

MSR系列路由器和中兴路由器做帧中继时，物理和协议up但无法ping通的案例

一、组网：



二、问题描述：

如上图所示，MSR路由器和中兴路由器通过帧中继网络互联，两端路由器接口上封装的帧中继协议，用display interface查看两端接口物理和协议都up，但是配置上同一网段的ip地址和map映射后，发现仍ping不通对端的地址。

三、过程分析：

查看两端的配置

MSR侧：

```
interface Serial5/0
```

```
link-protocol fr
```

```
fr interface-type dce
```

```
fr map ip 26.96.2.78 100
```

```
fr dlci 100
```

```
ip address 26.96.2.73 255.255.255.248
```

查看MSR侧接口的状态：

```
Serial5/0 current state: UP
```

```
Line protocol current state: UP
```

```
Description: to YBYGPU
```

```
The Maximum Transmit Unit is 1500, Hold timer is 10(sec)
```

```
Physical layer is E1-F, baudrate is 1984000 bps
```

```
fe1 timeslot-list 1-31
```

```
Internet Address is 26.96.2.73/29 Primary
```

```
Link layer protocol is FR IETF
```

```
  LMI DLCI is 0, LMI type is Q.933a, frame relay DCE
```

```
  LMI status enquiry received 330, LMI status sent 330
```

```
  LMI status enquiry timeout 53, LMI message discarded 6
```

```
Output queue : (Urgent queuing : Size/Length/Discards) 0/100/0
```

```
Output queue : (Protocol queuing : Size/Length/Discards) 0/500/0
```

```
Output queue : (FIFO queuing : Size/Length/Discards) 0/75/0
```

```
Last clearing of counters: Never
```

```
  Last 300 seconds input rate 577.27 bytes/sec, 4618 bits/sec, 8.31 packets/sec
```

```
  Last 300 seconds output rate 179.96 bytes/sec, 1439 bits/sec, 2.68 packets/sec
```

中兴侧：

```
interface ce1_3/1.1
```

```
ip address 26.96.2.78 255.255.255
```

```
encapsulation frame-relay
```

```
frame-relay interface-dlci 100
```

查看中兴侧接口状态

```
SHOW INT ce1_3/1.1
```

```
ce1_3/1.1 is up, line protocol is up
```

```
Description is none
```

```
Keepalive set:10 sec
```

```
The port is electric
```

```
crc 16
```

```
Internet address is 26.96.2.78/29
```

```
MTU 1500 bytes
```

```
MRU 1500 bytes      BW 1984 Kbits
```

```
Sample rate is 0
```

```
Encapsulation frame-relay,
```

```
  LAPB state:Disconnected State
```

```
Last clearing of "show interface" counters never
```

```
120 seconds input rate: 355 Bps, 4 pps
```

```
120 seconds output rate: 1006 Bps, 12 pps
```

Interface peak rate : input 81111 Bps, output 3527 Bps

Interface utilization: input 0%, output 0%

Input:

Packets : 152832 Bytes: 167098008

Output:

Packets : 197572 Bytes: 14103152

从接口的信息和配置来看，中兴端路由器用的是子接口的形式和本端建立的帧中继，而从中兴工程师获知，中兴路由器的子接口默认是**点到点**的类型（MSR默认的是点到多点的类型）

四、 解决方法：

因为中兴侧路由器帧中继点到点的类型不能配置静态和动态映射，所以将MSR侧也配置子接口并且将子接口封装成p2p的类型，在子接口上配置和中兴侧路由器子接口的dci号一致；或者将中兴侧的子接口封装成p2mp的类型。