

Enhanced Reach PON Objective

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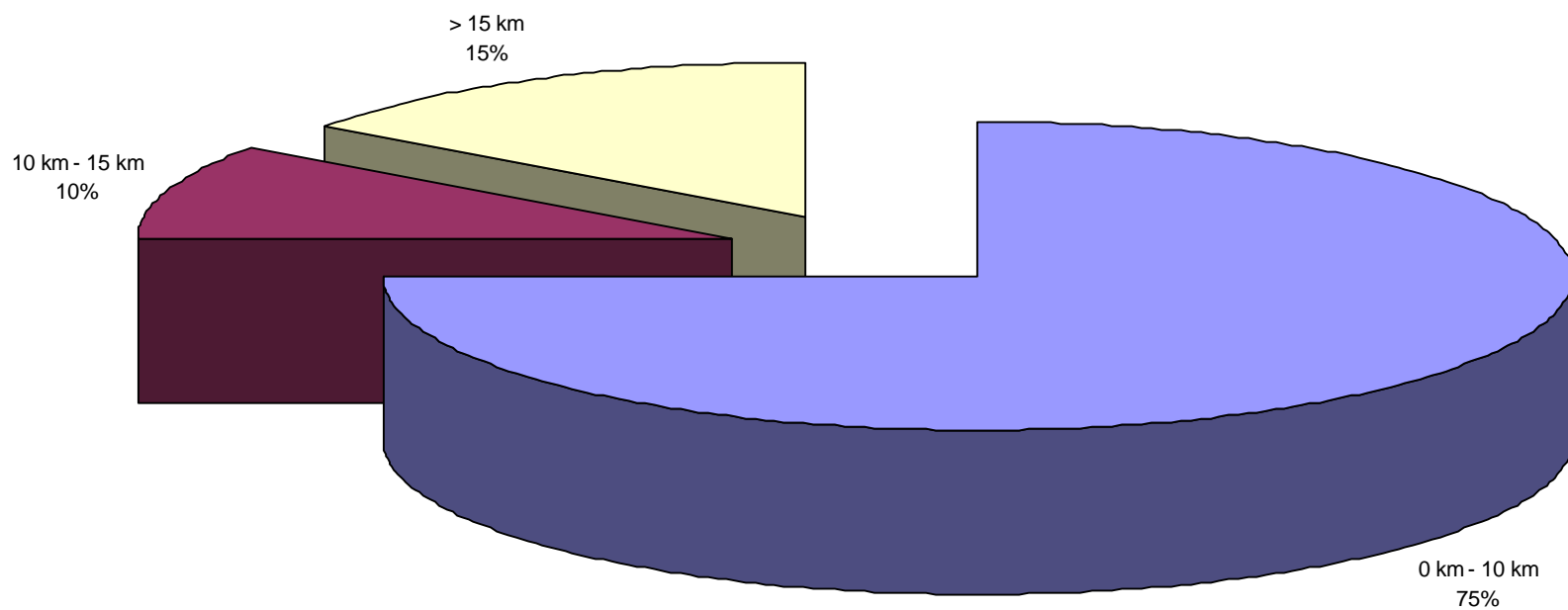
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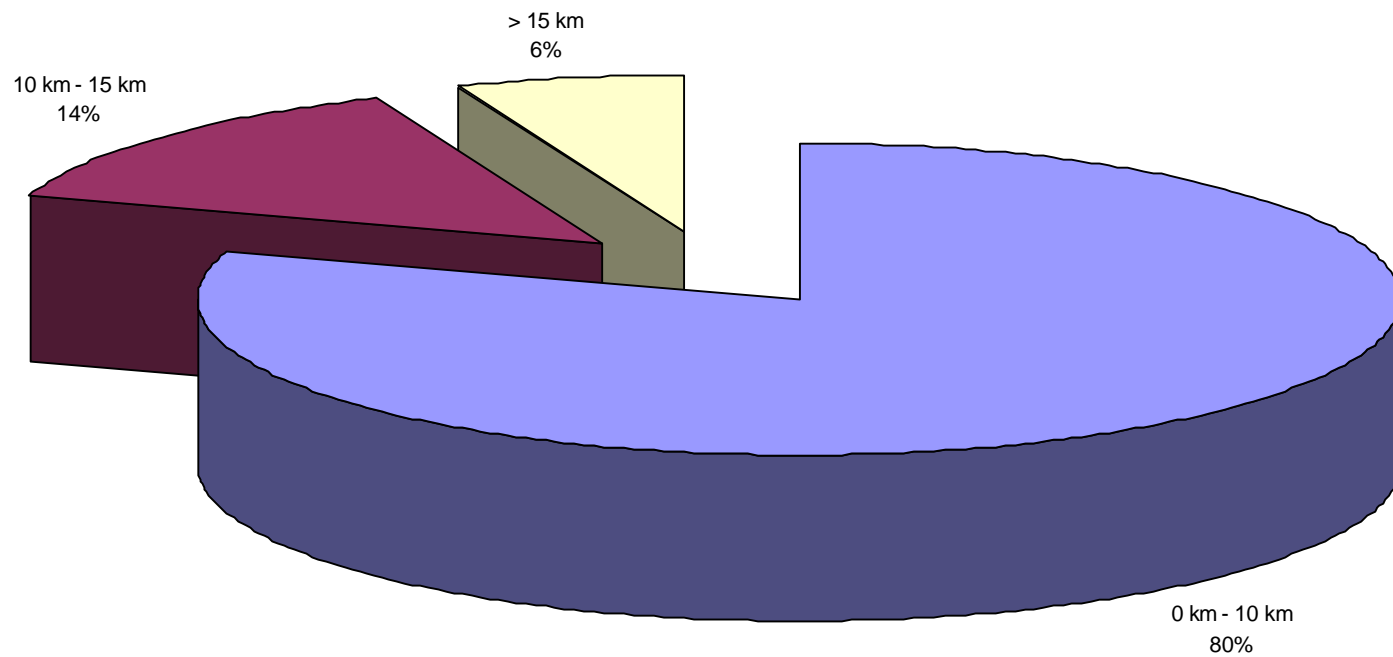
Distance To Customers

- 10 km physical reach is inadequate as a single PON PMD.
- Interoperability between systems will be key for large scale deployment of PON.
- It is difficult to achieve interoperability without a detailed specification.

Distance To Residential Customers BellSouth



Distance To Residential Customers SBC



**2001 Survey of 131 new build planned in California, Texas, Illinois*

Loop Statistics Summary

- The data suggests that a 20 km reach covers essentially 100% of new builds in the U.S.
- A standard that stops at 10 km won't address a large enough percentage of the residential market to be viable - specifically the new build market opportunity! (Could you afford to loose ~25% of your customers?).



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Short Reach(10km) PON Can Be Cost Prohibitive To Deploy

System Cost increases to serve loops > 10 km due to infrastructure cost increases.

A large percentage of customers will have to be served with field deployed equipment (RTs).

- Additional OLT cost due to extended temperature range optics
- Additional costs to acquire space, build, power and maintain RT sites.

Recommendation To Add A New Objective

Additional Objective:

PHY for PON, $\geq 20\text{km}$, 1000Mbps, single SM fiber, $\geq 1:16$

Existing Objectives:

Provide a family of physical layer specifications:

- o 1000BASE-LX extended temperature range optics
- o 1000BASE-X $\geq 10\text{km}$ over single SM fiber
- o PHY for PON, $\geq 10\text{km}$, 1000Mbps, single SM fiber, $\geq 1:16$
- o PHY for single pair non-loaded voice grade copper distance $\geq 750\text{m}$ and speed $\geq 10\text{Mbps}$ full-duplex



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