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Slow clock distribution

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The following companies have indicated their support for the concepts outlined in this proposal:

XaQti / Algol
Amdahl
HP
Madge

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What is it about?

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- Example of the application which requires TSC
- Possible application required to support the multimedia types of traffic.
- Application orthogonal to the data flow.

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The issue

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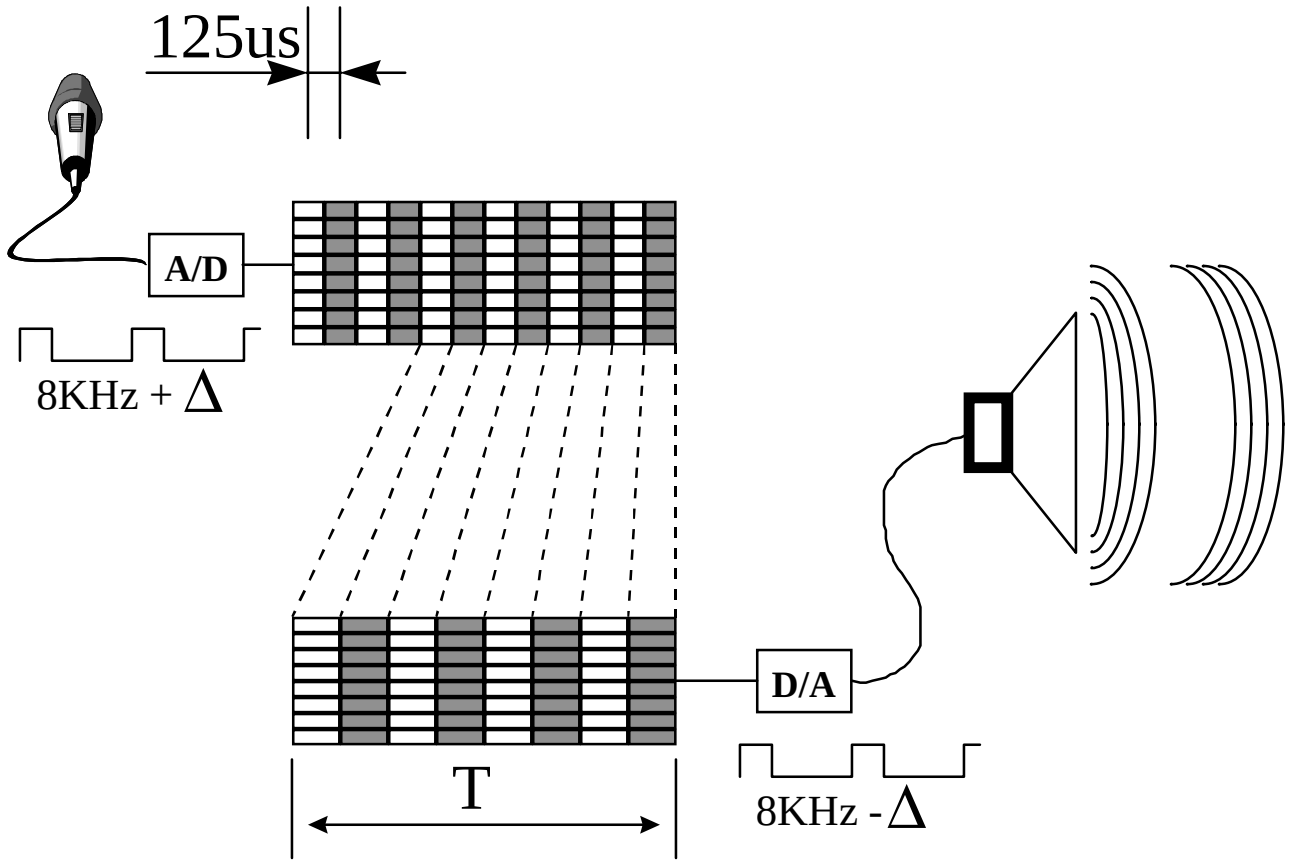
Source

Dest.



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TIA recommendations (CCITT G.811)

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- **Telco recommended clock accuracy (20 year term)**
  - Stratum 1: ±**1.0 x 10^{-11}**
  - Stratum 2: ±**1.6 x 10^{-8}** (±0.025Hz at 1.544 MHz)
  - Stratum 3: ±**4.6 x 10^{-6}** (±7 Hz at 1.544 MHz)
  - Stratum 4: ±**32 x 10^{-6}** (±50Hz at 1.544 MHz)
- The nominal slip performance due to plesiochronous operation alone is not expected to exceed **1 slip in 5.8 days.**
- Max permissible jitter for the 64 Kb channel not to exceed 0.25UI= 3.9 µs. (1 UI for 64 Kb/sec = 15.6 µs)
- **Ethernet clock accuracy (**±100ppm at 1.544 MHz**): ±154.4Hz**
- Two Ethernet (10, 100 or 1000) clocks in a worst case scenario will develop 250 µs (two 8KHz periods) skew in 1.25s

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Possible implementation System

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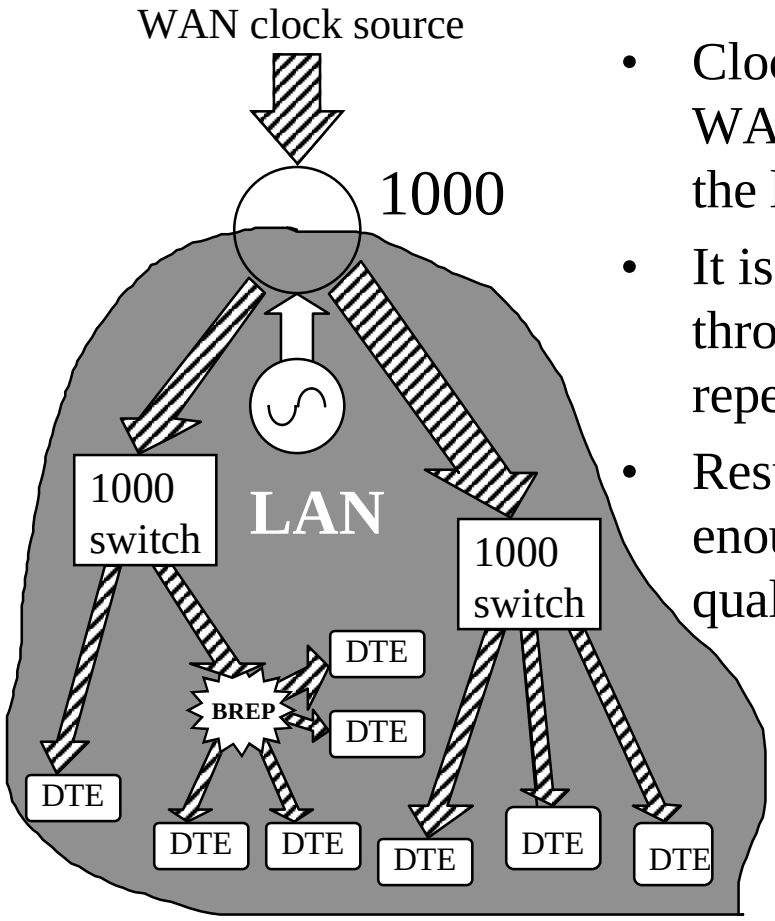

- Clock is extracted from the WAN interface or supplied by the local source.
- It is distributed over the LAN through the switches and repeaters.
- Resulting system is robust enough to provide the toll quality sync. service.

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Possible implementation Forwarding device

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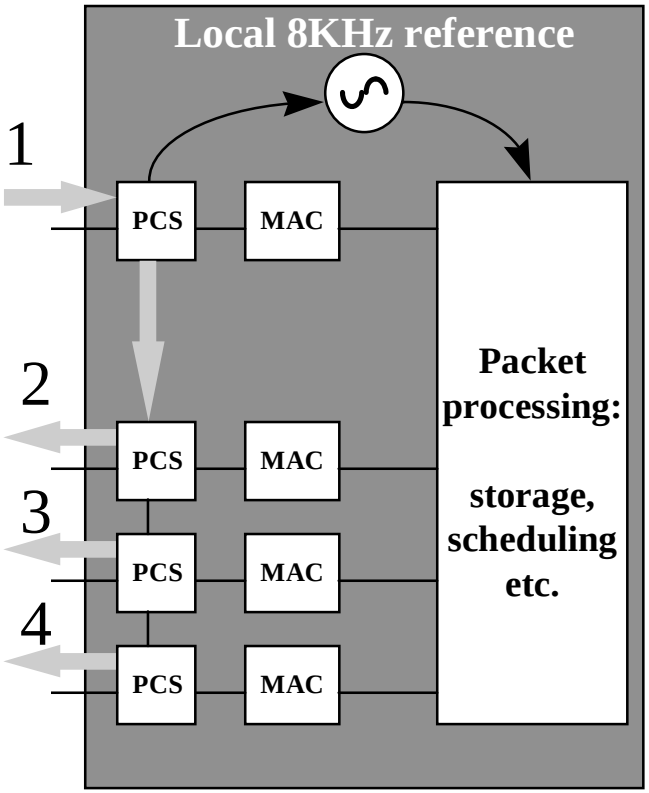

- Port 1 is receiving the clock from the upstream source
- Ports 2,3 and 4 distribute it to the rest of the network
- Port 1 is updating the local 8KHz reference used for the packets scheduling.
- MACs are completely unaware of clock distribution process.

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Possible implementation PCS

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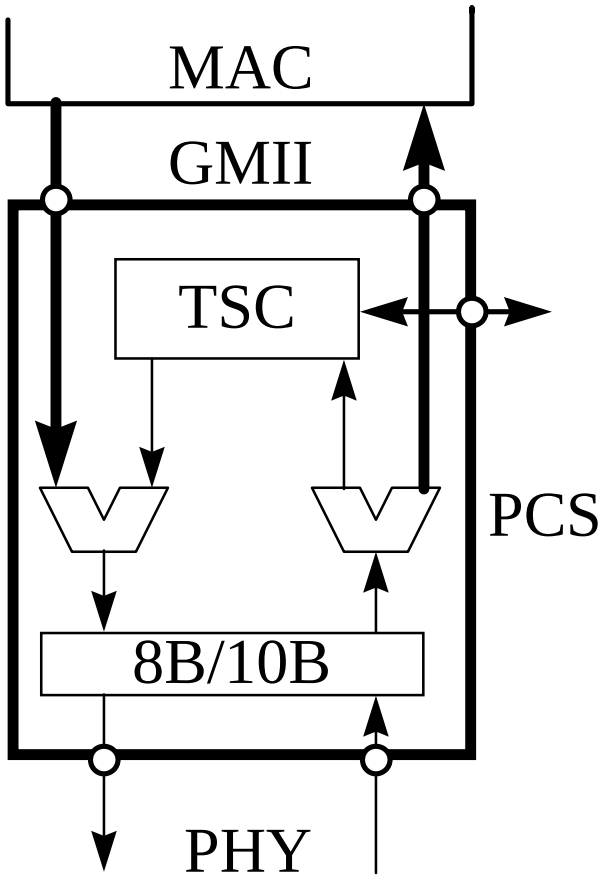

- Positioned above the 8B/10B endec.
- Simple serial interface will suffice
- Operation completely subordinate to the data traffic

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