### Multimedia Services by Cable

Richard Catchpole, Nortel Networks Study Group 9 April 25, 2001

#### "IPCablecom"

IPCablecom covers SG9 Recs. on IP cable comms. IPCablecom defines architecture and interface specs. IPCablecom builds on SG9's J.83/J.112 cable modem transport (DOCSIS 1.1, EuroDOCSIS, DVB) IPCablecom initial focus is on IP telephony

6/1

7/1

# IP Cable Comms. Stds. Coord.



# ETSI Technical Bodies most concerned with IP Cable Communications



# **IPCablecom Service Possibilities**

- Residential/Business IP Telephony
- Video IP telephony
- Voice/data/video unified messaging
- Enhanced conferencing and media services
- Entertainment Services
  - Real-time multiplayer interactive gaming

# **IPCablecom Service Vision**

#### **Application Services**

**Client Devices** 



## **IPCablecom Components**



AN - Access Node

#### Enable "Zones" of Interoperability



#### • Draft J.160 - IPCablecom Architecture

- Defines requirements for the integrated IPCablecom architecture
- Provides a roadmap for other IPCablecom specifications
- Status: "Determined", live correspondence with SG11

#### • J.162 - Network Based Call Signaling

- Client to Network (MTA-CMS) Signaling
- Variant of MGCP
- Optimized for the Cable access environment
  - Supports simple, thin clients
  - Integrated protocol support for J.dqos, J.sec
- Extensible through the addition of event packages
- Status: "Approved"

#### • J.163 - Dynamic Quality of Service

- RSVP used to establish QoS between MTA and AN
- COPS for Gate Control between CMS and Access Node
- CMS-AN interface minimizes theft of service
- Transport-specific mechanisms are specified in Annexes
- Status: "Approved"

#### • J.161 - Audio Codecs

- RTP for real time transport of media streams
- Low (G.729), medium (G.728), and high (G.711)
   bitrate codecs. Only G.711 is required
- DTMF transmission is in-band
- Status: "Approved"

#### • J.164 - Event Messages

- Initial message set supports event capture and generation for voice services
- Extensible to support additional services
- Events generated by trusted elements CMS, AN, MGC and received by RKS
- Real-time or batch
- Status: "Approved"

#### • J.167 - MTA Device Provisioning

- DHCP, DNS, SNMP, TFTP used to provision client and download MTA configuration file
- Security relationship established between MTA and CMS(s)
- MIB mechanisms defined in J.166 (MIB Framework),
   J.168 (MTA MIB), and J.169 (NCS MIB) support
   MTA device provisioning
- Status: "Approved"

#### • Draft J.170 - Security Interfaces

- Comprehensive and robust mechanisms for signaling and media security
- Security is an integral part of the architecture
- Signaling interfaces protected with IPSEC
- Media encrypted using RC4 stream cipher
- MTA Device Authentication uses X.509 digital certificates
- Status: "Determined", live correspondence with SG16

- Draft J.171 Trunking Gateway Control Protocol
  - Media Gateway Controller to Media Gateway Signaling
  - Annexes created to accommodate variations in trunking interconnection requirements
    - Annex A based on MGCP/NCS
    - Annex B based on H.248 (for further study)
  - Status: "Determined", live correspondence with SG16

- Draft J.165 Internet Signaling Transport Protocol
  - Media Gateway Controller to Signaling Gateway
  - Normative support for ITU-T SS7
  - Non-normative appendix to accommodate variations in SS7 signaling interconnection requirements
  - Status: "Determined", live correspondence with SG11

# Baseline IPCablecom Recommendations

- Architecture
  - Draft J.160 (arch)
- Signaling
  - J.162 (ncs)
  - Draft J.171 (tgcp)
  - Draft J.165 (istp)
- Quality of Service - J.163 (dqos)

- Media/Codecs
  J.161 (acr)
- OSS
  - J.164 (em)
  - J.167 (mtadpv)
  - J.166 (mibfrw)
  - J.168 (mtamib)
  - J.169 (ncsmib)
- Security – Draft J.170 (sec)

#### **Testing Process**



#### Primary Line Recommendations Powering & Availability Guidelines



#### Interdomain Communications Exchange Traffic Directly Over Managed IP Backbones



# **IPCablecom Plan**

#### • Core Architecture

- Baseline Recommendations (8 approved, 4 determined)
  - Integrated system for single zone voice capability
  - Signaling, QoS, Codecs, Billing, Provisioning, Security
- Primary Line Recommendations (planned)
  - Powering, monitoring, and availability guidelines
- Interdomain Communications (planned)
  - Allows operators to exchange traffic over IP networks
- Enhanced Multimedia Capabilities (future)
  - Telecommuting, videoconferencing, interactive gaming, etc.

#### Questions?