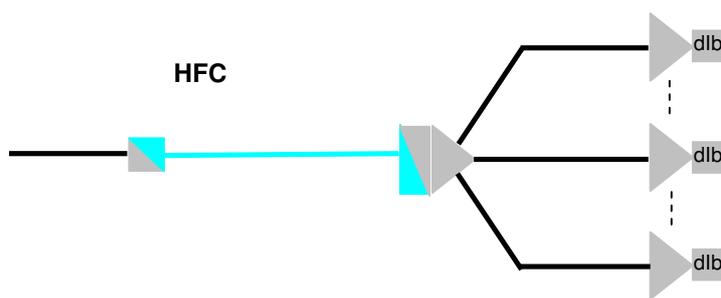




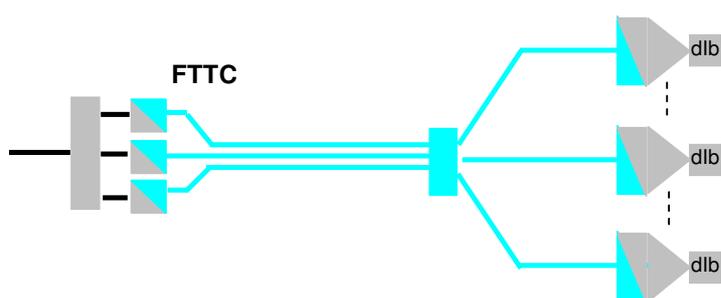
CAMS with Dynamic Ingress Blocking: The migration path to FTTH

Although a deep fiber solution will reduce the number of active devices in the network it will NOT reduce the dominating noise and ingress from the subscribers as long as the upstream from the mini nodes are combined at the CMTS in port.

Going FTTH and/or utilize one CMTS port for each mini node is expensive and/or takes a long time to implement. Considering this, a dlb deployment is a natural migration path to the FTTH network and will co-exist with a deep fiber solution, providing noise and ingress reduction to the same extent as in an HFC network.

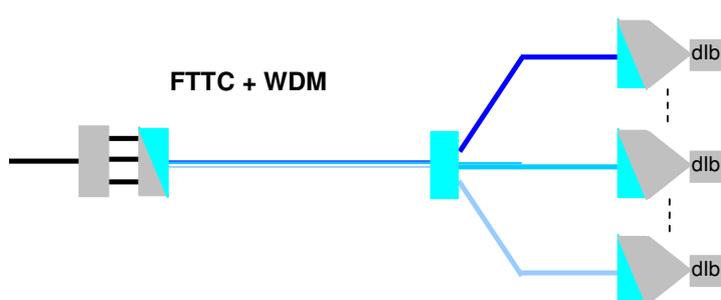


The CAMS and the dlb deployed in the network will effectively reduce ingress and noise coming from the subscriber premises. At the same time CAMS continuously and autonomously pinpoint ingress sources without affecting ongoing services.



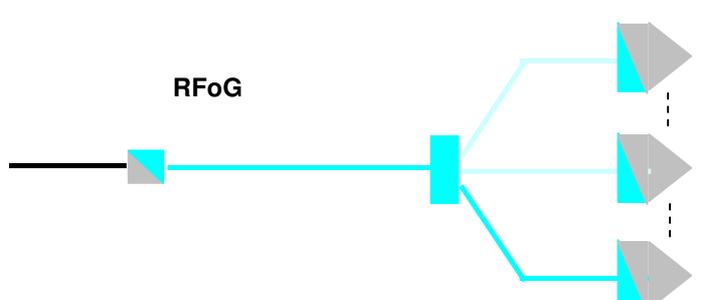
Going Fiber To The Curb does not really change anything regarding ingress from the subscriber premises. The advantages with the CAMS and the dlb's do still apply.

An alternative deployment for the dlb's in this scenario is after the optical receivers in the HE



Using WDM is just a way to maximize the capacity of the fiber and does not change anything regarding ingress from the subscriber premises. The advantages with CAMS and the dlb's do still apply

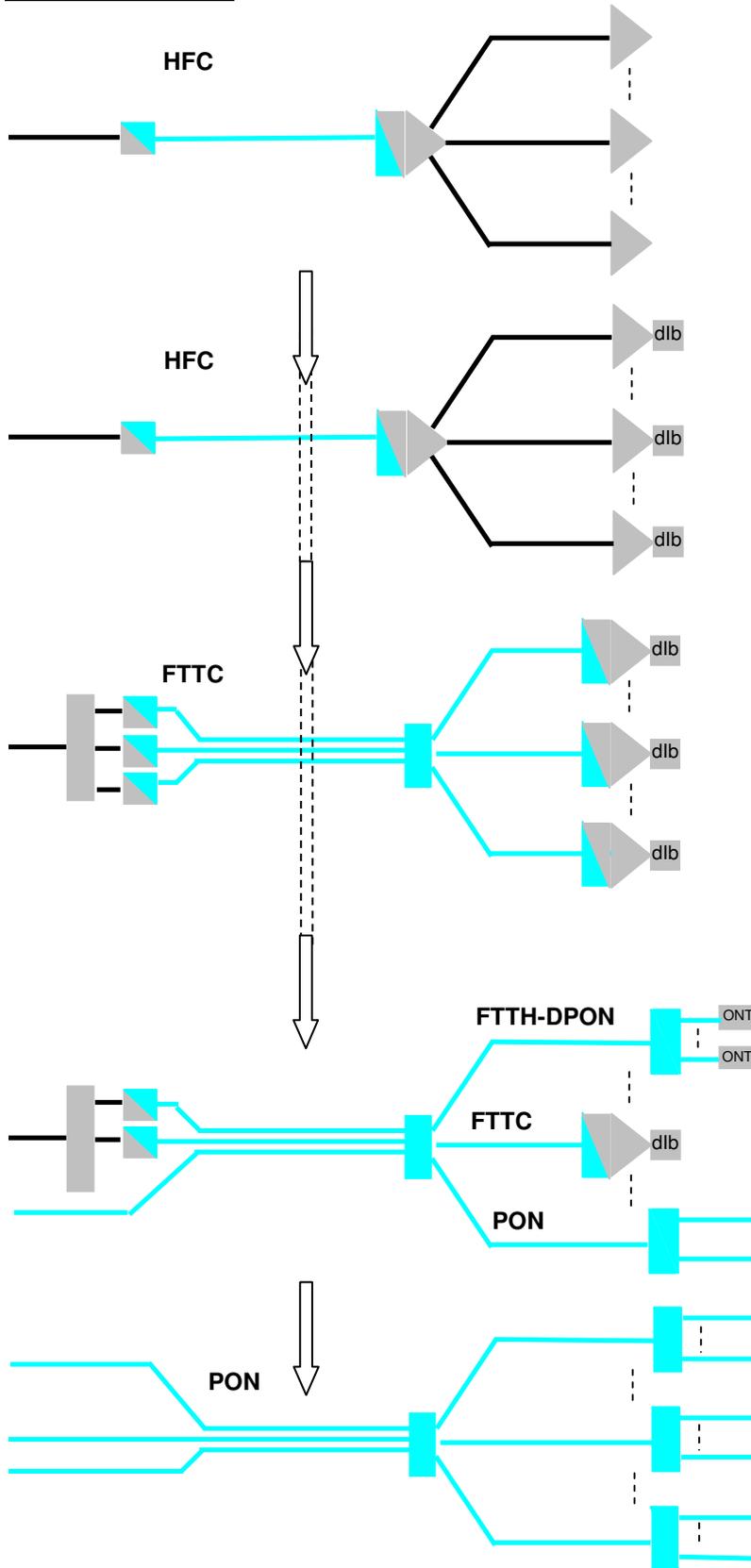
As for the FTTC solution the dlb's can be deployed after the optical receivers in the HE



RF over Glass is a special solution where the laser in the ONU only transmits when a sufficient power level (e.g. modem transmission) is detected on the RF side. As nothing has been changed regarding ingress from the subscriber premises there is an obvious risk that ingress with sufficient power level triggers the laser. With more than one laser active the result is Optical Beat Interference. In this scenario the impact of ingress is actually more severe than in the original HFC case.



The migration Path



More than 70% of ingress and noise is originating from the customer premises in a HFC network. The upstream ingress and noise from all subscribers are combined at the CMTS port resulting in a high noise and ingress level. Ingress originating from subscriber premises is cumbersome to locate and can affect the performance of the complete node.

Deploying dB's in the network will reduce ingress and noise as the funneling effect is eliminated. At the same time the dB deployment will provide the tool to pinpoint ingress sources in the network.

Deploying dB's can be seen as an electronic segmentation of the node and does reduce the impact of ingress.

Going fiber to the curb i.e. node splitting will reduce the number of active devices in the network. However ingress/Noise from customer is still present. The resulting mini nodes are combined at the CMTS in port thus the funneling effect is still an issue

The advantages with the dB's, providing noise/ingress reduction, reducing the impact of ingress and pinpointing ingress sources, do still apply.

The dB's in the network will provide the fundament for a smooth and gradual transition to the pure PON.

The transition can be done on a need by need basis i.e. prioritizing customers/areas where more advanced services are requested and paid for