Establishing Enterprise Radio Access Network Solutions

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Foreword

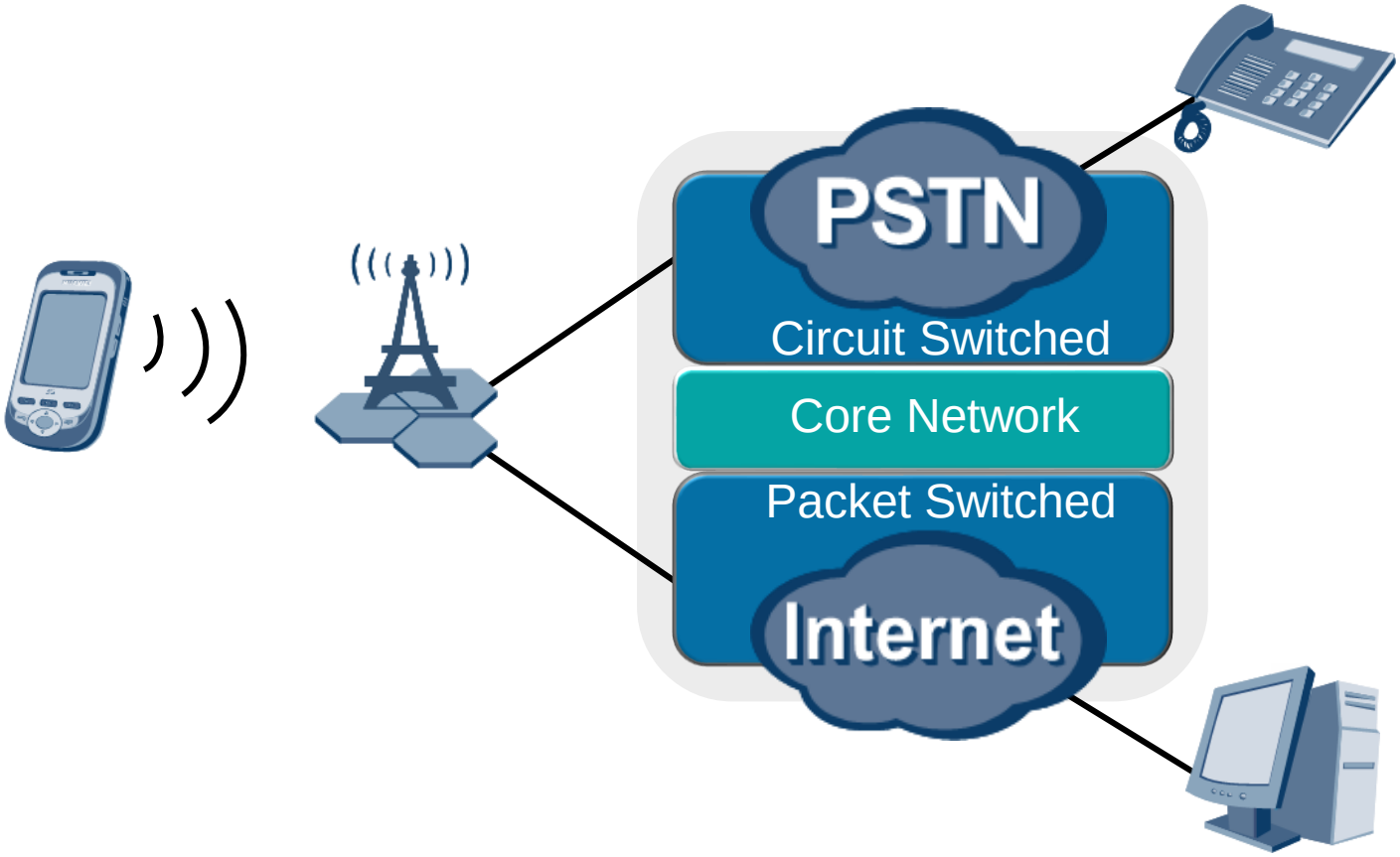
A large number of enterprise networks rely on a single network provider solution that may be in some cases protected by a service level agreement (SLA), as protection where downtime is likely to be critically damaging to a company’s operation; and also where supporting multiple networks is unnecessarily costly. Traditional approaches involve failover solutions using technologies such as ISDN, however newer and more viable solutions in the form of cellular technologies provide effective failover measures in the event that primary networks fail. This section introduces how 2G and 3G cellular network failover solutions can be used to protect the enterprise network.

Objectives

Upon completion of this section, trainees will be able to:

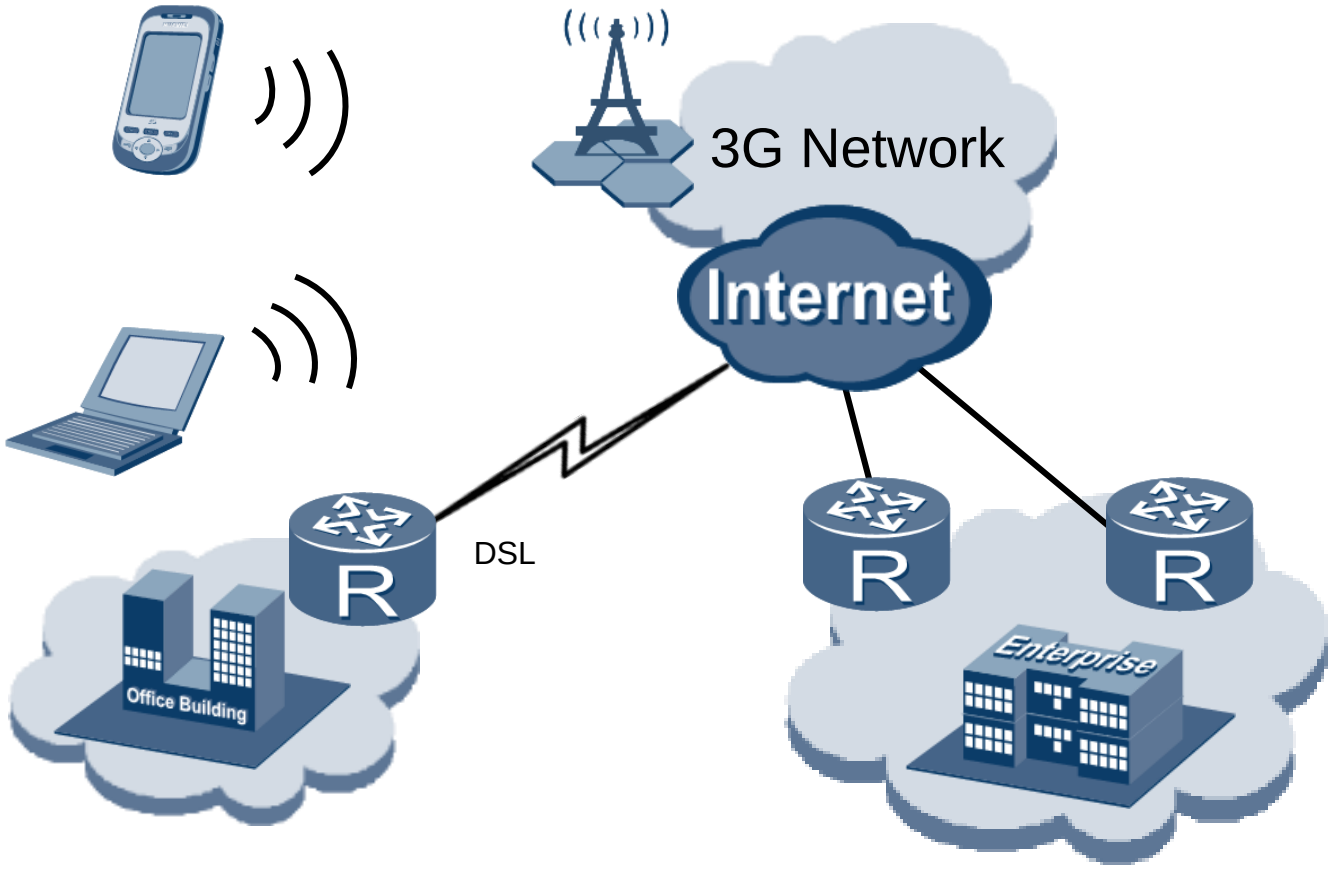
- Explain the application of 2G and 3G networks as an enterprise failover solution.
- Explain the process for implementing cellular interface failover solutions.

Wireless WAN Overview



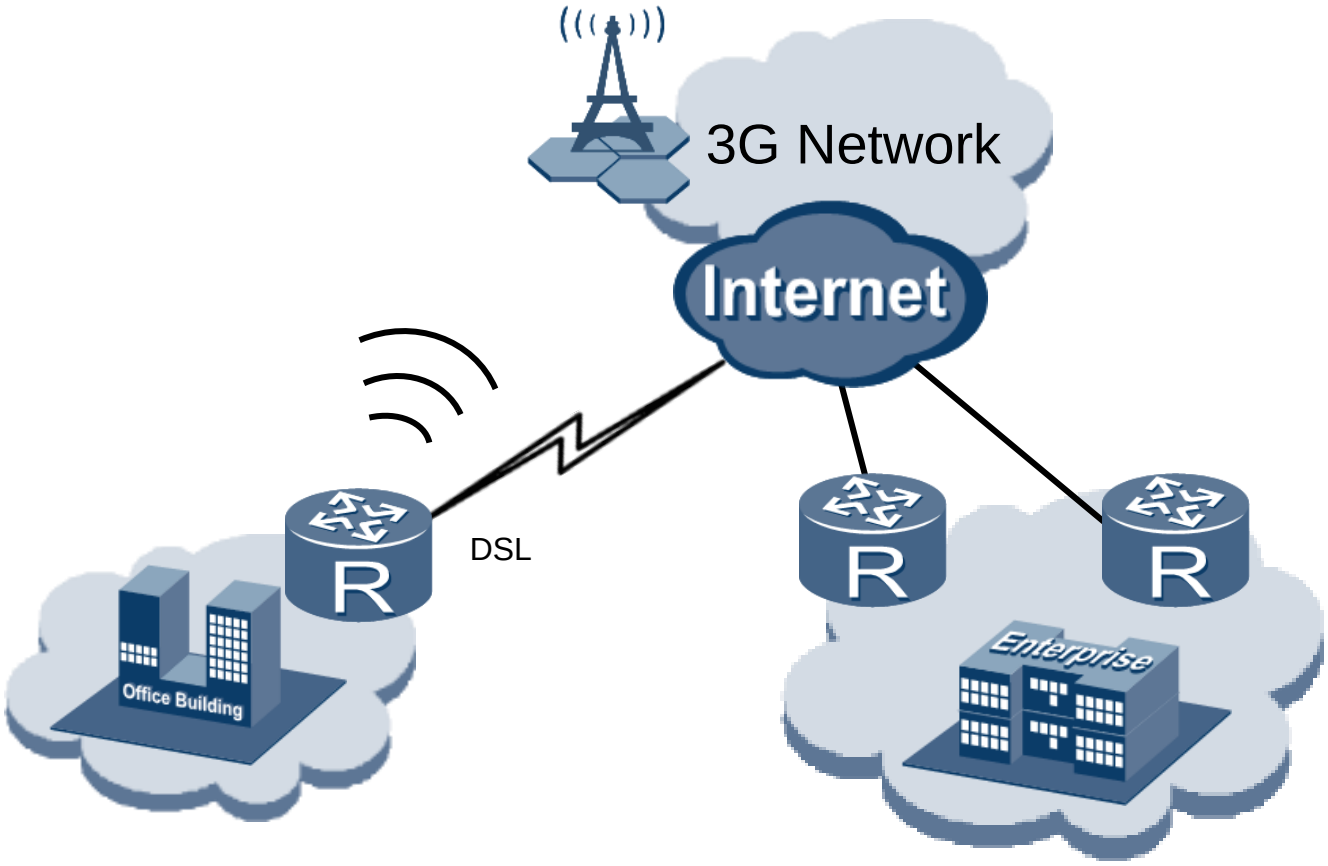
- Evolved Wireless WANs provide for both call and data traffic.

Wireless WAN and the Enterprise Network



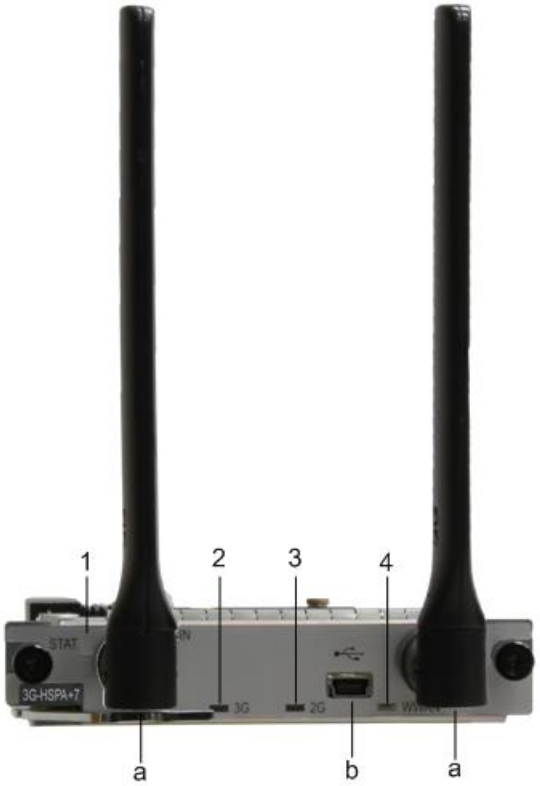
- Increased data speeds allow for new Enterprise solutions.

Enterprise Wireless WAN Solution



- Failover solutions can be applied over 2G and 3G networks.

AR2200 Hardware Requirements



- The 3G-HSPA+7 Interface card enables 2G and 3G services

  AR01SDGW1A

AR1220 Hardware Requirements

SIC interface module	Description
AR0MSDME1A00	1-port channelized E1/T1/PRI/VE1 multiflex trunk interface card
AR0MSDE11A00	1-port fractional channelized E1/T1 WAN interface card
AR0MSDME2A00	2-port channelized E1/T1/PRI/VE1 multiflex trunk interface card
AR0MSDE12A00	2-port fractional channelized E1/T1 WAN interface card
AR0MSDSA1A00	1-port sync/async serial port interface card
AR0MSDSA2A00	2-port sync/async serial port interface card
AR0MSEG1CA00	1-port GE combo WAN interface card
AR0MSEF2TA00	2-port FE WAN Interface Card
AR0MSVA4B1A0	4-Port FXS and 1-port FXO voice interface card
AR01SVB4XA	4-port FXO voice interface card
AR0MSLA1XA00	1-port ADSL2+ ANNEX A/M WAN interface module, supports wetting current (only for Vodafone)
AR0MSLA1XA01	1-port ADSL2+ ANNEX A/M WAN interface module
AR0MSLB1XA01	1-port ADSL2+ ANNEX B/J WAN interface module
AR01SLV1XA	1-port VDSL2 over POTS WAN interface module
AR-2VDSL2-S	2-Port VDSL2 over POTS with bonding WAN Interface Card
AR0MSLS1XA00	1-Port 4 Pair G.SHDSL WAN Interface Module
AR0MSDS1XA00	1-port ISDN S/T WAN interface card
AR0MSVS2XA00	2-port ISDN S/T voice interface module
AR01SDGW1A	3G HSPA+7 interface module
AR0MSOPP2A00	1-Port GPON/EPON Dual-mode interface card
AR-4ES2G-S	4-port 1,000 BASE-RJ45 L2 Ethernet interface card (SIC)

Establishing The 3G Network


```
<Huawei>system-view
[Huawei]interface cellular 0/0/0
[Huawei-cellular0/0/0]ip address ppp-negotiate
[Huawei-cellular0/0/0]profile create 1 static 3GNET
[Huawei-cellular0/0/0]mode wcdma wcdma-precedence
[Huawei-cellular0/0/0]quit
```

- 3G network parameters are defined on the cellular interface.

Setting The Dial Control Center


```
[Huawei]dialer-rule
[Huawei-dialer-rule]dialer-rule 1 ip permit
[Huawei-dialer-rule]quit
[Huawei]interface cellular 0/0/0
[Huawei-cellular0/0/0]dialer enable-circular
[Huawei-cellular0/0/0]dialer-group 1
[Huawei-cellular0/0/0]dialer number *99#
```

Configure NAT Role & Static Route


```
[Huawei]acl number 3002
[Huawei-acl-adv-3002]rule 5 permit ip source 192.168.1.0 0.0.0.255
[Huawei-acl-adv-3002]quit
[Huawei]interface cellular 0/0/0
[Huawei-cellular0/0/0]nat outbound 3002
[Huawei-cellular0/0/0]quit
[Huawei]ip route-static 0.0.0.0 0 cellular 0/0/0
```

Configuration Summary

interface cellular 0/0/0	ip address ppp-negotiate profile create 1 static 3GNET mode wcdma wcdma-precedence
dialer-rule	dialer-rule 1 ip permit
interface cellular 0/0/0	dialer enable-circular dialer-group 1 dialer number xyz
acl number 3002	rule 5 permit ip source <ip> <wc>
interface cellular 0/0/0	nat outbount 3002
ip route-static 0.0.0.0 0 cellular 0/0/0	

Configuration Validation

```
<Huawei> display interface Cellular 0/0/0
Cellular0/0/0 current state : UP
Line protocol current state : UP (spoofing)
Description:HUAWEI, AR Series, Cellular0/0/0 Interface
Route Port, The Maximum Transmit Unit is 1500
Internet Address is negotiated, 203.161.70.97/32
Link layer protocol is PPP
LCP opened, IPCP opened
Last physical up time : 2013-06-08 10:53:15
Last physical down time : 2013-06-08 10:53:13
Current system time: 2013-06-08 11:35:23
Modem State: Present
……
```

Configuration Validation

```
[Huawei] display nat outbound
 NAT Outbound Information:
 --------------------------------------------------------------------------
 Interface          Acl     Address-group/IP/Interface       Type
 --------------------------------------------------------------------------
 Cellular0/0/0     3002           203.161.70.97              easyip
 --------------------------------------------------------------------------
  Total : 1
```

- Easy IP address translation is applied to the cellular interface.
- Internal host addresses are mapped to the cellular IP address.

Summary

- How is failover to the cellular network supported in the event of a failure of the primary network?

Thank you

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