues)

AVPN over Ethernet has different limitations:

- No MACD for inside moves
- No MACD for outside moves
- Increase/Decrease Ethernet access speed is NOT Supported

(The above limitations will require a disconnect / reconnect to accomplish and potential billing issues)

Additionally, with AVPN we require a managed LAN probe and only certify specific CER routers for AVPN connectivity, a list which continues to grow and change.

Bottom line is that when you begin migrating a location to AVPN, we need to think about PSTN requirements at that location as well. If there is PSTN today at a location, then we want to investigate the number of trunks and potential bandwidth that may be required for adding IPFR and the associated number of concurrent calls to that AVPN circuit as a result. The addition of IPFR service to an AVPN circuit will always increase the amount of bandwidth, and due some of the MACD limitations mentioned above, we need to consider a larger pipe at initial install, to prevent a disconnect reconnect scenario.