

# DKT presents new CPE-series

FTTH business case is optimized by increased CPE functionality

## Product Strategy

DKT introduces a series of Fiber Termination Units (FTUs) / CPEs. This includes a two-part solution with a FTU and an active unit based upon a sophisticated System-on-Chip (SoC) solution that encompasses a 2 Gigabit Ethernet switching layer. This solution implies that fiber termination and service activation occur as part of the operator's "demarcation point" to the end customer. This intends to further process the customer's services in an external router/media gateway. The industry terms this a "2 box solution", where there is clear differentiation between FTU/CPE and the router/media gateway. This solution optimizes sourcing/logistics as well as support and technical upgrade which remains flexible and smooth. The new generation of CPEs is based on vast experience with FTTH from the Nordics and in close cooperation with industry leaders.

## CPE Business Case Pitfall

DKT's experience in the FTTH market indicates that a typical investment in a user installation (including last mile fiber, CPE/Routers, STB and man hours) has to be written off over 5 to 8 years. As the CPE investment is a significant part of the total cost, there is risk that a "1 box CPE solution" may be outdated from a technology perspective before this happens.

## How to Optimize FTTH Connections

DKT FTUs consist of a neutral low-cost base in which fiber can be rolled, connected and terminated. This is with the intention for service activation at a later time (see Figure 1). The FTU has a flexible design, allowing installation with fiber feeding from



Figure 1

various angles, this being from the side panels (via breakaway) or from the rear panel (when using a wall-mounted housing).

Even if the customer does not want to activate the services, the household is prepared for the fiber installation, which can be activated at a later time. The installation's value helps define property rental and sales values.

The advantage of this type of fiber termination is that the household requires only a single visit by a technician. This is when performing the fiber termination/installation, following which the customers can themselves, at the necessary time, be responsible for their own activation and maintenance.

Mounting of the FTU occurs at the most practical place in the house, and this without consideration of optimal

placement with regard to service distribution in the home (for example WiFi conditions, suggested placement of set top boxes and routers). Typically the fiber entrance point in the premises is not the ideal location for Wireless LAN. Concrete and other hard materials effectively stop the signal, resulting in poor performance or no connection at all in the locations furthest away from the fiber entrance. Having the WiFi device centrally located close to where the internet access is mostly used, would result in much better WiFi performance within the home. To achieve best performance the wireless device should not be locked to the location of the fiber entrance; flexibility is needed, there is a sweet WiFi spot for every home.

Furthermore, the FTU solution is "technology agnostic", allowing it to be used with third-party equipment. For example, it can be used for patching to GPON or WDM PON equipment or even in Do-it-Yourself installations with drop cables. There is also place for a WDM filter in the FTU, this for splitting the wavelengths into FTTx and CATV with regards to the WDM PON.

In the second example one can envision a pre-connected FTU with a



Figure 2

## Feature overview

High level features for the active unit include:

- Fiber part is 100/1000 Base-BX-U, single mode, autosense, Rx: 1490/1550 nm, Tx: 1310 nm.
- Autosensing on the optical interface allows operators to deploy 100 Mbps to the customer and at a later stage upgrade to gigabit speeds; this without network interrupts except from a short link down. The device automatically detects speed changes.
- RJ-45 part is either 1 or 4x 10/100/1000 Base-TX (RJ-45).
- The media converter includes a gigabit switch engine, Layer 2 wire speed packet switching, support for IEEE 802.1Q VLANs incl. Q-in-Q and up to 10k jumbo frames support for optimized IPTV multicast services.
- As for the media converter part, but this variant includes a built-in CATV Rx module.
- Input is 1310...1550 nm signal, supported from -10...0 dBm level.
- Output is a single F-connector with sufficient signal power (type 85 dBuV) for home installations.
- The level can feed multiple TV-sets, avoiding the need for an external amplifier.
- The device is powered by an external 5 V power supply adapter and power dissipation is only a few watts.

10/25/50m drop cable on a drum that the customer can install on an indoor wall. They can pull the fiber, for example, to a cellar, where the final fiber splicing can be performed. Again, only

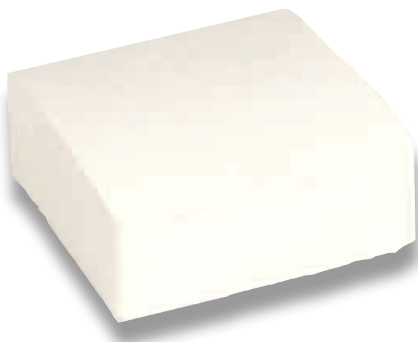


Figure 3

a single visit by a technician would be necessary.

The FTU form factor matches that of a standard Euro outlet and will appear to the customer as a wall socket. This is analogous to power, CATV and telephony outlets, where the utility company and the operator apply clear demarcation points between the network and the home installation.

As regards point-to-point service activation, the customer can, whenever they desire, receive an active part, for

example a router/media gateway or set top box. They can easily mount this active part themselves for distribution of services in the home (see Figure 2).

Here there is a CAPEX advantage for operators. The active part, being the expensive part of the investment, is only used when/if the customer is ready to activate the service. It is not associated

with extending the fiber network. The operator can, if desired, let the investment of the active unit be partially covered by the customer as a sign-on fee. This eases the business case significantly and lowers the CAPEX.

Again, the solution is built in a way that allows the customer to perform the activation when they receive the necessary equipment. This is analogous to that seen in activation of other technologies such as analogue telephony, ISDN, xDSL, and cable-TV. The combined solution for FTU and CPE is formed in an extremely compact form factor, 88 x 88 x 65 mm, and will be regarded by the customer as an outlet.

## Conclusion

DKT's mission is to make our customers' business more competitive with our industry innovations and focus on operator processes and business cases; in FTTH this is done by reducing future operating expenses (OPEX) as technician visits can be reduced significantly and additionally CAPEX is postponed as the active equipment is only used once the customer want to subscribe. The product will be launched in association with the FTTH council in Warsaw in Poland in February 2015.

## Elemental Powers FTTH-operator

Deutsche Glasfaser to offer IPTV over fiber network using Elemental video processing solutions

Deutsche Glasfaser, a fiber-to-the-home (FTTH) network provider, is using Elemental video processing for delivery of linear TV, radio, video-on-demand (VOD) and multiscreen services to regional subscribers in Germany. The Deutsche Glasfaser IPTV service will include around 100 SD channels, 50 HD and 100 radio channels. Deutsche Glasfaser will offer a range of triple-play packages with high-speed Internet starting from 100 Mbit/s over its state-of-the-art fiber-optic network.

Free-to-air and pay TV channels are transcoded with Elemental Live to multiple H.264 profiles for delivery to TV screens via the DGTv media-

box, as well as to a custom Deutsche Glasfaser App for in-home viewing on Google Android and Apple iOS devices. Video streams generated by Elemental will also be repurposed for a variety of VOD, timeshift and catch-up TV services. Elemental Conductor will provide system and redundancy management.

"We want to provide our customers with a wide variety of IPTV and multiscreen video services at a superior level, rivaling what's on offer in urban markets," said Niels Jonkman, Business Manager Deutsche Glasfaser. "We chose the Elemental platform for its exceptional image quality, multiscreen delivery capabilities, and the flexibility of its software, allowing us to stay one step ahead of customer demand."