The World in 1983 / 1984

Analogue World

- National regulation on speech levels.
- National level planning.
- Remarkable loss in long distance calls („You are far away“).
- Circuit switched modem solutions for data transfer.
- New features became step by step more popular:
  - Handsfree operation.
  - Storage of the last dialled number.
- Answering machines.

Digital World

- Packed Switched Data (via separate network).
- Digital links (PCM) in the end to end transmission path.
- Telephone becomes digital in CCITT („ISDN“).
Some of the Basic Ideas:

- Integration of all services:
  Voice / Text / Pictures / Data.
- Common approach for public and private networks.
- Separation of signalling and content in different channels in the network and at the access as well. (SS#7 / D-channel Protocol).
- Codecs in the terminals (incl. taking the existing PCM approach of setting the 0dBr-reference point at the digital side of the Codec).

One network for all the existing services and additional ones:

- New types of data exchange by using higher bitrates. (for both circuit and packet switched data exchange).
- New „Mixed Mode“ service.
- New Voice service with 7kHz bandwidth (Wideband).
Private Networks in the early 1980’s

- Analogue Solutions.
- Voice bandwidth: 3,1kHz
- All big market player developped digital private networks.
- First approach: Follow the work in CCITT. (CCITT Recommendations and the programming language CHILL).
- During the time the approach changed: Private Networks go a way of their own.
- CCITT Blue Book 1988 did not contain some special recommendations for private networks.
What did that mean concerning voice?

- 3,1 kHz bandwidth for voice service.
- G.711 A-/μ-Law Codec.
- At the interface between A-Law and μ-Law a clear rule is found about the transcoding (Who is obliged; what are the changes in the code tables!).
- But no clear rules for Narrowband / Wideband transcoding. (including no rules for the signalling of the fall-back operation switching to narrowband).
Introduction of wideband

- No real pressure in public ISDN. ISDN served all: That was a good reason for keeping 3,1kHz.
- No real pressure coming from the local calls inside private exchanges. Common approach: 3,1 kHz.
- No marketing initiatives.
- Some G.722 telephone sets were produced, more or less as exotic devices in fairs and presentations.
- No big request by the customers (no wonder – it was outside the experience of life).
The early 1990’s

Disregarding the ideas from the early 1980’s, GSM started with the Fullrate-Codec; that is a 3,1kHz Codec.

Worldwide the PSTN with its 3,1kHz was still the main network.

The introduction of ISDN took place only in a very limited number of countries.

ADSL was dealt as the better technical approach compared to ISDN. The splitter allowed to take out of the speech / data stream by a 3,1kHz analog channel.
No strong support for 7kHz wideband in 1980’s during introduction of ISDN.

Staying with 3,1kHz narrowband in the PABX, even for internal calls.

When GSM was invented one follows the narrowband approach.

ADSL continued with a de facto support for 3,1kHz narrowband.
Imagine

- 7kHz wideband became a key feature in public ISDN in the 1980s.
- ISDN-TAs contain transcoders for wideband (WB) to narrowband (NB) and NB to WB.
- The PABX offers 3.1kHz narrowband only at PSTN interfaces. Internal calls are always 7kHz wideband calls. 7kHz bandwidth is also served at all ISDN interfaces.
- When GSM was invented, 7kHz was served from the very first beginning.
- ADSL never supports splitters for 3.1kHz narrowband.
WOULD WE PRESENT CONTRIBUTIONS DEALING WITH WIDEBAND IN 2012?

ARE WE 20 YEARS LATE?

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Thank you!