The data centre market is growing, particularly in the cloud and hyperscale data centres are taking and people are asking whether there are any technological advantages remaining for multimode fibre. These have included speculation as to whether the largest providers are taking up, there is still relevance to multimode for hyperscale cloud companies are still using multimode. Even as data rates keep going up, there is still relevance to multimode for low power, short reach applications. People have a misconception that everything service provider – or cloud-based is going to be single-mode only.

One of the reasons for this is multimode’s ability to be used with cheaper transmitters based on vertical-cavity surface-emitting lasers (VCSELs), which reduces the overall cost of the system. VCSELs bring their own advantages to the table, thanks to their ease of manufacturability and integration, as well as reliability, testability and power efficiency. Cost effective

Kamino explained: ‘VCSELs have always been one of the primary reasons that multimode solutions are cost-efficient. They are lower cost, easier to make, and have lower power consumption, providing key advantages for multimode solutions.’ Added Choudhury: ‘A lot of companies have expertise in the VCSEL area. In the past, when data centre reaches were limited to 100m and data rates were lower, the VCSEL multimode link was dominant. There is no doubt that single-mode solutions are growing rapidly with higher rates and longer reaches, however, for switch-to-server/accelerator links or shorter switch-switch links, even as rates move to 100Gb/s per lane, there is still a significant future for VCSEL-based multimode links as a low-cost, low-power, high density solution. These links are still the most robust in terms of resilience to dirt, another advantage in the operating environment.’

These are just some of the reasons to suggest that multimode is still very relevant, and will remain so for a number of years, driven by the latest standards, technology and market trends. As an example, the Ethernet market, which continues to grow, widely uses multimode VCSEL-based optics for structured cabling and point-to-point short-reach links. Meanwhile, more than 90 per cent of Fibre Channel link use this combination, according to data from analyst firm Dell’Oro, and this is predicted to continue to be a major application. In fact, a recent forecast from LightCounting predicts continued strong growth for 25G to 400G multimode optical modules from 2019 to 2024.

New White Paper

Presenting the latest standards, technology, market and industry trends for graded-index, laser optimised multi-mode fibres (MMF) coupled to low-cost Vertical-Cavity Surface-Emitting Lasers (VCSELs) links, which have historically provided the most cost-effective and widely deployed short reach fibre solutions for local area networks (LAN) and data centres (DC). An updated outlook on the future of MMF will be presented.

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