

ICC Docket No. 06-0027

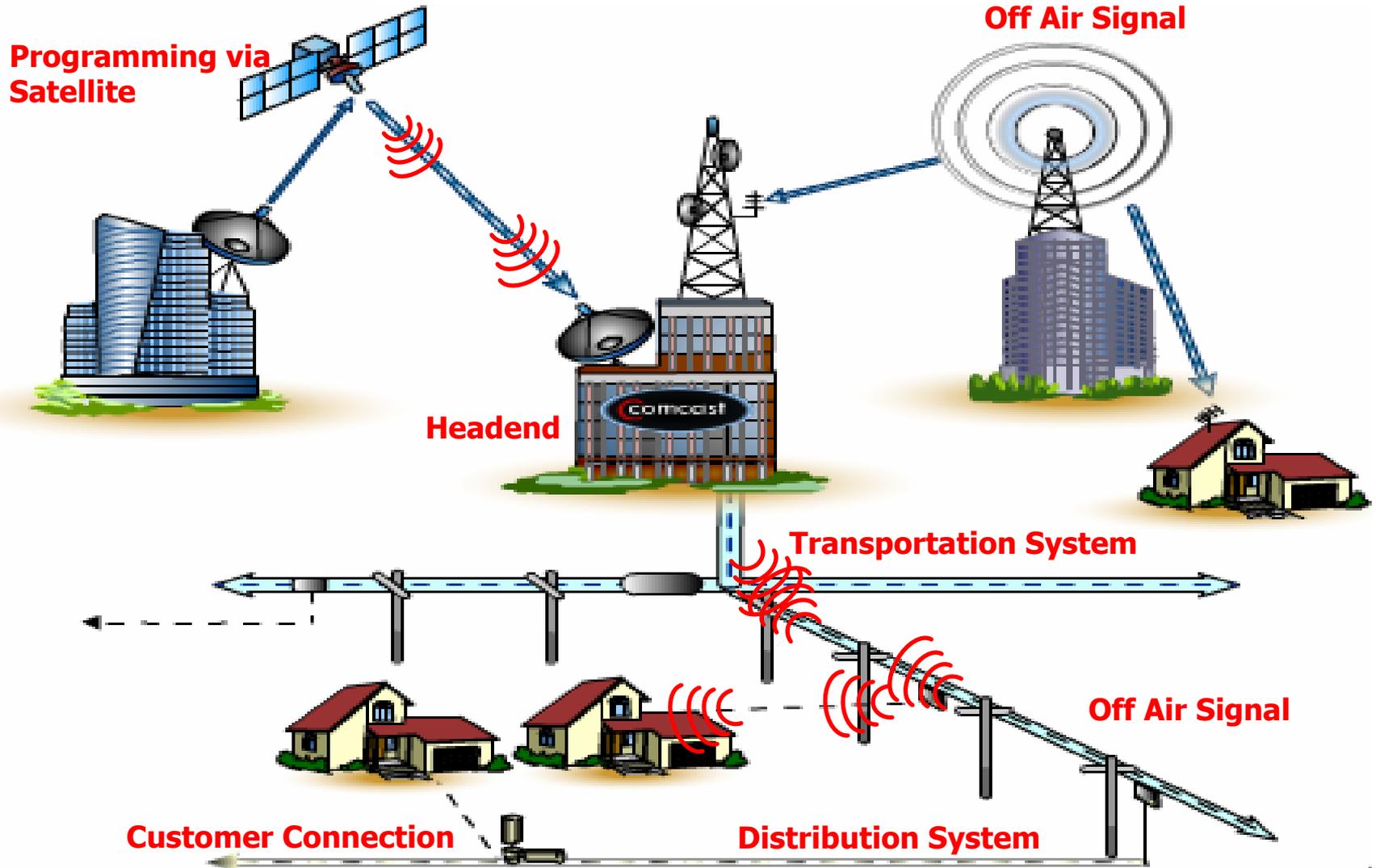
AT&T Illinois Exhibit 12.0

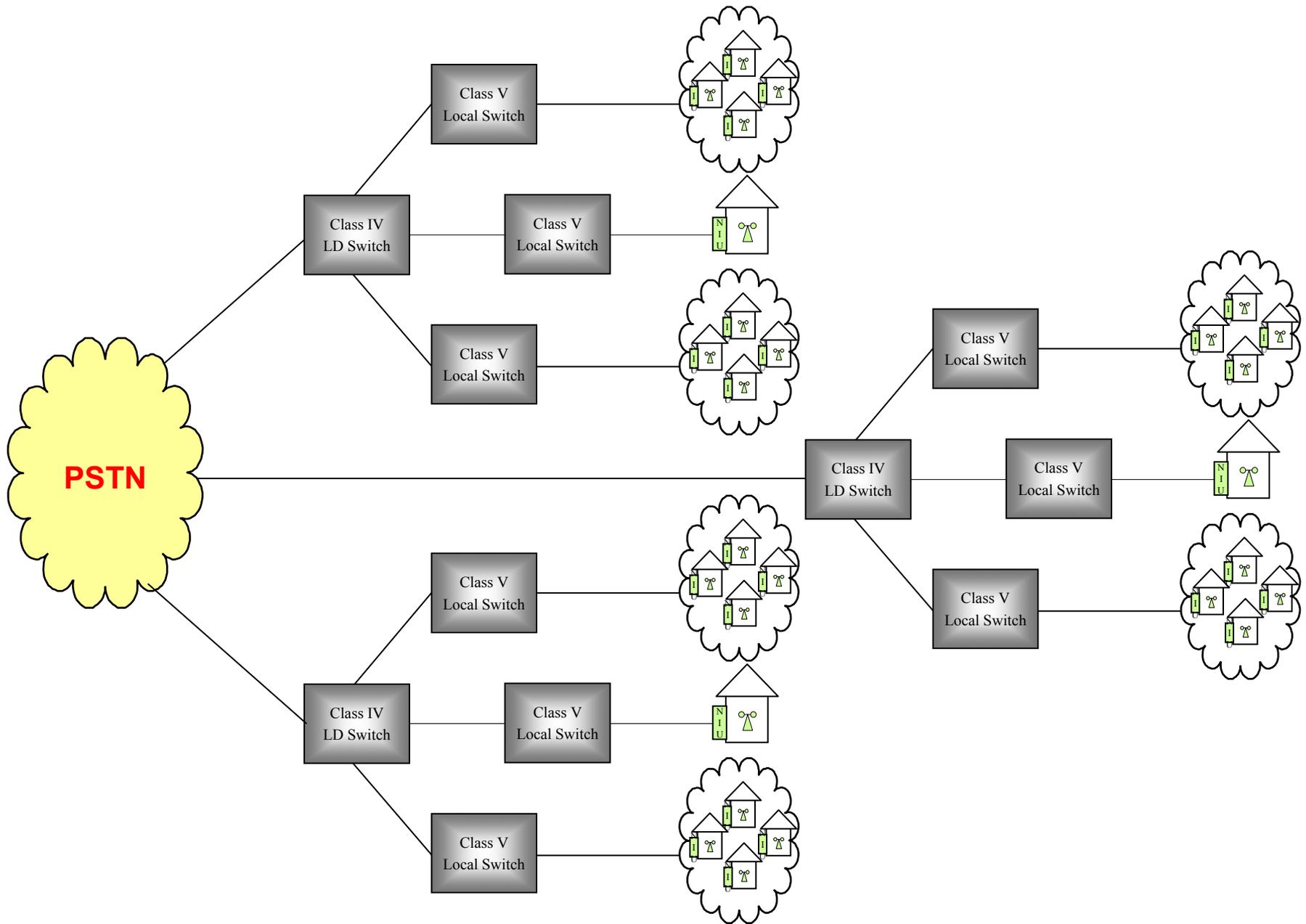


Cable / Telephony / IP Network Basics
and
The Relationship
to
VoIP

April 2005

- ✓ Introduce basics of Cable / Telephony technology
- ✓ Provide introductory vocabulary
- ✓ Introduce Internet Protocol (IP) concepts as used in Cable industry
- ✓ Define term "VoIP"
- ✓ Compare and contrast Telephony with VoIP technology
- ✓ Compare and Contrast VoIP technologies





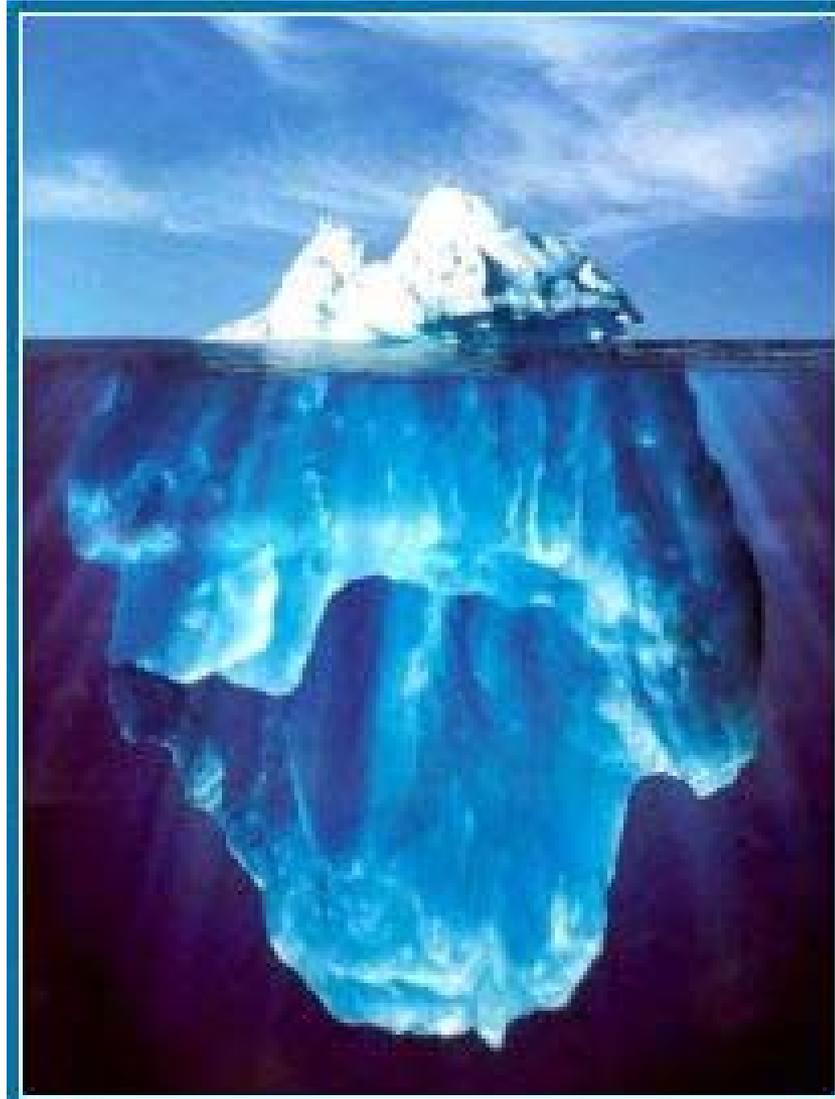
- ✓ Cable was built to deliver “analog video”
- ✓ Telco was built to deliver “analog voice”
- ✓ Convergence of:
 - 1) new digital technologies and
 - 2) product / company competitionled to a “rethinking” of network designs
- ✓ New digital technologies offered economies
- ✓ Different approaches (because of different starting places) led to need for “holy grail” technology
- ✓ **Internet Protocol** is one such (or maybe “the”) technology

→
The New
Services
Offered to Our
Subscribers



Internet Protocol (IP)
Plays a Support Role

The Platform
That Supports
New Services



IP has
everything
to do here!

- ✓ Digital devices (i.e. computers) need a language to talk to one another on a network.
- ✓ “**IP**” is one such language.
- ✓ “**IP**” stands for “Internet Protocol.” Internet Protocol is a universal language which allows devices / computers around the world to communicate - the technique by which information [data, pictures, music, and voice] is digitized into a format suitable for transport on an IP-based network.
- ✓ IP works by organizing digital information so that it travels through a network in a sequence or grouping known as “**packets**”. IP based networks are often also called “**packet networks**” for this reason.

- ✓ IP is very, very pervasive
- ✓ IP is cost effective
- ✓ Works over wired and wireless
- ✓ Leverages existing infrastructures
- ✓ IP is very flexible and *content agnostic*
- ✓ Therefore, allows **true convergence** of
 - Video
 - Data
 - Voice
 - Other



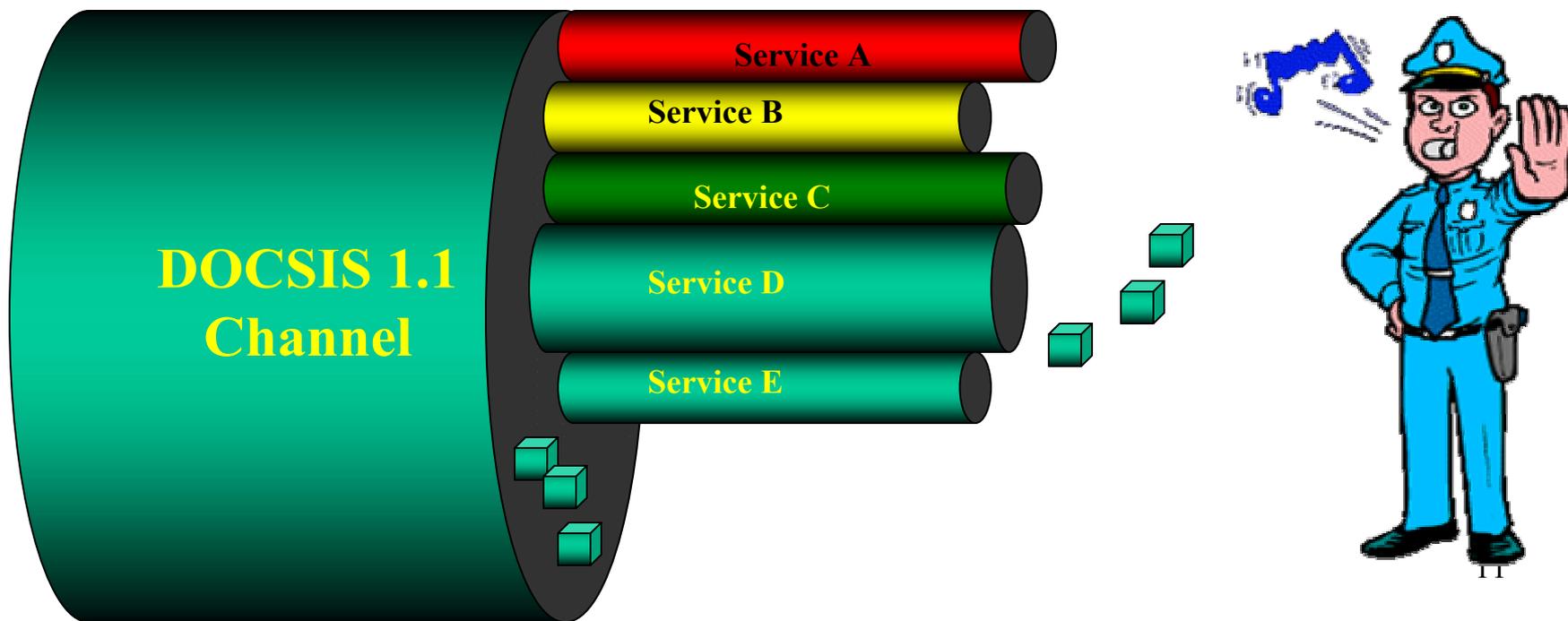
- ✓ DOCSIS is a standard developed to define how to carry **IP data packets** over a Cable Television Network.
- ✓ It was initially developed at CableLabs to support High Speed Internet Service (Cable Modems).
- ✓ It is now an international standard with over 100 vendors and cable modem products.
- ✓ With some modification, IP is used for much more than just access to the public Internet.





What Can DOCSIS Do? IP Bit Stream Management

- ✓ DOCSIS allows IP to operate on a cable network
- ✓ DOCSIS can “referee” the IP bits and the data stream
- ✓ Assigns priority between services
- ✓ Solves send/receive delay (AKA, **latency** issues)
- ✓ For IP Voice - those bits given “#1 priority” in stream





First Generation Services Today - "IP Based" But "Non-Managed"

- ✓ Email
- ✓ Instant Messaging
- ✓ Web surfing
- ✓ E-commerce/banking
- ✓ Music downloads
- ✓ Some video streaming
- ✓ Non-real-time movie downloads
 - MovieLink
- ✓ Some VoIP applications
 - Vonage, Go2Call, Net2Phone, etc.
- ✓ These are, for the most part, "best efforts" based services that can tolerate latency.





But in the Future - Managing IP Leads to Many Potential New Services

- ✓ Energy Management
 - ✓ Home Security/Monitoring
 - ✓ Home Controls/Automation
 - ✓ Warranty Repair Monitoring
 - ✓ Education
 - ✓ Telemedicine
 - ✓ Home Calendaring
 - ✓ Unified Messaging
 - ✓ Network Gaming
 - ✓ Music Library/Subscription
 - ✓ Photo Library/Subscription
 - ✓ Intra-Home Media Distribution
 - ✓ PDA/Mobile/GPS Updates
 - ✓ Mobile Content Downloads
 - ✓ Video Narrowcasting
 - ✓ Advanced Video on Demand
 - ✓ Alternative Video Content
 - ✓ Voice Services
 - ✓ Self-Provisioning
 - ✓ Two-Way Video Communications
 - ✓ Wi-Fi "Hot Spots"
 - ✓ Information Archive
- ✓ *Only examples of potential services*

