Configuring the ATLAS for Multiple Primary Rate ISDN (PRI) to T1 Robbed Bit Signaling (RBS) Conversions

Introduction

Traffic flow through the ATLAS series of products can be modified to best fit the application. Many customers use the ATLAS to convert PRI to Robbed Bit Signaling (RBS) or Feature Group D (FGD) signaling to support incoming Telco PRIs with Caller ID into a PBX.

Before You Begin

In addition to the normal setup described in KB Article # 2599, when configuring multiple conversions, the ATLAS may require additional configuration to avoid Call Routing and Resource Issues (CRRI).

The maximum number of PRI - RBS/FGD conversions supported in each ATLAS product is as follows:

ATLAS 550	ATLAS 800/800+/810+	ATLAS 890
5	10	15

Configuring Multiple Conversions

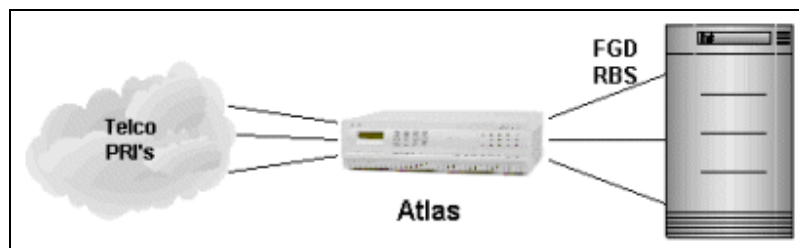Consider the situation shown below in Figure 1.

Figure 1
Multiple PRI to FGD RBS Conversions

In Figure 1, three PRIs come into the ATLAS and are converted to FGD T1s for a company's PBX. The PBX and Telco are both configured to "randomly" distribute calls toward the ATLAS. Under the default configuration, if all trunks are configured to send and receive calls, contention can occur for available DS0s.

ATLAS Setup

Consider the case of three incoming calls from Telco. All three calls would be routed to the first available T1 on the PBX. If a call going out from the PBX is also routed to the same T1, all four

calls are bidding for access to the available DS0(s). Additionally, all four calls are bidding for the DSP resources related to that T1 to either tone out the "* ANI * DNIS *" sequence to the PBX or decode any in dial digits. A major bottleneck can occur, resulting in calls rejected as busy (or DSP Defunct Errors).

To best utilize all trunks, simply arrange each PRI - RBS pair in its own group through the use of Source IDs. In our example, consider that the first PRI and RBS source ID in its respective interface configuration is set to 1 (see Figure 2). Successive pairs are set up in groups 2 and 3, respectively. Also, the PRIs Out Number Accept and PBXs In Number Accept are set for Source ID 1 (see Figure 3) to match the Source ID configured for the Interface Config. Each pair then will not accept calls from other pairs and calls will only route from the PRI entry to the RBS entry, or vice versa, with the same Source ID configuration. Normally this restriction is not used in the ATLAS. In this case however, the call routing is already being decided by the Telco and PBX, therefore additional routing and overflow by the ATLAS is not necessary and may result in congestion. When a call comes into a Dial Plan entry, the Atlas switchboard looks at that entry's Interface Config Source ID and makes note of it. When trying to find an entry to route the call out of, that Source ID MUST be configured on the outgoing entry's Out/In Number Accept List. If it is not, then the call will not route out that interface.

```
...50/Dial Plan/Network Term[1]/Interface Configuration/Called Digits Transfered
Outgoing Number Accept List | Switch Type              National ISDN
Outgoing Number Reject List | First DS0                1
Interface Configuration     | Number of DS0s           23
Substitution Template       | Outgoing Number Conv.    ISDN-National As Dialed
                            | Strip MSD                None
                            | Ntwrk Spec. Fac. - Voice Normal
                            | Ntwrk Spec. Fac. - Data  Normal
                            | Called Digits Transfered  All
                            | Outgoing Caller ID       Send as provided
                            | Source ID                1
                            | Swap ANI/DNIS            Disabled
                            | B Channel Selection      Normal
                            | Busy Option              Normal




SYS: OK    NETWK1:ALRM   NETWK2:ALRM        1:ALRM   2:ALRM   3:ALRM   4: OK
                                                              ^Z=help  8:34_
```

Figure 2
Setting the Source ID on an Interface

```
ATLAS 550/Dial Plan/Network Term[1]/Outgoing Number Accept List[1]
Outgoing Number Accept List[1]  Src ID           1
                                Accept Number    $
                                Search           Primary
                                Data 64Kbps      Enabled
                                Data 56Kbps      Enabled
                                Audio            Enabled
                                Speech           Enabled
                                Treat Call As    As Received




SYS: OK     NETWK1:ALRM     NETWK2:ALRM         1:ALRM    2:ALRM    3:ALRM    4: OK
                                                          INS/DEL           ^Z=help  8:32
```

Figure 3
Setting the Source ID on an Accept List

Finally, to optimally use the shared access trunks, request that the Telco use Ascending Fill on the PRI DS0s. The ATLAS will utilize Descending Fill by default ensuring that any "glare" situations are minimized.

These methods have been shown to reduce contention for DSP resources and channel access (CRRI) on trunks approaching 90% utilization. For cases where contention still exists, consider using dedicated incoming and outgoing pair bundles. As an example, consider two outgoing PRI-RBS pair in one bundle and two incoming PRI-RBS pair in the other bundle, all with Source IDs assigned as described above. For maximum utilization, a single two-way trunk configured as previously described can be set up for overflow for both single direction bundles.