Multicast IPTV System Using PLZT Optical Switch on Active Optical Access Network
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**Optical Access Network**

**PON (Passive Optical Network)**

- 32 ONUs
- 20 km
- CO: Central Office
- OLT: Optical Line Terminal
- ONU: Optical Network Unit

**ActiON (Active Optical Network)**

- Quadruplicate the number of users (128 users).
- Double the maximum transmission distance (40 km).

**IPTV using optical access network**

- Personalization by bidirectional communication
- Triple play (① data, ② IP phone, ③ video, IPTV)
- Mobile IPTV

**Difference of switching mode and distribution mode**

- **Switching mode**
  - : switching mode (Loss: 0 dB)
  - The number of multicast slots: **4 slots**
  - Power loss: **0 dB**

- **Distribution mode**
  - : distribution mode (Loss: 3 dB)
  - Only one slot is needed.
  - (#3, 4, 6, 8) decreases the number of slots.
  - The number of multicast slot: **1 slot**
  - Power loss: **6 dB**

**Multicast slot allocation with variable distribution mode (proposal)**

- **Conventional:** (Only 5:5)
  - Adjusts distribution ratio to consider the distance.
- **Proposal:** Any distribution ratio (2:8, 3:7, 5:5)
  - Increases the number of slots.
  - Proposal: Any distribution ratio, improves bandwidth.

- **Loss:** optical loss of switch and fiber
- **Limited loss:** maximum optical power loss that ONUs can receive