Case Study

Vodafone UK
Fibre Enhancement Project

About

Vodafone is one of the world's largest telecommunications companies, with a significant presence in Europe, the Middle East, Africa and Asia Pacific. Worldwide they provide services to 470 million mobile customers, 14 million fixed broadband customers, 9.8 million TV customers and employ around 108,000 people. In the UK this translates into 18 million mobile users and 200 thousand fixed broadband customers and a market share of 23% with £6.4 billion revenue.

The Project

Vodafone needed to upgrade their older C&W exchanges in the UK. Total budget of £24 million (€27 million approx) over 4 years. Funds for physical layer around £6 million (€6.8 million approx) with the rest being earmarked for network audits.

Background

Vodafone knew from experience that they would have to address a long list of requirements. They were unhappy with existing proposals and already knew that other big-name suppliers were unable or unwilling to provide what was needed. They were therefore open to looking at new solutions.
The project was already running late and there was pressure internally to find a definitive answer quickly.

The Brief

The project brief involved developing solutions for 5 core requirements:

1. A completely new metal ODF suite from frame to 19" rack components which could handle high packing density
2. A novel and highly flexible connectivity solution
3. A new installation-friendly approach to all aspects
4. Network future-proofing to guarantee a long term return on CAPEX whilst reducing OPEX involved in ongoing network upgrades
5. Legacy compatibility. This was a must to capitalise on existing racks that Vodafone had inherited across the UK; there was a lot of U space going to waste where space is at a premium

Andrew Wilson, UK and Ireland BKT Business Development Manager explains, "As a manufacturer we were able to address a very long list of disparate future-proofing requirements that Vodafone knew from experience it was going to need; something other big names were unable to match. Working closely with Vodafone our engineering excellence and ability to quickly prototype and react have been clear winners throughout."

The approach

From the very beginning our design and engineering teams were hands on and pro-active with site visits, discussions, drawings, 3D renders and physical prototyping. Repeated meetings with all concerned both in the UK and at our facilities in Poland played a major role.

The Solution

A complete metal ODF suite

In tight conjunction with Vodafone we began a rapid process of drawings and physical prototype submissions to address all issues. The result is:

1. a complete ODF suite from frame with built-in cable management and segregation
2. 19" rack components:
    A. 1U and 2U mini-ODF patch panels with built in patchcord management
    B. 2U cross-over spaces
    C. 1U 144FO splice shelf

Custom organisation of the incoming OSP cable comes as standard cable and separate expansion rack designs for baying of additional ODF frames are also available for larger exchanges

A flexible connectivity solution

Packing densities of 192FO in 2U and 92FO in 1U were achieved by developing a modular connectivity package giving a maximum of 3072 individual LC connections per frame. Ruggedised FO assemblies terminated in either enclosed 12x LCDx plug-and-play modules or as hydra for direct connection to 12xLCDx metal face plates allow for rapid inter-rack installation. Additionally, LC Dx Uniboot patchcords routed on the front dramatically reduce cable densities.

A new installation-friendly approach

To ensure that we not only met all core network requirements we were acutely aware that we also had to make sure that our proposal was easy to use. To this end we developed the following:

6. Main ODF
    • Capacity of 3072 physical LC connections
    • Optimised cable management and segregation
    • Full and clear routing diagrams and patch lengths are included as large in-door decals
    • Unique incoming OSP cable management field
    • Simple baying of expansion racks
    • Adhesive labelling included as standard on all 19" components showing connectivity schemes
    • Screen printed label fields on mini-ODF doors
    • Frames with pre-cut holes top and bottom to facilitate permanent fixing to floor and to overhead Unistrut with threaded bar
7. Mini-ODF
    • 1U (96FO) and 2U (192FO) versions identical in all installation requirements
    • Built-in hydra management within the U height
    • Built-in patch management within the U height
    • Full accessibility from top, sides and rear
    • Custom lid design
    • Custom side flute design
    • Sets of adapters and brackets for legacy racks supplied as standard
8. Splice shelf
    • 1U pivoting shelf for 144 splices
    • Special stackable cassettes with small format splice protection tubes
9. Connectivity
    • High performance, low IL
    • Uniboot LC Dx reduces patchcord density on the front
    • Modular plug-and-play or hydra pre-terminated assemblies
    • Ruggedised cable avoids need for copex inside the frame

Network future-proofing

To maximise long term return on CAPEX whilst reducing the OPEX involved in ongoing network upgrades, our designs ensure that installers will always have maximum access to all components due to ports on sides, rear and top of all 19" components having been incorporated as standard across the suite.
Moreover, our commitment to ongoing development will ensure peace of mind should any changes be necessary.

Legacy compatibility

To be able to capitalise on existing empty rack space that Vodafone had inherited across the UK a retrofittable solution with backward compatibility was a must. Instead of heavy reworks on multiple versions of the mini-ODF and splice field we came up with a series of rack-specific adapters which are supplied as standard and which can be retrofit to the suite for installation into older rack formats.

Conclusion

As an experienced, high-end manufacturer open to new challenges we were able to cover all of Vodafone's core concerns as well as anticipate and deal with many others they had not previously been aware of. At the same time we provide them with the capacity and room for planned upgrades and expansion they need.
In addition, BKT Elektronik's commitment to ongoing product development guarantees that Vodafone can meet any changes head on; something which will be directly reflected in their bottom line for years to come. Vodafone are also looking to replicate this suite across Europe and we are now their go-to solution provider and we are already actively working on other projects with them as a result.