DCS
DATA CENTER SYSTEMS
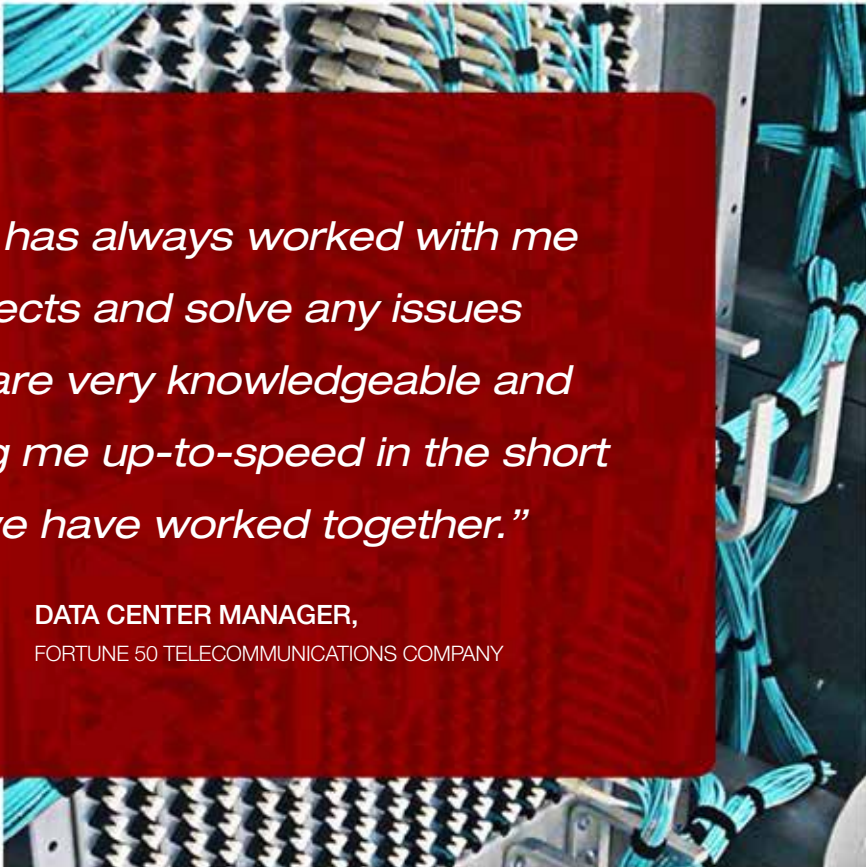A Hexatronic
Group Company

Uncompromised Connectivity.

Unsurpassed Quality.

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DATA CENTER SYSTEMS
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Group Company

"*The team at DCS has always worked with me during larger projects and solve any issues that occur. They are very knowledgeable and have helped bring me up-to-speed in the short amount of time we have worked together.*"

DATA CENTER MANAGER,
FORTUNE 50 TELECOMMUNICATIONS COMPANY

CASE STUDY:	FORTUNE 50 COMMUNICATIONS COMPANY

CHALLENGE	**RESULTS**
A Fortune 50 communications company wanted to optimize available real estate and improve manageability in its data center.	DCS' solution effectively optimized the customer's physical footprint and improved documentation and management, plus yielded the following measurable results:

SOLUTION

Collaborating closely with our client, DCS designed and implemented an end-to-end solution to reduce time and mangement of their Ethernet and Fibre Channel networks. To meet the customer's objectives, we used a true structured, centralized connectivity solution as the backbone of this system.

- Doubled capacity
- Dramtically improved time to market to meet aggressive demand from internal/external customers
- Increased flexibilty in data center configuration options
- Delivered ongoing savings by reducing fiber needed for end-to-end connections in the company's topology
- Reduced the need for human capital to deploy new assets by 50 percent
- Improved internal service level agreement terms by 85 percent

THE DCS **DIFFERENCE**

At DCS, our number one goal is to provide you with a highly reliable fiber connectivity solution that keeps your network operating at peak performance. We take it one huge step further by not only meeting your unique requirements and priorities today but also tailoring our solutions to grow with your company and lay the foundation for future technology and scalability.

OUR SERVICES

CONSULTATION
Through our association with the Ethernet Alliance, DCS keeps you updated on the future speeds of Ethernet and Fibre Channel networking technologies—and the impact on your current and future connectivity infrastructure.

ENGINEERING AND INNOVATION
• Products and solutions that are unique to our customers' data centers
• Engineering solutions to meet your data center connectivity needs
• Product-specific designs for ease of port identification and cable management

INFRASTRUCTURE DESIGN
• Experts in Layer 1 Infrastructure design for large enterprise data centers
• End-to-End Solutions from consultation to implementation
• Design approach maximizes the performance of connectivity for next generation speeds and technologies

FIBER OPTIC CABLE MANUFACTURING
• Equipment-specific multi-fiber trunk solutions
• Rapid turnaround on jumpers and multi-fiber trunks
• Testing – 100% testing prior to shipment to meet or exceed the TIA 568 industry standard performance
• All products manufactured in the USA
• ISO 9001 certified

PROFESSIONAL SERVICES
• Layer 1 Data Center Assessment
• Installation of Layer 1 infrastructure including overhead conveyance, central patching location, patch panels and zone solutions
• Testing – Each fiber port documented and tested to exceed industry standards
• Documentation – Customer profile, project require document, CAD floor diagrams and elevations, installation test results
• On-Site Support for a wide range of services / tasks. For example: a technician who maintains the connectivity databases; performs day-to-day support for adds, moves and changes; etc.

SUSTAINABILITY

Sustainability is not just a commitment, but a recognized achievement. We proudly received the prestigious EcoVadis Gold Sustainability Rating. This accolade showcases our unwavering dedication to environmental responsibility, social impact, and ethical practices. We believe in a future where businesses thrive while preserving our planet and uplifting communities. Join us and experience the power of sustainable innovation with Data Center Systems, the gold standard in sustainability.

GOLD
2023
ecovadis
Sustainability
Rating

BUILDING A STRONGER
CLIENT RELATIONSHIP

When your clients invest in Brocade's networking products, you want them to get the most out of their investments. However, oftentimes, connectivity infrastructure is ignored and can limit your products' performance, resulting in downtime.

Because DCS has worked with Brocade for years, we understand your suite of products and work hand in hand with you to give your clients a trusted end-to-end solution and the best networking experience possible. Our team of technical experts helps educate your customers on true structured cabling and link loss, so that distance limitations are taken into consideration and keep Brocade's switch performance exceeding industry standards.

In addition to your clients' investment being protected well into the future, they also have a trusted adviser to ensure their SAN, Mainframe and Ethernet networks continue to run as efficiently as possible.

CONSULTATION REINFORCED BY
INNOVATION

Our innovative and consultative approach to connectivity sets us apart, making us the preferred choice for large companies seeking purpose-built cabling solutions. We go beyond simply providing a total solution design that meets your unique requirements and priorities. We also tailor the solution to establish a robust foundation for future technology integration and scalability.

By partnering with well-respected companies like Brocade to provide complete end-to-end solutions, DCS is also able to rigorously control the quality of our fiber infrastructure as well as facilitate the day-to-day management and documentation of that infrastructure. Not to mention, we keep dollars and jobs in the U.S. by designing and manufacturing everything domestically.

BUILDING A STRONGER **CLIENT RELATIONSHIP**

When companies choose DCS to provide their data center's infrastructure, we're not just installing cabling. We're also providing that company with a cutting-edge connectivity solution that they can trust to perform effectively and respond to their needs.

INNOVATION
The key to our success is our ability to design and produce innovative products within a very short time frame. Our experienced engineering team works directly with data center managers to ensure that their individual objectives are met and solutions accommodate future technologies.

QUALITY
DCS leverages our technical expertise and attention to detail to make best-in-class products for the data center industry and deliver them on time and cost effectively. We partner with well-respected companies like Brocade to ensure that our true structured cabling solutions enable your network switches to perform at the highest level of excellence.

RELIABILITY
When you're operating an enterprise-level business, connectivity is more than important; it's imperative. You can trust our fiber connectivity solutions to achieve the least link loss possible and keep your network operating at peak performance.
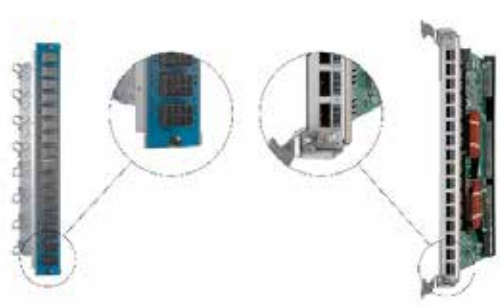
RESPONSIVENESS
A data center must be agile and responsive to the needs of the business. Our connectivity solutions, which are tailored to both a company's day-to-day operations and plans for the future, deliver on that responsiveness. When performing moves, adds or changes within a data center, DCS' infrastructure makes management and documentation easier and more efficient.

TAKING BROCADE'S OFFERINGS TO AN EVEN **HIGHER LEVEL**

DCS' fiber connectivity solutions enhance Brocade's product performance, but the services we offer to support our cabling also add significant value to your client offering. Here's what your clients can expect when they work with the Brocade/DCS team:

- Structured cabling design consultation that supports current business needs and future technologies

- Installation of the fiber cabling and hardware infrastructure

- Diligent documentation of all port connectivity for easier moves, adds and changes

- Testing of fiber cabling before shipping as well as before activation to meet or exceed industry standards

- On-site managed services to document and execute facility moves, adds and changes

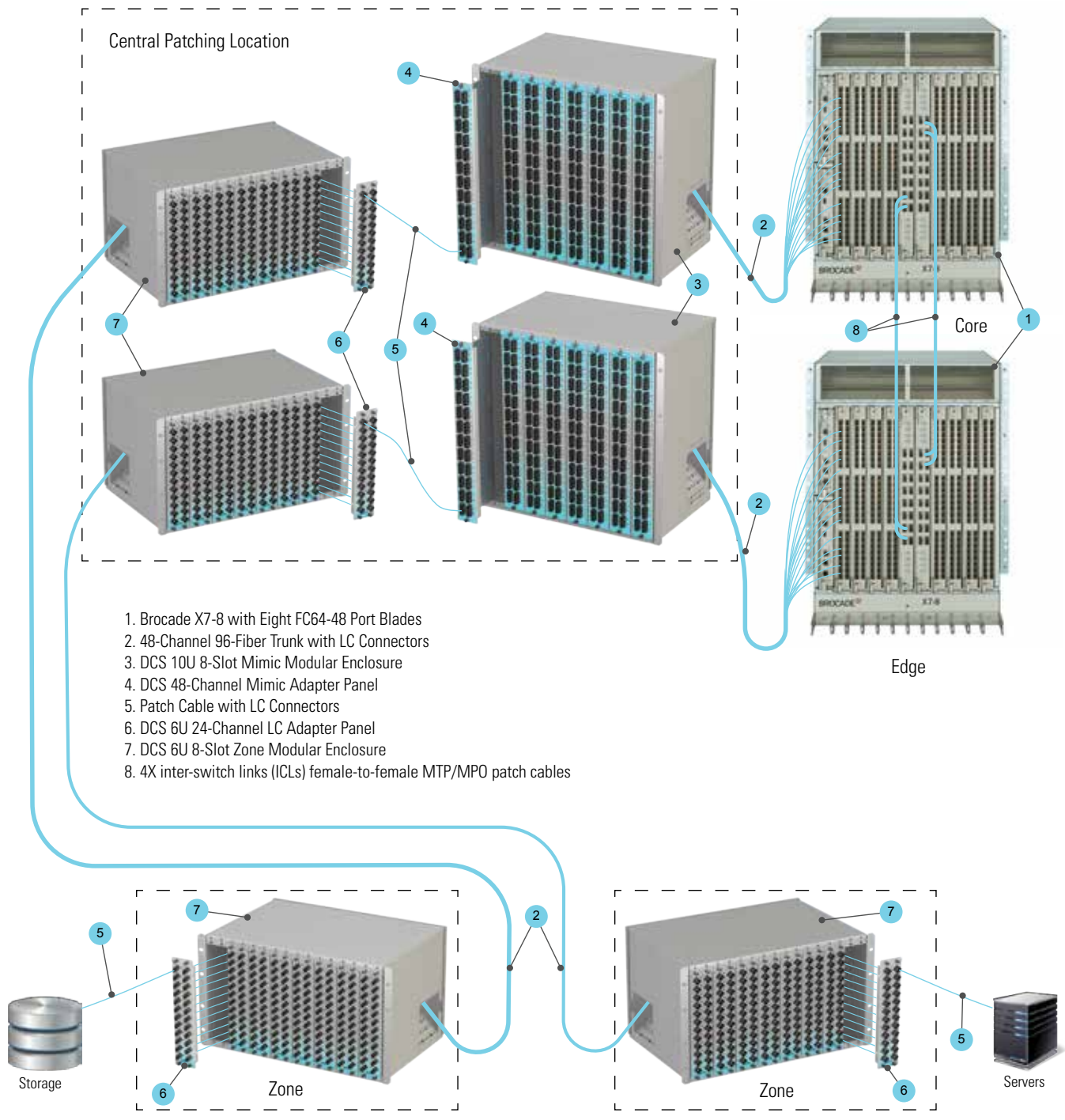- Consultation, collaboration and support

BROCADE **SWITCH MIMIC SOLUTIONS**

DCS's mimic patch panels precisely replicate switches and switch ports at the central patching location. Port numbering schemes are matched for ease of patching and documentation.

Blade Specific Fiber Trunks | 10U Modular Mimic Panels | Patch Cables

Structured cabling solution showing brocade X7-8 switch with DCS X7-8 mimic:

Central Patching Location

Core

Edge

1. Brocade X7-8 with Eight FC64-48 Port Blades
2. 48-Channel 96-Fiber Trunk with LC Connectors
3. DCS 10U 8-Slot Mimic Modular Enclosure
4. DCS 48-Channel Mimic Adapter Panel
5. Patch Cable with LC Connectors
6. DCS 6U 24-Channel LC Adapter Panel
7. DCS 6U 8-Slot Zone Modular Enclosure
8. 4X inter-switch links (ICLs) female-to-female MTP/MPO patch cables

Storage

Zone

Zone

Servers

DCS STRUCTURED CONNECTIVITY SOLUTIONS
FOR **BROCADE GEN 7 DIRECTORS**

WHAT YOU NEED TO KNOW

Brocade Gen 7 Fibre Channel with 64 Gb/s links dramatically increases IO performance. However, this demands high-performance structured FC Infrastructure to support this exponential data growth. 64 Gb/s links require ultra-low latency, reducing cabling distances and connector loss requirements. As a result, current cabling infrastructure may not support Gen 7 speeds.
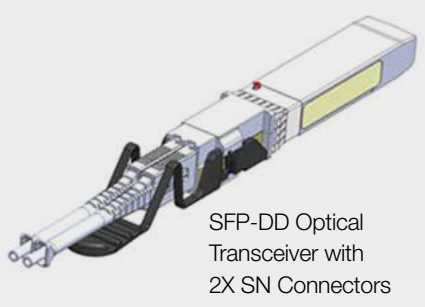
REDUCED DISTANCE AND CONNECTOR LOSS

1.5dB of connector loss needs to be maintained over the entire structured link for up to 100M switch to server distance over OM4 fiber. Less distance for OM3. Connector loss applies to the terminated ends of the fiber as well as patch panels or other interconnects. Any links beyond the FC-PI-6 (Gen 6) standard may be recognized as an unhealthy connection with a high probability of bit rate errors and increased latency.

16GFC (GEN 5) DISTANCE (M) / LOSS BUDGET (DB)					
FIBER TYPE	CONNECTION LOSS				
	3.0 dB	2.4 dB	2.0 dB	1.5 dB	1.0 dB
OM4	NA	50	100	125	150
OM3		40	75	100	120
OM2		NA	NA	35	40
32GFC (GEN 6) DISTANCE (M) / LOSS BUDGET (DB)					
FIBER TYPE	CONNECTION LOSS				
	3.0 dB	2.4 dB	2.0 dB	1.5 dB	1.0 dB
OM4	20	65	80	100	110
OM3	15	45	60	70	80
OM2	NA	15	15	20	25
0S1/0S2	8250	9250	10000	11000	11750
64GFC (GEN 7) DISTANCE (M) / LOSS BUDGET (DB)					
FIBER TYPE	CONNECTION LOSS				
	3.0 dB	2.4 dB	2.0 dB	1.5 dB	1.0 dB
OM5	40	70	85	100	115
OM4	40	70	85	100	115
OM3	30	50	60	70	75
OS2	8000	9200	10000	11000	12100

DCS CABLING SOLUTIONS FOR THE **BROCADE 64GB G720** AND **G730 FC SWITCH**

To support Brocade's G720 and G730 device or ISL connectivity, Data Center Systems (DCS) is now manufacturing optical cabling with SENKO's SN® connectors that have been designed and optimized for GEN 7 64/128 Gb Data Center applications and have been adopted to transceiver applications including Broadcom's SFP-DD. The duplex design utilizes a unique Push-Pull boot for superior manageability and simple installation and removal from transceivers and adapter panels. Dual SN connectors from a single SFP-DD transceiver allow organizations to connect more servers, storage or switches in a small footprint.

SFP-DD Optical Transceiver with 2X SN Connectors

LC Connector for SFP+ Ports

SN Connector for SFP-DD Ports

Port Numbering for the Brocade G720 Switch

	SFP+ Port Numbering																														SFP-DD Port Numbering			
0	1	2	3	8	9	10	11	16	17	18	19	24	25	26	27	32	33	34	35	40	41	42	43	48,49	50,51	56,57	58,59
4	5	6	7	12	13	14	15	20	21	22	23	28	29	30	31	36	37	38	39	44	45	46	47	52,53	54,55	60,61	62,63

Port Numbering for the Brocade G730 Switch

	SFP+ Port Numbering																							SFP-DD Port Numbering			
0	1	2	3	8	9	10	11	16	17	18	19	24	25	26	27	32	33	34	35	40	41	42	43	96,97	98,99	104,105	106,107
4	5	6	7	12	13	14	15	20	21	22	23	28	29	30	31	36	37	38	39	44	45	46	47	100,101	102,103	108,109	110,111
48	49	50	51	56	57	58	59	64	65	66	67	72	73	74	75	80	81	82	83	88	89	90	91	112,113	114,115	120,121	122,123
52	53	54	55	60	61	62	63	68	69	70	71	76	77	78	79	84	85	86	87	92	93	94	95	116,117	118,119	124,125	126,127

MIMIC PANELS

The DCS series of Switch Mimic Enclosures and Adapter Panels give a visual of the director-class switch at the Central Patching Location (CPL) and improves upon TIA-942 structured cabling recommendations. Not only is the switch represented, but also each port is precisely identified as the port on the device it represents.

By representing the port at the CPL, it's easy to identify ports without disrupting the active equipment, saving time and minimizing human error during moves, adds and changes. These solutions are used in conjunction with our Multi-Fiber Director Trunks, which are staggered to reduce slack and open up airflow into the switch.

FIBER ASSEMBLIES

Gen 7 speeds require the highest-quality fiber-optic cable assemblies. Data Center Systems is proud to announce that, by utilizing the SN connector designed for 64/128 Gb Data Center optimization from Senko, not only will we continue to provide the highest level of quality and performance you are used to, but now our solution comes in the smallest footprint available with the value-add of providing individual and independent duplex fiber breakouts at the SFP-DD transceiver level.

QUALITY

Our fiber assemblies are designed, manufactured and 100% tested in the USA to exceed TIA standards. Check out our Jumper and Trunk Spec Sheets for technical info. DCS leads the industry in quality, built-for-purpose solutions and turnaround times.

FIBER (JUMPER) ASSEMBLIES

Available as LC-LC, SN-SN or SN to any standard duplex/simplex connector type.
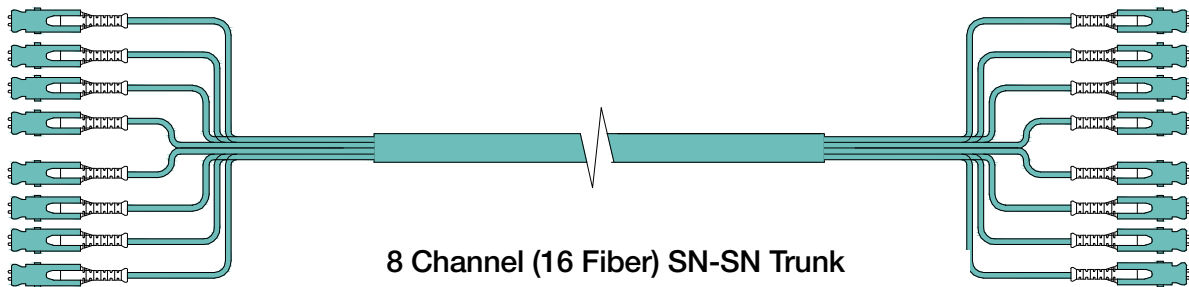
Example:

LC-LC Jumper
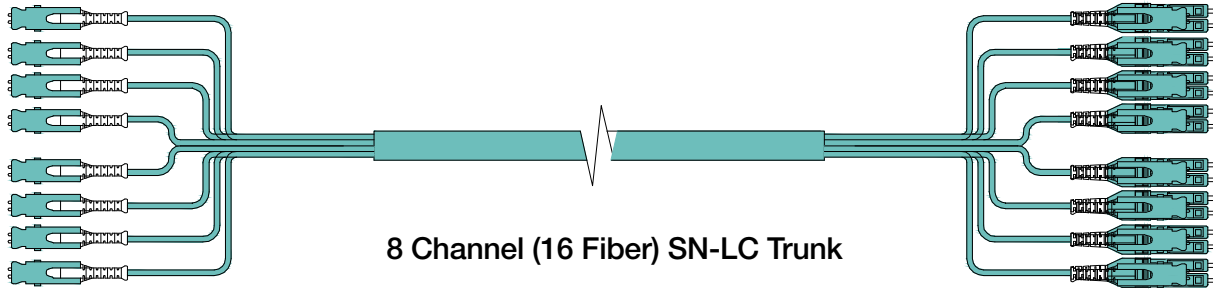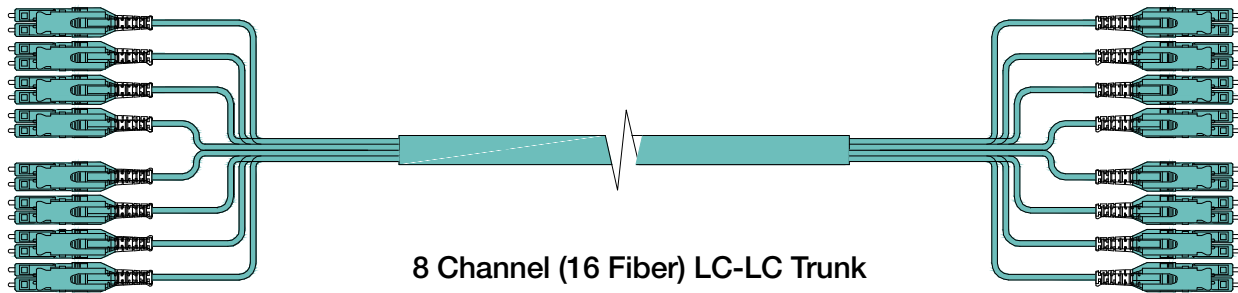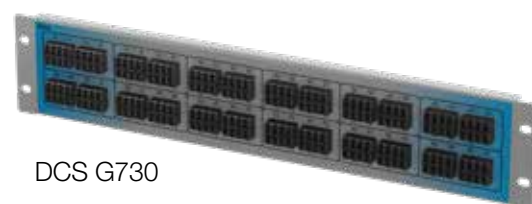

SN-LC Jumper

SN-SN Jumper

MULTI-FIBER (TRUNK) ASSEMBLIES

Available as LC-LC, SN-SN or SN to any standard connector type in 4 Port (8 Fiber) increments.

Example:

8 Channel (16 Fiber) LC-LC Trunk

8 Channel (16 Fiber) SN-LC Trunk

8 Channel (16 Fiber) SN-SN Trunk

DCS G720 AND G730 MIMIC PATCH PANEL SOLUTIONS

DCS G720

DCS G730

FIBER ASSEMBLIES

Made to order in our production facility located in Dallas, TX. All of our fiber assemblies are tested to exceed industry standards for IL/RL and end face geometry.

FIBER OPTIC TRUNK CABLES

Compared to individual jumpers, multi-fiber trunk cables significantly reduce the number of cables and physical space needed. Available in a variety of lengths and connector styles for reliable, flexible connectivity.

FIBER OPTIC HARNESSES

Simplify connectivity by using the DCS harness as a quick-connect extension when coupled with an MTP trunk cable to use. Consists of an MTP connector along with the array connector needed to attach to production hardware.

FIBER OPTIC JUMPER CABLES

Make the "final link" of connectivity between patch panels at the central patching location or between patch panels and production hardware at the zone patching location. Available in a variety of lengths and connector styles for reliable, flexible connectivity.

FIBER OPTIC SWITCH TRUNKS

Staggering the legs of the switch trunks gives connectivity across the director a more manageable fit, eliminating slack. Using these product specific cables to reduce cable density increases circulation of air, resulting in decreased power consumption.

INNOVATIVE FIBER CONNECTIVITY SOLUTIONS

DCS
DATA CENTER SYSTEMS
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Group Company

Find out how
DCS' Connectivity
Solutions Can
Improve Your
Company's
Performance.