IEPREP Topology Scenarios

December 3rd, 2002

Status of this Memo

Abstract

This memo conveys simplistically the likely topological scenarios that may
be encountered in reference to IEPREP phone calls. These scenarios should
be used to focus the IEPREP Working Group during discussions and when
writing requirements, gap analysis and other solutions documents.

Table of Contents

1.0   Introduction

This memo conveys simplistically the likely topological scenarios that may
be encountered in reference to IEPREP phone calls. These scenarios should
be used to focus the IEPREP Working Group during discussions and when
writing requirements, gap analysis and other solutions documents.

There has been much confusion on the IEPREP list as well as within each
meeting about the topologies IEPREP is considering. Hopefully this
document will give each reader and author a reference set of named
architectures.

This memo attempts to be agnostic with regard to IP signaling or control
protocols (SIP, MEGACO, etc), as well as any underlying QOS mechanisms
(Diffserv, RSVP, NSIS, etc).

1.1 Motivation

Simply put, to get everyone referencing the same (named) topologies in
order to have useful and less confusing dialog to further this working
group's efforts.

[1.2](#) Changes From Previous Versions

Changes from -00 to -01

This version greatly reduces the text of the overall document by removing
all discussion of requirements and authentication & authorization. This is

not a requirements document (therefore shouldn't state any), and the A&A
text/discussion for each of the topologies, though necessary within the WG,
has been moved to another "ieprep-topology-implications" document.

Changes from -01 to -02

Cleaned up minor omissions discovered that weren't omitted from the -00 to
-01 change.

Took out the paragraph following Figure 2 ([section 2.2](#)) referring to where
ETS aware devices should be.

[1.3](#) Terms and Definitions

The following acronyms need to be exploded for clarity:

        CSN = Circuit Switched Network

        GW = Gateway (CSN to IP, or IP to CSN)

[2.0](#) IEPREP Topologies

There are 4 often mentioned, but very little documented topologies
discussed within this WG's efforts so far. The following subsections name
and describe each of the topologies.

The 4 topologies are (quickly):

        Topology "IP Bridging"

        Topology "IP at the Start"

        Topology "IP at the End"

        Topology "End-to-End IP"

2.1 Topology "IP Bridging"

This topology is sometimes known as "IP in the Middle" of two CSNs. In this topology, a CSN phone of any type initiates (dials) a call to another CSN phone with an IP core between the two CSNs.

This topology should simplistically look like this:

```
   Circuit                        Internet              Circuit
  Switched         IP               or           IP    Switched
  Network        Ingress        IP Segment     Egress   Network
 -----------+               +--------------+            +-----------
           |    +----+     |      IP      |    +----+   |
   CSN     |    |    |     |              |    |    |   |    CSN
  Phone ------->| GW |------------------------>| GW |-------->Phone
           |    |    |     |              |    |    |   |
           |    +----+     |              |    +----+   |
 -----------+               +--------------+            +-----------
```
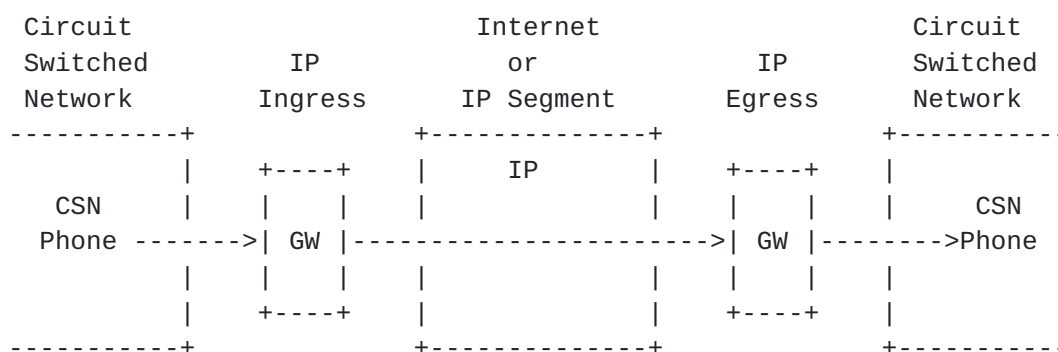
               Figure 1. Topology "IP Bridging"

2.2 Topology "IP at the Start"

This topology has the initiating party placing (dialing) the call from an IP Phone (PDA or computer), and the called party residing in the CSN.
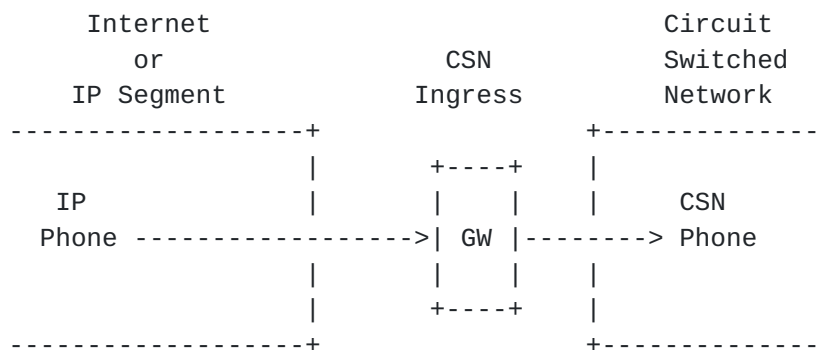
```
          Internet                         Circuit
            or               CSN          Switched
        IP Segment         Ingress         Network
       -------------------+              +---------------
                         |    +----+     |
         IP              |    |    |     |    CSN
        Phone ------------------>| GW |-------->  Phone
                         |    |    |     |
                         |    +----+     |
       -------------------+              +---------------
```

             Figure 2. Topology "IP at the Start"

2.3 Topology "IP at the End"

This topology has the calling party placing the call from a CSN phone, and
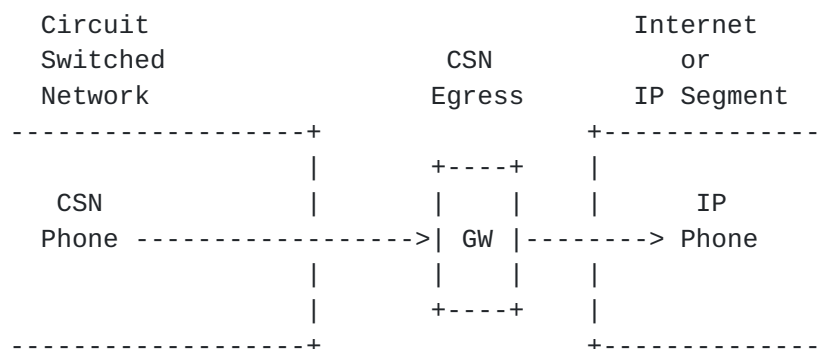the called party being in an IP network.

```
            Circuit                                Internet
            Switched                CSN               or
            Network                Egress         IP Segment
        ------------------+                   +---------------
                          |       +----+      |
            CSN           |       |    |      |      IP
           Phone ------------------>| GW |-------->  Phone
                          |       |    |      |
                          |       +----+      |
        ------------------+                   +---------------
```

             Figure 3. Topology "IP at the End"

2.4 Topology "End-to-End IP"

This topology has no circuit switched sections in the call path.

```
                        Internet
                           or
                        IP Network
            +------------------------------------------+
            |                                          |
     +---------+                              +-----------+
     |                                                    |
     |   IP                                      IP       |
     | Phone -------------------------------------> Phone |
```

```
    |                                           |
  +---------+                          +-----------+
          |                              |
        +-----------------------------------------+
```
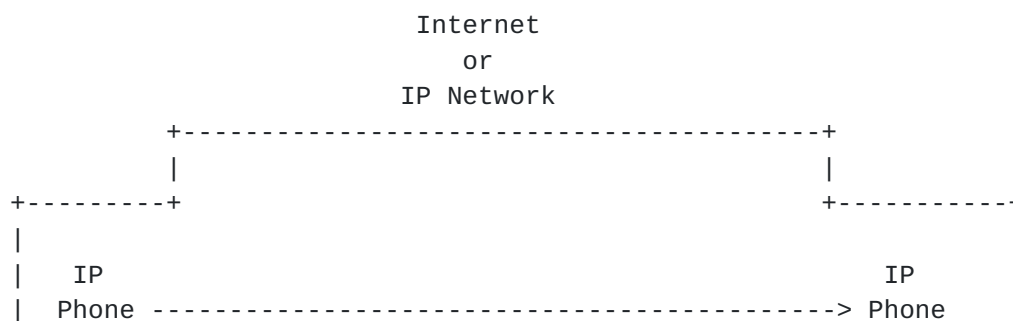
Figure 4. Topology "End to End IP"

[3.0](#) Security Considerations

This document merely suggests a common naming convention within IEPREP WG
discussions, therefore there are no special security considerations.

[4.0](#) IANA Considerations

There are no IANA considerations within this document

[5.0](#) Acknowledgements

To Scott Bradner, Kimberly King and Mike Pierce for their comments and
suggestions

[6.0](#) References

none at this moment

[7.0](#) Authors Information

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The Expiration date for this Internet Draft is:

June 3rd, 2003