IBM 3746
Expansion Unit
Model 900

December 2, 1997
(Revision 4)

ISDN Support
SNA   (NCP traffic)
APPN (CNN traffic)

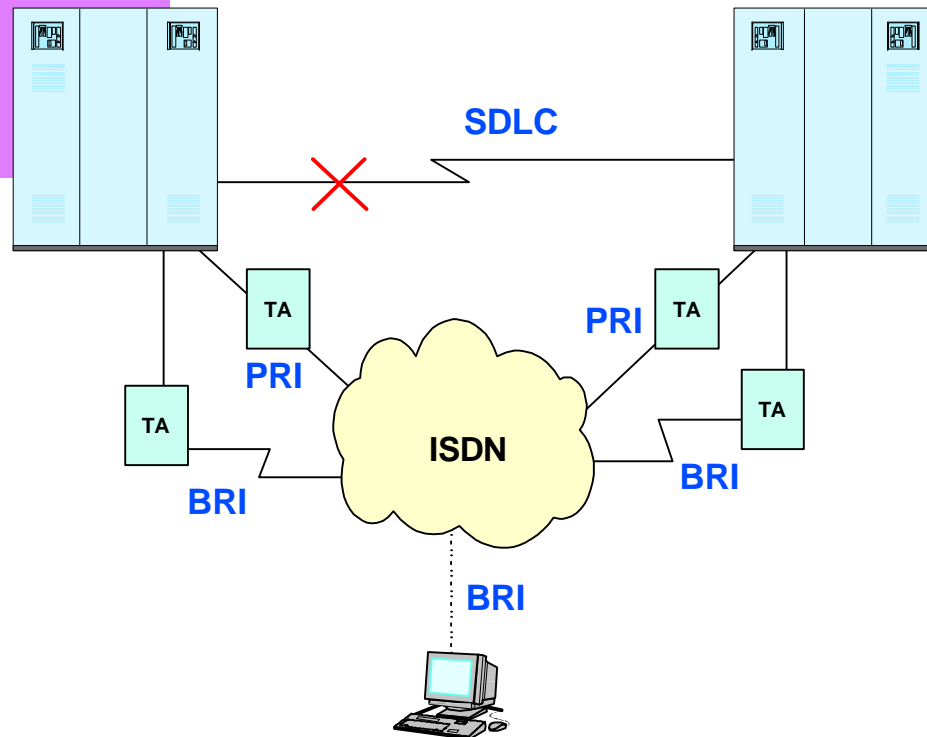# IBM 3746-900 - ISDN Connectivity

- **3746-900 (NCP V7R4)   (February 27, 1996)**

  - **ISDN Terminal Adapter**

- **3746-900 (NCP V7R5)   (June 25, 1996)**

  - **ISDN Primary Rate Interface Coupler**

- **3746-900 (NCP V7R6)   (September 9, 1997)**

  - **Dynamic windowing enhancements for Frame Relay/ISDN**

  - **Automatic back-up of frame relay link over ISDN (non-disruptive for NCP to NCP connections)**

  - **NPM support (requires NPM V2R3 + PTFs)**

IBM 3746-900 - ISDN TA Support

IBM

IBM 3745/3746-900

IBM 3746-900/3745

SDLC

PRI

TA

TA

PRI
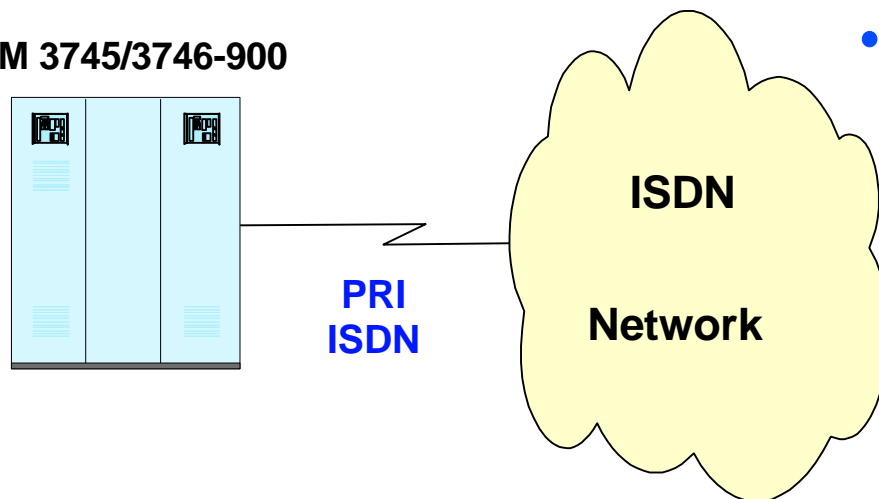
BRI

ISDN

BRI

TA

TA

BRI

BRI

- **ISDN Terminal Adapter (TA)**
  - X.21 switched Interface
- **Basic Rate Interface ISDN**
  - LIC11 and TA (such as IBM 7820)
- **Primary Rate Interface ISDN**
  - LIC12 and TA (such as Hitachi)
- **Link Protocol**
  - SDLC over ISDN B channel
- **Network protocol**
  - SNA (NCP control)
  - APPN (NCP control - CNN)
- **Functions**
  - Call on demand
  - Back-up
  - Additional Bandwidth (MLTG, APPN TG)

IBM 3746-900 - ISDN-PRI Support

IBM

- **NEW Coupler LIC16**

- **Primary Rate Interface ISDN Support (2 Mbps)**
  - **30 B channels for data (30 x 64 kbps)**
  - **1 D channel   for signalling**

- **FR over ISDN B channels**

- **EURO-ISDN over D channel**

- **NCP V7R5**
  - **Resources defined in VTAM & NCP**
  - **SNA: PU4 to PU4, PU4 to PU2/PU2.1**
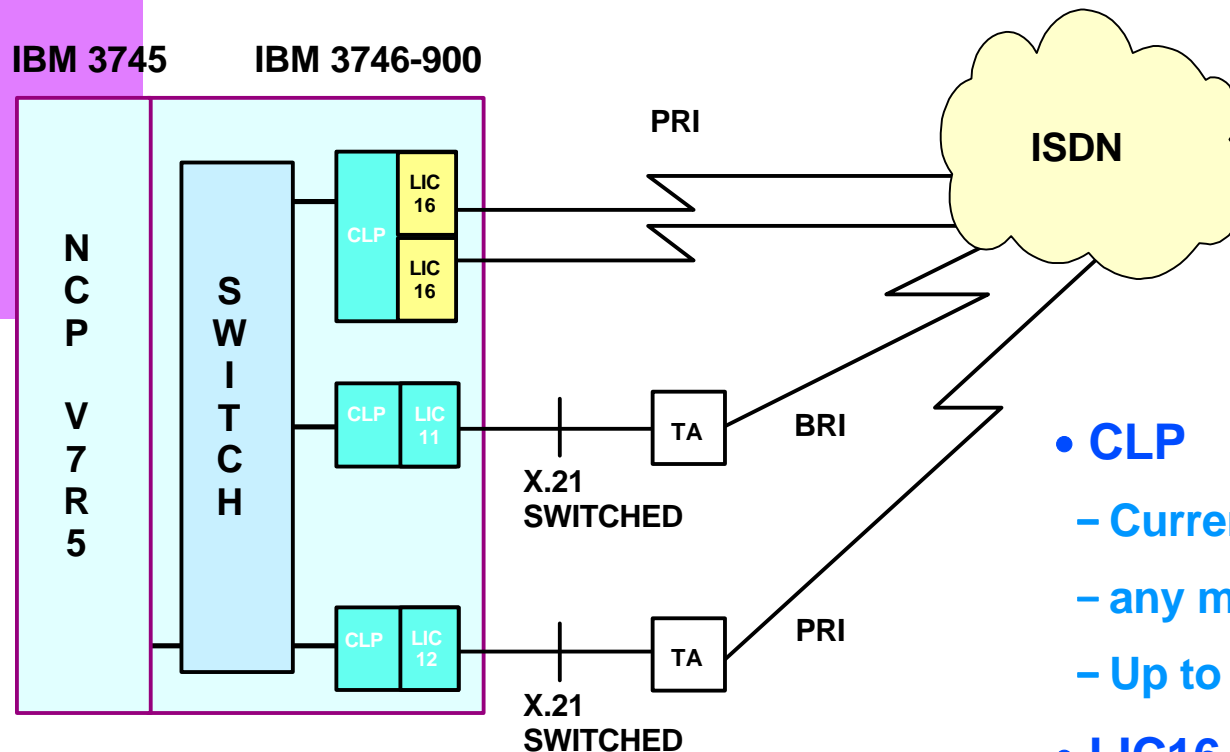 - **CNN: PU2.1 to PU2.1**

IBM 3745/3746-900

PRI ISDN

ISDN Network

IBM 3746-900 - ISDN Hardware

IBM

Primary Rate Interface (PRI)

IBM 3745 **IBM 3746-900**

```
NCP V7R5    SWITCH    CLP  LIC16
                           LIC16      PRI        ISDN

                      CLP  LIC11              BRI
                      X.21
                      SWITCHED    TA

                      CLP  LIC12              PRI
                      X.21
                      SWITCHED    TA
```
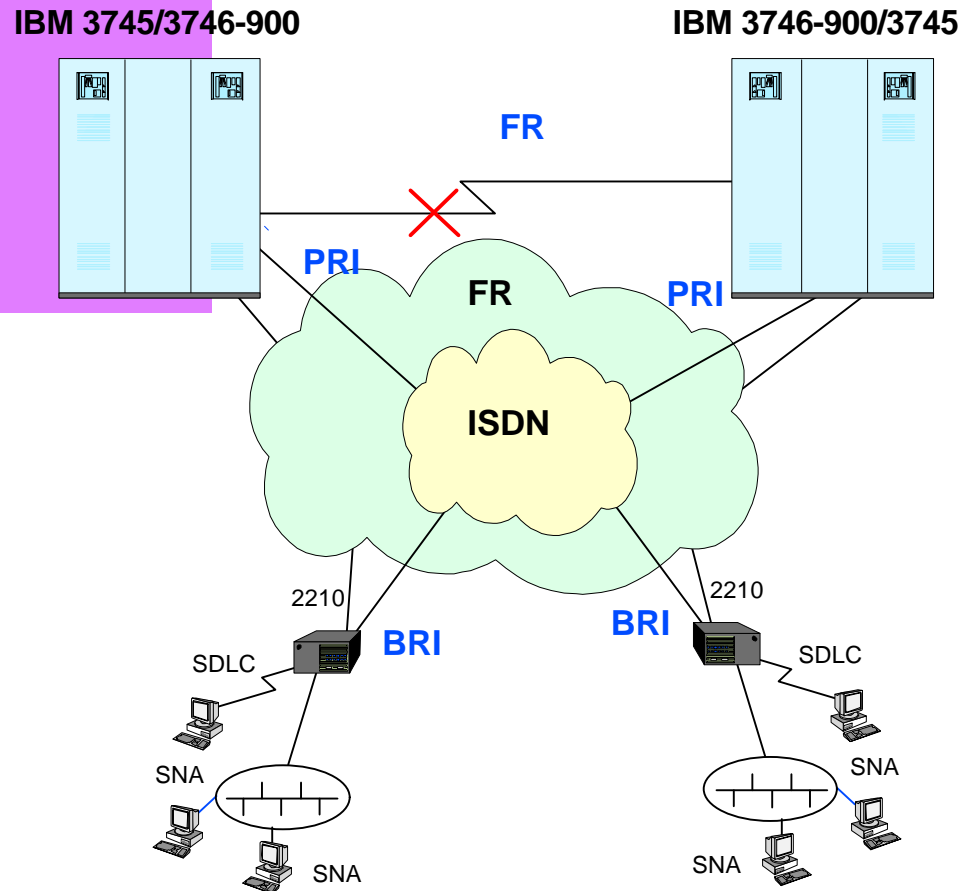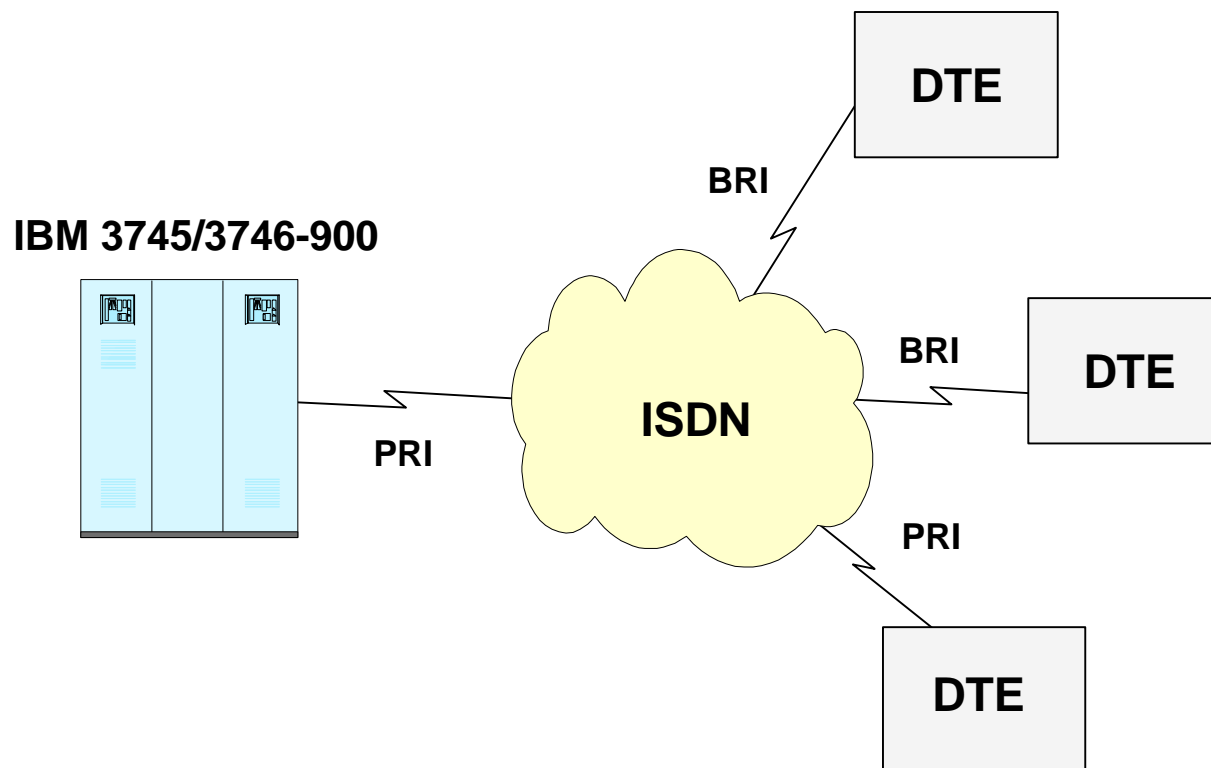
- **CLP**
  - **Current CLP**
  - **any mix of LIC11, LIC12, LIC16**
  - **Up to 4 LICs per CLP**

- **LIC16**
  - **1 PRI-ISDN Port (Euro-ISDN)**

- **NCP**
  - **V7R5**

IBM 3746-900 - PRI-ISDN Support

IBM

IBM 3745/3746-900

IBM 3746-900/3745

FR

PRI

FR

PRI

ISDN

2210

2210

SDLC

BRI

BRI

SDLC

SNA

SNA

SNA

SNA

SNA

- **Primary Rate Interface ISDN**
  - **PRI-ISDN coupler (up to 2 Mbps)**
  - **Frame Relay over ISDN B channel**
  - **EURO-ISDN over D channel**

- **Network protocol**
  - **NCP V7R5**
  - **SNA/APPN (NCP control)**

- **Functions**
  - **Call on demand**
  - **Back-up**
  - **Additional bandwidth**
  - **Calling number verification (VTAM user exit)**

IBM 3746-900 - Call On Demand

IBM 3745/3746-900
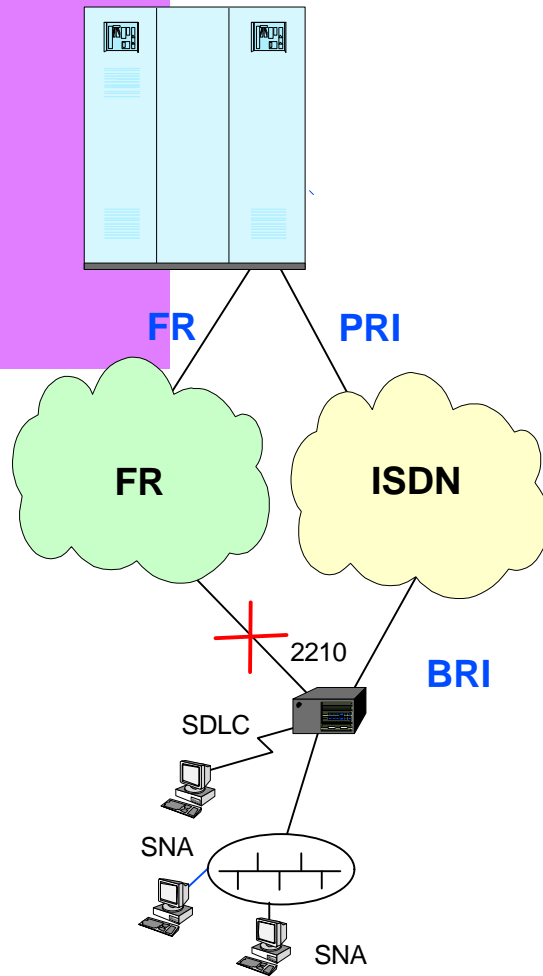
DTE

BRI

ISDN

BRI → DTE

PRI

PRI → DTE

- **Up to 30 simultaneous connections at 64 kbps**

- **Regular CALL-OUT from VTAM Switched Major Node**

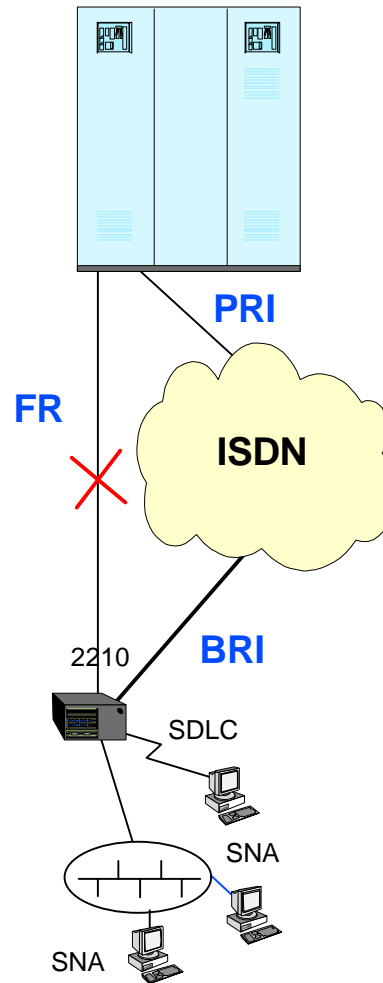- **CALL-IN received from remote equipments**
  - **single B channel (no bonding)**

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IBM 3746-900 - WAN Back Up

IBM

IBM 3745/3746-900

IBM 3746-900/3745

FR   **PRI**

FR   **PRI**

FR   **ISDN**

FR   **ISDN**

2210   **BRI**

2210   **BRI**

SDLC

SDLC

SNA

SNA

SNA

SNA

- **FR-BAN Back Up**
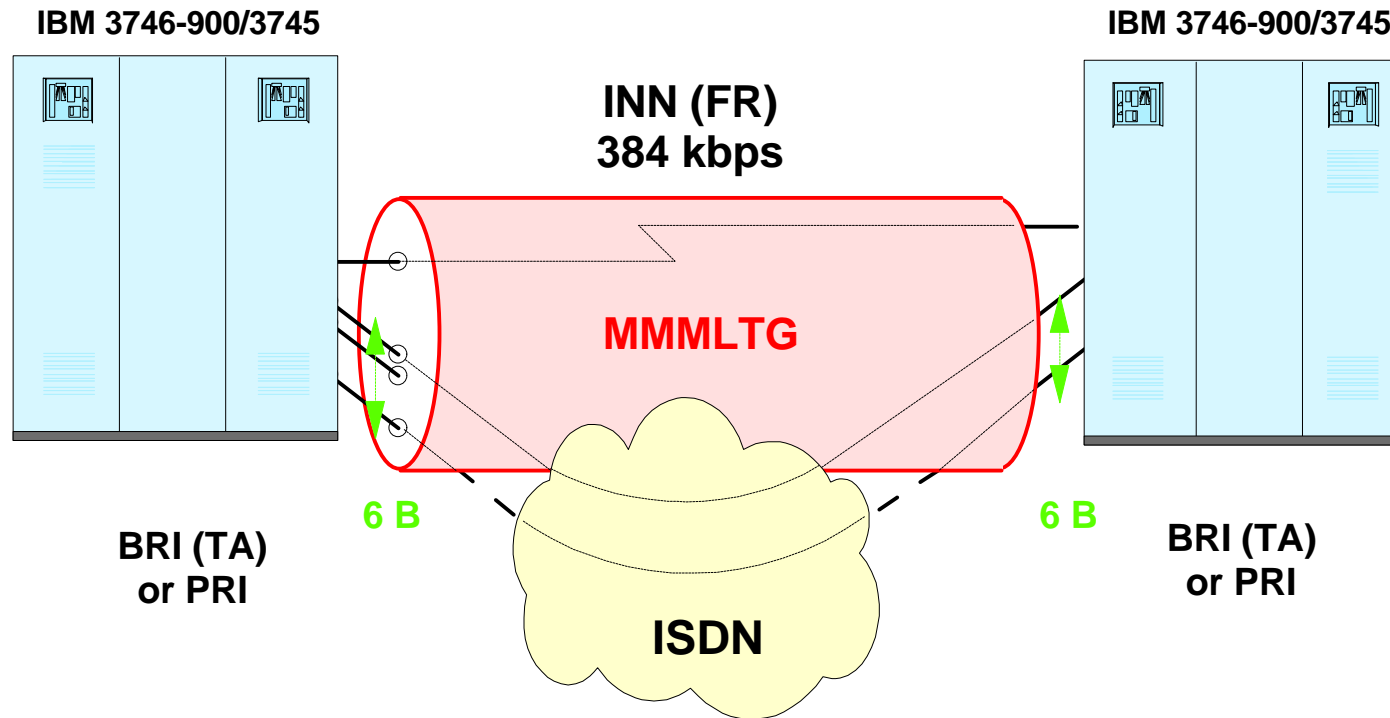 - **With WAN Reroute of 2210**
  - **Disruptive to user sessions**
  - **Call IN/OUT From/To 2210**
  - **Back Up for FR network or Leased FR connection**

- **FR Back Up**
  - **Based on NetView alert + Clist**
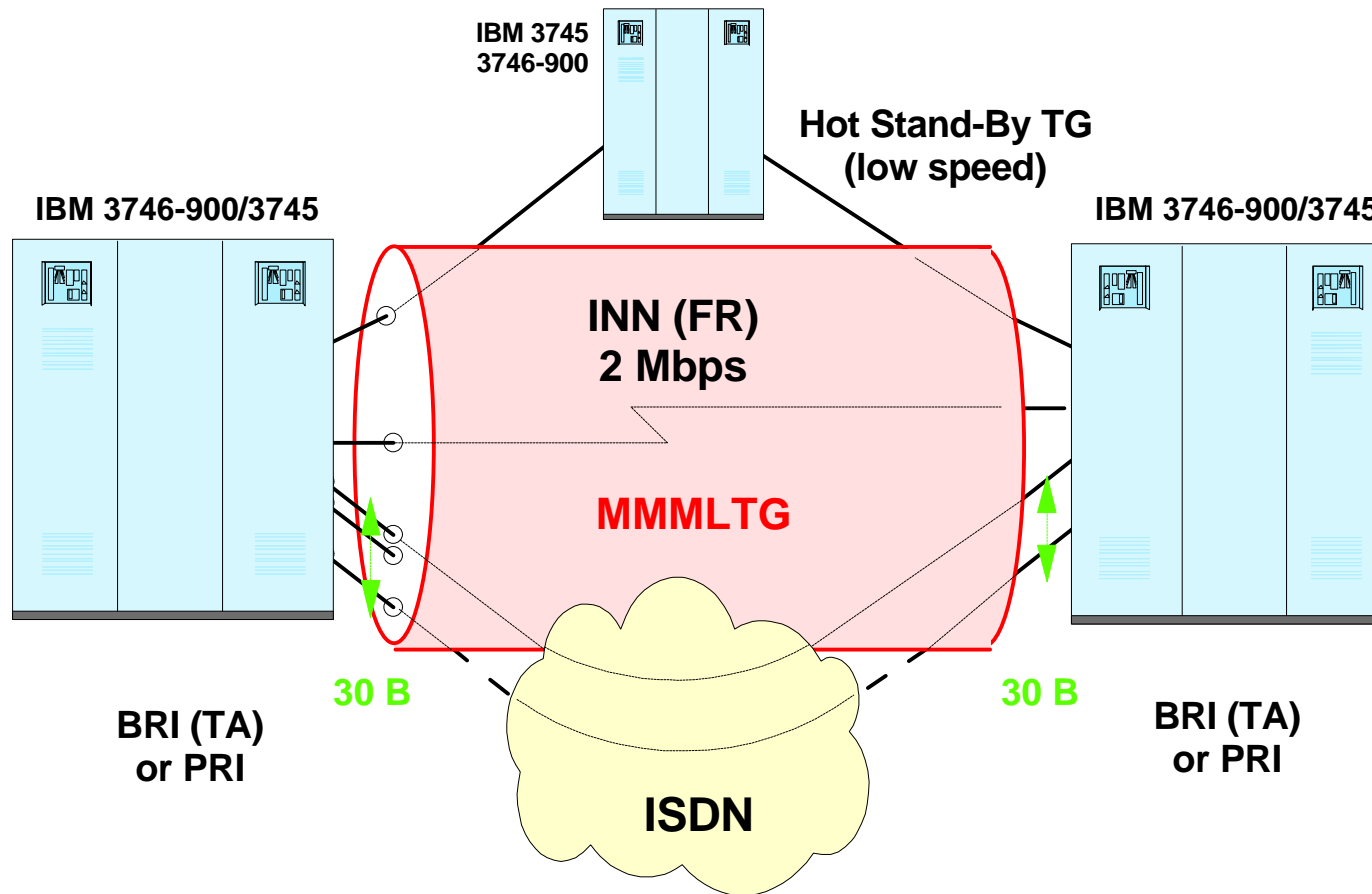 - **Automatic call on B channel**
  - **Disruptive to user sessions**

IBM 3746-900 - INN Back Up with MMMLTG

IBM

IBM 3746-900/3745

**INN (FR)
384 kbps**

MMMLTG

IBM 3746-900/3745

6 B

**BRI (TA)
or PRI**

6 B

**BRI (TA)
or PRI**

ISDN

- **MMMLTG defined with :**
  - 1 Primary LL and 1 or multiple B channels

- **Back Up**
  - for SubArea PU4 to PU4 traffic
  - Call over 1 or multiple B channels
  - based on NetView Alert + Clist
  - Back Up is disruptive
  - Non disruptive Switch Back

IBM 3746-900 - INN Back Up Non-Disruptive IBM

IBM 3745
3746-900

**Hot Stand-By TG
(low speed)**

IBM 3746-900/3745

IBM 3746-900/3745

**INN (FR)
2 Mbps**

MMMLTG

30 B

30 B

**BRI (TA)
or PRI**

**BRI (TA)
or PRI**

ISDN

• **MMMLTG defined with :**
 − **2 LL and 1 or multiple B channels**
  ▪ 1 primary FR line is used
  ▪ 1 line is HOT STAND BY (active but no traffic in normal use)
  ▪ Can be replaced by 1 active B channel
 − **HOT STAND-BY line avoids MMMLTG disruption**

• **Back Up**
 − **for SubArea PU4 to PU4 traffic**
 − **Non disruptive Back Up**
  ▪ in case of FR line failure, 1 to up to 30 B channels connected via CLIST
 − **Non Disruptive Switch Back**
  ▪ ISDN link cleared off by CLIST