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Cooperation between the Telecommunication Standardization and Radiocommunication Sectors in the Area of Standardization

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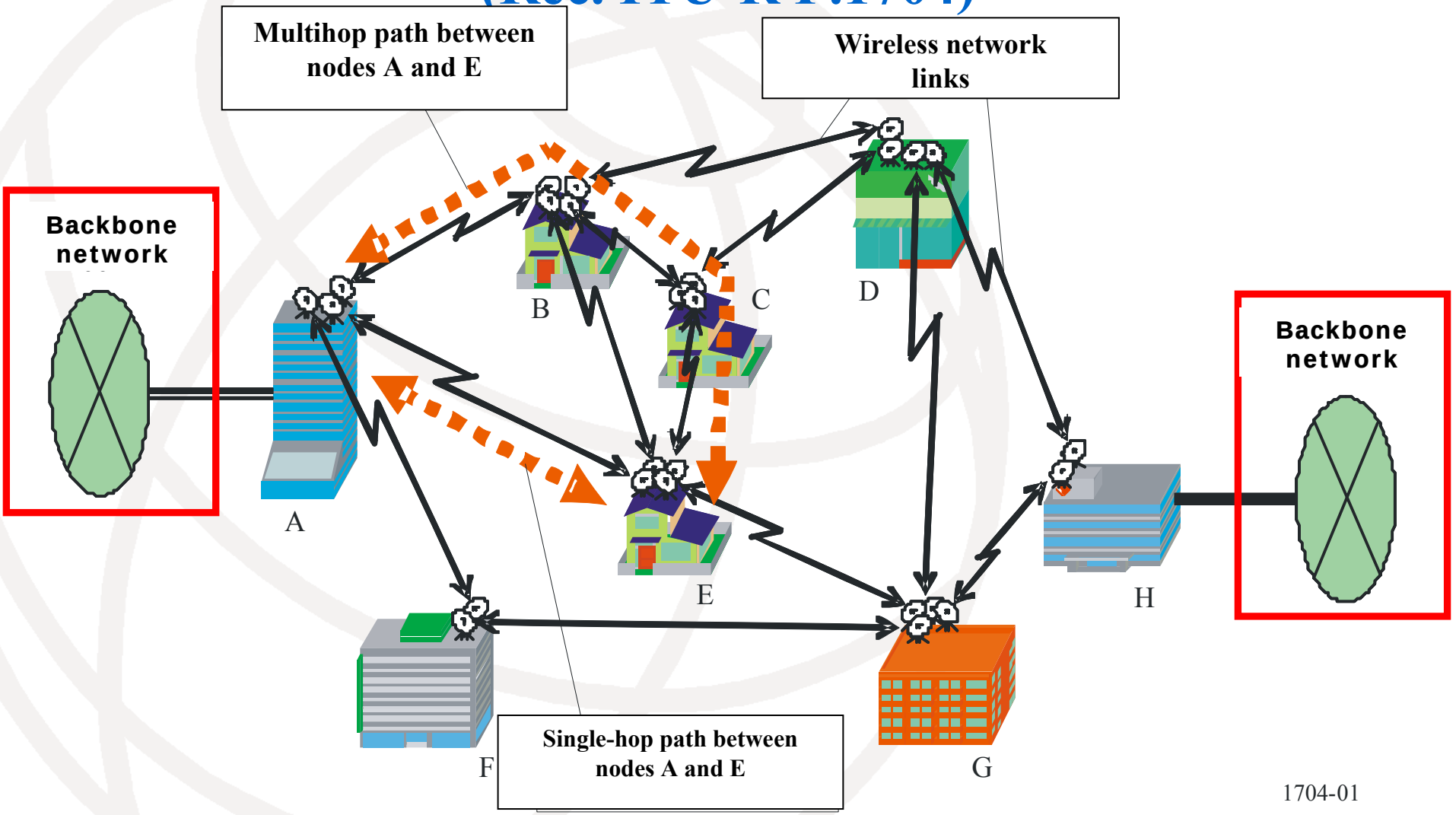
The start of cooperation

- With the appearance of radiocommunication came the use of Morse code for wireless telegraphy.
- Cooperation was made necessary by the emergence of hybrid networks using both radio and wired components. For example:
  - use of radio-relay links for connecting the nodes of public networks;
  - use of satellite systems to connect continents and remote localities;
  - mobile communication systems;
  - etc.

"Multipoint-to-multipoint" (MP-MP) system with mesh network topology (Rec. ITU-R F.1704)



Key documents

- **ITU Constitution and Convention (see at: http://www.itu.int/publ/S-CONF-PLEN-2007/en)**
- **Resolution ITU-R 6-1 "Liaison and collaboration with the ITU Telecommunication Standardization Sector (see at: http://www.itu.int/publ/R-RES-R.6-1-2000/en)**
- **ITU-T Resolution 18 "Principles and procedures for the allocation of work to, and coordination between, ITU-T and ITU-R" (see at: http://www.itu.int/publ/T-RES-T.18-2004/en)**
- **Resolutions on the coordination of specific areas of work (e.g. ITU-T Res. 38 "Coordination among ITU-T, ITU-R and ITU-D for activities relating to IMT-2000 and systems beyond IMT-2000", see at: http://www.itu.int/publ/T-RES-T.38-2004/en)**

Distribution of work between ITU-R and ITU-T

Resolution ITU-R 6-1 ***of the ITU Radiocommunication Assembly 2007 (RA-07),***

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resolves

1 to refer to the Radiocommunication Advisory Group in collaboration with the Telecommunication Standardization Advisory Group, the continuing review of new and existing work and its distribution between the two Sectors, for approval by Members in accordance with the procedures laid down for the approval of new or revised Questions taking into account the activities and results of the ongoing restructuring efforts within ITU;

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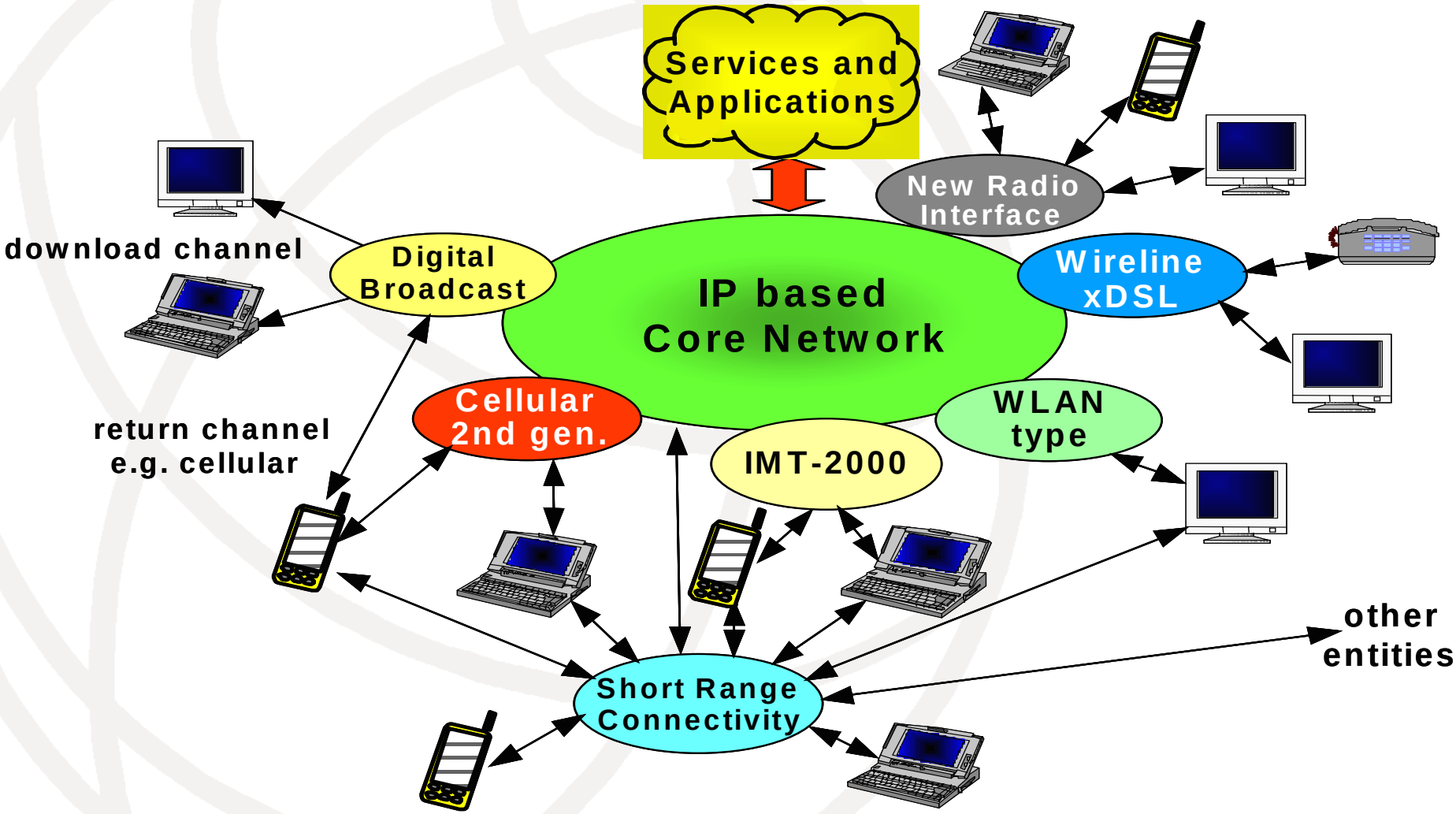
Similar instructions are also to be found in ITU-T Resolution 18

Examples of areas of cooperation in recent years

- Third-generation mobile communications
- Use of telecommunications (wired and radio) in emergency situations
- Digital broadcasting (television and sound)
- Satellite Internet access
- Use of the optical frequency range
- Network synchronization
- etc.

IMT mobile communication system: based on the combination of different types of radio facility and "wired"communication systems



Telecoms in emergency situations and in relation to climate change

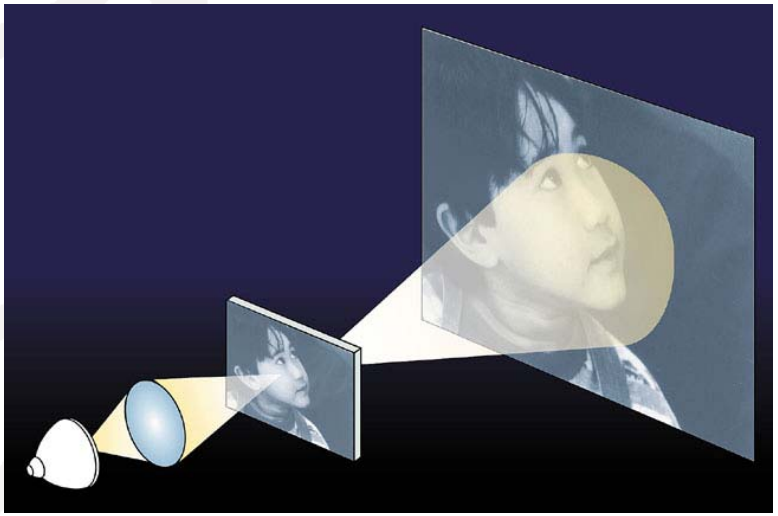
- ITU-R and ITU-T Recommendations on the use of different telecom services and systems in emergency situations
- ITU-R Recommendations take account of the special signalling protocols developed in ITU-T Study Groups
- Programmes on the use of telecomunications in the effort to reduce climate change are being developed in the three Sectors and General Secretariat

Television

The ITU-R basic Recommendations are also used for IPTV:

- For digital television: BT.601-6 "Studio encoding parameters of digital television for standard 4:3 and wide screen aspect ratios"

- For high-definition television: BT.709-5 "Parameter values for the HDTV standards for production and international programme exchange"



Television and sound broadcasting
Examples of ITU-R and ITU-T Recommendations

ITU-R

- **BT.500-11 "Methodology for the subjective assessment of the quality of television pictures"**
- **BT.1359-1 "Relative timing of sound and vision for broadcasting"**
- **BT.1737 "Use of the ITU-T Recommendation H.264 (MPEG-4/AVC) video source-coding method to transport high definition TV programme material"**

ITU-T

- **H.262 "Information technology - Generic coding of moving pictures and associated audio information: Video – *MPEG-2*"**
- **H.264 "Advanced video coding for generic audiovisual services – *MPEG-4*"**
- **T.140 "Protocol for multimedia application text conversation"**
- **Y.1541 "Network performance objectives for IP-based services"**

Access to Internet via satellites

- The TCP/IP protocol has a number of limitations inasmuch as it fails to take account of the specific features of satellite systems. Among other things, it does not distinguish between a quality loss caused by line errors and a quality loss caused by a network overload. It assumes that losses are being caused by an overload and reduces the transmission rate.

- The use (TCP Reno) of slow start, congestion avoidance, fast retransmission and fast restoration methods in their “standard” form leads to a drop in transmission speed.

Internet via satellite

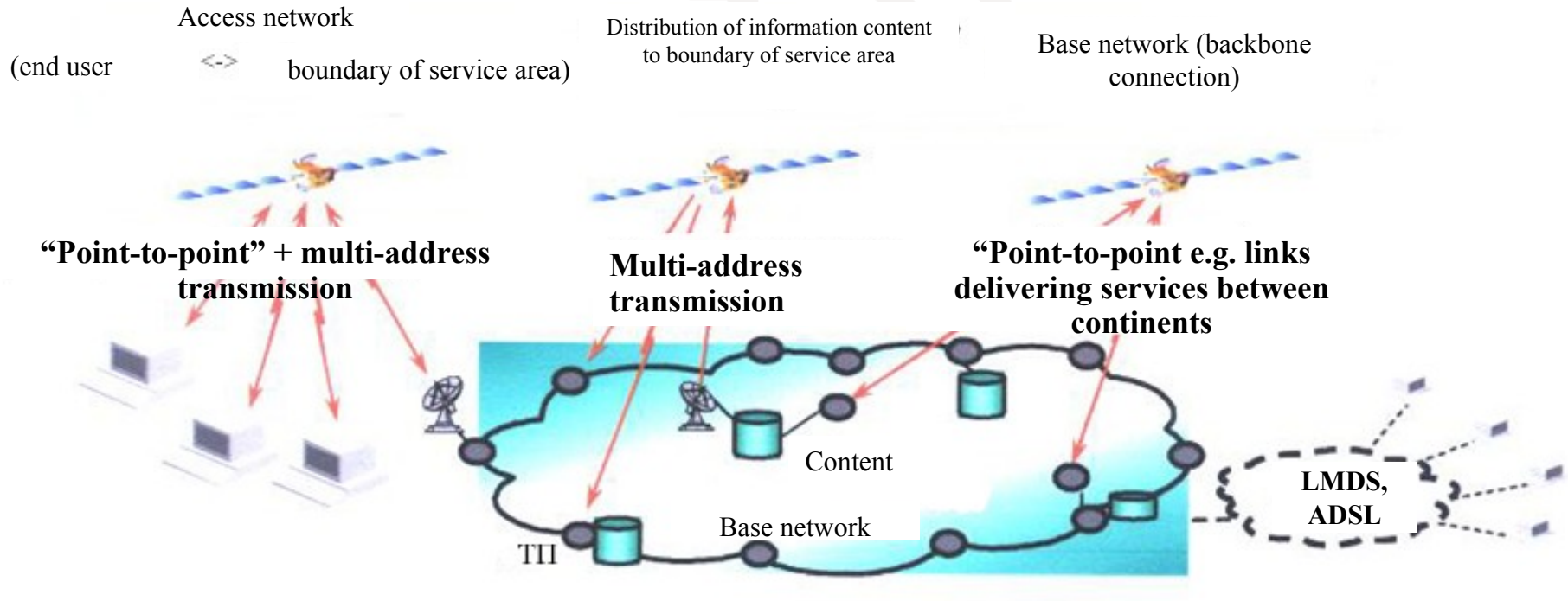
Examples of ITU-R Recommendations for increasing the capacity and reliability of a satellite system using the TCP/IP protocol:

- **Recommendation ITU-R S.1711 "Performance enhancements of transmission control protocol over satellite networks".**
- **Recommendation ITU-R BO.1724 "Interactive satellite broadcasting systems (television, sound and data)"**

Structure of a global/regional broadband network

Includes:

- ***Access network*: delivers services to end users.**
- ***Distribution network*: distributes the information content to the boundary of the service area.**
- ***Base network*: provides trunking services.**



ADSL: assymetric digital subscriber line
LMDS: local multipoint distribution system
POP: point of presence

Use of optical frequency bands and optical links

- **Already now there are radiocommunication and remote Earth sensing systems using optical frequency bands**

- **In developing standards for such systems, ITU-R makes wide use of ITU-T's experience in the area of fibre-optic communication systems**

Synchronization of systems

- Many (if not most) networks are synchronized by means of standard time signals received from the GPS and GLONASS satellite navigation systems
- The structure of time signals and frequencies used are described in the TF-series “Time signals and frequency standards emissions” of ITU-R Recommendations and in the Radio Regulations
- ITU-R regularly informs ITU-T about any planned changes to the relevant Recommendations

And those are far from all the areas in which we cooperate.

Thank you for your attention!