Overview of ETS in IPCablecom Networks

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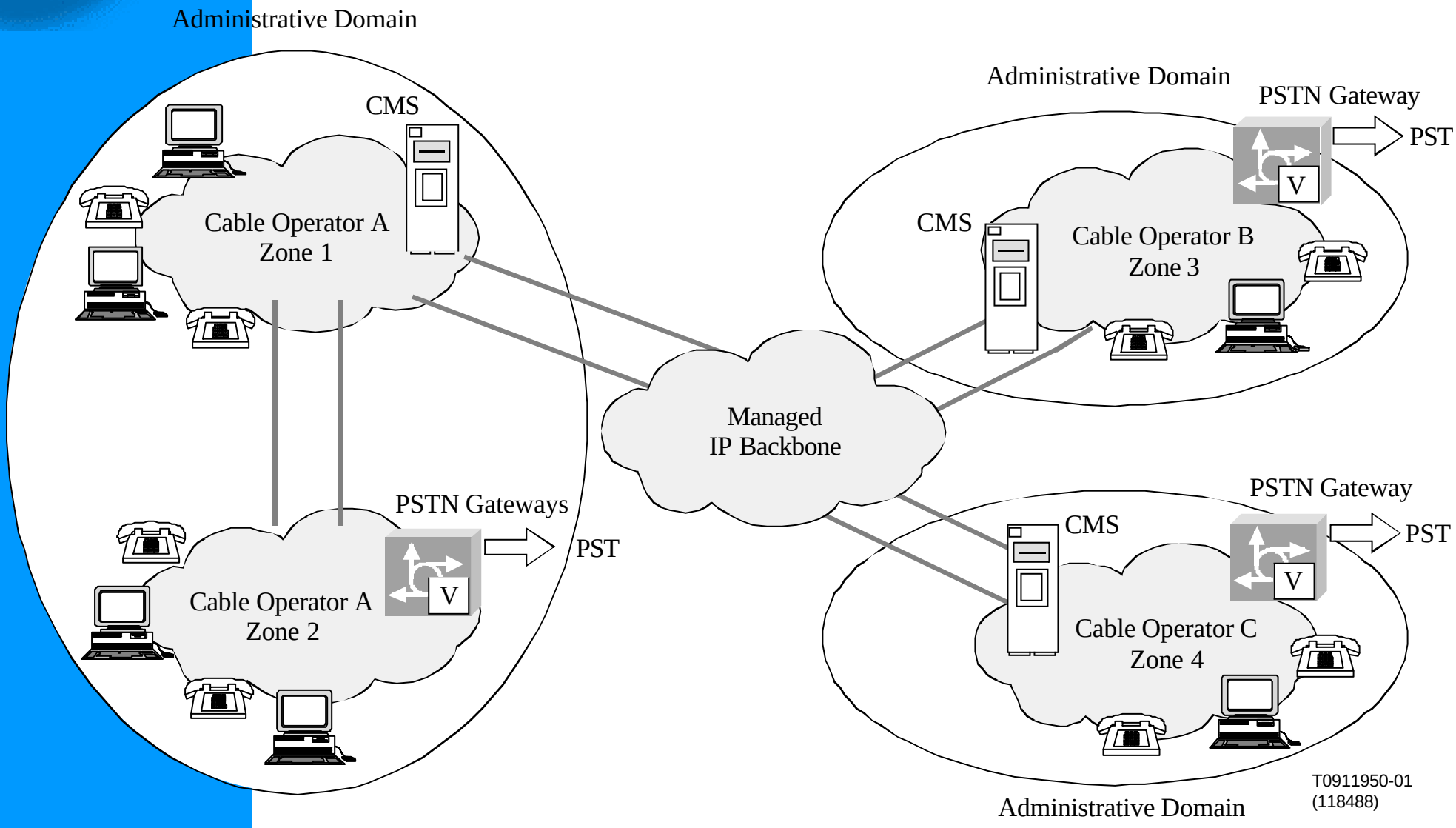
Overview

- IPCablecom Networks
- Major ETS Issues
- Telephony over IPCablecom
- Approach in Study Group 9
- Future Work

IPCablecom Zones and Domains

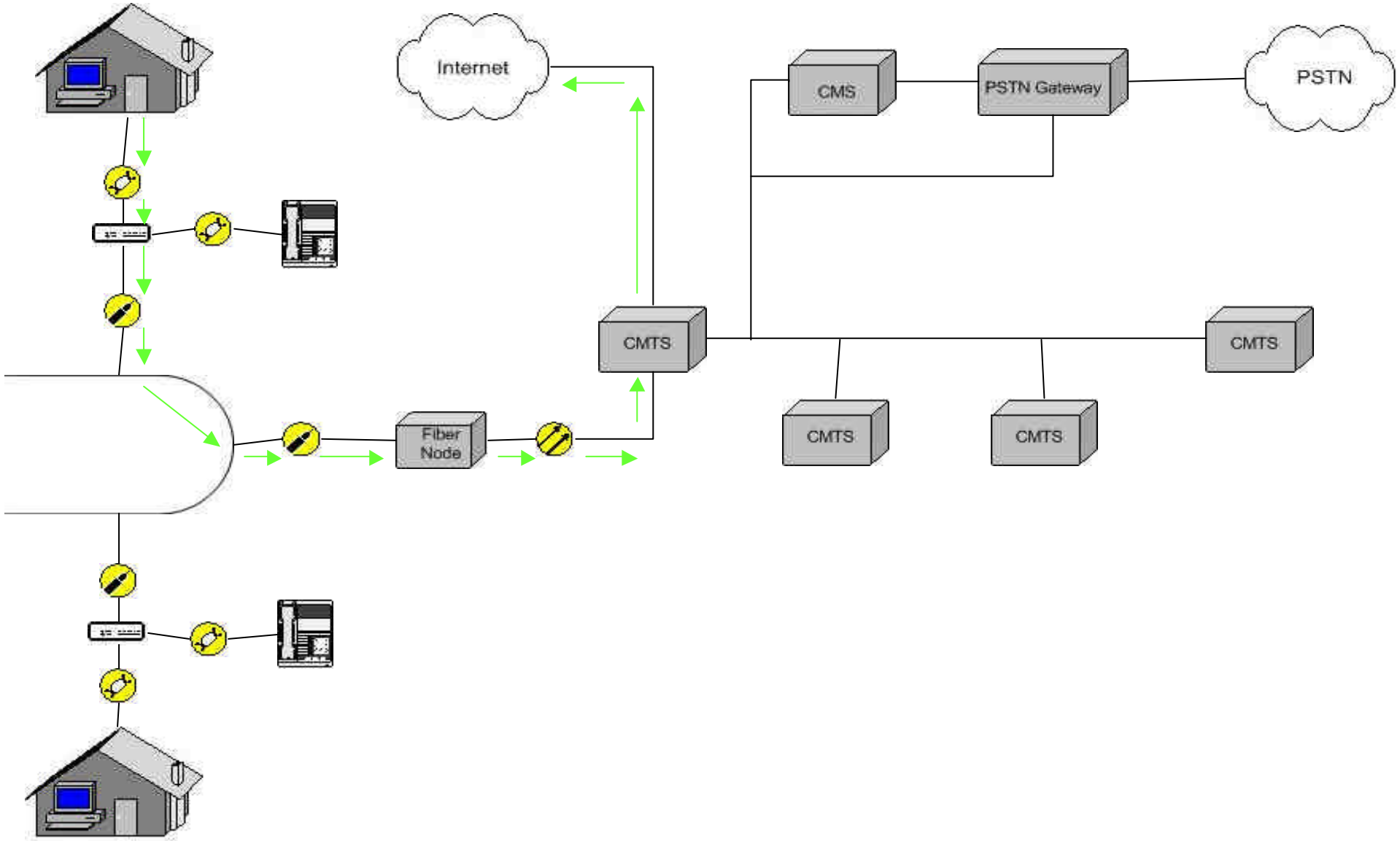


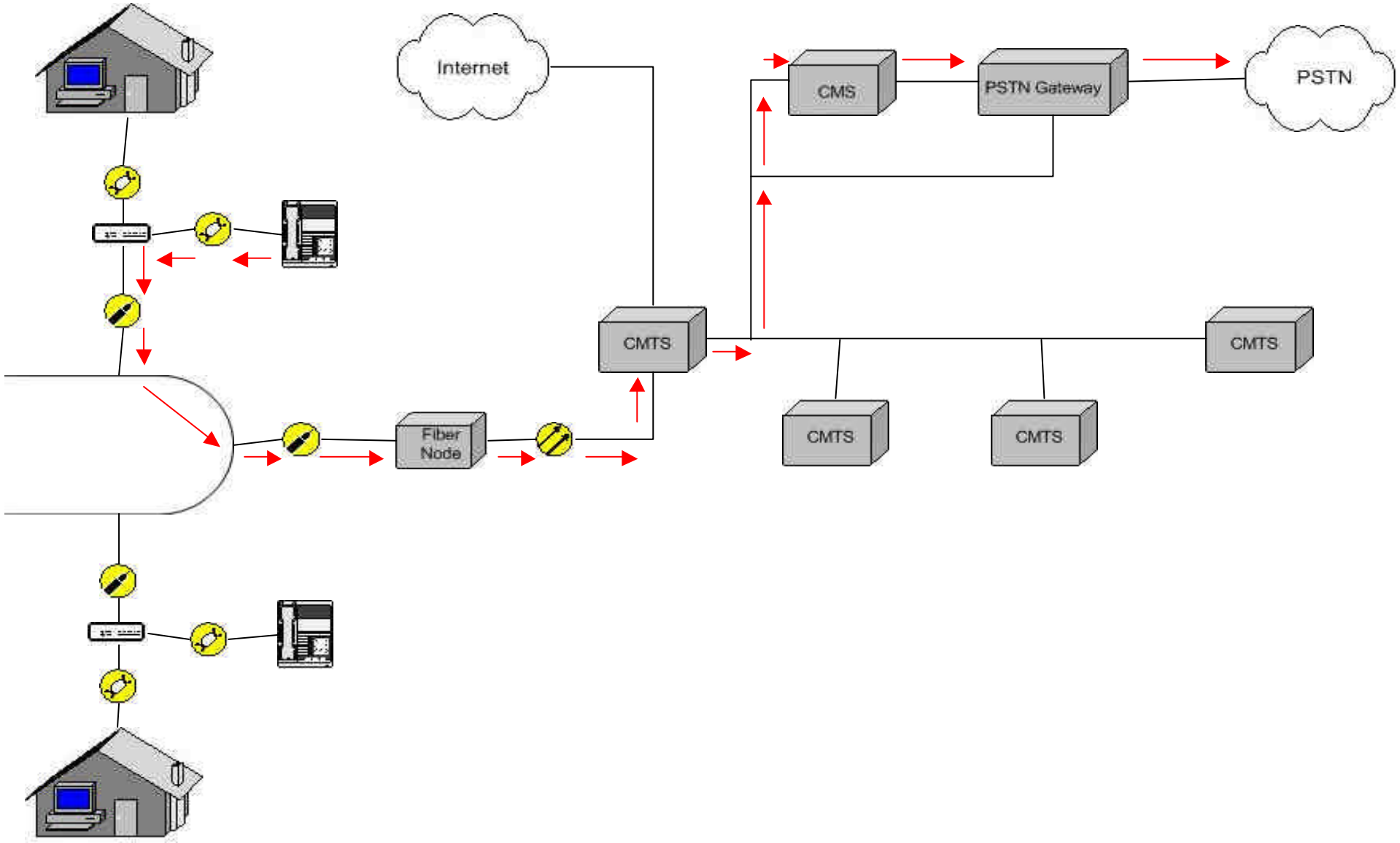
Major ETS Issues

- 1. Priority
  - Where to provide it?
    - Packet level?
    - Application Level?
- 2. Security
  - How to authenticate ETS users?
    - Avoid “Super” Denial of Service Attacks

Telephony over Cable Different Scenarios

- VoIP – Data call (e.g. Computer to Internet)
- On-net to Off-net (IPCablecom to PSTN)
- On-net (IPCablecom) Intra-zone
- On-net Inter-zone Intra-domain
- On-net Inter-domain


Internet
CMS
PSTN Gateway
PSTN
CMTS
CMTS
CMTS
CMTS
Fiber Node


Internet
CMS
PSTN Gateway
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CMTS
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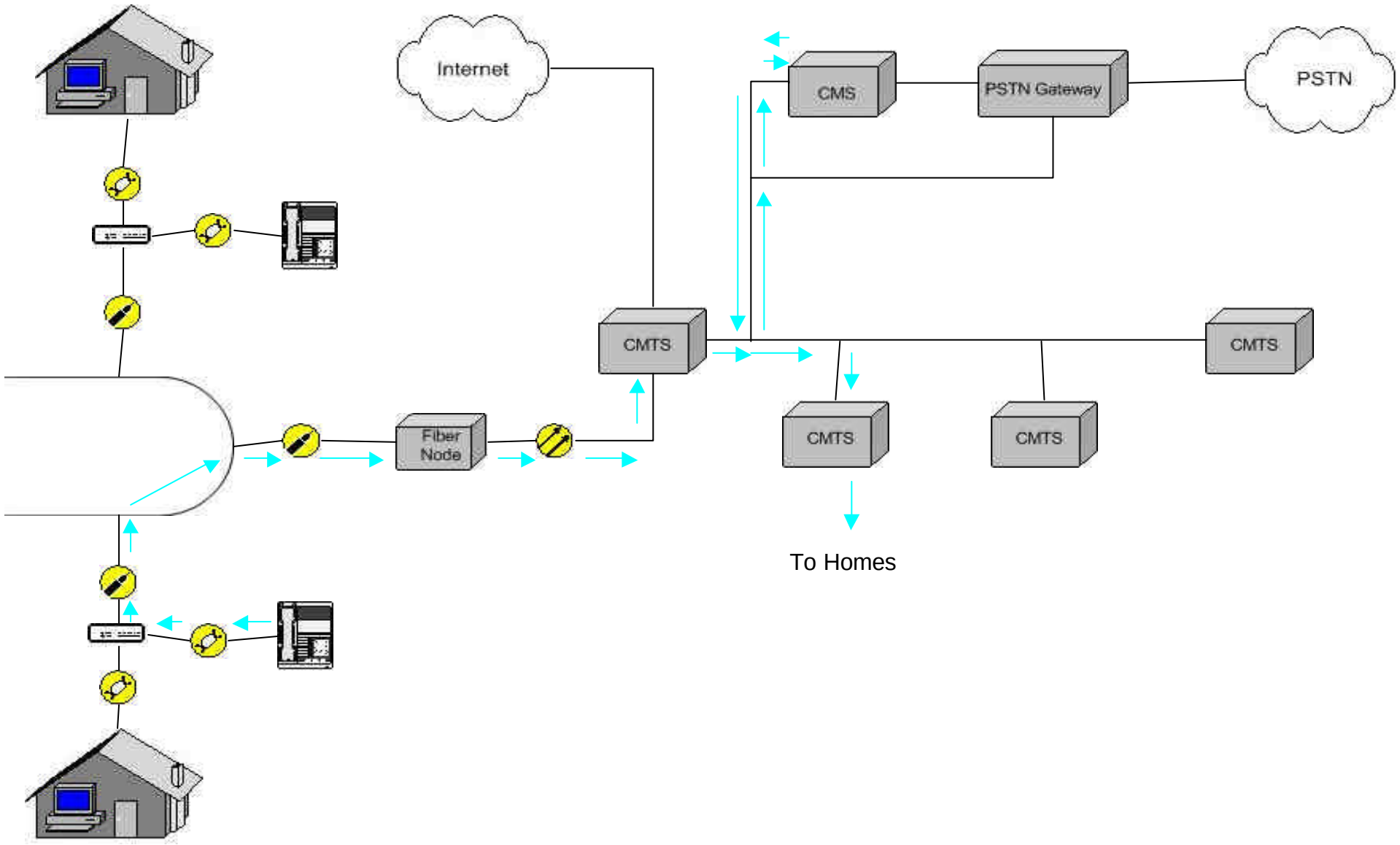
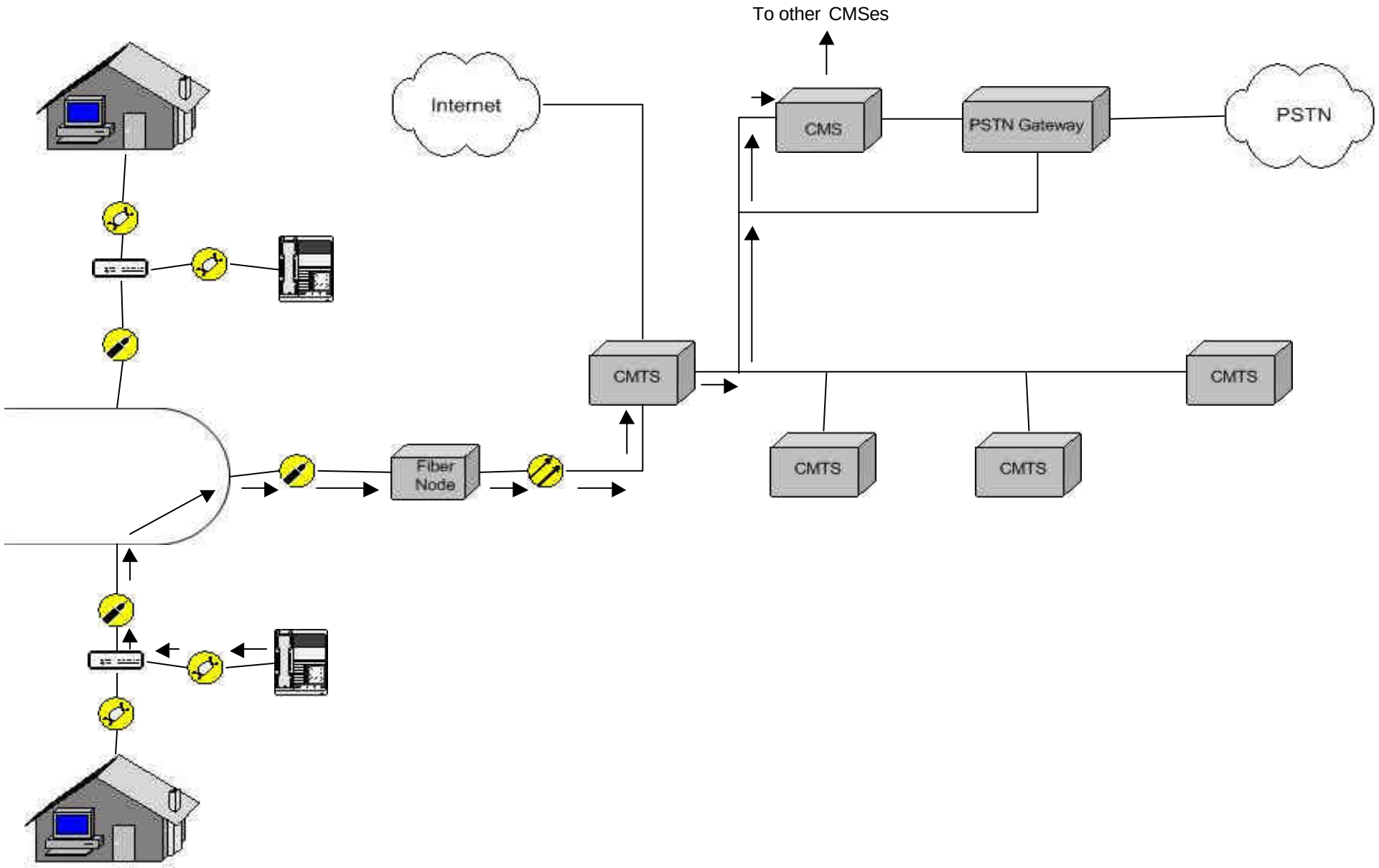
CMTS
Fiber Node


Internet
CMS
PSTN Gateway
PSTN
CMTS
CMTS
CMTS
CMTS
Fiber Node
To Homes


To other CMSes
Internet
CMS
PSTN Gateway
PSTN
CMTS
CMTS
CMTS
CMTS
Fiber Node

Two Pronged Approach For ETS in IPCablecom Networks

- 1.Lay Groundwork for ETS in Next Generation Networks
  - Include provisions in IPCablecom Recommendations (and DOCSIS) as networks evolve
- 2. Evolve current ETS methods in PSTN (e.g. GETS) to work on IPCablecom networks

IPCABLECOM RECOMMENDATIONS (1)

J.160	Architecture Framework	Defines architecture framework for IPCablecom networks including all major system components and network interfaces necessary for delivery of IPCablecom services.
J.161	Audio/Video Codecs	Defines the audio and video codecs necessary to provide the highest quality and the most resource-efficient service delivery to the customer.
J.162	Network-Based Call Signaling (NCS)	Defines a profile of the Media Gateway Control Protocol (MGCP) for IPCablecom embedded clients, referred to as the Network-based Call Signaling (NCS) protocol.
J.163	Dynamic Quality-of-Service	Defines the QoS Architecture for the "Access" portion of the PacketCable network, provided to requesting applications on a per-flow basis.
J.164	Event Messages	Defines the concept of Event Messages used to collect usage for the purposes of billing within the IPCablecom architecture.
J.165	Internet Signaling Transport Protocol (ISTP)	Defines the Internet Signaling Transport Protocol (ISTP) for IPCablecom PSTN Signaling Gateways.
J.166	MIBs Framework	Describes the framework in which IPCablecom MIBs (Management Information Base) are defined.
J.167	MTA Device Provisioning	Defines the protocol mechanisms for provisioning of an IPCablecom embedded-MTA device by a single provisioning and network management provider.

IPCABLECOM RECOMMENDATIONS (2)

J.168	MTA MIB	Defines the MIB module which supplies the basic management objects for the MTA Device.
J.169	NCS MIB	Defines the MIB module which supplies the basic management object for the NCS protocol
J.170	Security	Defines the Security architecture, protocols, algorithms, associated functional requirements and any technological requirements that can provide for the security of the system for the IPCablecom network.
J.171	PSTN Gateway Call Signaling (TGCP)	Defines a trunking gateway control protocol (TGCP) for use in a centralized call control architecture that assumes relatively simple endpoint devices.
J.172 (mem)	IPCablecom management event mechanism	IPCablecom management event mechanism
J.173 (pls)	IPCablecom embedded MTA primary line support	IPCablecom embedded MTA primary line support
J.174 (iqos)	IPCablecom Interdomain Quality of Service	IPCablecom Interdomain Quality of Service
J.175* (as)	Audio Server Protocol	Describes the architecture and specifies the protocols that are required for playing announcements in voice-over-IP (VoIP) IPCablecom networks.
J.176 (J.memmib)	IPCablecom MIB for Management Event Mechanism	Defines the MIB for Management Event Mechanism that IPCablecom elements can use to report to management systems and/or local logs asynchronous events that indicate malfunction situations, etc.

Supplement to J.160

- Assess the functionality of Emergency Telecommunications on IPCablecom networks
- Define the steps needed to attain such functionality where it is not found.
- Ensure that Emergency Telecommunications will be able to function in the
  - architecture,
  - signaling,
  - security,
  - and other provisions of IPCablecom and other related Recommendations defining access and transport over Broadband Cable Networks.

Summary

- IPCablecom already supports many ETS features.
- J.160 Supplement opened to document needed additions.
- J.ET a work item for future ETS Recommendation for Interoperability in IPCablecom Networks.

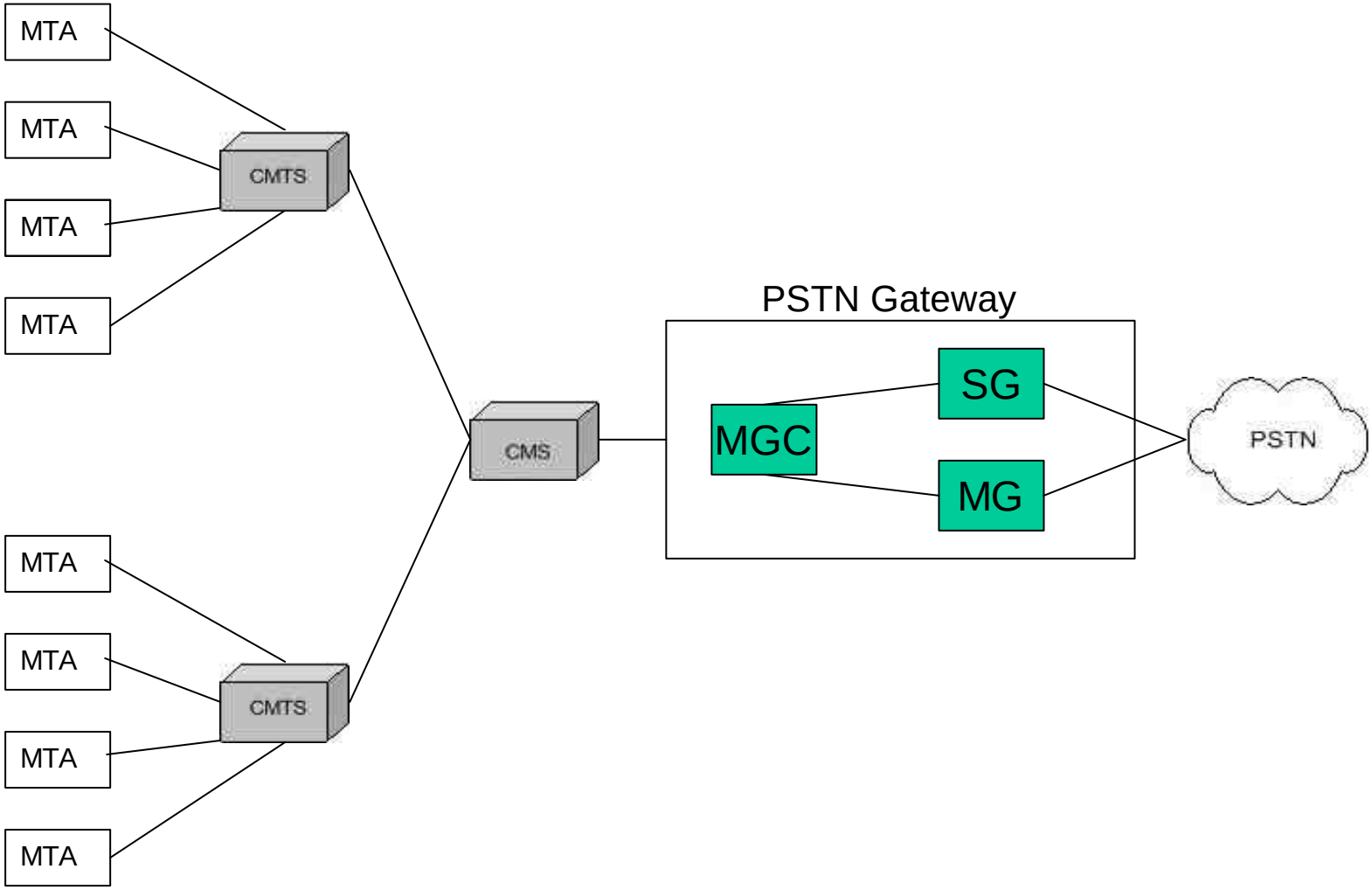
Future Work

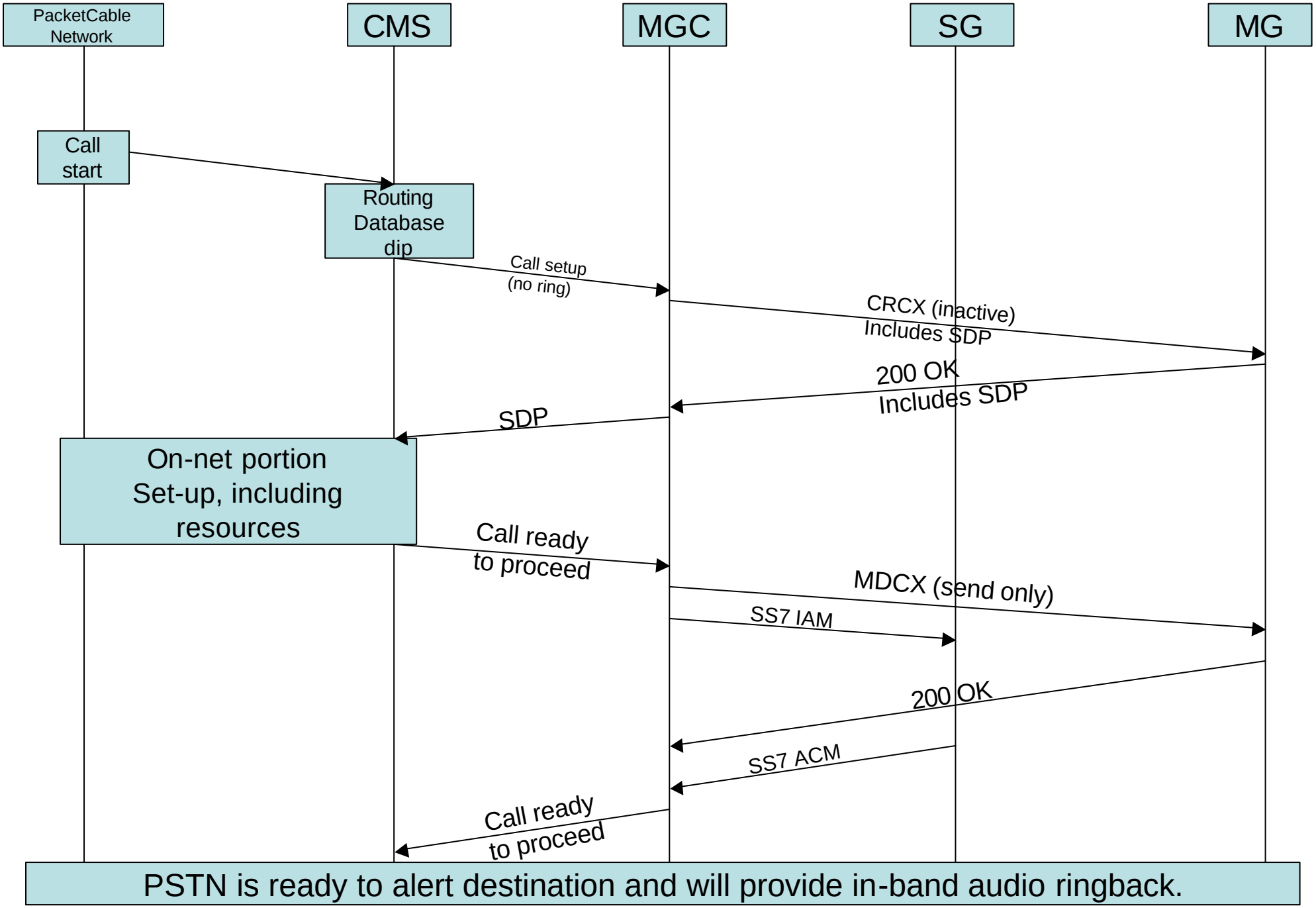
- Study Group 9 waiting for specifications to be developed in other Study Groups and the IETF.
- Meanwhile work proceeds to “evolve” current ETS/TDR functionality (e.g. GETS) in IPCablecom networks.

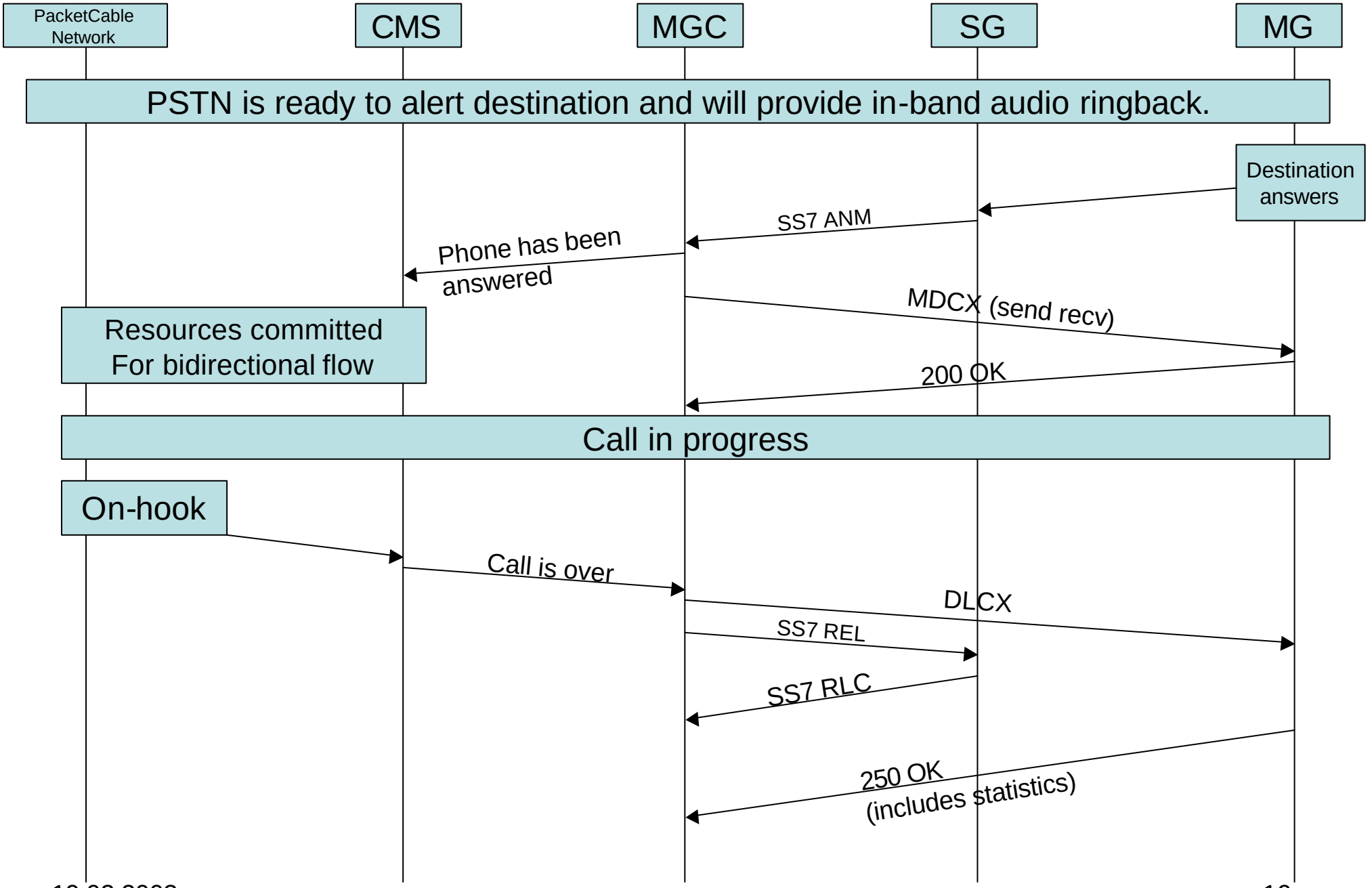
Extra Slides

- Diagram of IPCablecom to PSTN Gateway
- Example Call Flow Diagram for an On-Net to Off-Net IPCablecom Call

IPCablecom to PSTN Gateway




PacketCable Network
CMS
MGC
SG
MG
Call start
Routing Database dip
Call setup (no ring)
CRCX (inactive) Includes SDP
200 OK Includes SDP
SDP
On-net portion Set-up, including resources
Call ready to proceed
MDCX (send only)
SS7 IAM
200 OK
SS7 ACM
Call ready to proceed
PSTN is ready to alert destination and will provide in-band audio ringback.


PacketCable Network
CMS
MGC
SG
MG
PSTN is ready to alert destination and will provide in-band audio ringback.
Destination answers
SS7 ANM
Phone has been answered
MDCX (send recv)
Resources committed For bidirectional flow
200 OK
Call in progress
On-hook
Call is over
DLCX
SS7 REL
SS7 RLC
250 OK
(includes statistics)