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iomart

The platform to a pioneering BiDi deployment

iomart is one of the UK's leading providers of complex managed hosting and cloud computing services and owns and operates a network of major data centres. Renowned for its leadership in hosting best practice, iomart has invested heavily in physical Tier 1 infrastructure, network, people, and systems. iomart is Pan Government Accredited and has been certified to ISO standards 27001, 20000, 9001 and 22301.

iomart's data centre in Maidenhead was recently expanded from 1,500 m^2 to a total capacity of 2,800 m^2 of high-quality, resilient, and secure space for 630 racks across nine data halls – enough to house up to 30,000 physical and as many as 500,000 virtual servers. The project has created a fully automated software-defined data centre (SDDC), and marked the first major global deployment of Cisco bidirectional (BiDi) transmission technology using Corning OM4 fibre. iomart can now provision services dynamically against any customer requirement.

The Challenge

iomart's objective for the extension was the ability to easily upgrade to 40G connectivity, and it had identified Cisco's BiDi technology as the optimum solution. As iomart was aware of Corning's extensive work to provide Cisco with fibre performance data and statistical analysis during the development of BiDi technology without the need to engineer specific components, they were confident in selecting the Corning solution for this landmark deployment. Corning worked with Kinetic IT, a Corning Network Preferred Installer, and iomart's chosen installation partner, to find a design to meet the needs of a 40G network and the characteristics of the extended site.

"This was an extremely ambitious project. When we started, Cisco BiDi was a relatively unknown entity. Our brief was to take new world technology and effectively build infrastructure around it. With tiny margins for error, we had to ensure that connector loss was minimised as much as possible. Efficient collaboration was imperative to making this project a success. Corning are undeniably experts at what they do and this made our job considerably easier. We worked together with Corning to define the standards from scratch, and effectively pioneered the way that BiDi was deployed within a greenfield site. Corning's technology was integral to providing the platform to enable the groundbreaking use of Cisco BiDi technology."

Tom Cella, Managing Director of Kinetic IT Ltd

Taking account of the physical layout and the design requirements, a solution was identified applying the skill of the Kinetic IT engineers along with the OM4 fibre performance and high-density connectivity options that Corning could provide. The resulting solution utilised Corning's high-density EDGE™ housings, 96 core fibre cables, and individual 6-port LC modules. iomart's choice of brand new Cisco BiDi technology

meant that a unique set of test parameters were used to make sure that the insertion loss and channel loss were optimised to allow for even the longest possible links within the data centre to be able to operate at 40G.

Maximising the Fibre Loss Budget

There were big challenges around distance limitations and insertion loss limits which presented minimal margins for error. Derating tables produced by Corning during the design process ensured the topology was physically 100 percent diverse whilst maintaining an uncompromised aesthetical presentation of the installation.

One of the other big challenges was to make sure that all racks within the seven new data halls of the facility were capable of catering for every network requirement, for all business groups, encompassing both initial and rapid future expansion as and when required. Extensive testing carried out subsequently proved that the new data centre extension, and the next generation technology it contains, works and delivers for iomart's customers.

The main advantage to customers has been around speed of deployment where customer services can be deployed in any rack location within 20 minutes. Deployment is driven by the customer through a control panel enabling him or her to provision service as required without having to worry about the physical aspect of the deployment. Each rack footprint has a minimum of 20 Gbit/sec of connectivity delivered, which can be easily increased to cope with demand without downtime being incurred.

Rapid Provisioning

The network platform allows for the delivery of high-bandwidth services in a cost-effective manner enabling high throughput low latency services to be delivered as standard to every customer. Previously, customer provision was based on the old-fashioned way of putting in 'the tin' racking it and installing it. Now the auto-provisioning system does all of this.

The project has resulted in significant benefits around the greater speed of deployment and provisioning that can now be achieved. It does not matter where a customers' servers are located in the data centre, they do not even need to be in the same rack, or even the same data hall to be connected. Everything is now done at the network layer in a scalable software defined data centre (SDDC.)

By standardising its data centre cabling on Corning® ClearCurve® bend-insensitive OM4 fibre cables, iomart also has a solution that underpins service longevity. OM4 cable supports data speeds of 100G on distances of more than 100 metres. Crucially, ClearCurve OM4 drastically reduces the risks of bend-induced loss that arise from periodic moves, adds, and changes (MACs), ensuring unscheduled downtime is avoided.

"We are continually investing in the infrastructure needed to support the dynamic and ever more complex web hosting and data storage needs of SME and enterprise business. Our data centres are the motorways of the future and this facility enables us to provide flexible and bespoke services to our customers and puts us at the heart of the next generation of Software Defined Data Centre technology."

Angus MacSween, CEO of iomart

Future Innovation

Corning has since used the project to showcase how a SDDC works and, as a result, iomart is already benefitting from being introduced to a new set of potential customers for its hosting services at the enterprise level.

The implementation has been so successful that there are plans to roll it out across iomart's entire network of 10 UK data centres.

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