

Loop Lengths and Architecture

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Outline

- Loop Lengths
- How are EFM-type networks built today, 3 examples.

Eurescom P614

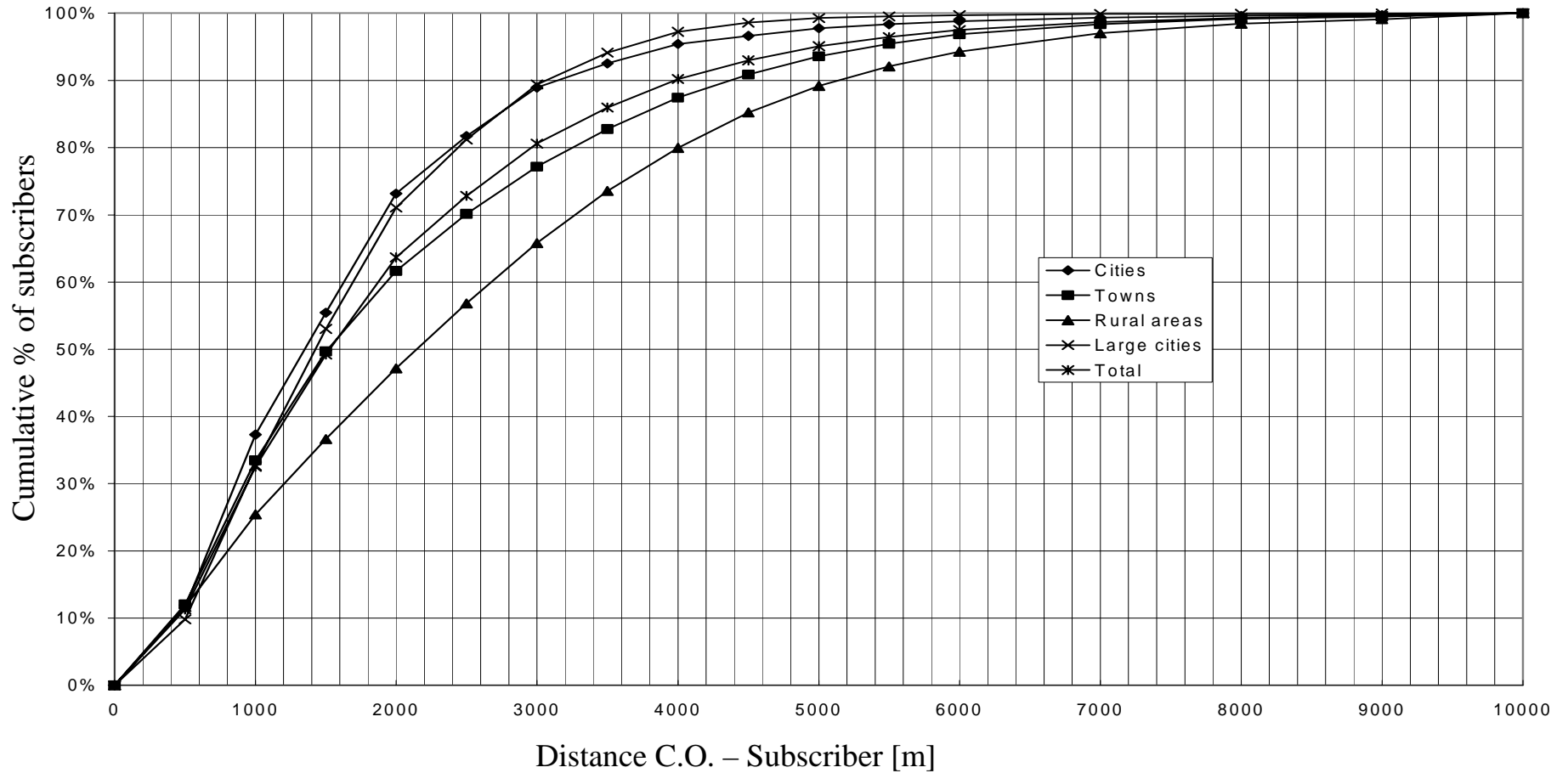
Implementation Strategies for Advanced Access Networks

- Participating Countries; UK, DE, FR, GR, HU, PL, NO, IR, ES, IT, FI.

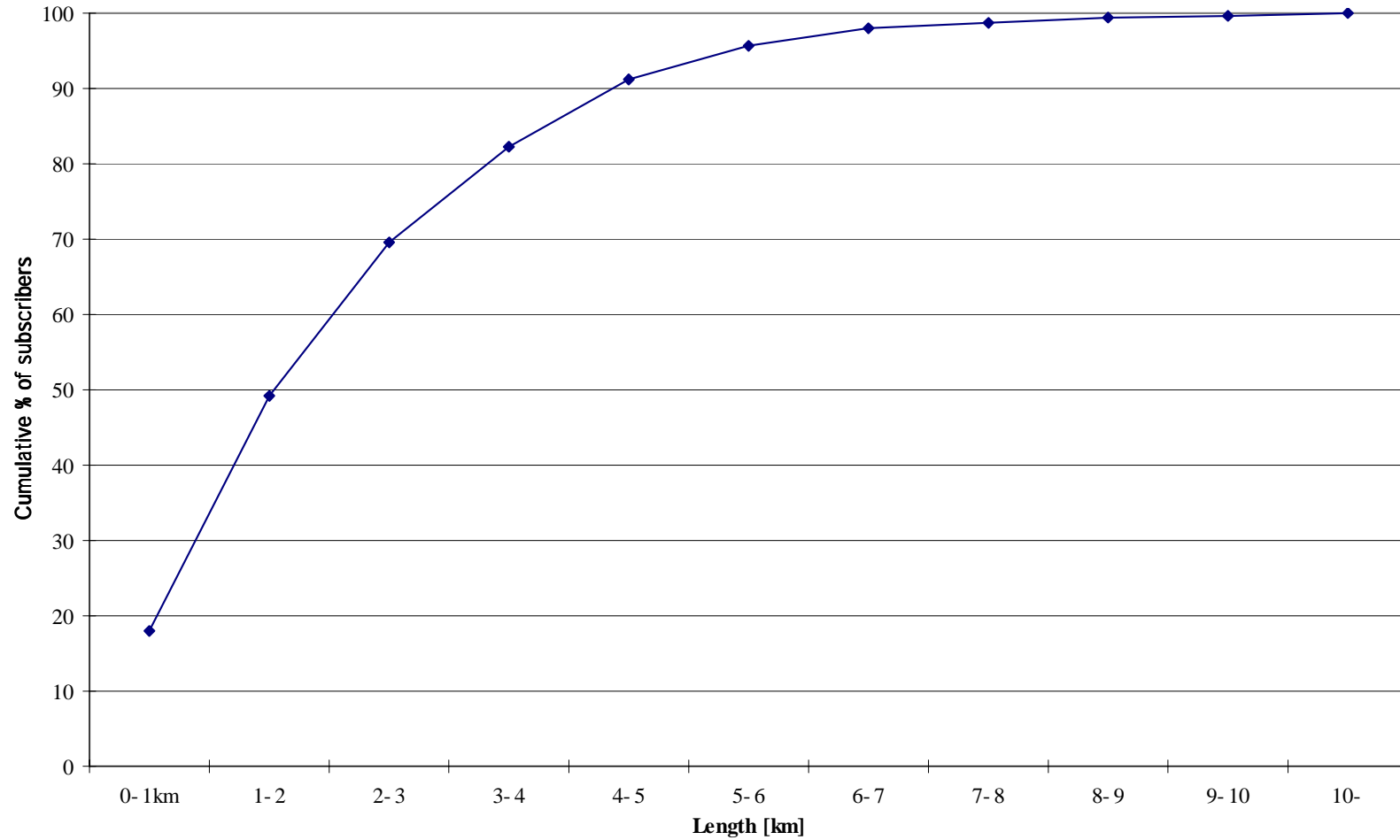
Network area	Average density of living units (l.u./km ²)	Average copper loop length before the upgrade (m)	Average number of buildings	Average number of l.u. per building	Average number of floors per building	Average number of living units per floor
Downtown	9,200	500 - 1,000	64	64	16	4
Urban	1,000	1,000 - 2,000	256	16	4	4
Suburban	350	2,000 - 3,000	4,096	1	1	1
Rural	200	3,000	4,096	1	1	1

Table 2-1: Area type segmentation *Source: Eurescom P614, D10*

Telia Access Network

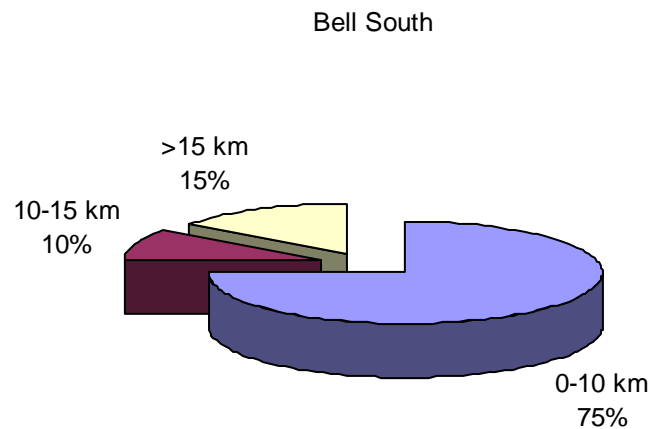


NTT Access Network

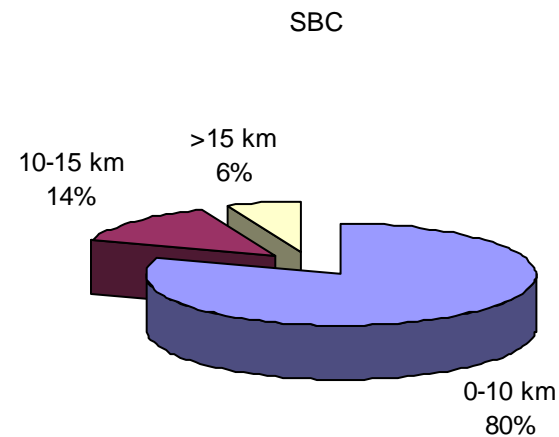


IEEE EFM, Raleigh, NC, Jan 14-16th 2002

Distance to Residential Customers in U.S.



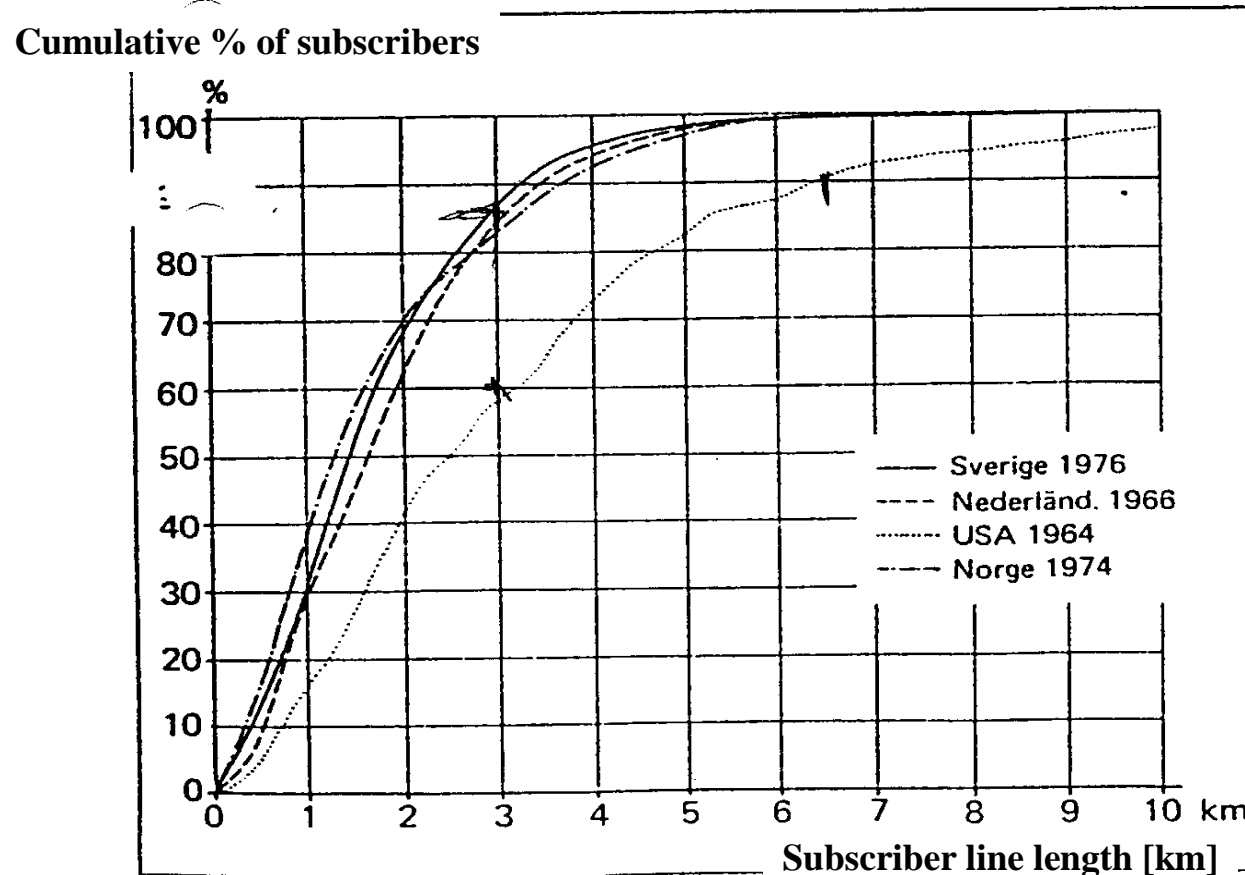
- Based on all subscribers



- Survey of 131 new build planned in CA, TX, IL

Source: IEEE EFM Nov. meeting

Loop Length Investigation, 1977



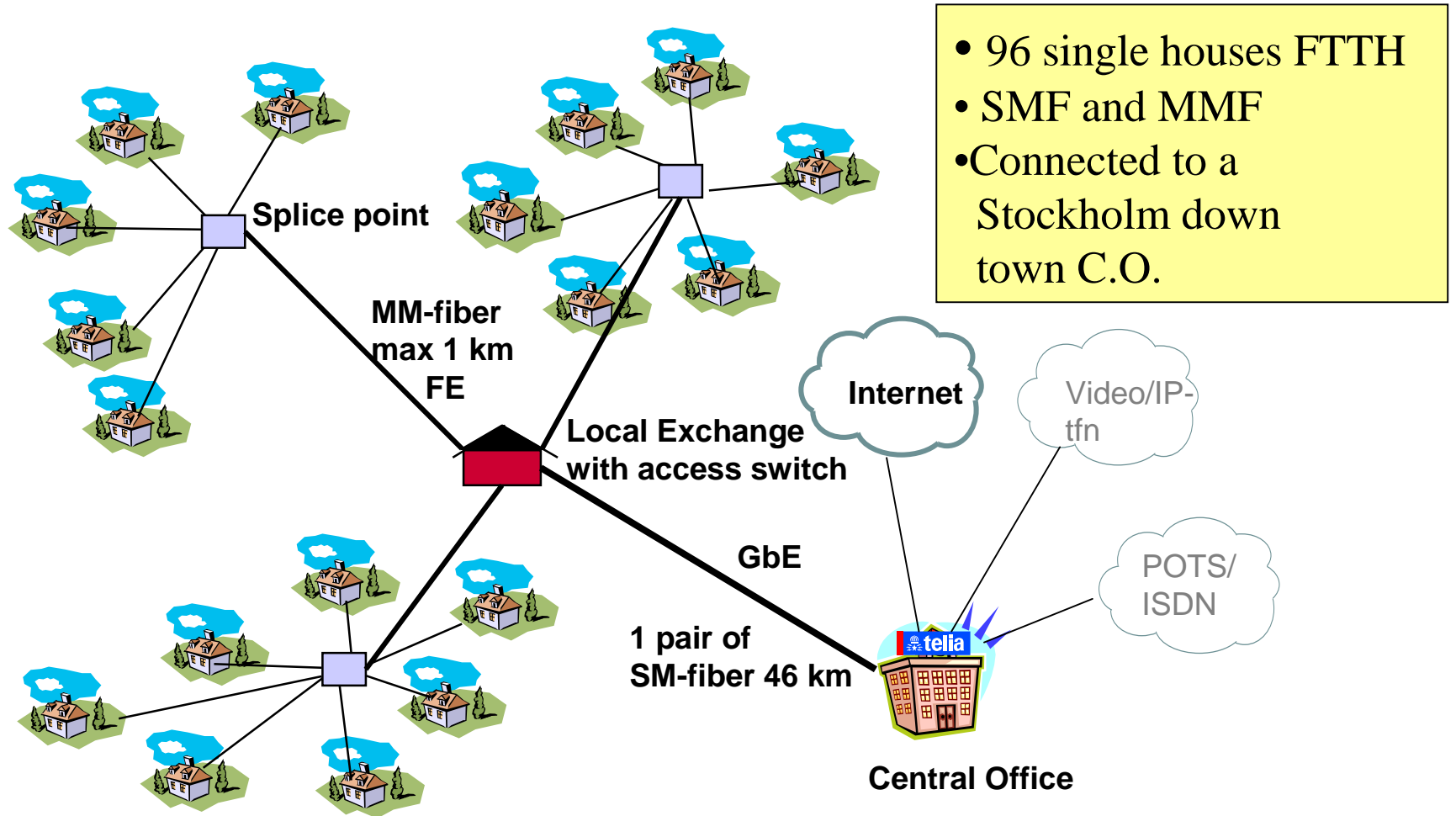
These figures are from 1964-1976, but the typical architecture have not changed dramatically over last 30 years.

Source: Öhman, "Statistisk undersökning av det svenska telefontätet", TELE 4/1977.

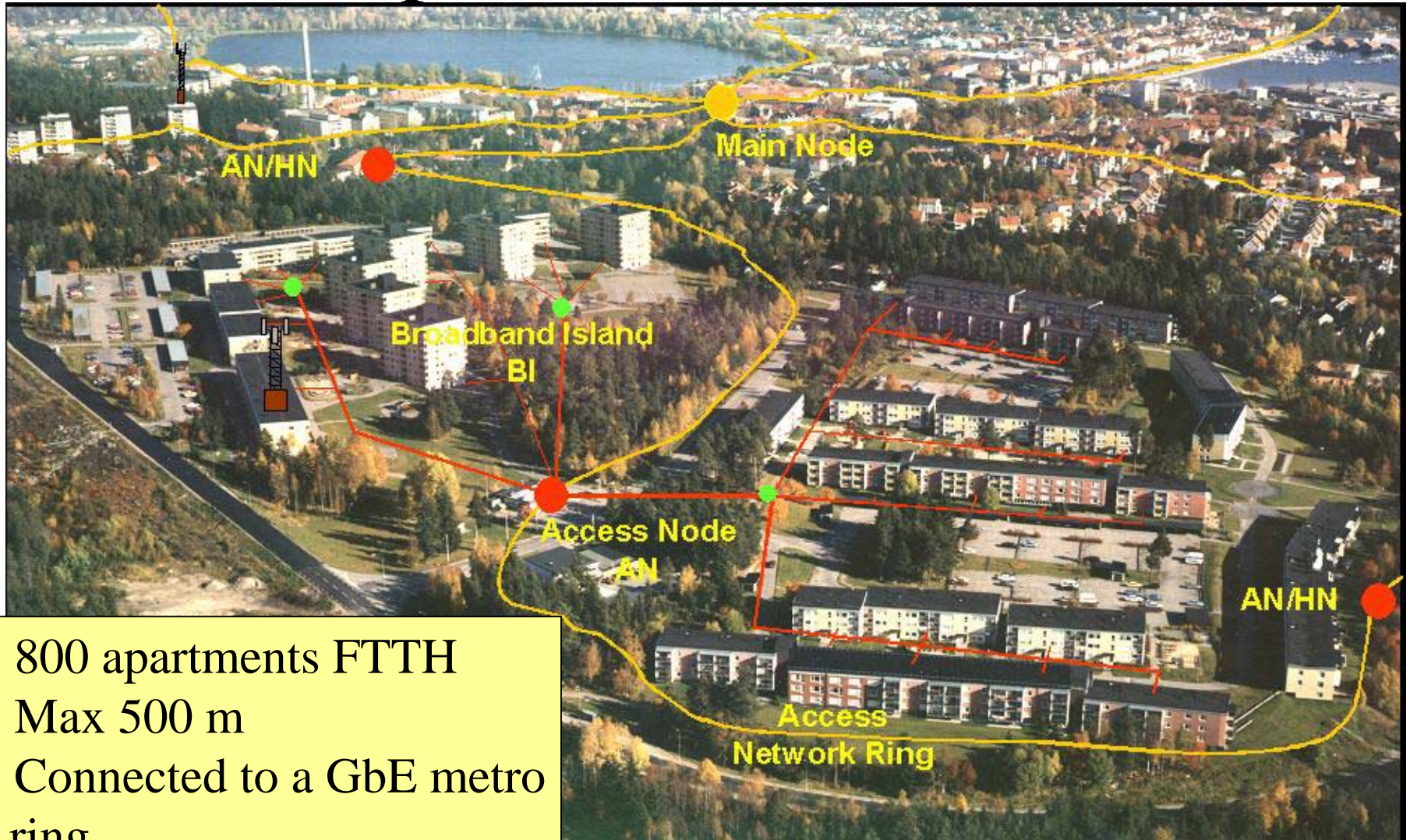
How EFM-type networks are built today

- Kullön, Vaxholm in the Stockholm archipelago. Telia
- Håsta, a part of the Hudiksvall metro network. Municipal property owner
- Japan, Typical FTTH configuration by NTT

Kullön, Telia



Håsta, part of Hudik Network

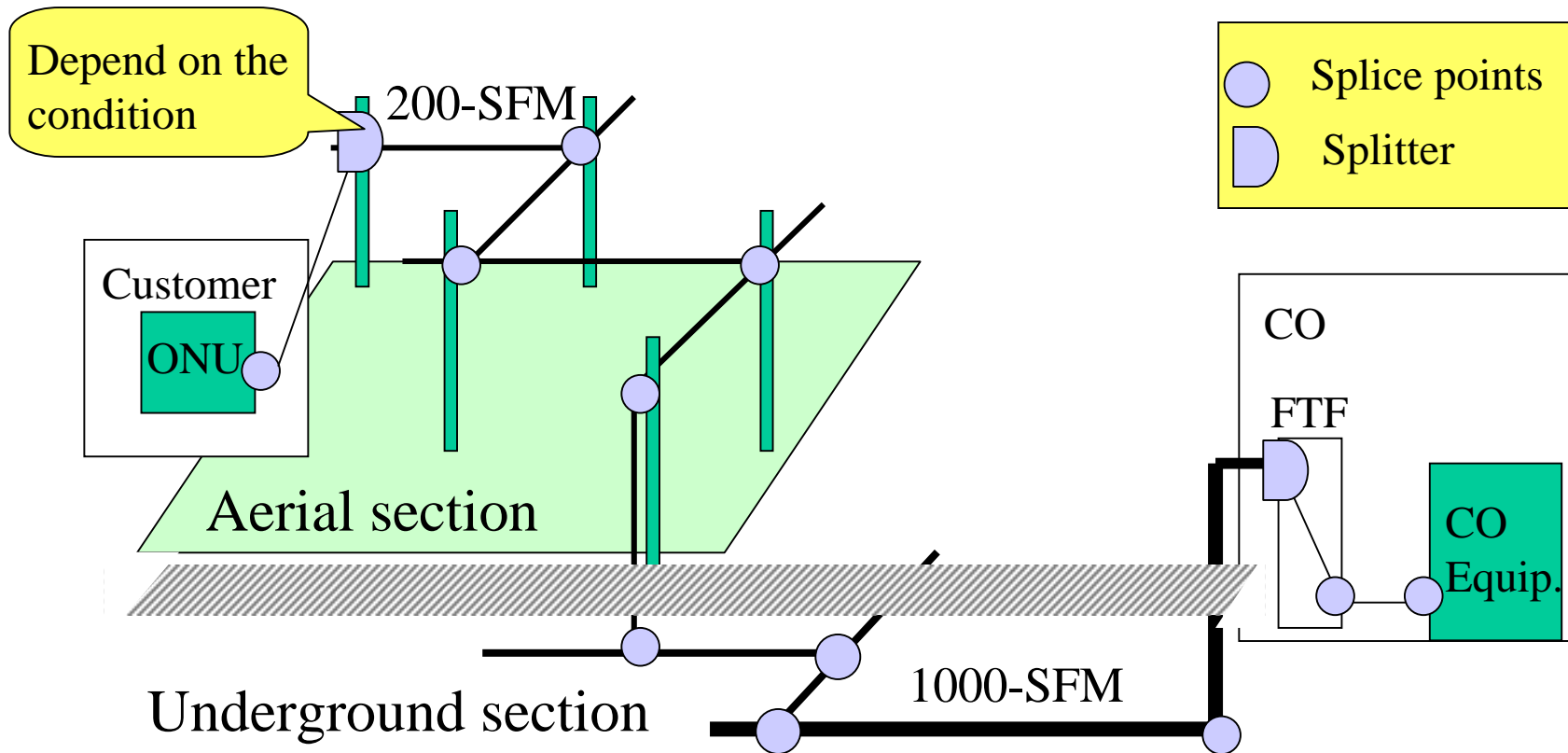


- 800 apartments FTTH
- Max 500 m
- Connected to a GbE metro ring

Typical FTTH configuration in Japan

Average length of underground section : 1.5 km

Average length of aerial section : 700 m



Conclusions

- Loop length distribution is similar between most countries.
- 10 km covers >99% of all subscribers in most countries.
- In U.S. (Bell South) 75% is covered within 10km
- Different architectures need different solutions