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PRG LIGHTING SYSTEMS

NETWORKING GUIDE REV D

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INTRODUCTION

About This Guide

This guide contains sample layout diagrams for the purpose of illustrating how PRG lighting equipment can be used in different system networking configurations. A brief description of applicable PRG lighting equipment is also included for quick reference. For more in-depth descriptions, specifications and installation instructions, refer to the applicable User and/or Service Manual for that component (see below).

Please note that this guide does not cover all possibilities. Many more system configurations are possible. Consult the product specialist in your office if you have any questions about configurations not presented in this guide.

PRG Lighting Product Documentation

For a complete list of current PRG Product Manuals and Technical Documentation, refer to the PRG Lighting Document Reference Guide (02.4004.0001.0). This guide includes a list of the following types of documentation:

- + User Manuals
- + Service Manuals
- + Test Equipment Manuals

PRG Series 400 Distribution Rack

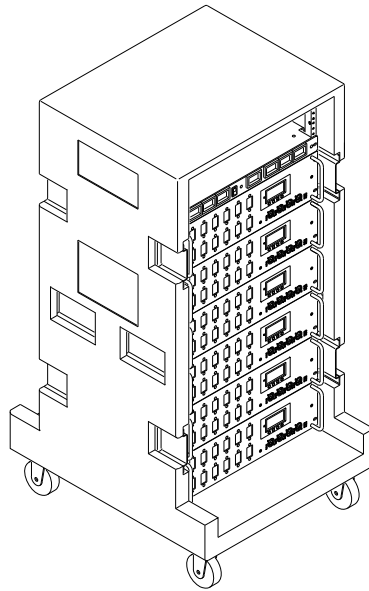
The PRG Series 400® Data and Power Distribution Rack offers significant features, both standard and superior to other power distribution systems.

The Series 400 system consists of a Rolling Rack unit, up to six 3U Breaker Modules, and associated Breakout Boxes connected by Trunk Cables. The rack is designed to distribute house power service and control signals for the purpose of operating automated luminaires or other remote devices up to 500 feet away.

The system is easily configured from the front panel or S400 Tools laptop software.

The S400 System receives and distributes sACN and Art-Net control protocol from any lighting console then converts to DMX within each Breakout Box. No complicated networking settings or IP address configuration is needed. The front panel in addition to Series 400 Tools offers a powerful collection of tools and monitors to assist in system troubleshooting and monitoring.

Optional components include the Front of House (FOH) Breaker and Breakout Modules, which provide a convenient method of powering and connecting consoles at the FOH position. The FOH Breaker Module sources two sets of six 15-Amp AC circuits and provides system control data inputs for up to 10 DMX512 universes along with inputs for sACN and Art-Net ethernet signals.



Series 400 Rack features:

- + Supports up to 72, 1.2k Watt Devices
- + Single, Dual, and 3-Phase Outputs
- + 400 Amp Cam-Loks In and Out
- + 120V and 208V Outputs
- + Digital Current and Voltage Metering
- + Safety Interlock with Breakout Boxes
- + System Master Switch
- + Front Panel Flush Rocker Circuit Breakers
- + Hot-Swappable Breaker Modules
- + 10/100BaseT Ethernet and DMX512 Inputs
- + Accepts sACN and Art-Net control signal
- + Signal Routing Control and Display
- + Rear 120V Convenience Outlets
- + Rear L6-20 and powerCON 208V Convenience Outlets
- + Front and Back LED Work Lighting
- + 3U of additional rack space for adding third-party signal processing devices
- + Modular Design
- + Weighs a maximum of 305 lbs. when fully loaded

Note: Each Series 400 Rack requires a 400 Amp Disconnect. Refer to "400 Amp Disconnect" on page 7.



WARNING: The Series 400 Rack utilizes high voltage power. Use proper precautions when installing or servicing!

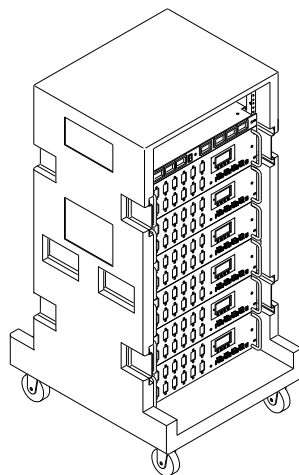


Rack

The Rack unit is the main power and data distribution hub for the Series 400 system. The Rack houses up to six Breaker Modules of any type, which can include a Front of House Breaker Module. The Rack provides a built-in LED Meter Module that monitors system current and voltage, and additional space for installing optional expansion components such as a Supernode or a VIA12 Switch. System-wide functions can be controlled at the Rack, including configuration and testing.

US ecode: 38380-

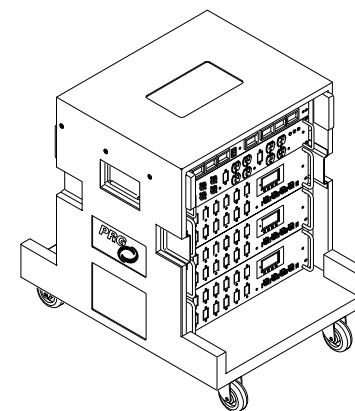
EU ecode: 38382-



Half Rack

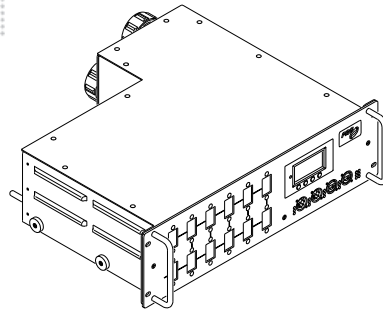
The Half Rack unit is the main power and data distribution hub for the Series 400 system. The Rack houses up to 3 Breaker Modules of any type, which can include a Front of House Breaker Module. The Half Rack also utilizes a Convenience Power Module. The Half Rack provides a built-in LED Meter Module that monitors system current and voltage, and additional space for installing optional expansion components such as a VIA12 Switch. System-wide functions can be controlled at the Half Rack, including configuration and testing.

ecode: 38381-



Breaker Module

The Breaker Module provides two trunk outputs, with each circuit protected by an individual circuit breaker, for the purpose of routing power and control to the system. The total number of circuits depends on the model. The module accepts sACN, Art-Net, and DMX512 inputs, and features a Menu Display which provides control and configuration of the signal routing to all connected Breakout components. The Module is installed directly into the Rack unit.



The Breaker Module is available in several power configurations:

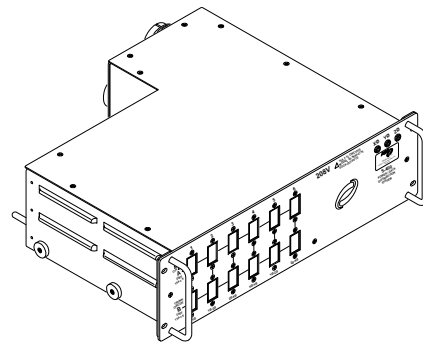
Team Ecode	Module Type
38380-05	15A 120V
38380-15	15A 208V
38380-18	30A 208V
38380-17	15/30A 208V

Socapex Breaker Module

Each Socapex Output Breaker Module allows two Socapex cables and fan-outs to be used with the Series 400 system. The Module is installed directly into the Rack unit.

The Socapex Module does not have any displays, DMX, or ethernet connections since Socapex-compatible trunks do not contain data cables.

Atomic Strobe units must be powered with the Socapex module.



The Socapex Breaker Module is available in several power configurations:

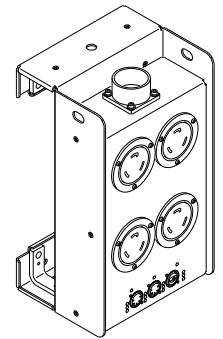
Team Ecode	Module Type
38380-08	15A 120V Slow-Blo
38380-16	15A 208V Slow-Blo

Breakout Box

The Breakout Box supplies power and control signal for three, four or six devices, depending on the model. LEDs provide verification of the power and data signals. The Breakout Box can be installed in a truss with a choice of several mounting hardware options, providing a convenient location for connecting system devices. It provides two individually configurable DMX512 universes and one ethernet output.

The Breakout Box is available in several power configurations:

Team Ecode	Module Type
38380-25	15A 120V
38380-35	15A 208V
38380-38	30A 208V
38380-37	15/30A 208V



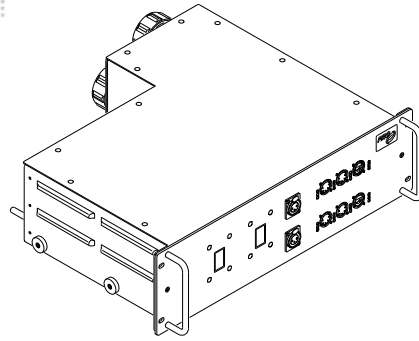
Front of House Breaker Module

The Front of House (FOH) Breaker Module provides two trunk outputs, with each circuit protected by an individual circuit breaker, for the purpose of routing power and control to FOH Breakout Modules. Unlike the standard Breaker Modules, the FOH Breaker Module does not offer a Menu Display, which is instead located at the FOH Breakout Module itself. The FOH Breaker Module is installed directly into the Rack unit.

ecode: 38380-19

FOH Breaker Module features:

- + Two 100BaseT Ethernet Ports
- + Four DMX512 Outputs
- + Two Intercom Inputs
- + Front Panel Flush Rocker Circuit Breakers
- + Hot-Swapping Capability
- + Safety Interlock with FOH Breakout Modules



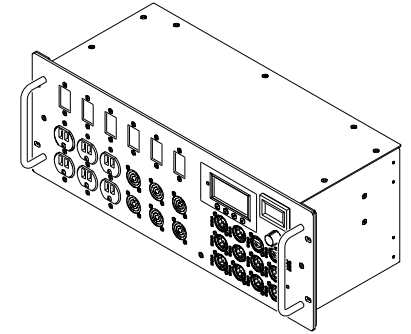
Front of House Breakout Module

The Front of House (FOH) Breakout Module provides a convenient method for powering and connecting consoles at the mix riser position. It provides six Edison outlets on three 15-amp breakers and six powerCON outlets on three 15-amp breakers. The module provides 8 standard DMX512 inputs that convert into sACN or Art-Net. Also two ethernet ports for protocols such as Art-Net or sACN. DMX512 Input/Output universe can be selected and configured using the built-in Menu Display.

ecode: 38380-39

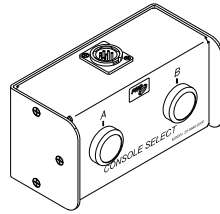
FOH Breakout Module features:

- + Two 100BaseT Ethernet Inputs
- + Ten standard DMX512 Inputs
- + Six Edison Style 120V Outlets
- + Six powerCON 208V Outlets
- + Digital Voltmeter with Selector Switch
- + Signal Routing Control and Display
- + Front Panel Flush Rocker Circuit Breakers
- + Safety Interlock with FOH Breaker Module



Front of House A/B Switch

The Front of House A/B Switch is connected to a FOH Breakout Module to provide a convenient method for switching between two sets of DMX512 universes (A and B). All DMX512 input universes are given a System Identifier, in addition to a Universe Number. The default is System A. Systems A, B or C can be selected at a Breaker Module's Menu Display. Systems A or B can be toggled by pressing the appropriate selector button at the A/B Switch. (System C is normally reserved for system testing and/or setup and is not selectable at the A/B Switch.)



As an example, two universes from a primary console could be input into the FOH Breakout Module and labeled 0a and 1a. Two (mirrored) universes could be added from a backup console and labeled 0b and 1b. The system outputs would be assigned 0 or 1 as appropriate. All universes from both consoles are active on the network all the time, making it possible to verify that both desks are up and running by checking the system status. A third system (C) has been provided for an additional input, such as a tech console.

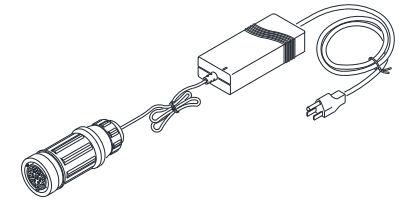
The A/B Switch indicates the current system with state of its backlit selector switches, even if this is changed elsewhere (i.e., using the menu).

Note: The A/B Switch requires 7-Pin XLR Cable.

ecode: 38380-40

Front of House Trunk DC Adapter

The purpose of the Trunk DC Adapter is to power the internal circuit boards in all versions of S400 Front of House Breakout Modules without using a Trunk Cable. This enables a FOH Breakout Box to be used as a DMX512 to Art-Net/sACN converter without the need to run S400 trunk cable to the device.

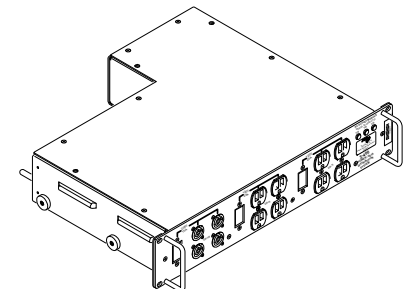


The Trunk DC Adapter is connected to the standard Trunk Connector on the side of the FOH Breakout Module.

ecode: 38380-3M

Half Rack Convenience Module

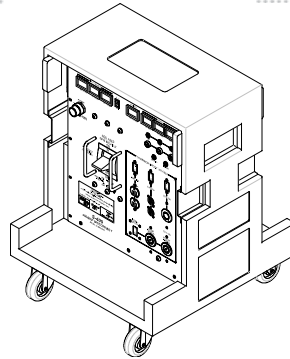
The Half Rack Convenience Module provides all local convenience power for the Half Rack unit. The module is equipped with four single-circuit 208v powerCon outputs and four dual-circuit 120v edison outlets, two per circuit. The module does not have any displays, DMX, or ethernet. The Module is installed directly into the Rack unit.



ecode: 38381-02

400 Amp Disconnect

The PRG Series 400® 400 Amp Disconnect is a mandatory PRG safety device containing a three-phase, 400 Amp circuit breaker serving as a Main Breaker for high current AC power distribution systems. A Disconnect unit is required when 5-wire, 4/0 AWG feeder cables greater than 10 feet in length are connected from a house service greater than 400 Amps per phase to a portable power distribution system.



The Series 400 Disconnect interrupts the 3-phase current flow under fault conditions, preventing dangerous overloads of the feeder cables. The S400 Disconnect may be used with the Series 400 Power and Data Distribution System, other power distribution systems, and with portable power sources (generators) as long as its ratings are not exceeded and an adequate Earth ground has been established. ecode: 35273-

400 Amp Disconnect features:

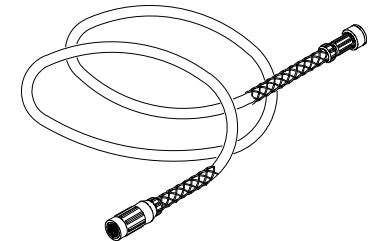
- + Six Cam-Lok Series E1016 high-current connections for power input.
- + Two sets of six Cam-Lok Series E1016 high-current connections for power output.
- + Double Neutral connectors to handle excessive neutral current generated by low power factor loads.
- + Seven digital LED meters to monitor power flow - three voltmeters to measure phase voltages and four current meters to measure current flowing in each phase and the neutral.
- + Neon indicators to show when feed cable is energized.
- + Adjustable control for setting inrush limit.
- + Five color coded, insulated test points for metering output voltages.
- + Multiple local convenience outlets.
- + Solid copper rigid bus bars and two thermostatically controlled cooling fans allow operation at 100% of Rated current.
- + Suitable for use in the U.S. and Canada, or any locality with a 5-wire, 120/208V power grid.



WARNING: The 400 Amp Disconnect utilizes high voltage power. Use proper precautions when installing or servicing. Failure to do so may result in injury!

Trunk Cables

Series 400 Trunk Cables are used to connect the Breaker Modules to the Breakout Boxes, as well as, the FOH Breaker Module to the FOH Breakout Box.



Trunk Cable features:

- + Works with All Module Types
- + 12 AWG Power Conductors
- + Redundant Ground Circuits
- + Integrated Ethernet Cable
- + Proven Industrial Connector & Envirotec Shell
- + Connects up to 500 feet of Cable

TEAM Ecode	Cable Type	Length (Feet)
38396	S400-U Trunk	25
38397	S400-U Trunk	50
38398	S400-U Trunk	100

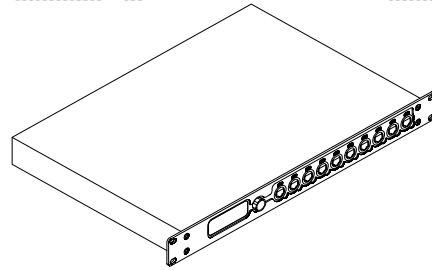
Ethernet Patch Cables

Series 400 Ethernet Patch Cables are used to connect Breaker Modules together for data communication. etherCON cable should be avoided.

TEAM Ecode	Cable Type	Length (Feet)
38380-4E	S400 Ethernet Patch, Black Shark Fin	1
38380-4H	S400 Ethernet Patch, Black Shark Fin	2

Pathway VIA12 Ethernet Switch

The Pathway VIA12 is a powerful and simple to use managed gigabit ethernet switch. Model #6742 is designed with the strict PRG entertainment-grade standards and is recommended for use with all PRG systems. The VIA12 effortlessly handles all standard entertainment protocols such as sACN, Art-Net, MANet2, Net3 HogNet and Dante.



All VIA12 14-port ethernet switch models offer two types of connections: 12 isolated etherCON RJ45 copper ethernet ports and two fiber optic ports with the type dependent on the model. The Model # 6740 has two mini-GBIC ports to support LC fiber. The Model # 6742 has two opticalCON DUO fiber optic ports. The fiber optic ports provide the ability to send fast and reliable information up to 1 kilometers away without the need for repeaters. The copper ethernet connections offer the ability to combine standard copper connections with fiber optic transmissions.

The VIA12 is an entertainment-grade switch with management capabilities. Unlike many big brand managed switches, the VIA12 can be fully configured by just about anyone. The switch includes a powerful feature set but unlike generic switches offers features specific to the entertainment industry.

VIA12 Ethernet Switch features:

- + All settings can be configured at on-board display
- + Supports Ethernet Automatic Protection Switching (Ring Protection)
- + Loopback Protection (RSTP)
- + Supports 10/100/1000Base-T speeds
- + Two opticalCON DUO ports supporting multi-mode LC fiber
- + powerCON In/Thru (90-250v)
- + Standard 1U 19" rack mount chassis
- + PoE supported (additional hardware required)

Entertainment-Grade Managed Switch Advantages

VLANS

Easy use and setup of VLANs. A VLAN is a Virtual Local Area Network which allows isolated grouping of data on a signal network. VLANs can be used to separate different protocols, individual departments, multiple console networks, and many other uses. A typical show setup could be VLAN1: MANet, VLAN2: Art-Net, VLAN3: mBOX control/CITP, VLAN4: Audio Amp Control, etc all running on the same network. When possible, it is recommended to have same VLAN structure on all switches

TAGGED (Uplink)

To easily move all VLAN data between switches, a port can be assigned as Tagged which will send all VLAN data down a single piece of opticalCON DUO fiber optic cable or etherCON. It is recommended to send Tagged data to every switch.

Plug & Play

Switches ship defaulted in an unmanaged state, providing a reliable gigabit entertainment grade switch.

Ring Protection System

VIA12 supports Ethernet Automatic Protection Switching, a rapid ring failure detection and correction feature. Although more engineering in pre-production is required, the ring system allows for a back-up ring topology where one direction of the ring is ignored. If a failure occurs somewhere in the ring, the unused ring segment is activated and full communication is restored. Fail-over time is between 50 and 75 milliseconds, or two to four DMX packets. Fully supported and tested on Dante audio network without a Dante failure indication.

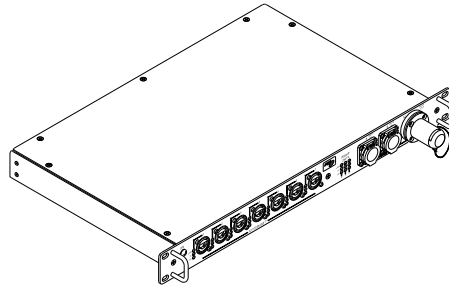
See advanced features in the VIA12 manual for more information.

Team Ecode	Model
U506L-	opticalCON DUO
U506K-	Mini-GBIC

S400 PRG Ethernet Switches

Series 400 10-Port Ethernet Switch

The PRG Series 400® 10-Port Ethernet Switch is a powerful and convenient 10/100MB switch. The 10-Port Ethernet Switch offers two types of connections: isolated copper ethernet ports and fiber optic ports. The fiber optic ports provide the ability to send fast and reliable information up to 2 kilometers away without the need for repeaters by using Lemo Fiber Optic Cable (two fiber optic inputs and one fiber optic output).



CAUTION: Copper connections are limited to a max distance of 300 feet. PRG recommends fiber after 100 feet.

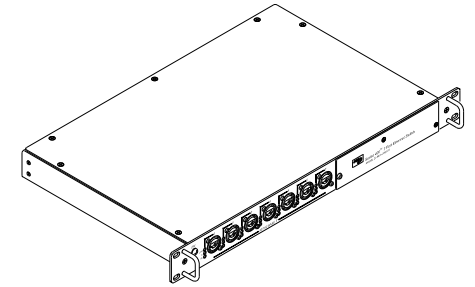
The 10-Port Ethernet Switch automatically determines the speed of each network connection based on the equipment connected to the switch and supports multiple connections with transmission and reception occurring simultaneously. ecode: 38380-46

10-Port Ethernet Switch features:

- + Seven isolated copper ethernet ports for input of 10Base-T and 100Base-TX standard signal (Neutrik etherCON connectors).
- + Three fiber optic Ethernet ports for transmission of 100Base-FX standard signal. Two ports allow use of a Lemo Fiber Optic Cable *input* connector and one port allows use of a Lemo Fiber Optic Cable *output* connector. Note: Data connections are bidirectional.
- + Automatic detection and configuration of input signal speed.
- + Link, Transmission, and Reception status LEDs for all ports.
- + powerCON connector for input AC supply (90-240V).
- + DC power status LED.
- + Standard 1U 19" rack mount chassis.

Series 400 7-Port Ethernet Switch

The PRG Series 400® 7-Port Ethernet Switch provides a powerful and convenient interface between control consoles and their control equipment. The 7-Port Ethernet Switch provides seven isolated copper Ethernet ports.



CAUTION: Copper connections are limited to a max distance of 300 feet. PRG recommends fiber after 100 feet.

The 7-Port Ethernet Switch automatically determines the speed of each network connection based on the equipment connected to the switch and supports multiple connections with transmission and reception occurring simultaneously. ecode: 3132H-

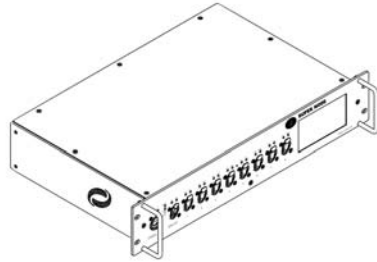
7-Port Ethernet Switch features:

- + Seven isolated copper ethernet ports for input of 10Base-T and 100Base-TX standard signal (Neutrik etherCON connectors).
- + Automatic detection and configuration of input signal speed.
- + Link, Transmission, and Reception status LEDs for all ports.
- + powerCON connector for input AC supply (90-240V).
- + DC power status LED.
- + Standard 1U 19" rack mount chassis.

PRG DMX Nodes

Super Node

The PRG Super Node® provides a powerful and convenient interface between V676, sACN, or Art-Net compatible control consoles, pixel mapping from media servers, and subsequent control equipment which require either Art-Net, sACN, or DMX512 control signals. The unit accepts high level commands in either V676, sACN, or Art-Net protocol and converts the data into eight universes of DMX512. It can also merge up to 4 different sACN/Art-Net sources.



The device will listen to all Art-Net and sACN IP subnets, thus eliminating the need to worry about any network configuration.

ecode: 3799C-

The Super Node unit operates in one of two primary modes:

V676 Mode or Series 400 Mode

- + In V676 Mode, the unit will accept V676 protocol and generate both Art-Net, sACN and DMX512 outputs.
- + In Series 400 Mode, the unit will accept sACN and Art-Net protocol and convert it to DMX512. The Super Node will also output up to sixteen patched universes of Art-Net from a separate etherCON output port.

Super Node features:

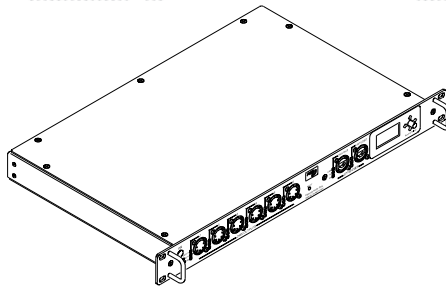
- + Accepts V676, sACN and Art-Net control protocols.
- + RDM compatible
- + Easy to use interface/configuration.
- + No complicated network/protocol configuration.
- + Utilizes Gigabit speed input.
- + Compatible with 10Base-T or 100Base-TX standard signals.
- + Automatic detection and mode configuration according to input signal type.
- + One ethernet (Art-Net) output port supporting up to sixteen DMX512 universes. (Art-Net Filtering)
- + Eight DMX512 serial output ports supporting one DMX512 universe each.
- + LEDs indicating Link, TX data, and RX data status for all ethernet ports.
- + LEDs indicating DMX Tx, RDM Tx, and RDM Rx data status for all DMX ports.
- + Display support for configuration of Super Node address, configuration of DMX outputs in Series 400 Mode, real-time monitoring of DMX512 data on each output, merge settings, display of network error information, and display of current software version.
- + powerCON connector for input AC supply.
- + Standard 2U 19" rack mount chassis.

Note: Supernode is REQUIRED for Vx76 pixel mapping.

Virtuoso Node Plus

The Virtuoso® Node Plus provides a powerful and convenient interface between V676 or Art-Net compatible control consoles, pixel mapping from media servers, and subsequent control equipment which require either Art-Net or DMX512 control signals. The unit accepts high level commands in either V676 or Art-Net protocol and converts the data into six universes of DMX512.

ecode: 37999-



- + LEDs indicating DMX Tx, RDM Tx, and RDM Rx data status for all DMX ports.
- + Display support for configuration of Node Plus address, configuration of Art-Net outputs in Series 400 Mode, real-time monitoring of DMX512 data on each output, display of network error information, and display of current software version.
- + powerCON connector for input AC supply.
- + Front panel DC power status LED.
- + Standard 1U 19" rack mount chassis.

Note: Supernode is REQUIRED for Vx76 pixel mapping.

The Virtuoso Node Plus unit operates in one of two primary modes:

V676 Mode or Series 400 Mode

- + In V676 Mode, the unit will accept V676 protocol and generate both Art-Net and DMX512 outputs.
- + In Series 400 Mode, the unit will accept Art-Net protocol and convert it to DMX512.
- +

Virtuoso Node Plus features:

- + Accepts V676, Virtuoso and Art-Net control protocols.
- + Compatible with 10Base-T or 100Base-TX standard signals.
- + Maximum processing of 1600 DMX Channels
- + Automatic detection and mode configuration according to input signal type.
- + One ethernet (Art-Net) output port supporting up to six DMX512 universes. (Art-Net Filtering)
- + Six DMX512 serial output ports supporting one DMX512 universe each.
- + LEDs indicating Link, TX data, and RX data status for all ethernet ports.

Ethernet Cables

The following is a list of standard rental Ethernet cables for use with PRG lighting systems.

TEAM Ecode	Cable Type	Length (Feet)
39857	RJ45 CAT5e	1
3985C	RJ45 CAT5e	5
3985E	RJ45 CAT5e	10
3985G	RJ45 CAT5e	15
3985J	RJ45 CAT5e	25
39752	etherCON CAT5e	1
39758	etherCON CAT5e	5
39762	etherCON CAT5e	10
39765	etherCON CAT5e	15
39768	etherCON CAT5e	20
39770	etherCON CAT5e	25
39773	etherCON CAT5e	50
39776	etherCON CAT5e	75
39779	etherCON CAT5e	100
39782	etherCON CAT5e	150
39786	etherCON CAT5e	200
39790	etherCON CAT5e	300
39792	etherCON CAT5e	330

New Cat5e or Cat6 is recommended for extended tours or permanent installs.

Fiber Optic Cables

Fiber optic provides the ability to transmit more information, over longer distances with high bandwidth, light-weight cabling. Fiber optic can reliably send data up 2 kilometers away without the need for repeaters. Due to the dielectric nature of optical fiber, this cable choice also eliminates concern for proximity to Electromagnetic and Radio Frequency Interference.

Lemo Fiber Optic Cable

Lemo Fiber Optic Cables are specifically designed for demanding touring and stage applications with ruggedized connectors and military style cabling. These cables are suitable for use with all PRG systems compatible with 10/100Mb systems.

The Series 400 10-Port Ethernet Switch includes three fiber optic ports for transmission of 100Base-FX standard signal. (Two ports which accept a Lemo Fiber Optic Cable *input* connector and one port which accepts a Lemo Fiber Optic Cable *output* connector.)

The V676 console also offers a Lemo fiber optic port.

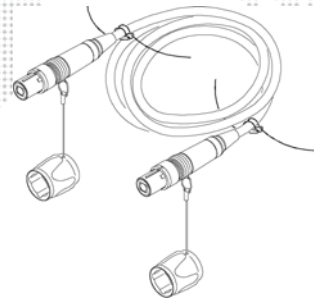


CAUTION: No more than 5 Lemo fiber optic cables can be connected in series due to signal loss at the connectors.

TEAM Ecode	Cable Type	Length (Feet)
37995-60	LEMO Fiber Optic	20
37995-67	LEMO Fiber Optic	125
37995-68	LEMO Fiber Optic	150
38135-10	LEMO Fiber Optic	200
37995-74	LEMO Fiber Optic	350

opticalCON Fiber Optic Cables

Neutrik opticalCON Advanced Fiber system allows the use of data transmission speeds of 10/100/1000Mb (Gigabit) signals. Based on LC-Duplex connectors, but eliminating its weakness and guaranteeing a dust-protected, water-proof connection. The attached metal cap seals the connector when not in use. Two versions are available: DUO with one LC pair and QUAD with two LC pairs.



PRG opticalCON Fiber Optic Cables are specifically designed for demanding touring and stage applications with ruggedized Neutrik connectors and military grade cabling. These cables are recommended for use with all the PRG lighting, video, audio, and IT systems.

The Pathway VIA12 Ethernet Switch includes two opticalCON Duo ports for transmission of 100/1000Base-T standard signal. (Additional fiber ports can be added by using separate rack mounted gear).



CAUTION: No more than 5 opticalCON fiber optic cables can be connected in series due to signal loss at the connectors.

Minimum Protocol Speed Requirements

Connection Speed	Protocol
100Mb	sACN, Art-Net 1-2, V676, Hog-Net 1-3, MANet1, KiNet, ETCNet2, MaxNet
1000Mb (Gigabit)	MANet2, ETCNet3, TitanNet, Hog-Net 4, Chamsys, Art-Net 3

All 100Mb speed devices can also work on Gigabit network infrastructure (i.e. VIA12 switch)

Part No.	Ecode	Description
25.0013.050	394AF-	OPTICALCON OM3 QUAD PROPLEX 50' 30M
25.0013.0100	394AJ-	OPTICALCON OM3 QUAD PROPLEX 100' 30M
25.0013.0125	394AK-	OPTICALCON OM3 QUAD PROPLEX 125' 30M
25.0013.0150	394AM-	OPTICALCON OM3 QUAD PROPLEX 150' 30M
25.0013.0175	394AO-	OPTICALCON OM3 QUAD PROPLEX 200' 30M
25.0013.0350	394AW-	OPTICALCON OM3 QUAD PROPLEX 350' 30M
25.0013.0600	394AZ-	OPTICALCON OM3 QUAD PROPLEX 600' 182M
N4O4MW-A	39452-	OPTICALCON OM3 QUAD COUPLER MM IP65
25.0014.0025	394BE-	OPTICALCON OM3 DUO FIELD 25' 7.5M
25.0014.0050	394BH-	OPTICALCON OM3 DUO FIELD 50' 15M
25.0014.0100	39425-	OPTICALCON OM3 DUO FIELD 100' 30M
25.0014.0125	394BK-	OPTICALCON OM3 DUO FIELD 125' 38M
25.0014.0150	394BM-	OPTICALCON OM3 DUO FIELD 150' 45.5M
25.0014.0200	39426-	OPTICALCON OM3 DUO FIELD 200' 60M
25.0014.0300	39429-	OPTICALCON OM3 DUO FIELD 300' 91M
25.0014.0350	3942C-	OPTICALCON OM3 DUO FIELD 350' 106.5M
25.0014.0600	39433-	OPTICALCON OM3 DUO FIELD 600' 183M
25.0014.1000	39439-	OPTICALCON OM3 DUO FIELD 1000' 305M
52.6104.0004	39451-	OPTICALCON OM3 DUO COUPLER MM IP65
n/a	396B4-	VIA12 FIBER MM LC-LC DUPLEX LT. DUTY 3' 1M

PRG Series 400 System

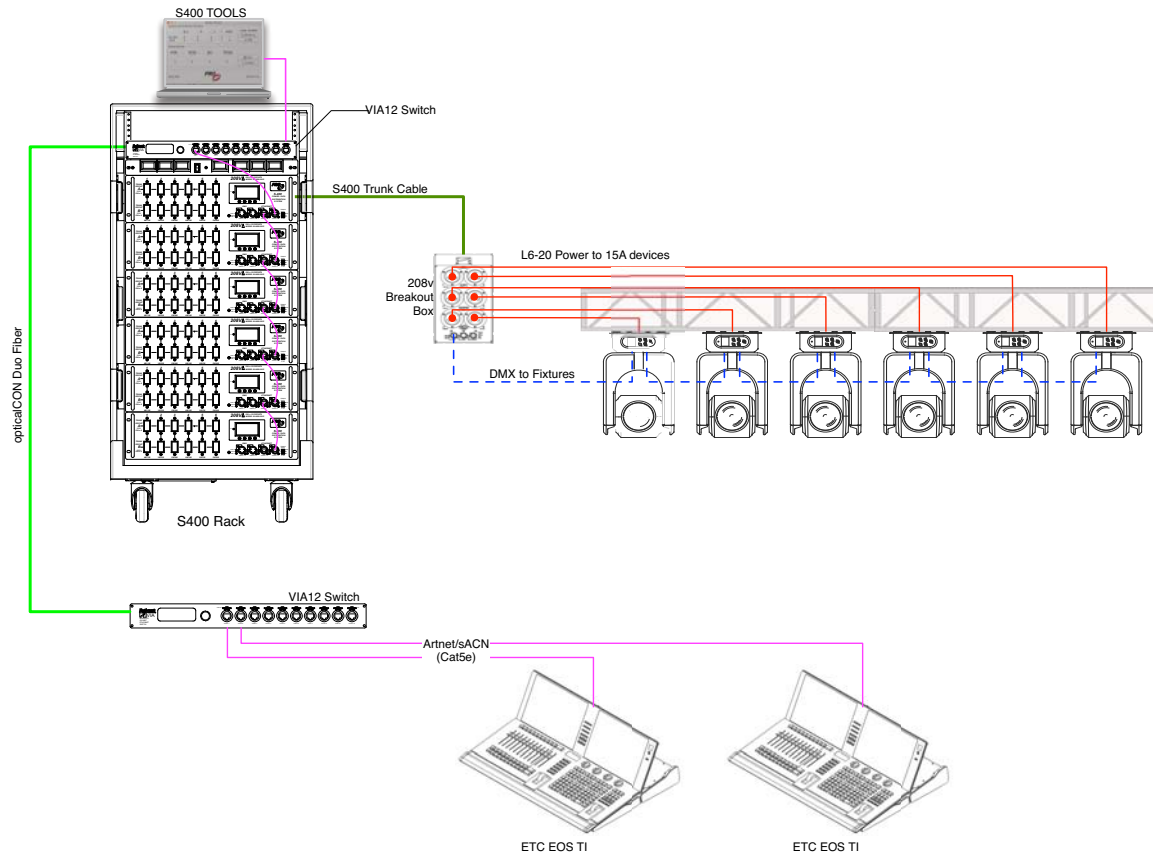
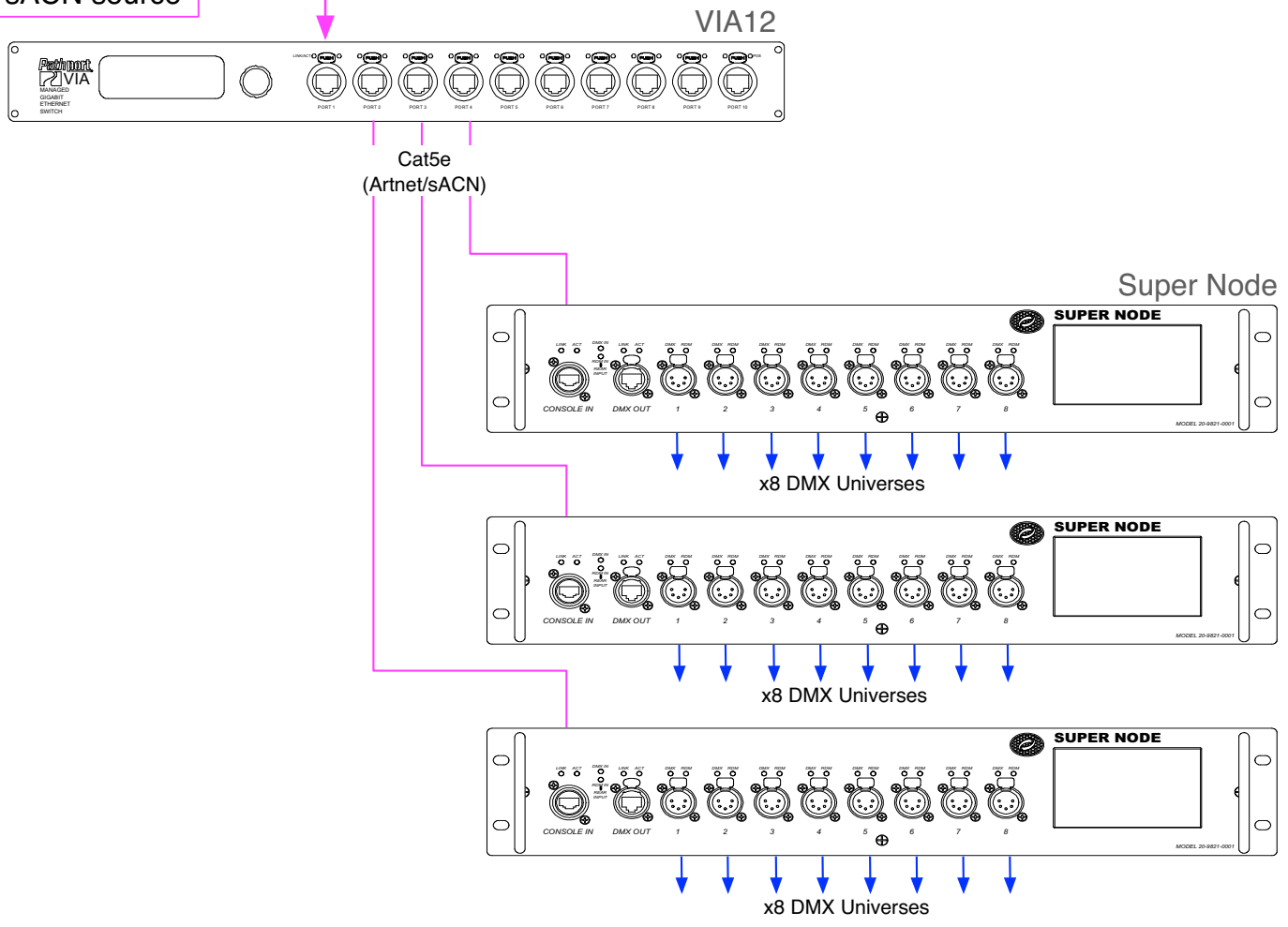


Figure 1: Simple Series 400 System

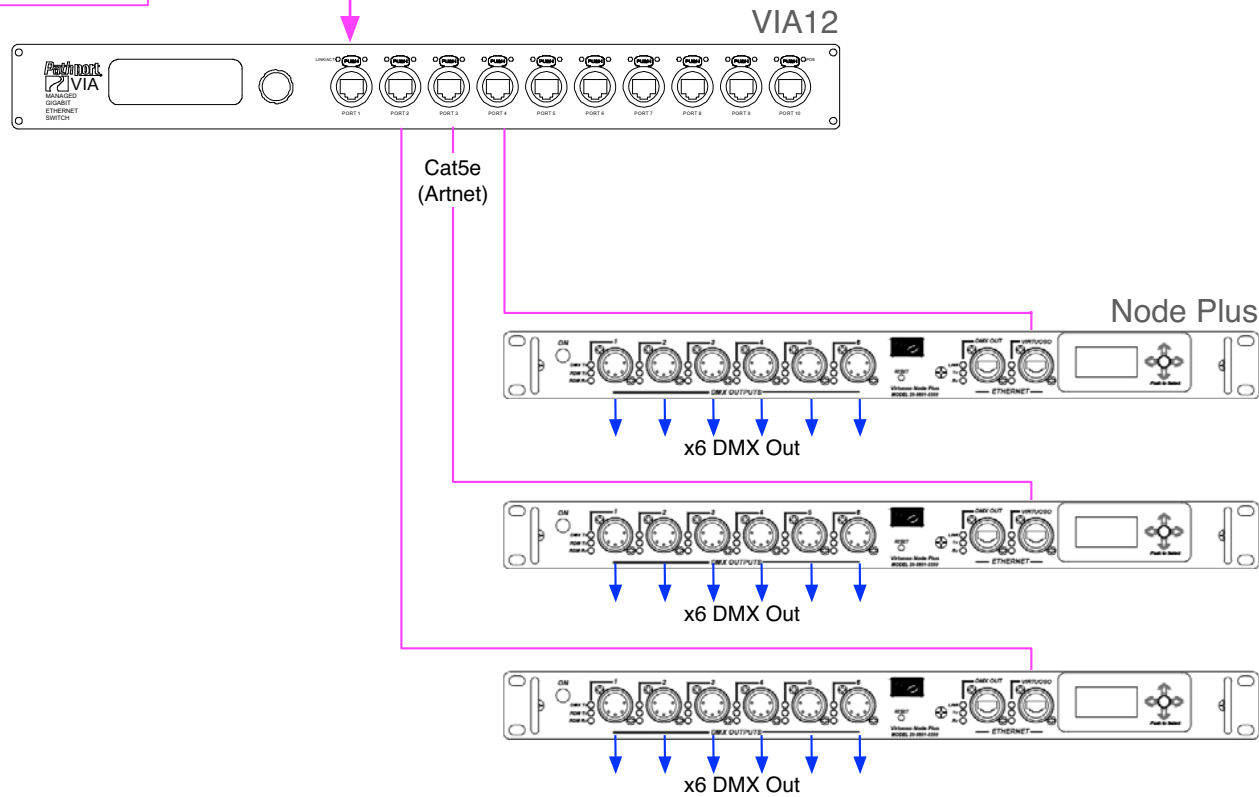
Any compatible
Artnet/sACN source*



**Figure 2: Sample Super Node Configuration utilizing VIA12 Gigabit Switch
Art-Net/sACN Input • DMX Output**

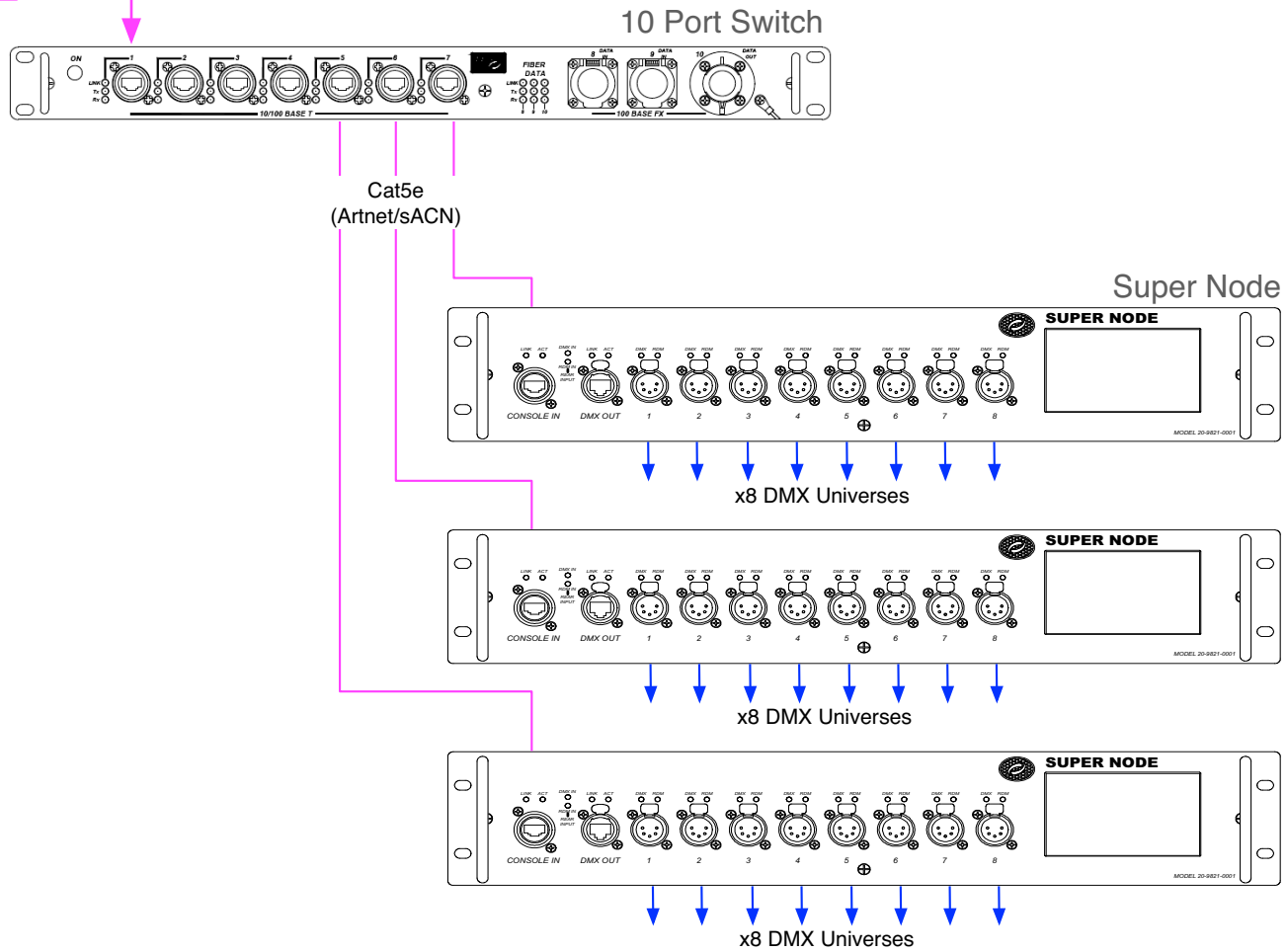


Any compatible
Artnet source*



**Figure 3: Sample Node Plus Configuration utilizing VIA12 Gigabit Switch
Artnet Input • DMX Output**

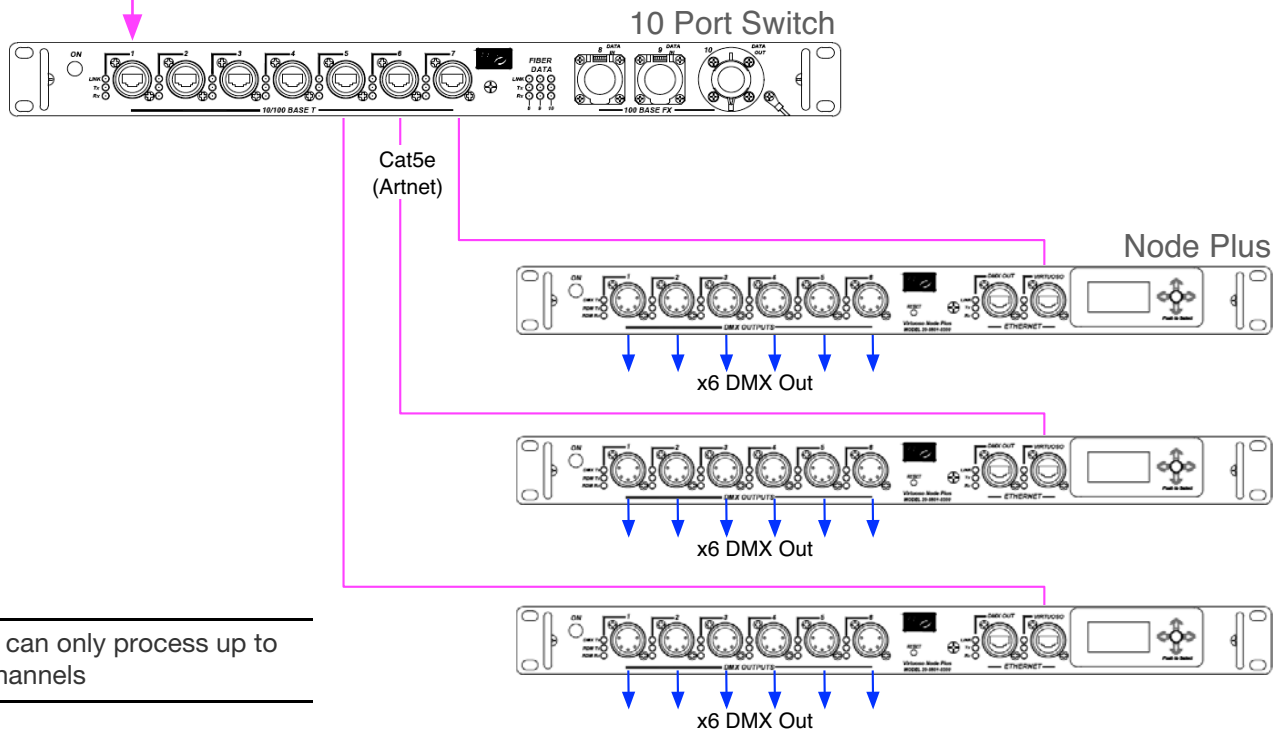
Any compatible
Artnet/sACN source*



**Figure 4: Sample Super Node Configuration utilizing PRG 10 Port Switch
Art-Net/sACN Input • DMX Output**



Any compatible
Artnet source*



Note: Node Plus can only process up to 1600 total DMX channels

**Figure 5: Sample Node Plus Configuration utilizing PRG 10 Port Switch
Art-Net Input • DMX Output**

200 "Un-filtered" Artnet Universes

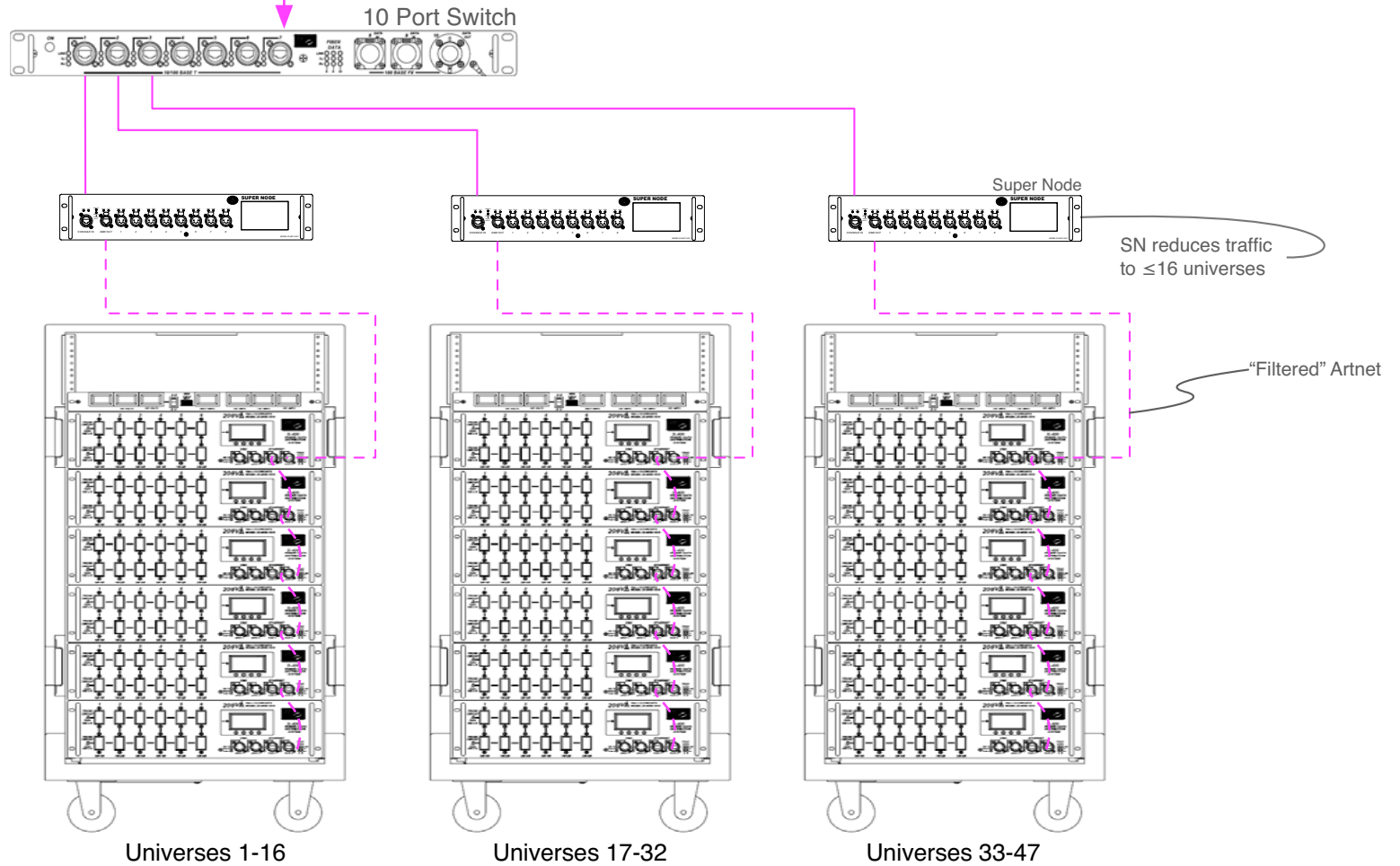
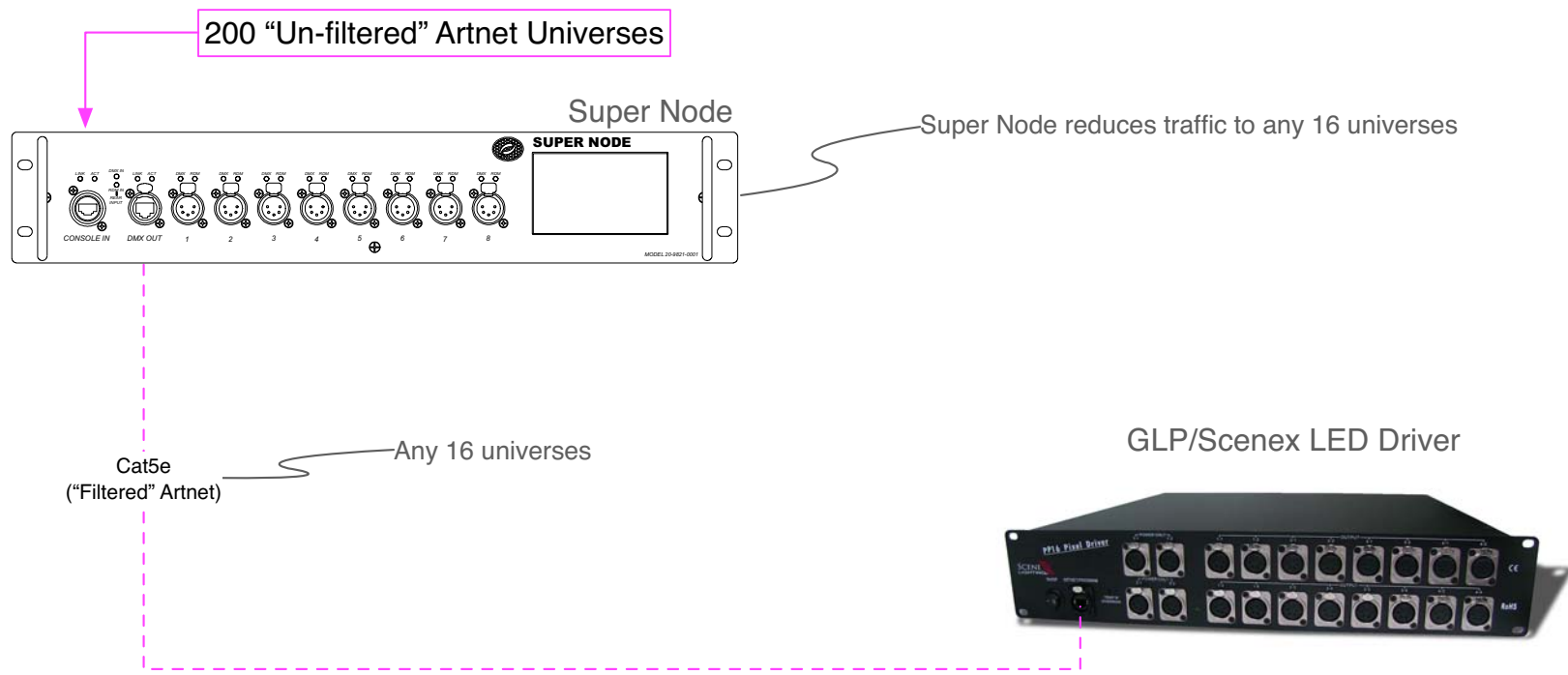


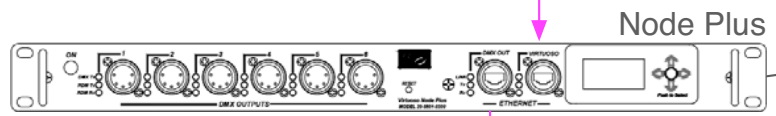
Figure 6: Example of using Super Nodes to Filter/Limit Art-Net Traffic to End Devices
200 Art-Net Universes In • Up to 16 Universes out to Series 400 Racks



**Figure 7: Example of using Super Node to Filter/Limit Art-Net Traffic to End Device
200 Art-Net Universes In • Up to 16 Universes out to Scenex LED Driver**



200 “Un-filtered” Artnet Universes



Node Plus reduces traffic to any 6 universes

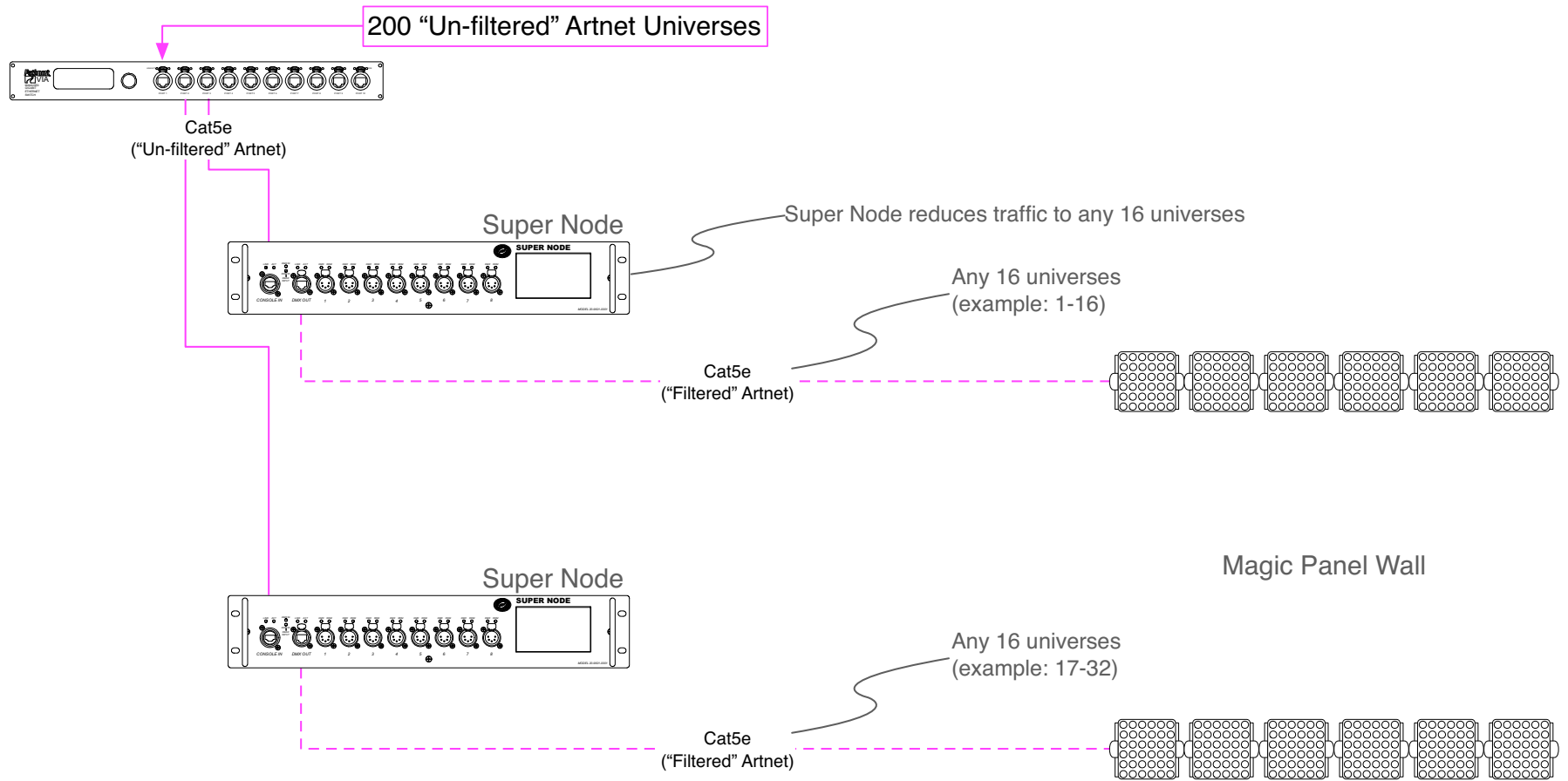
Cat5e
 (“Filtered” Artnet) Any 6 universes

GLP/Scenex LED Driver

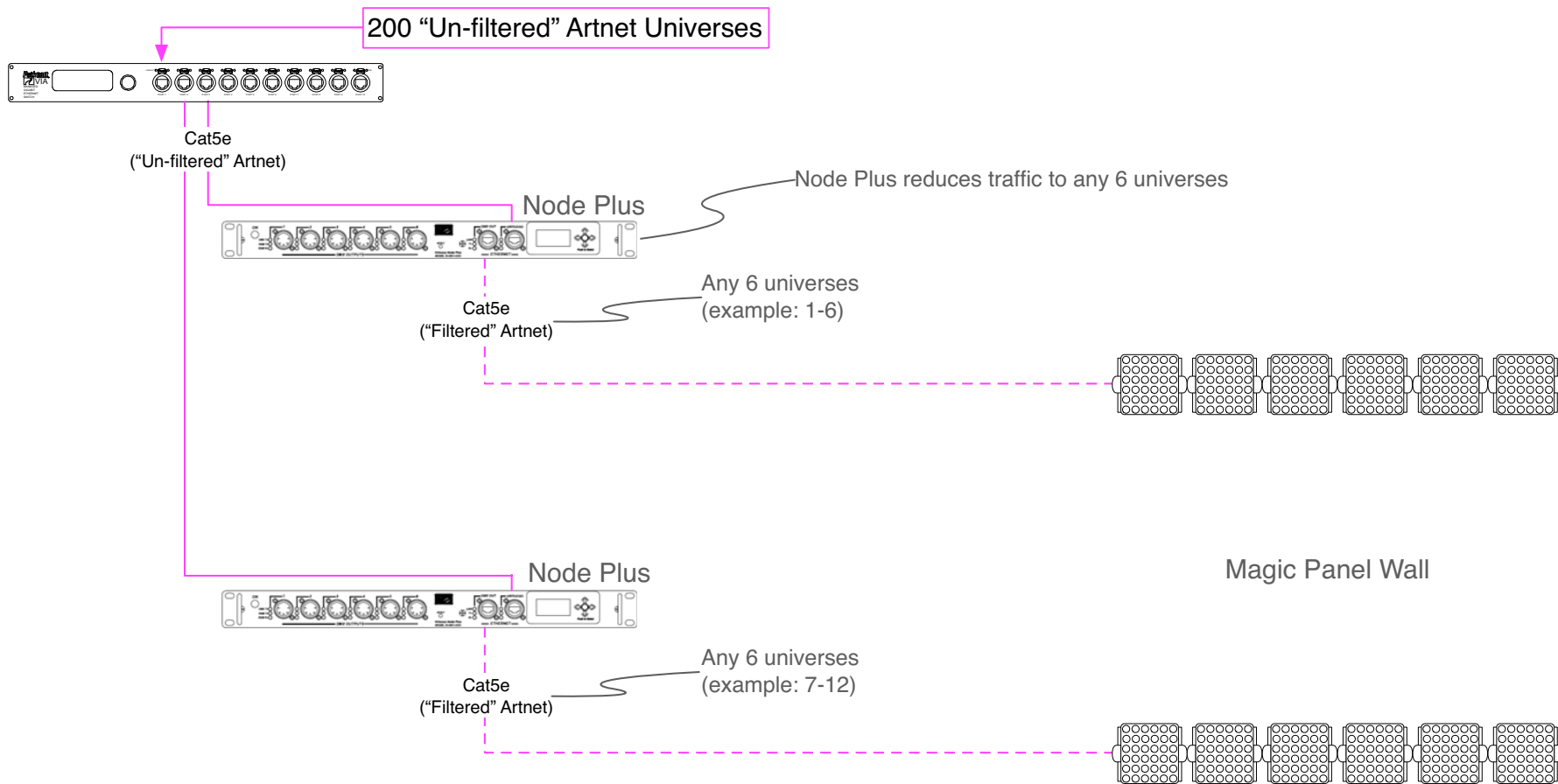


Note: Node Plus can only process up to 1600 total DMX channels

**Figure 8: Example of using Node Plus to Filter/Limit Art-Net Traffic to End Device
200 Art-Net Universes In • Up to 6 Universes out to Scenex LED Driver**

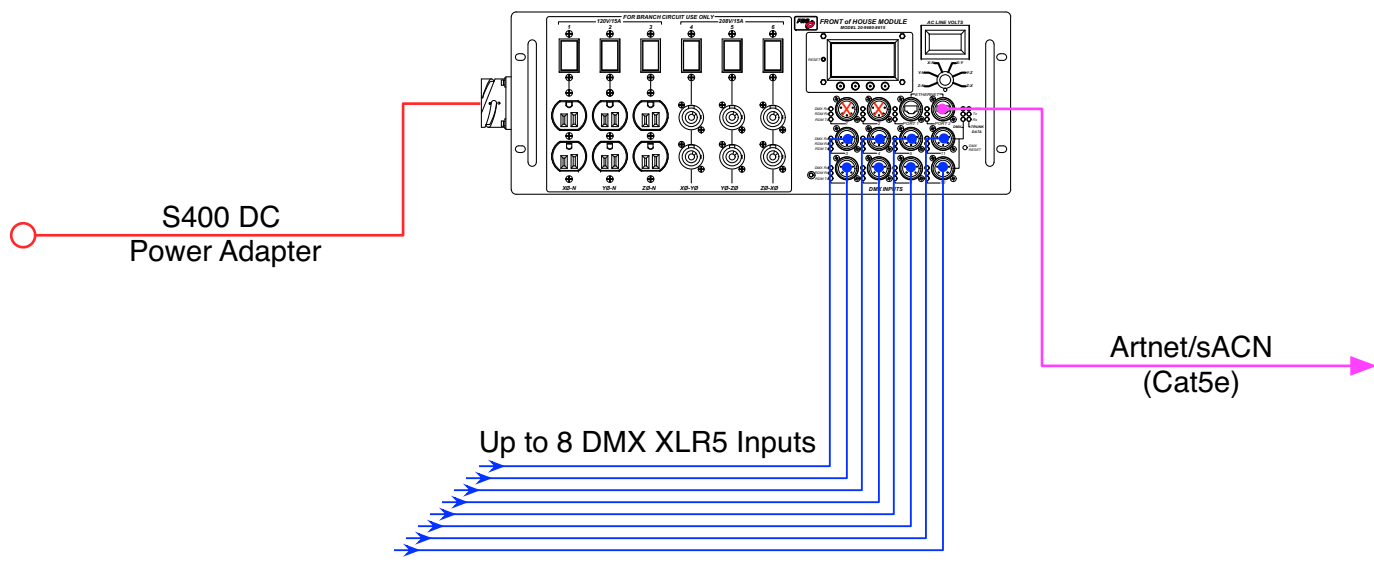


**Figure 9: Example of using Super Nodes to Filter/Limit Art-Net Traffic to End Devices
200 Art-Net Universes In • Up to 16 Universes out to Ayrton Magic Panels**



Note: Node Plus can only process up to 1600 total DMX channels

**Figure 10: Example of using Node Plus to Filter/Limit Art-Net Traffic to End Device
200 Art-Net Universes In • Up to 6 Universes out of Ayrton Magic Panels**



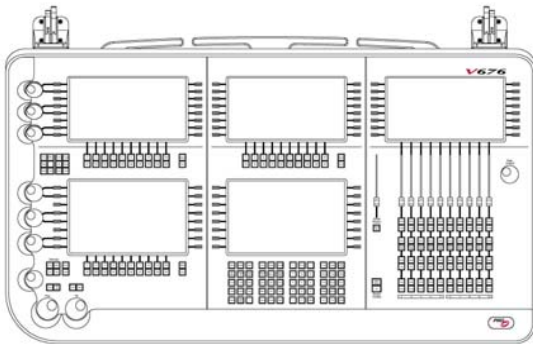
**Figure 11: Sample Series 400 DMX Input using a FOH Breakout Module
Up to 8 DMX Universes In • Art-Net/sACN Out**



PRG

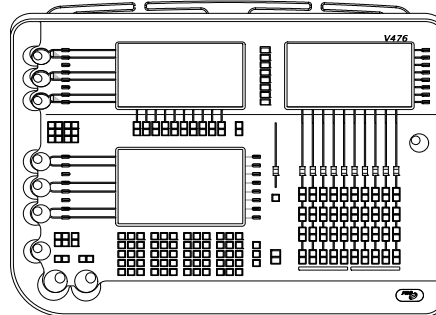
vx76 Console System

Components



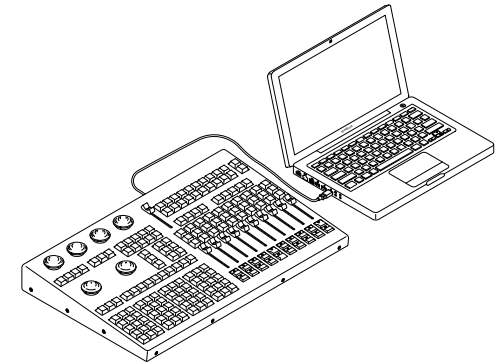
V676 Console

ecode: 37566-



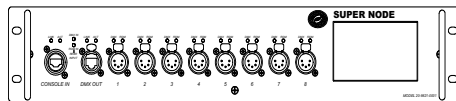
V476 Console

ecode: 37565-



V276 Console

ecode: 37572-



Super Node

+16 Universes of DMX Processing

+8 DMX Ports

ecode: 3799C-

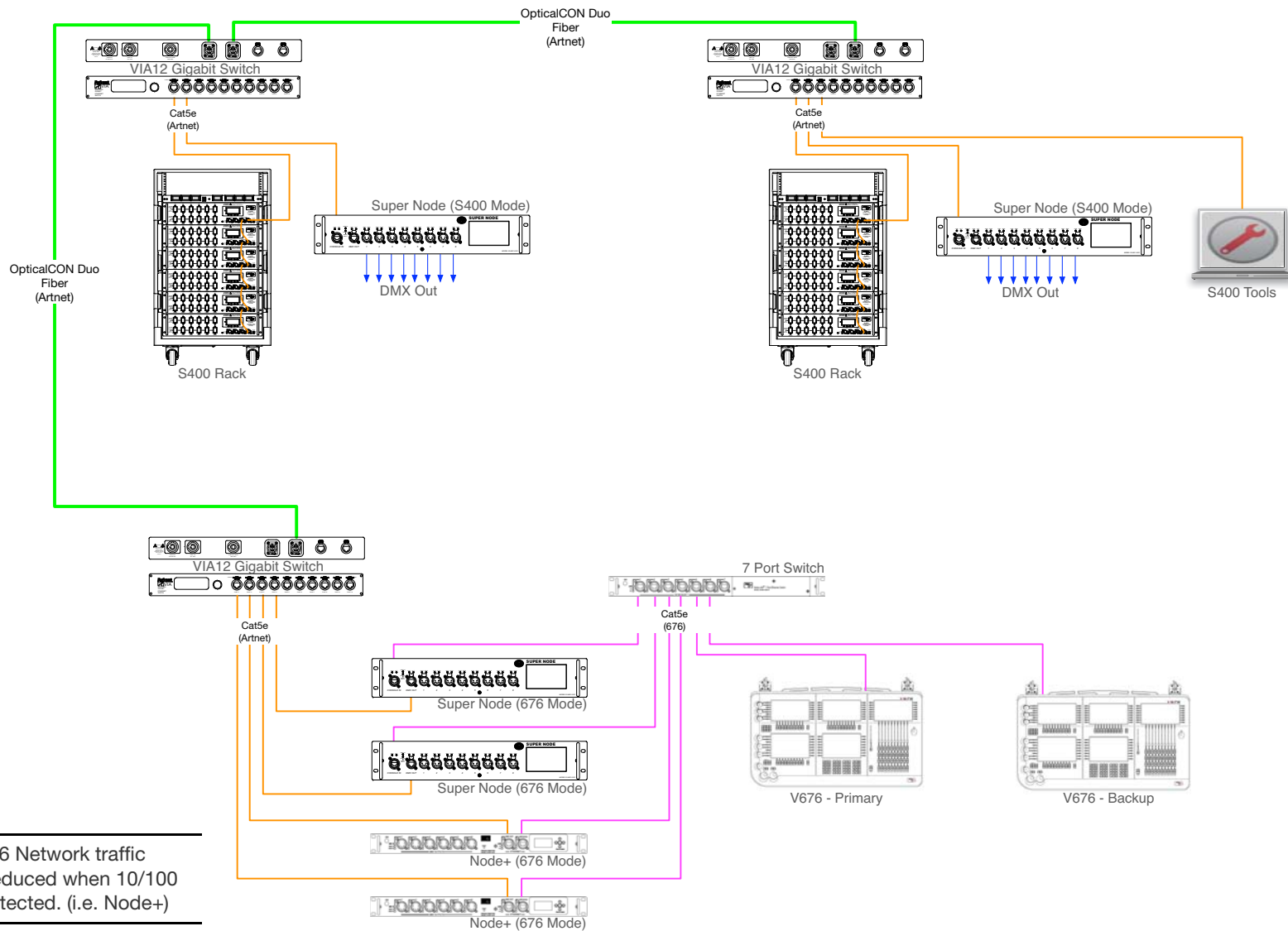


Node Plus

+6 Universes of DMX Processing

+6 DMX Ports

ecode: 37999-



Note: 676 Network traffic speed is reduced when 10/100 devices detected. (i.e. Node+)

Figure 12: Sample V676® System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber w/ Super Nodes and Node Plus Units in 676 Mode @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

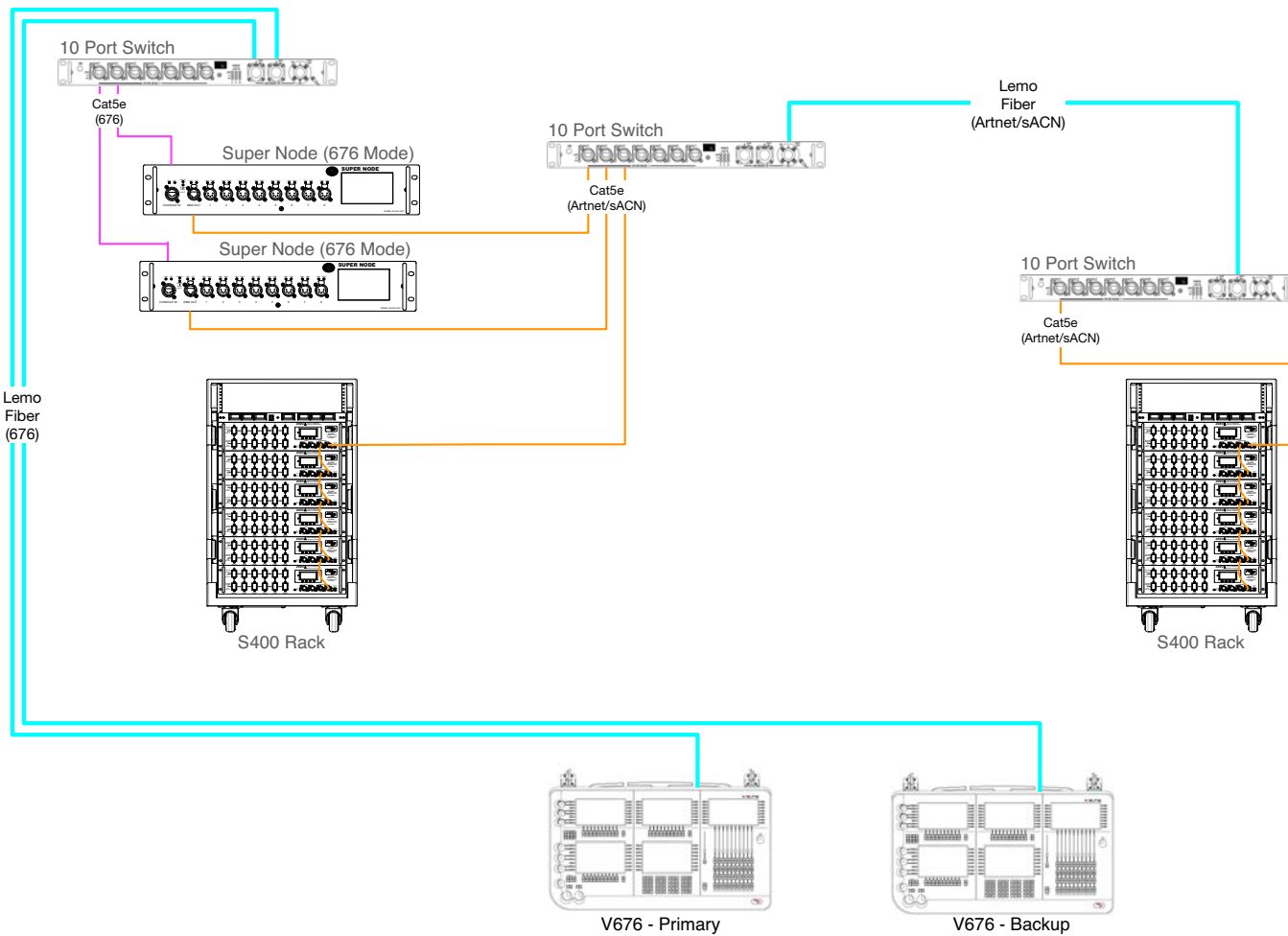


Figure 13: Sample V676® System utilizing PRG 10 Port Switches and Lemo Fiber w/ Super Nodes in 676 Mode and PRG Series 400® Racks @ Backstage

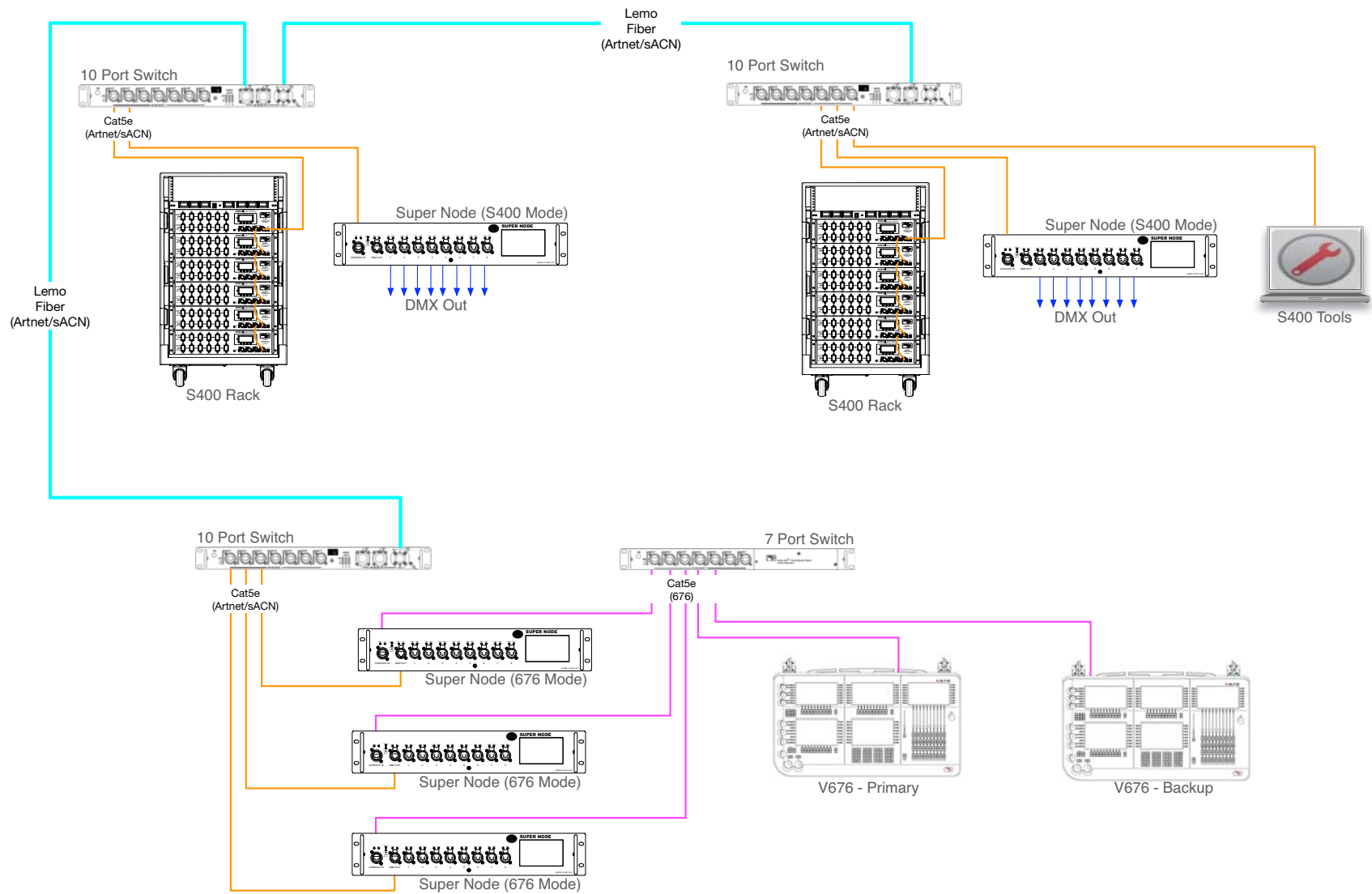


Figure 14: Sample V676® System utilizing PRG 10 Port Switches and Lemo Fiber w/ Super Nodes in 676 Mode @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

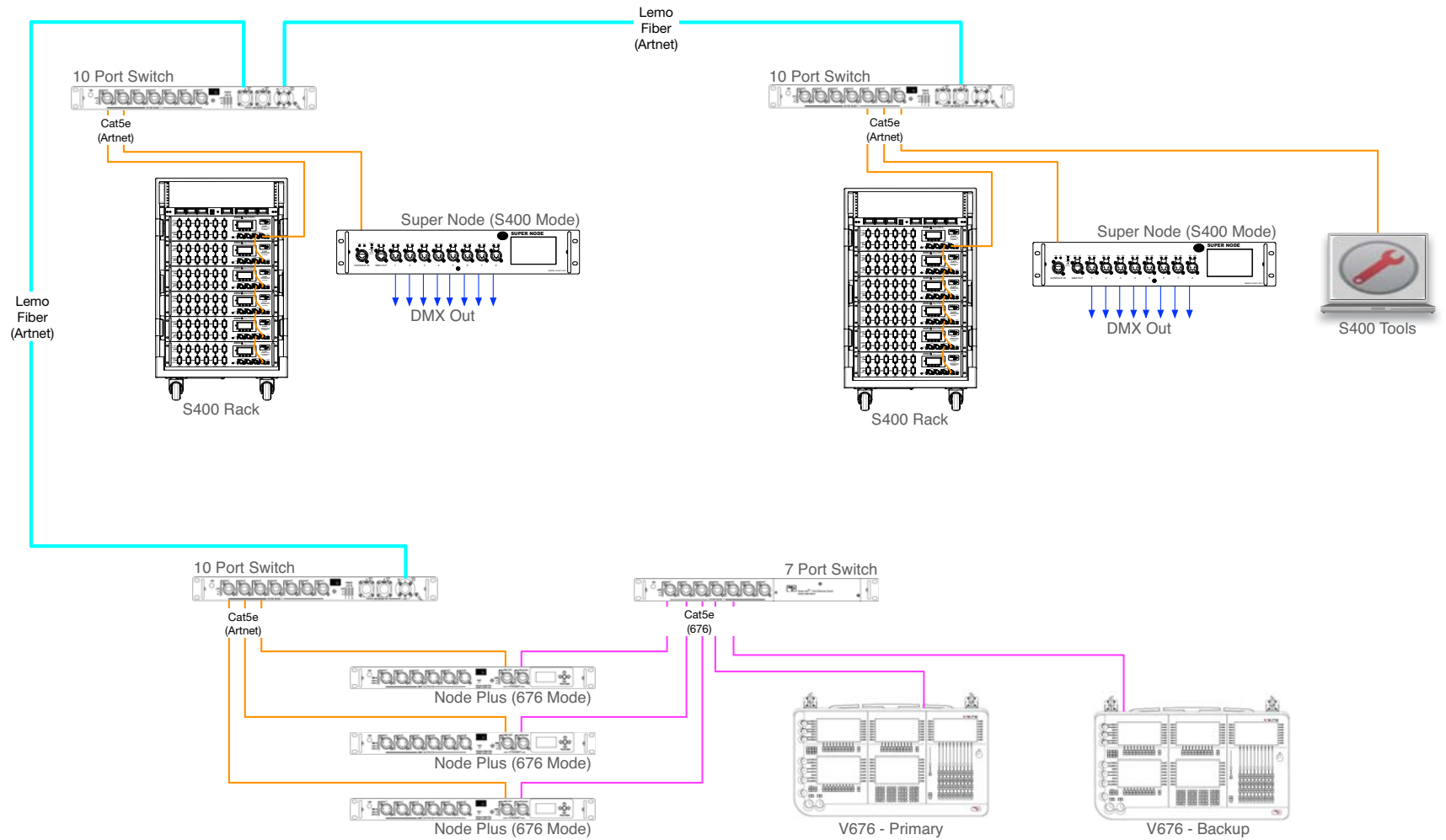


Figure 15: Sample V676® System utilizing PRG 10 Port Switches and Lemo Fiber w/ Node Plus Units in 676 Mode @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

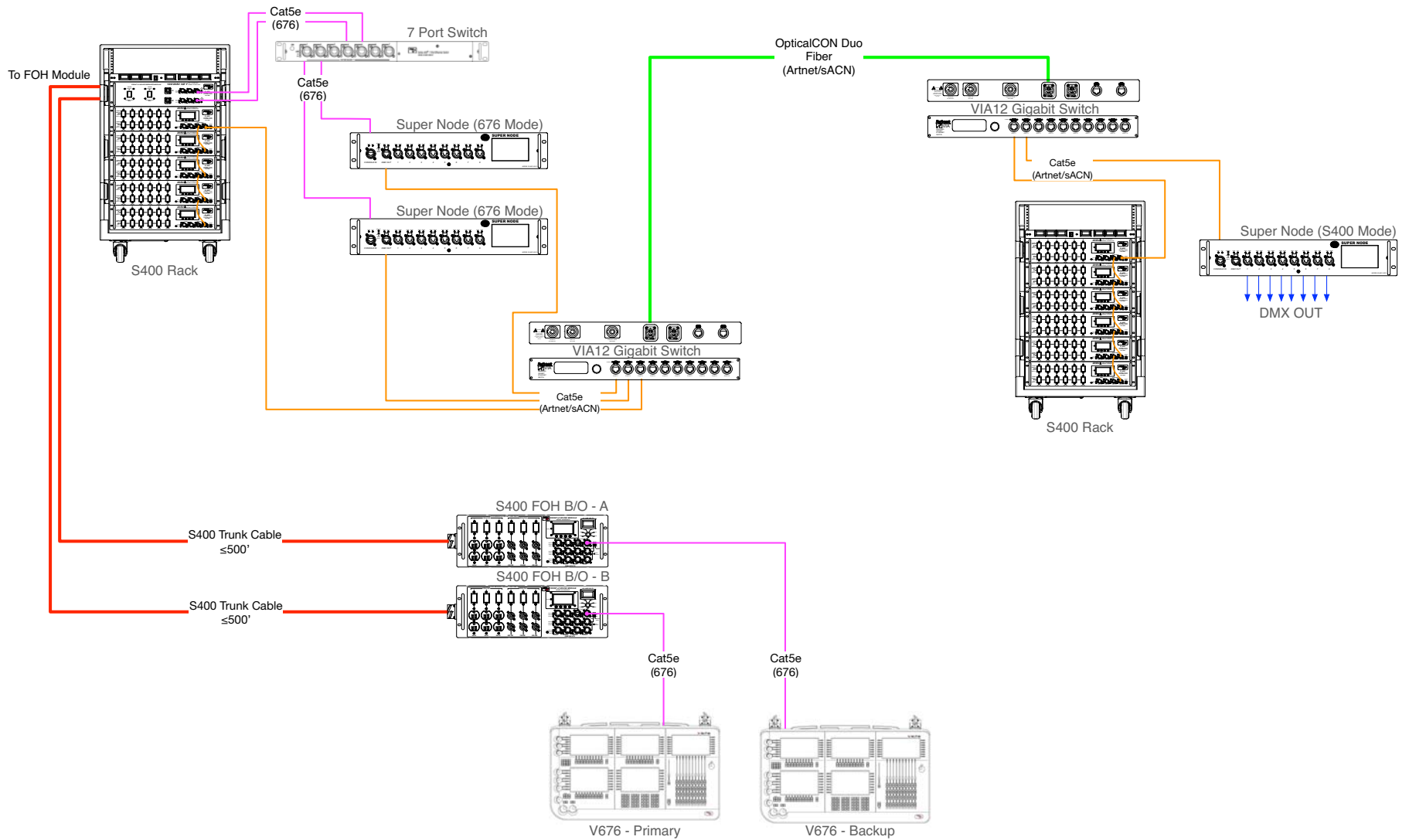


Figure 16: Sample V676® System utilizing PRG Series 400® FOH Breakout Boxes, VIA12 Gigabit Switches, and OpticalCON Duo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

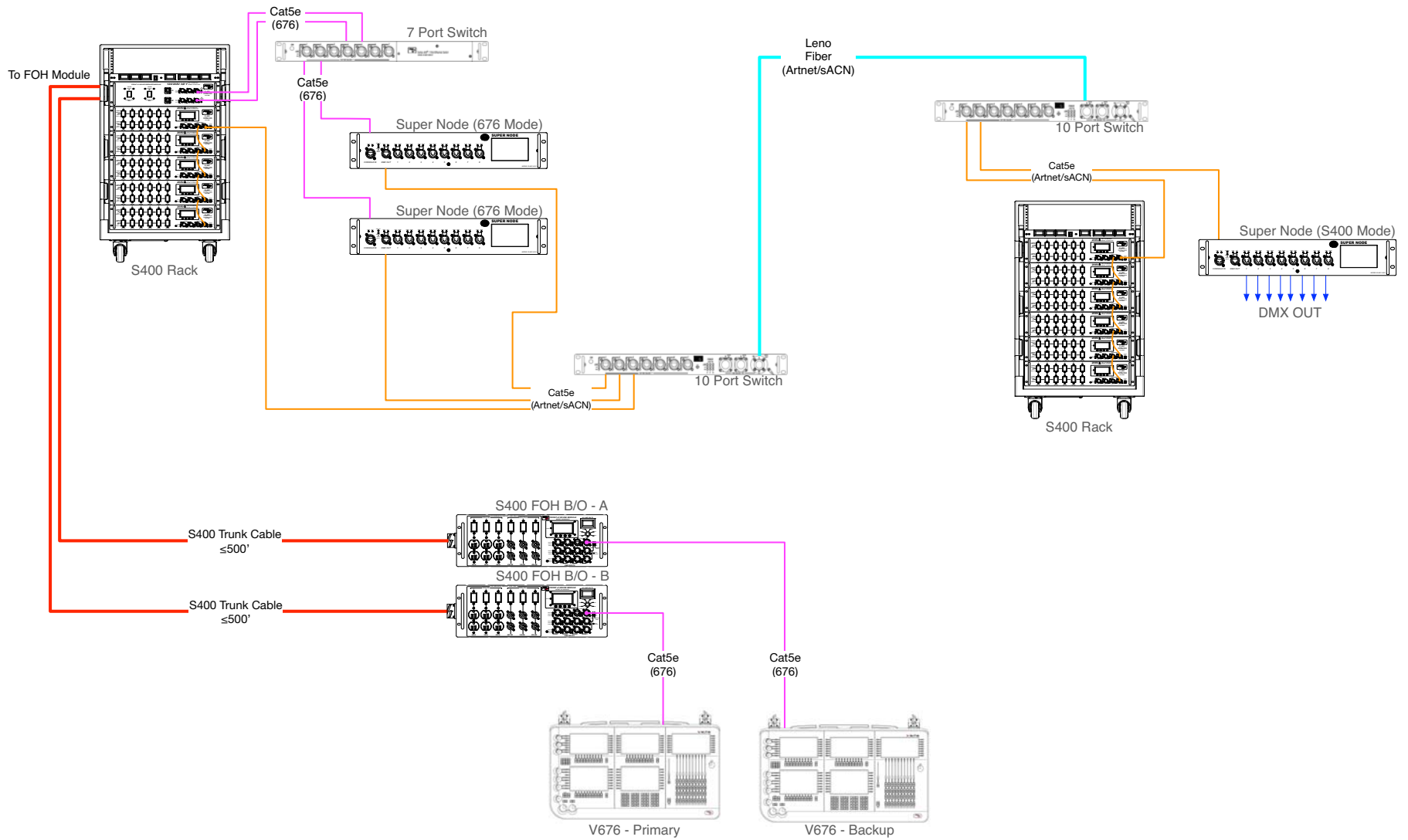


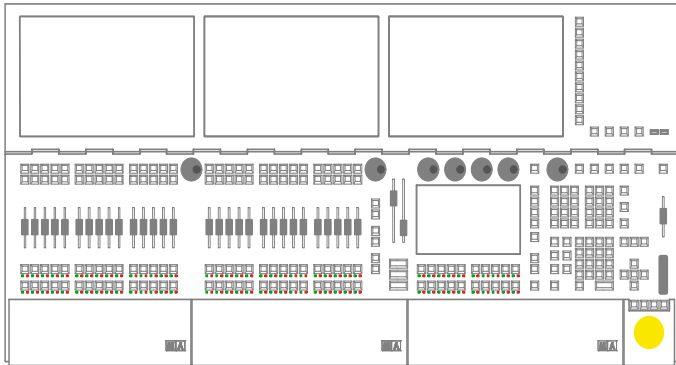
Figure 17: Sample V676® System utilizing PRG Series 400® FOH Breakout Boxes, PRG 10 Port Switches, and Lemo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



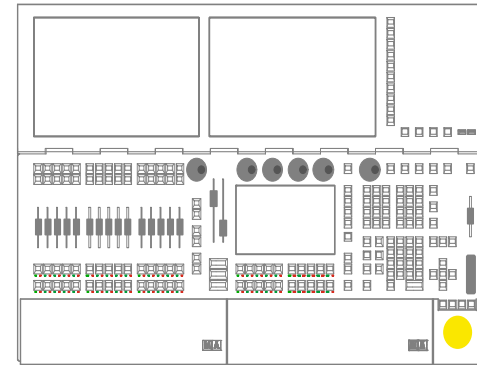
MA Lighting

grandMA2

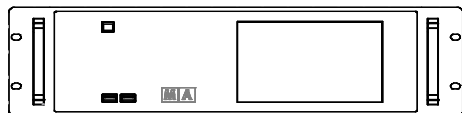
Components



grandMA2 Full Size Console
 +16 Universes/8192 Parameters of DMX Processing
 +6 DMX Ports
 ecode: 360F1-



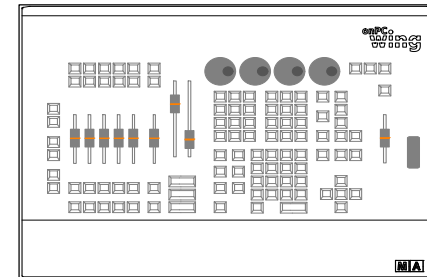
grandMA2 Light Console
 +8 Universes/4096 Parameters of DMX Processing
 +6 DMX Ports
 ecode: 360F3-



MA2 NPU
 +8 Universes/4096 Parameters of DMX Processing
 +8 DMX Ports
 ecode: 36095-



grandMA2 on PC



grandMA2 Command Wing
 +2 DMX Ports
 ecode: 360F6-

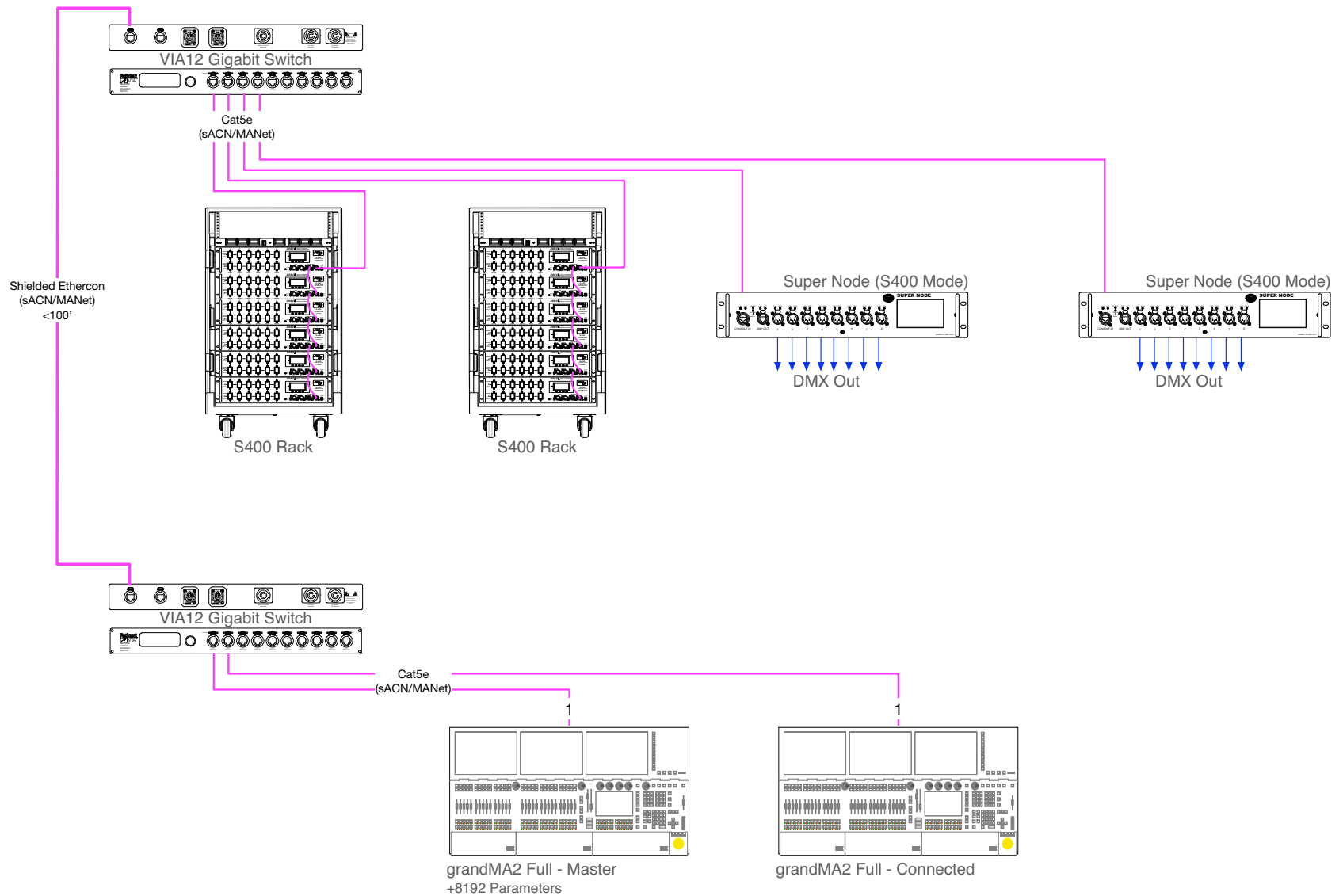


Figure 18: Sample grandMA2 System utilizing VIA12 Gigabit Switches w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

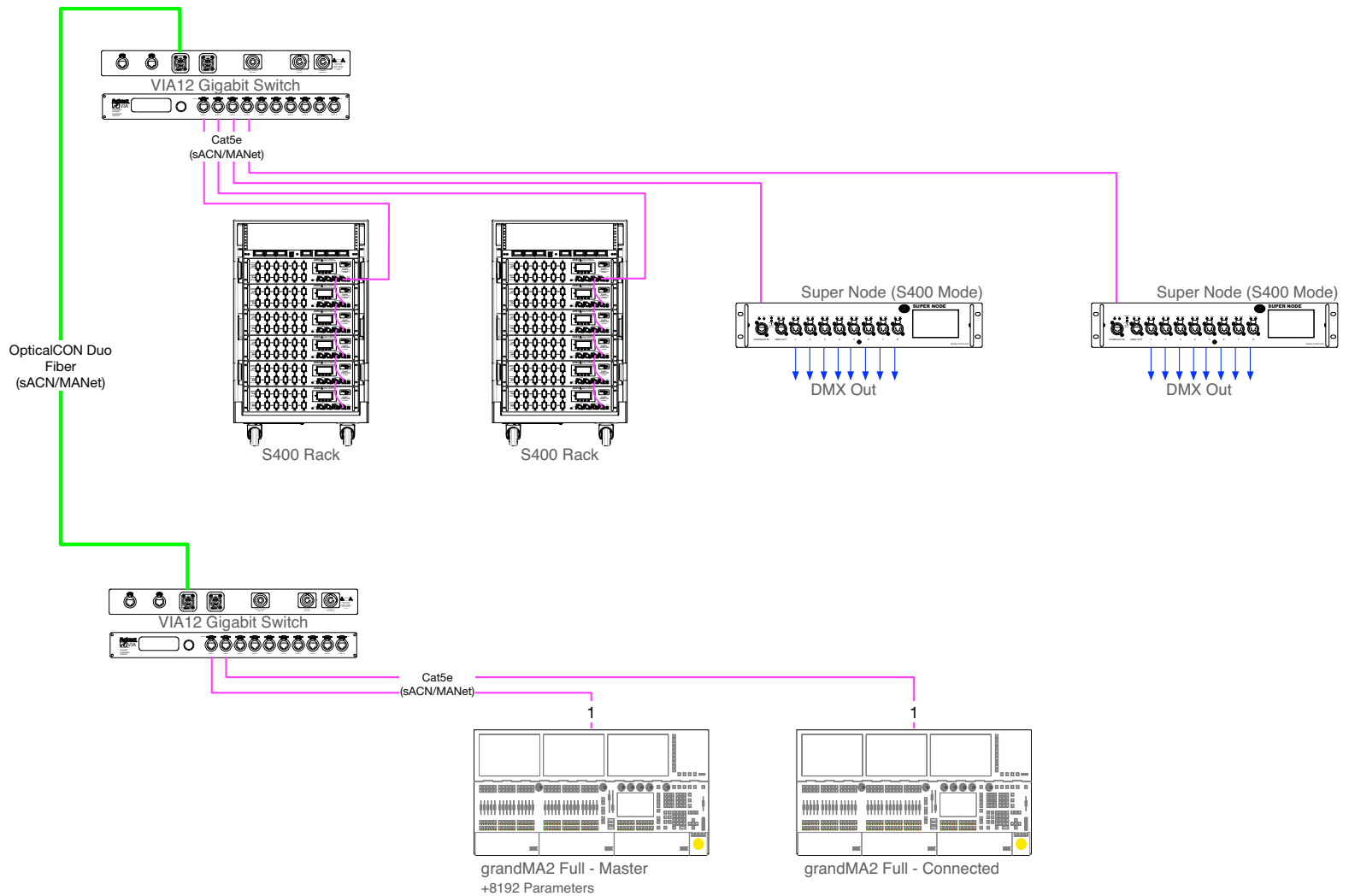


Figure 19: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

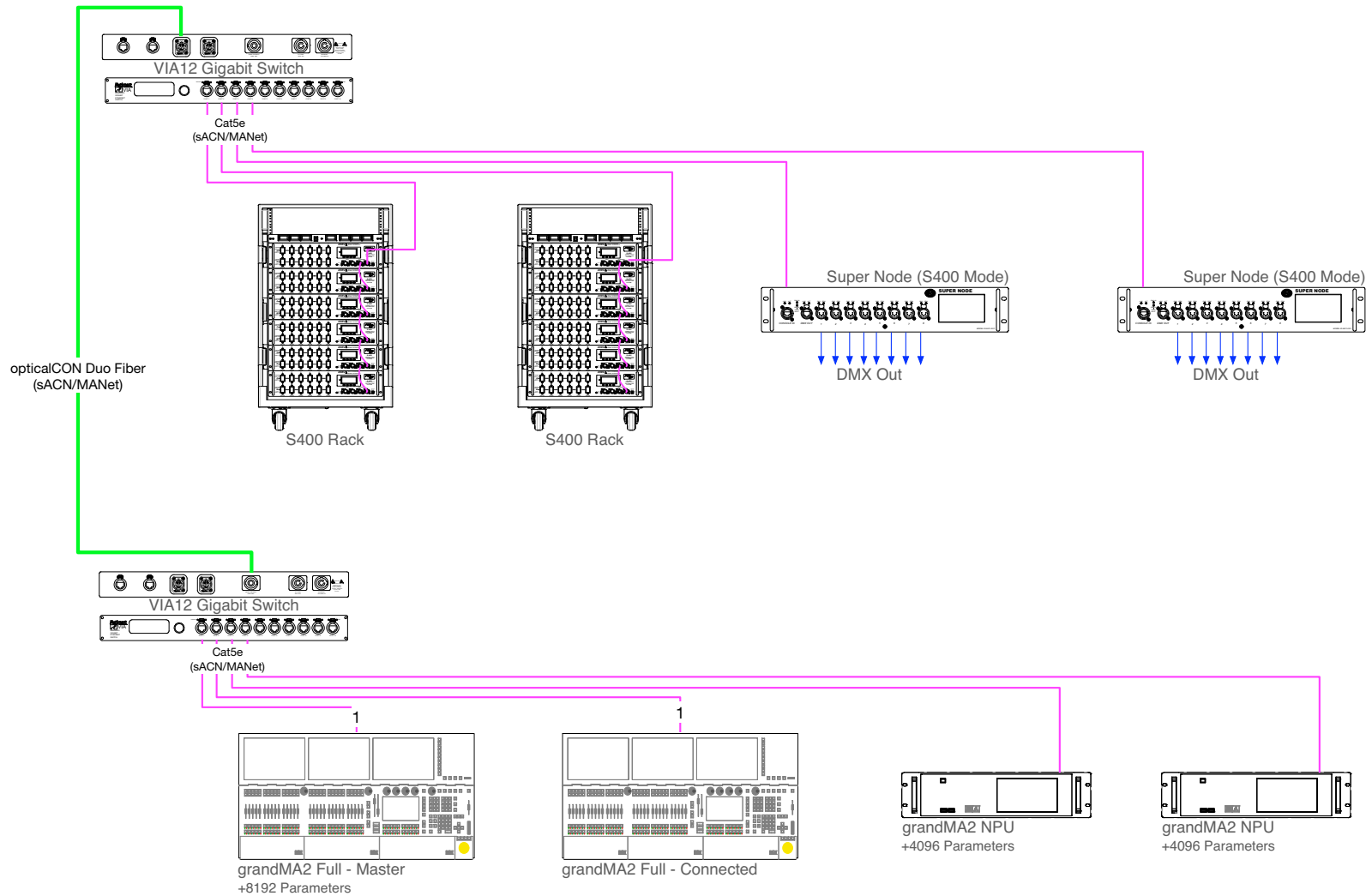


Figure 20: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber w/ grandMA2 NPUs @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

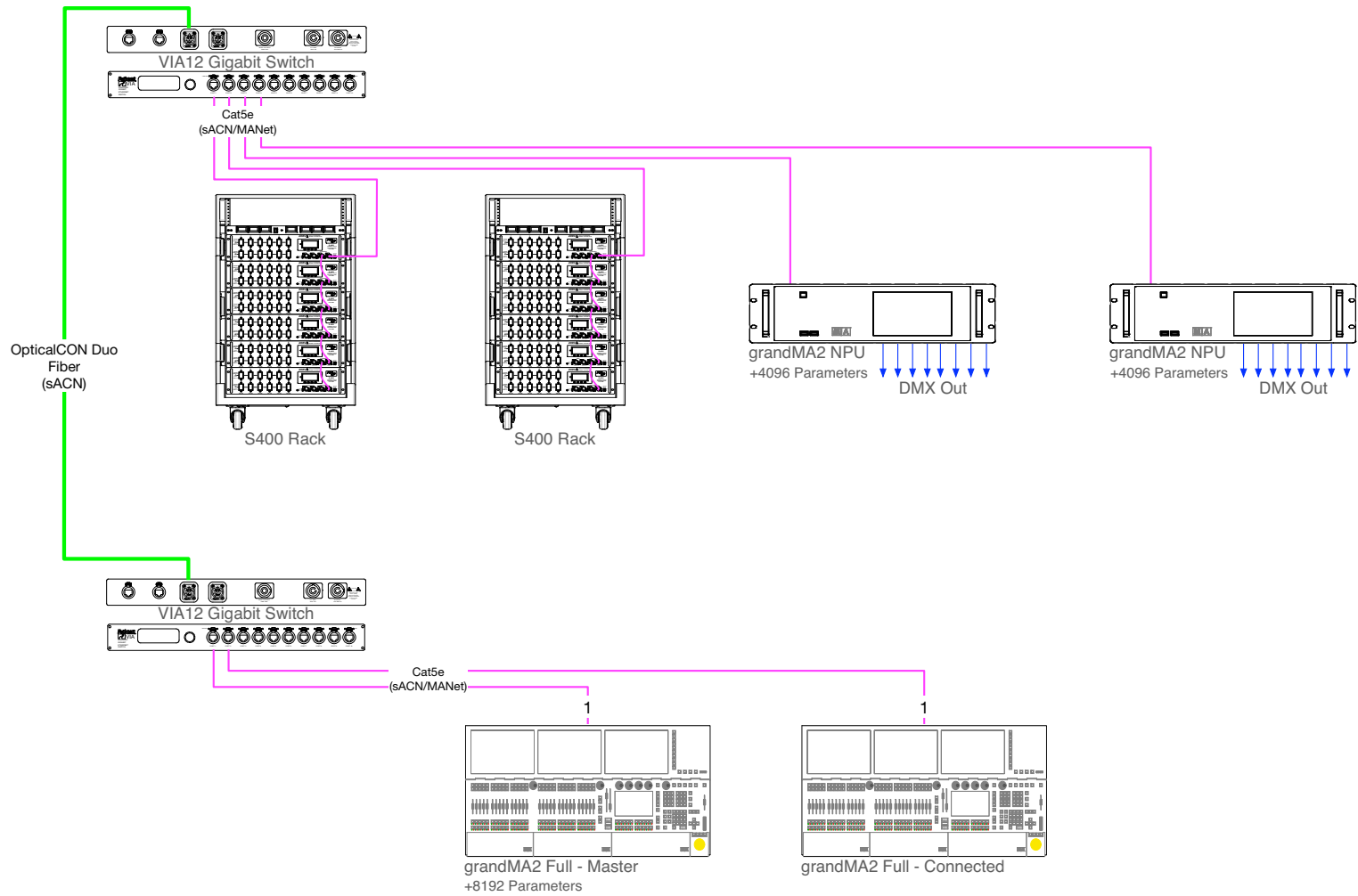


Figure 21: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber w/ grandMA2 NPUs and PRG Series 400® Racks @ Backstage

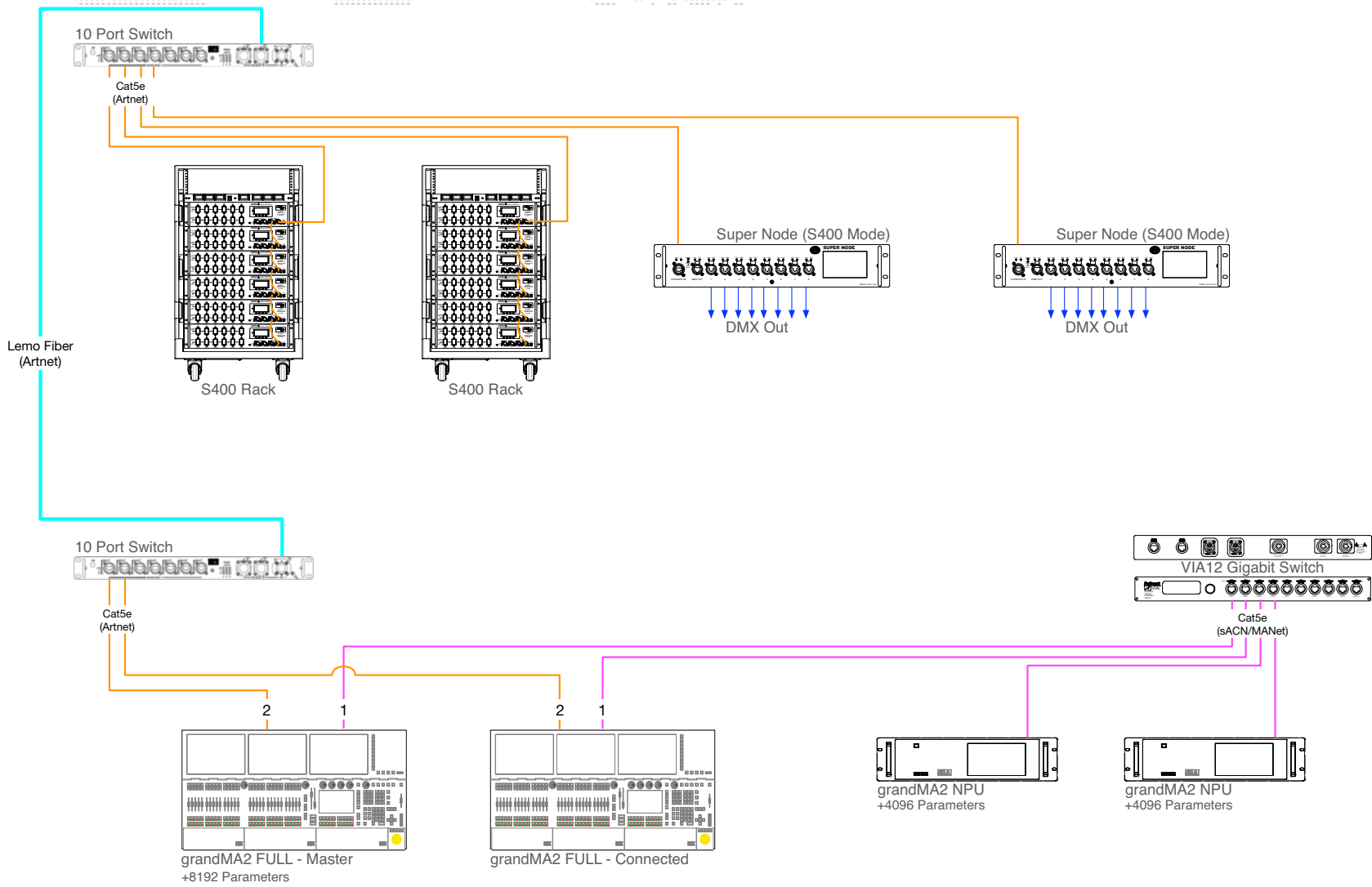


Figure 22: Sample grandMA2 System utilizing PRG 10 Port Switches and Lemo Fiber w/ grandMA2 NPUs @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

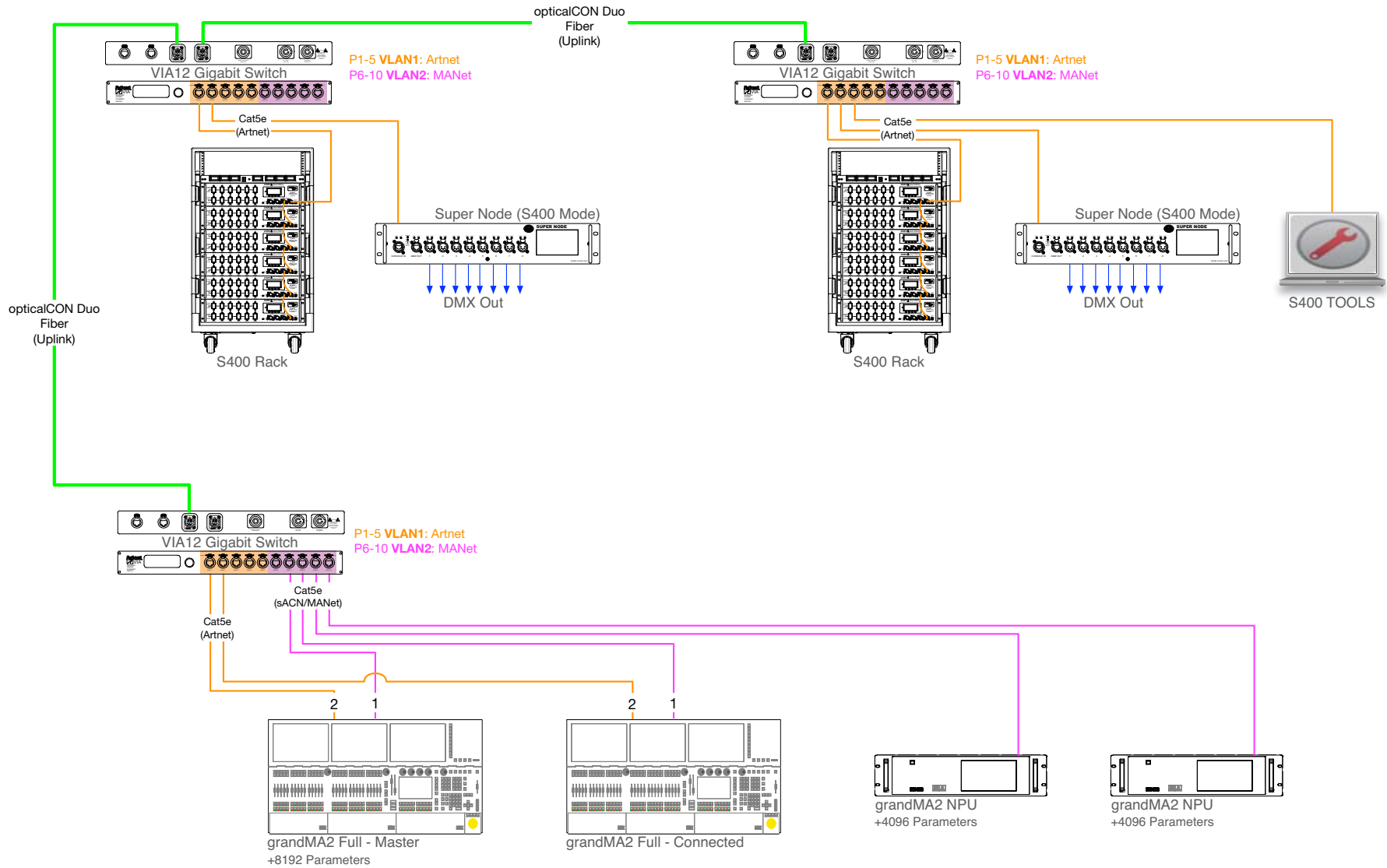


Figure 23: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber with VLANs w/ grandMA2 NPUs @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

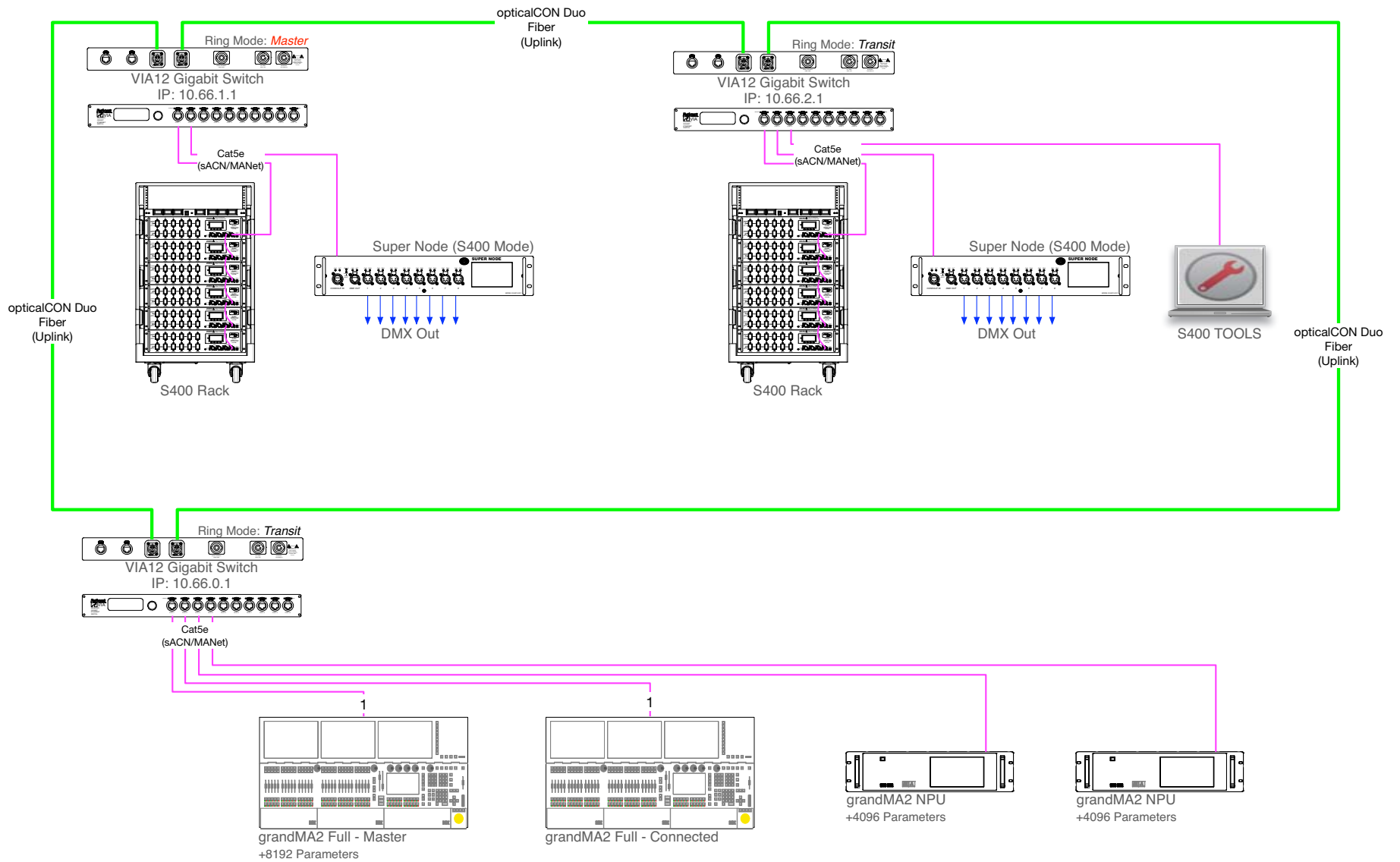


Figure 24: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber in a Ring Network w/ grandMA2 NPUs @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

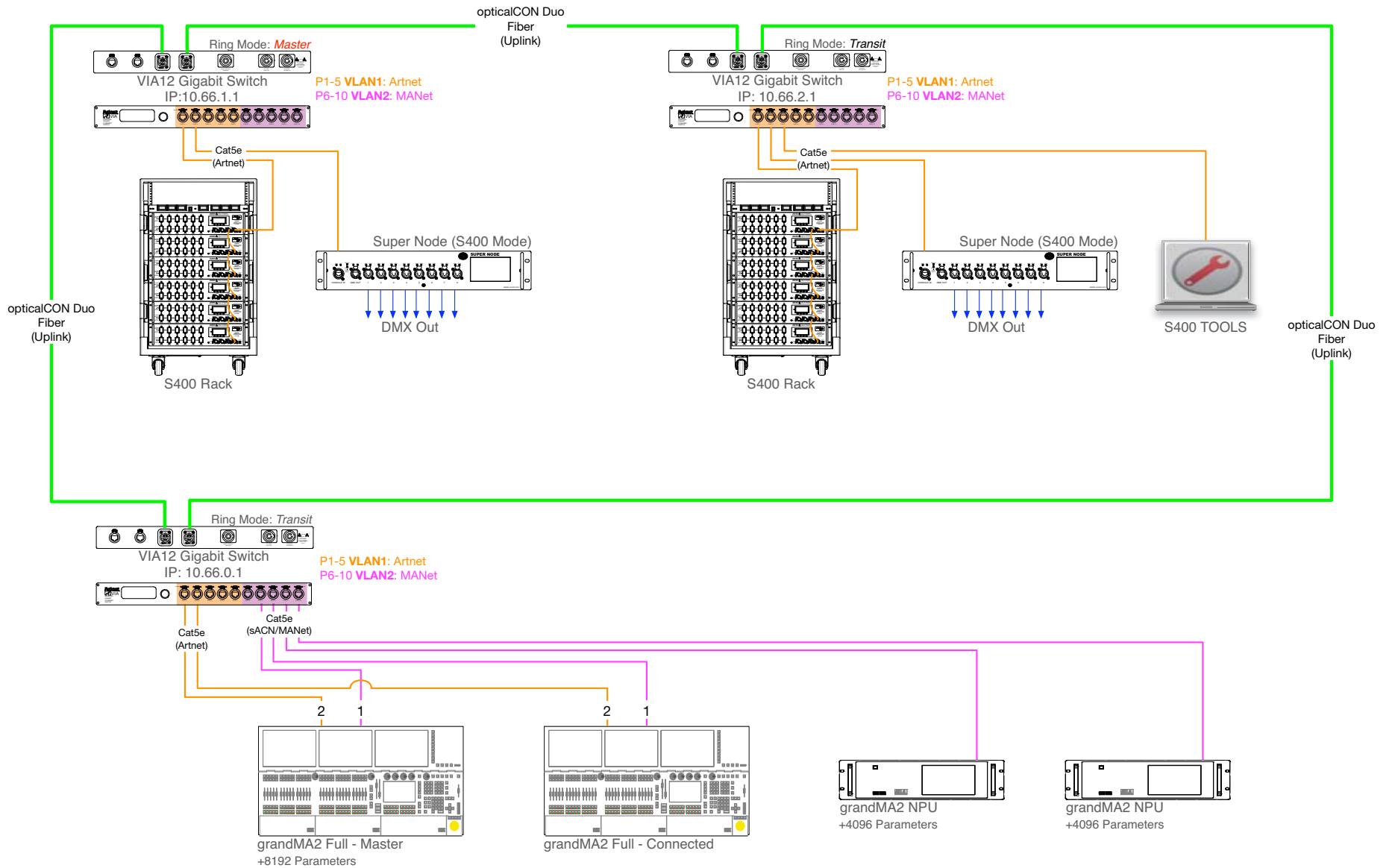


Figure 25: Sample grandMA2 System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber in a Ring Network with VLANs w/ grandMA2 NPUs @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

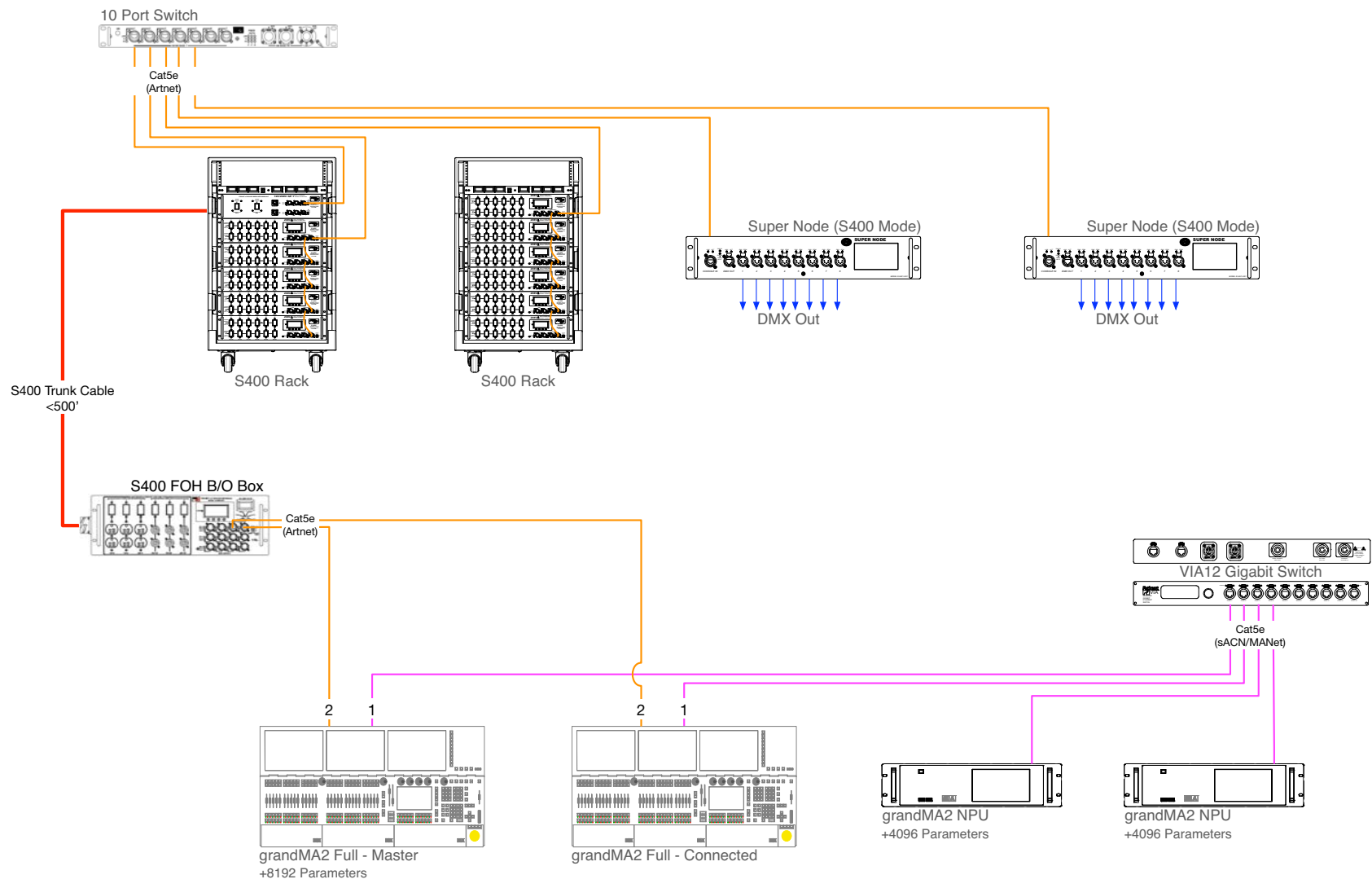


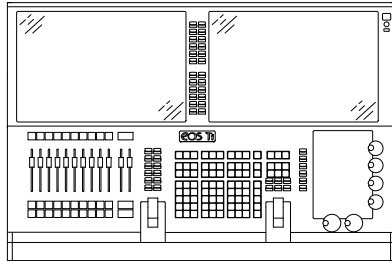
Figure 26: Sample grandMA2 System utilizing PRG Series 400® FOH Breakout Boxes and PRG 10 Port Switches w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



Electronic Theatre Controls (ETC)

Eos Family

Components



Eos TI Console

+8 to 64 Universes of DMX Processing
+2 DMX Ports

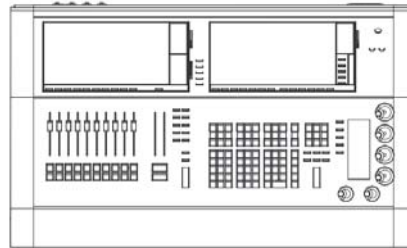
ecodes:

16K: 3111M-

12K: 3111L-

8K: 3111K-

4K: 3111J-



Eos Console

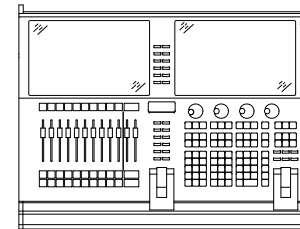
+8 to 32 Universes of DMX Processing

ecodes:

12K: 3111A-

8K: 31116-

4K: 31112-



Gio Console

+4 to 64 Universes of DMX Processing
+2 DMX Ports

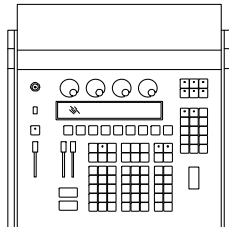
ecodes:

12K: 3111S-

6K: 3111H-

4K: 3111G-

2K: 3111F-



Ion Console

+2 to 12 Universes of DMX Processing
+2 DMX Ports

ecodes:

Windows 7

6K: 3110H-

4K: 31106-

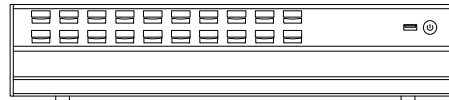
3K: 3110C-

2K: 3110B-

Windows XP

3K: 31105-

2K: 31104-



Remote Processing Unit (RPU)

+8 to 64 Universes of DMX Processing
+2 DMX Ports

ecodes:

Net3

12K: 31110-

8K: 31118-

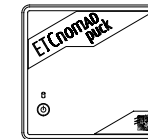
4K: 3111Q-

Net2/3

12K: 3111C-

8K: 31117-

4K: 31115-



Nomad Puck

ecodes:

512: 3118B-

2048: 3118F-



DMX Gateway

+4 DMX Ports

ecodes:

Net3

3127N-

Net2/3

3127K-



Remote Video Interface (RVI)

ecodes:

Net3

3127H-

Net2/3

3127B-

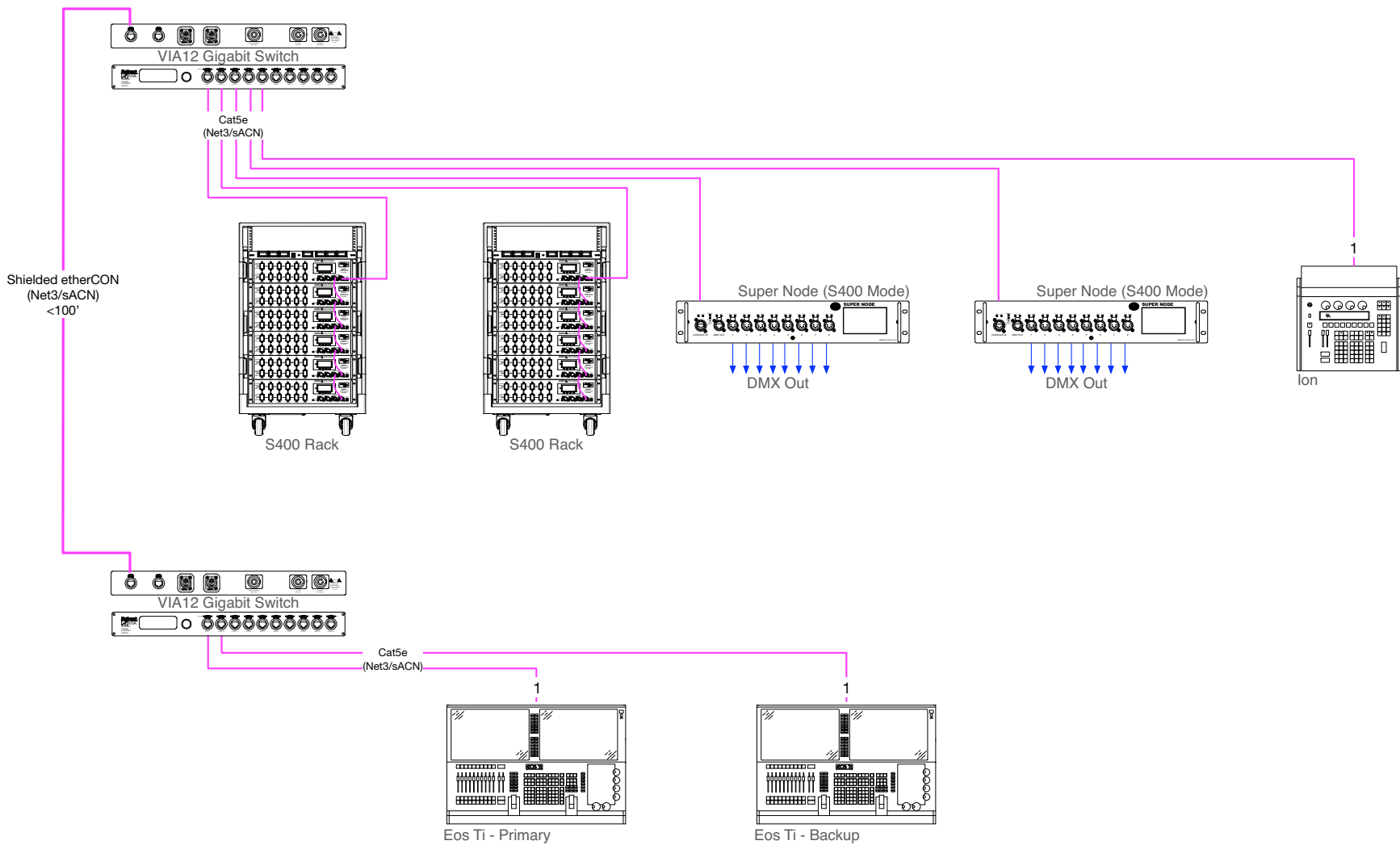


Figure 27: Sample ETC System utilizing VIA12 Gigabit Switches w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

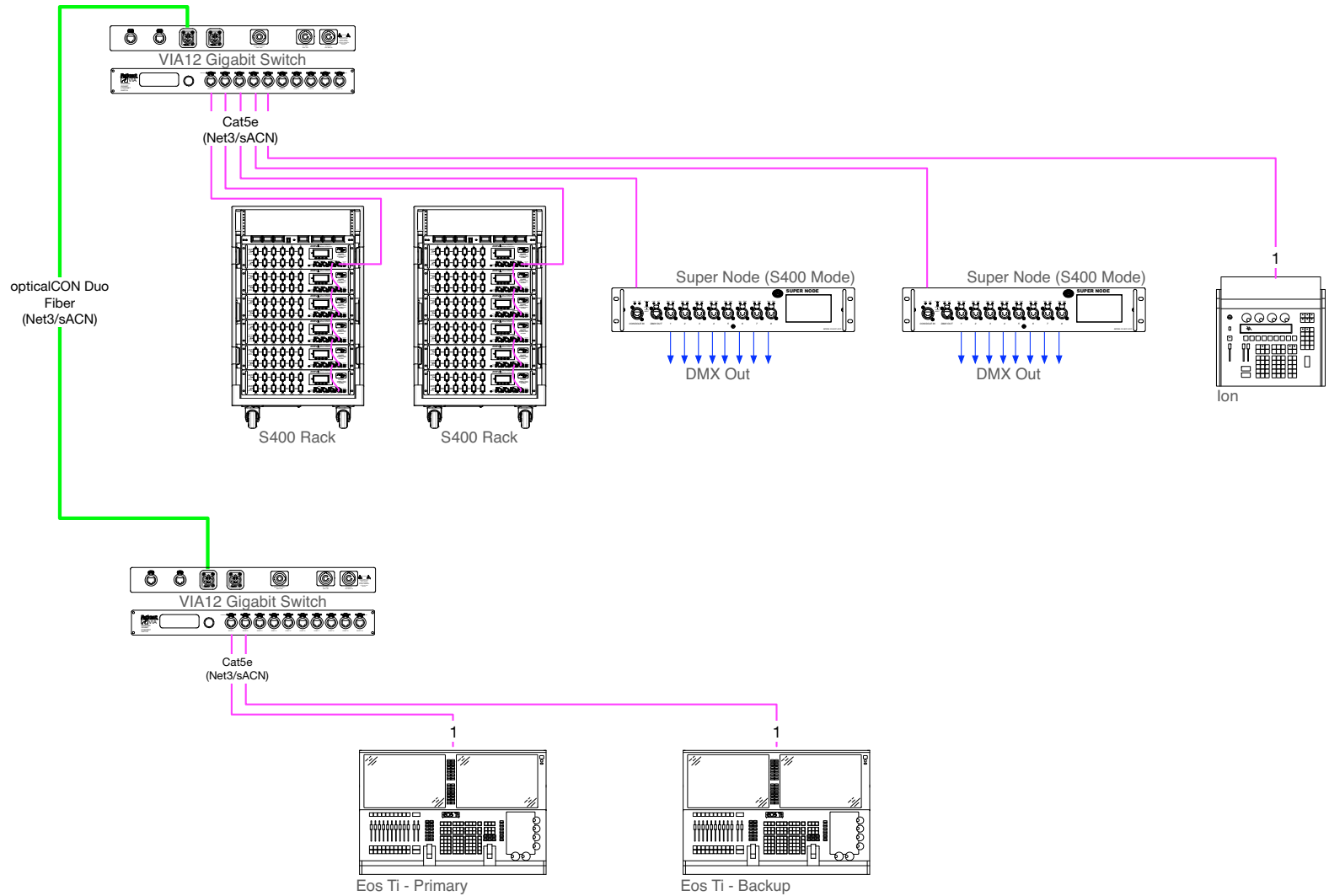


Figure 28: Sample ETC System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

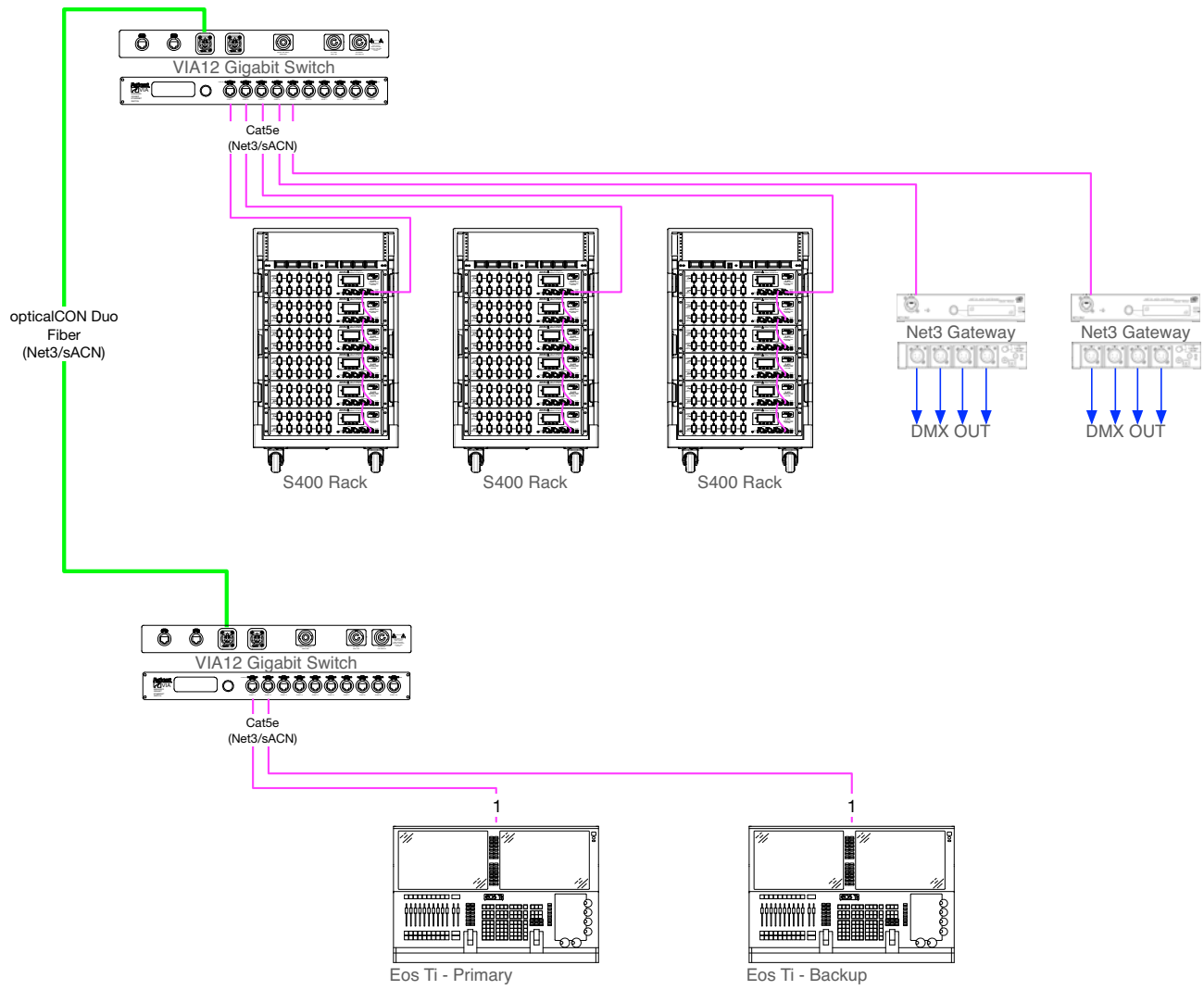


Figure 29: Sample ETC System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber w/ PRG Series 400® Racks and Net3 Gateways @ Backstage

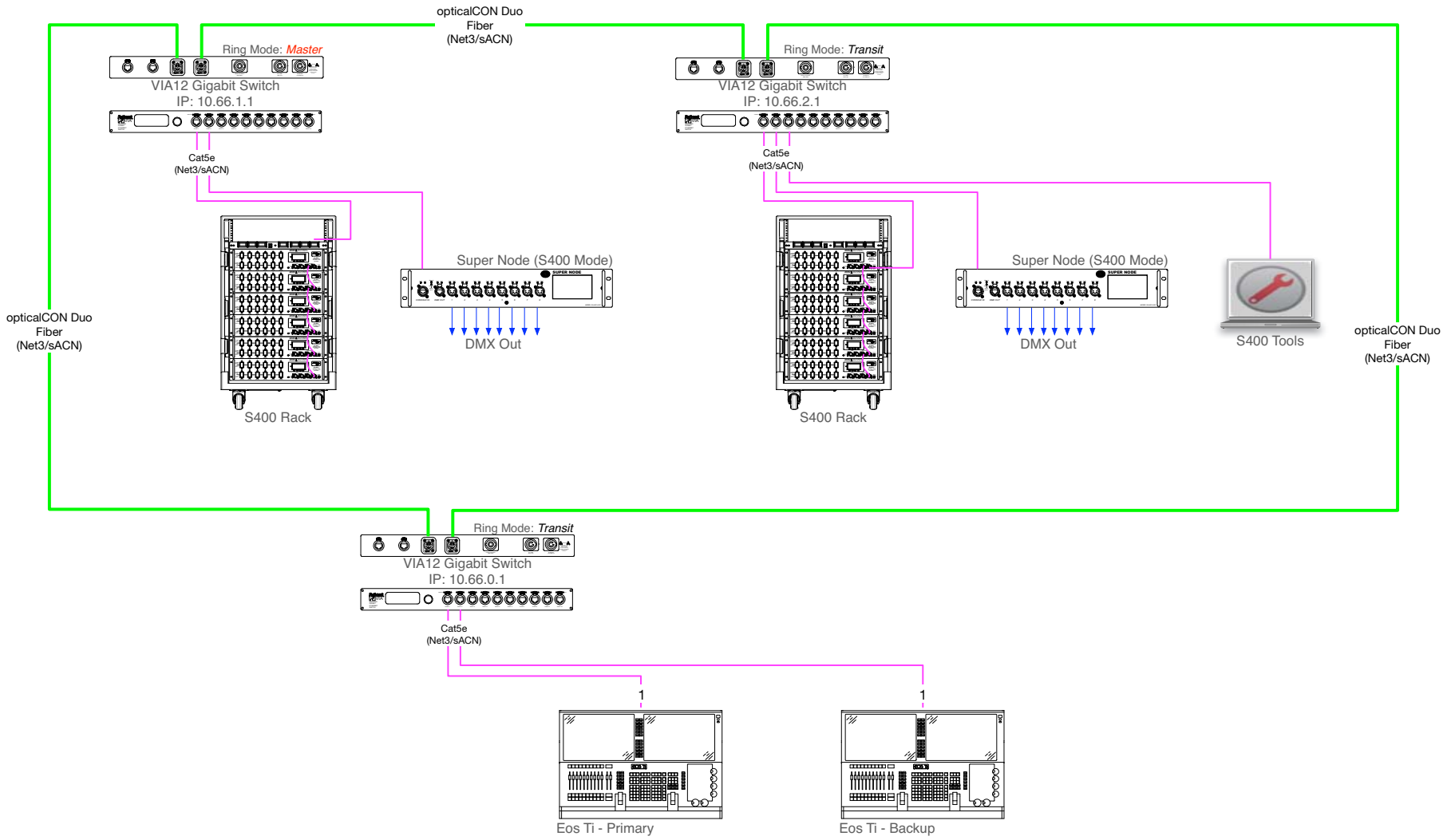


Figure 30: Sample ETC System utilizing VIA12 Gigabit Switches and OpticalCON Duo Fiber in a Ring Network w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

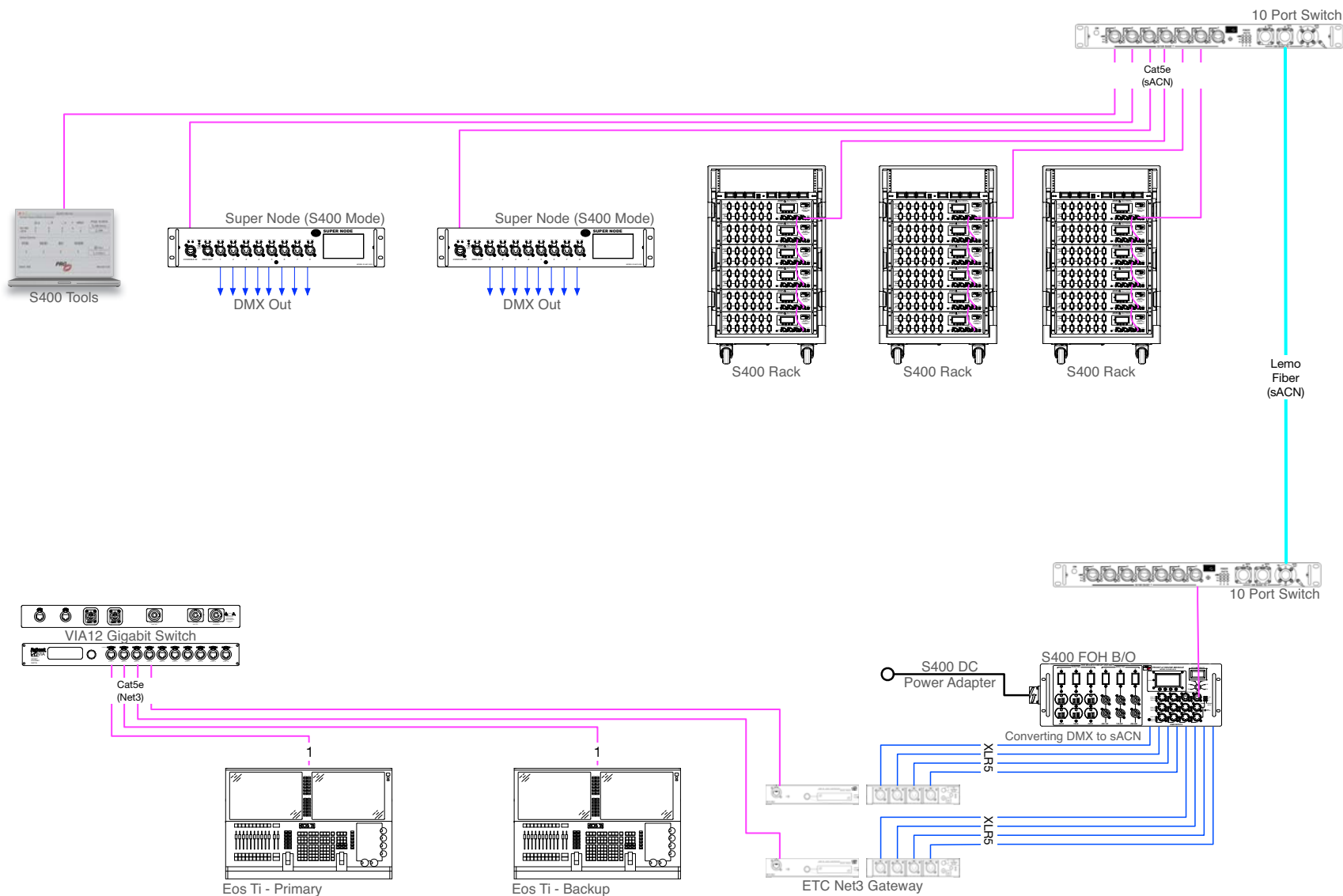


Figure 31: Sample ETC System utilizing ETC Net3 Gateways, a PRG Series 400® FOH Breakout Box, PRG 10 Port Switches, and Lemo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

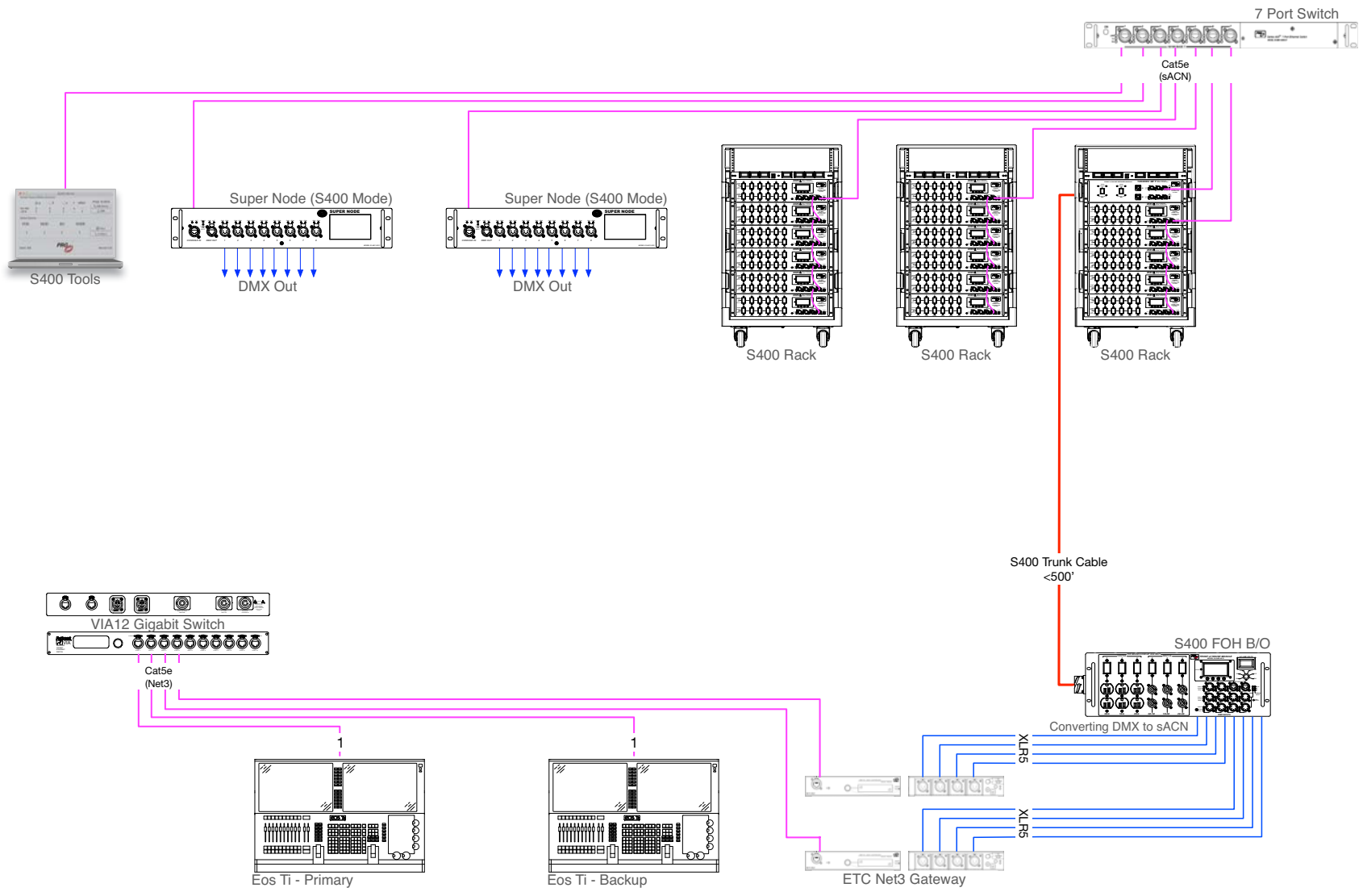


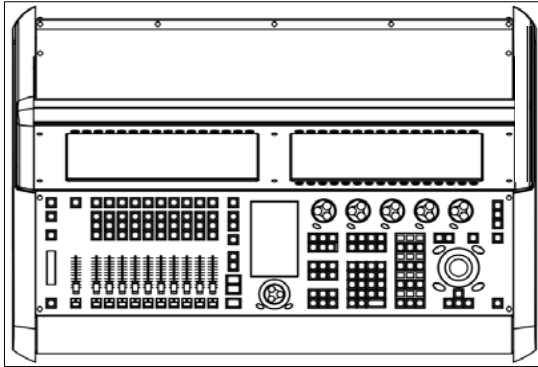
Figure 32: Sample ETC System utilizing ETC Net3 Gateways and a PRG Series 400® FOH Breakout Box w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



High End Systems

Hog 4

Components

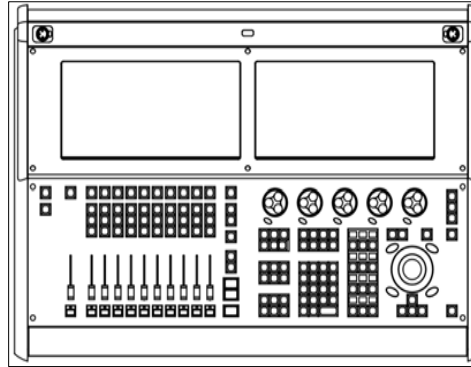


Hog 4

+16 Universes of DMX Processing

+8 DMX Ports

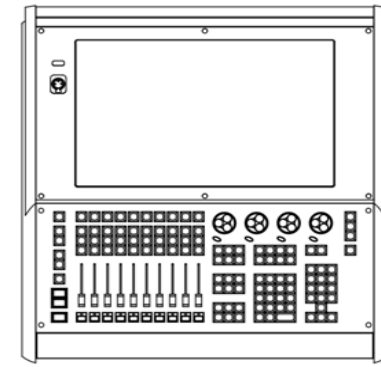
ecode: 360B1-



Full Boar 4

+12 Universes of DMX Processing

+4 DMX Ports



Road Hog 4

+8 Universes of DMX Processing

+4 DMX Ports

ecode: 360B5-



DMX Processor 8000

+16 Universes of DMX Processing

+8 DMX Ports

ecode: 3608D-

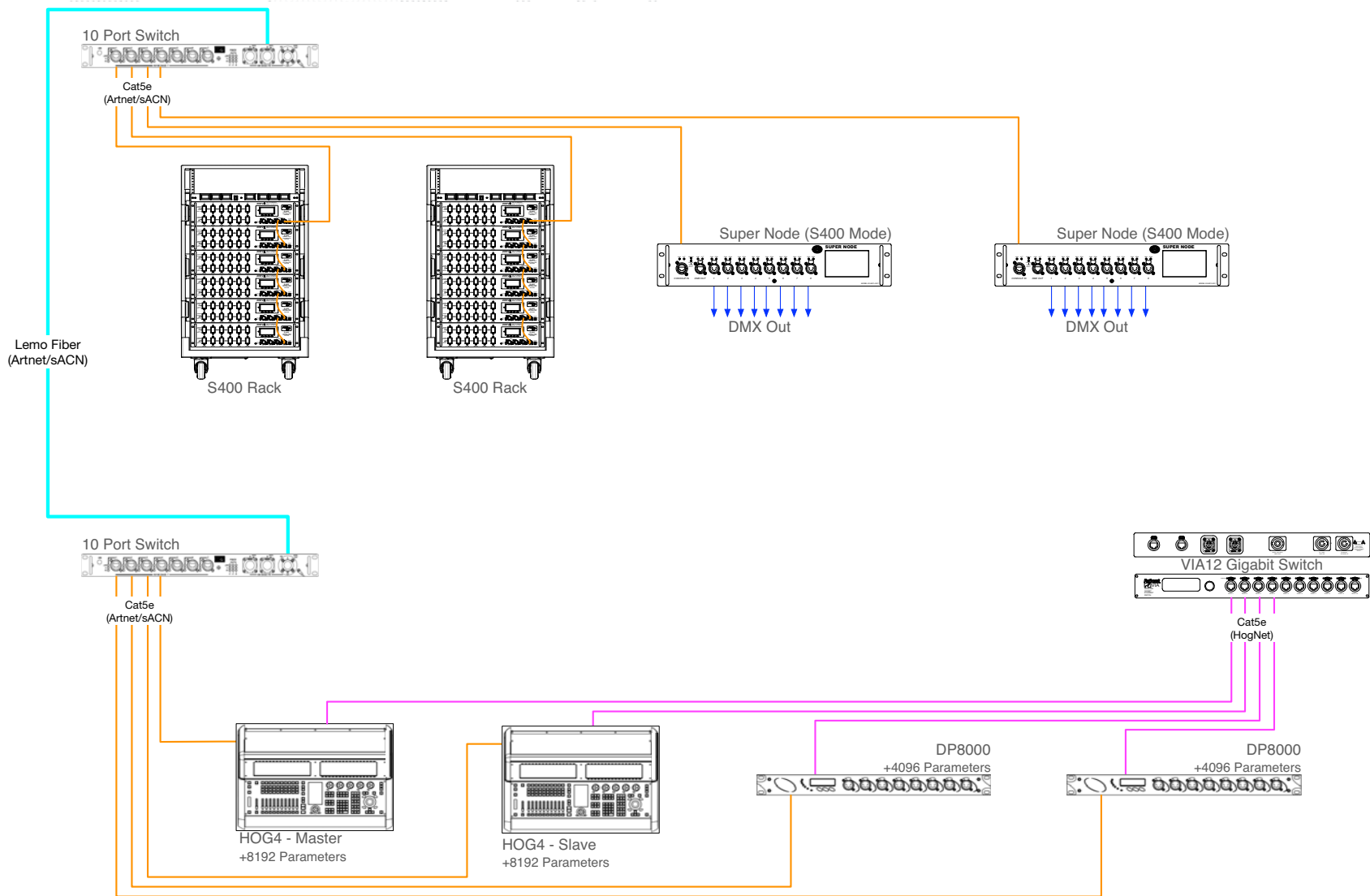


Figure 33: Sample Hog4 System utilizing PRG 10 Port Switches and Lemo Fiber w/ DP8000 Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

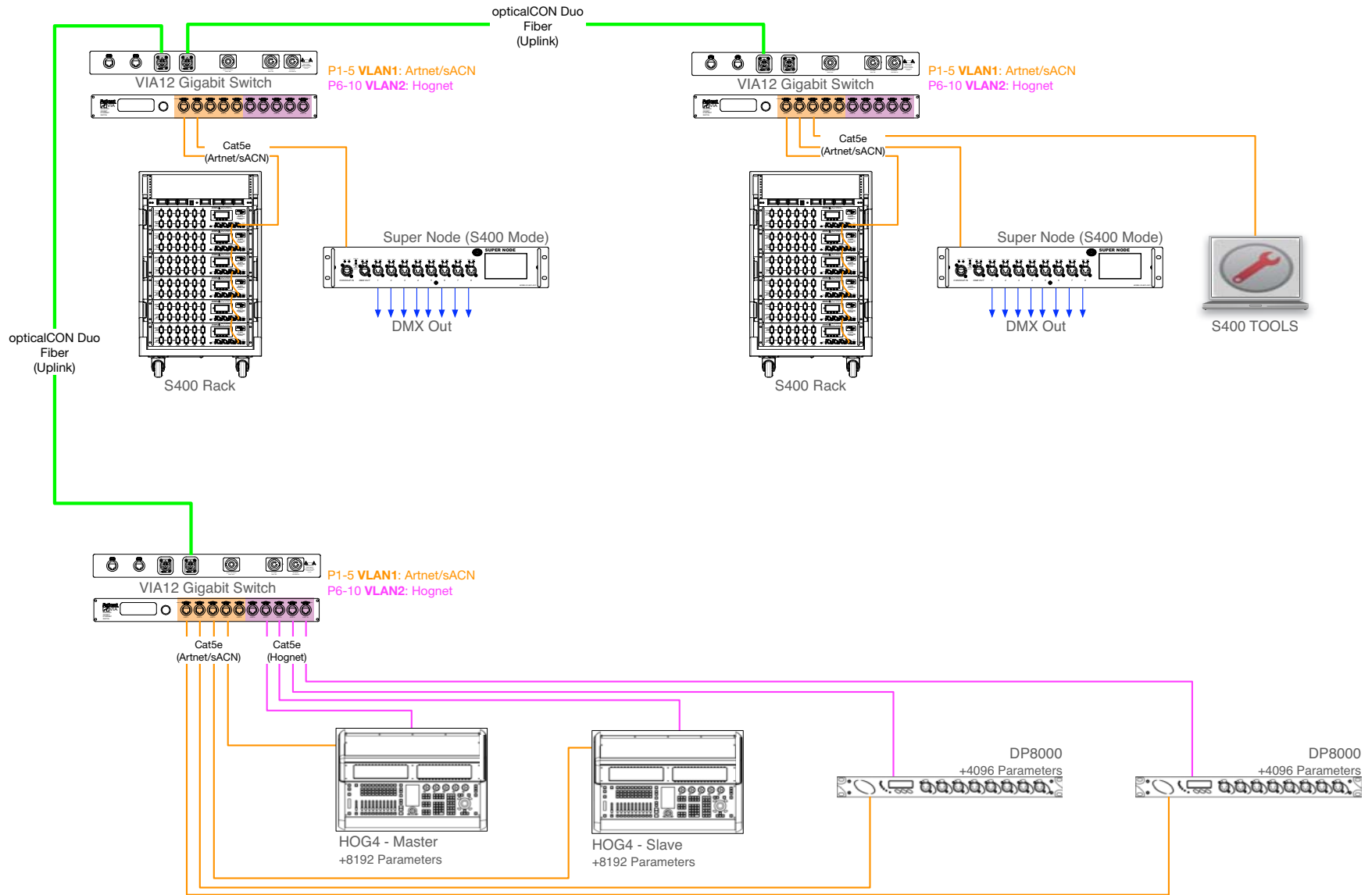


Figure 34: Sample Hog4 System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber with VLANs w/ DP8000 Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

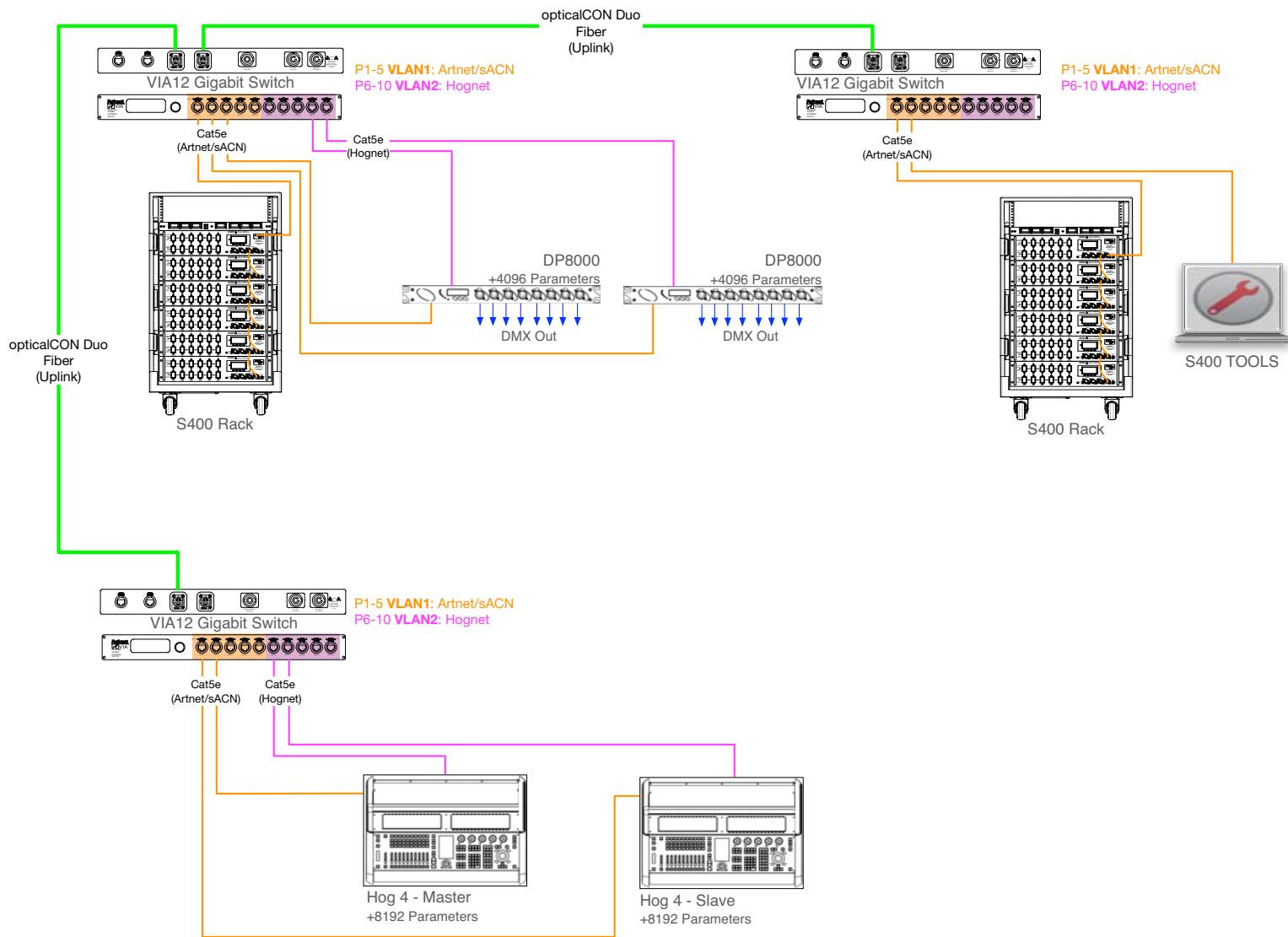


Figure 35: Sample Hog4 System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber with VLANs w/ DP8000 Processors and PRG Series 400® Racks @ Backstage

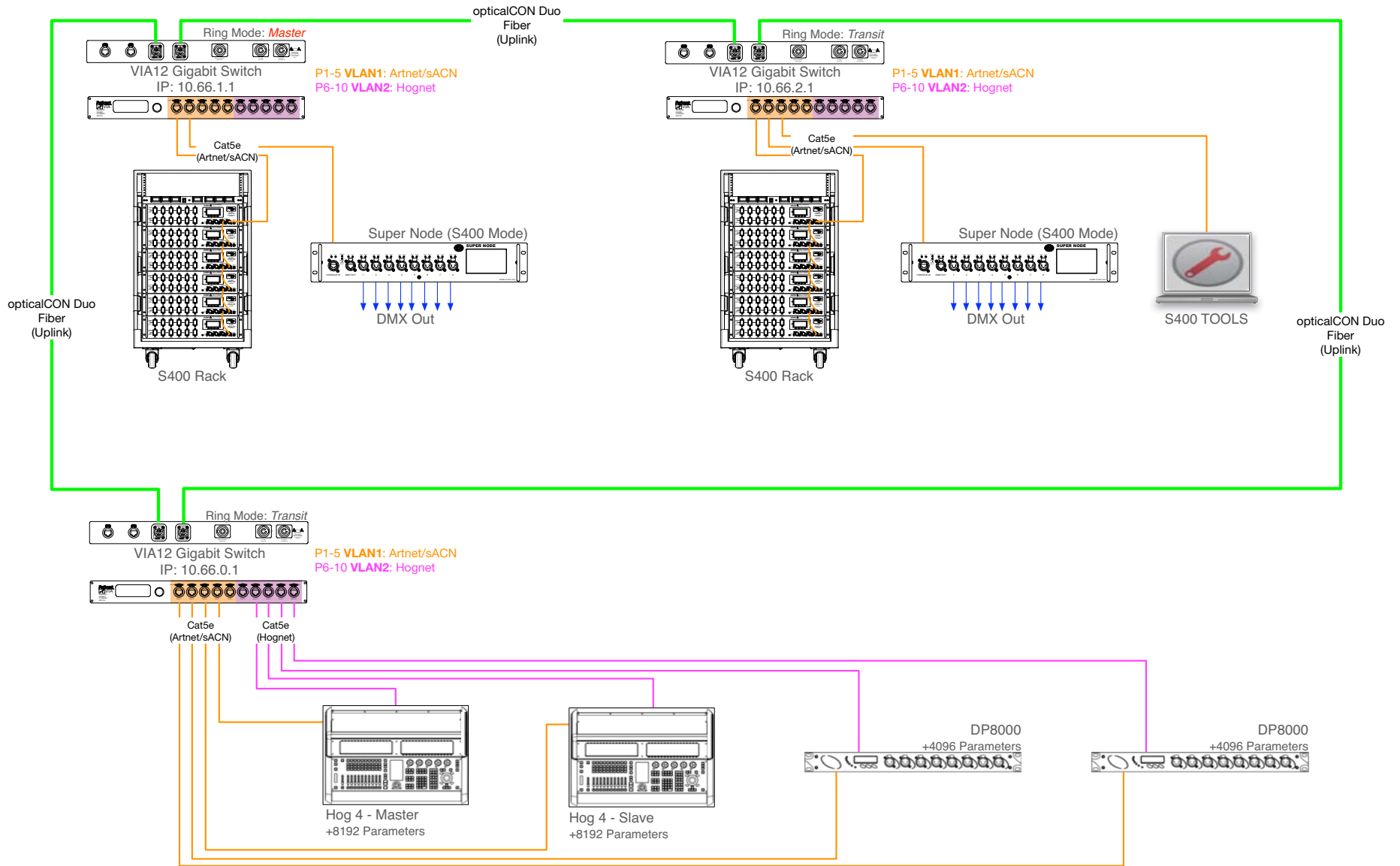


Figure 36: Sample Hog4 System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber in a Ring Network with VLANs w/ DP8000 Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

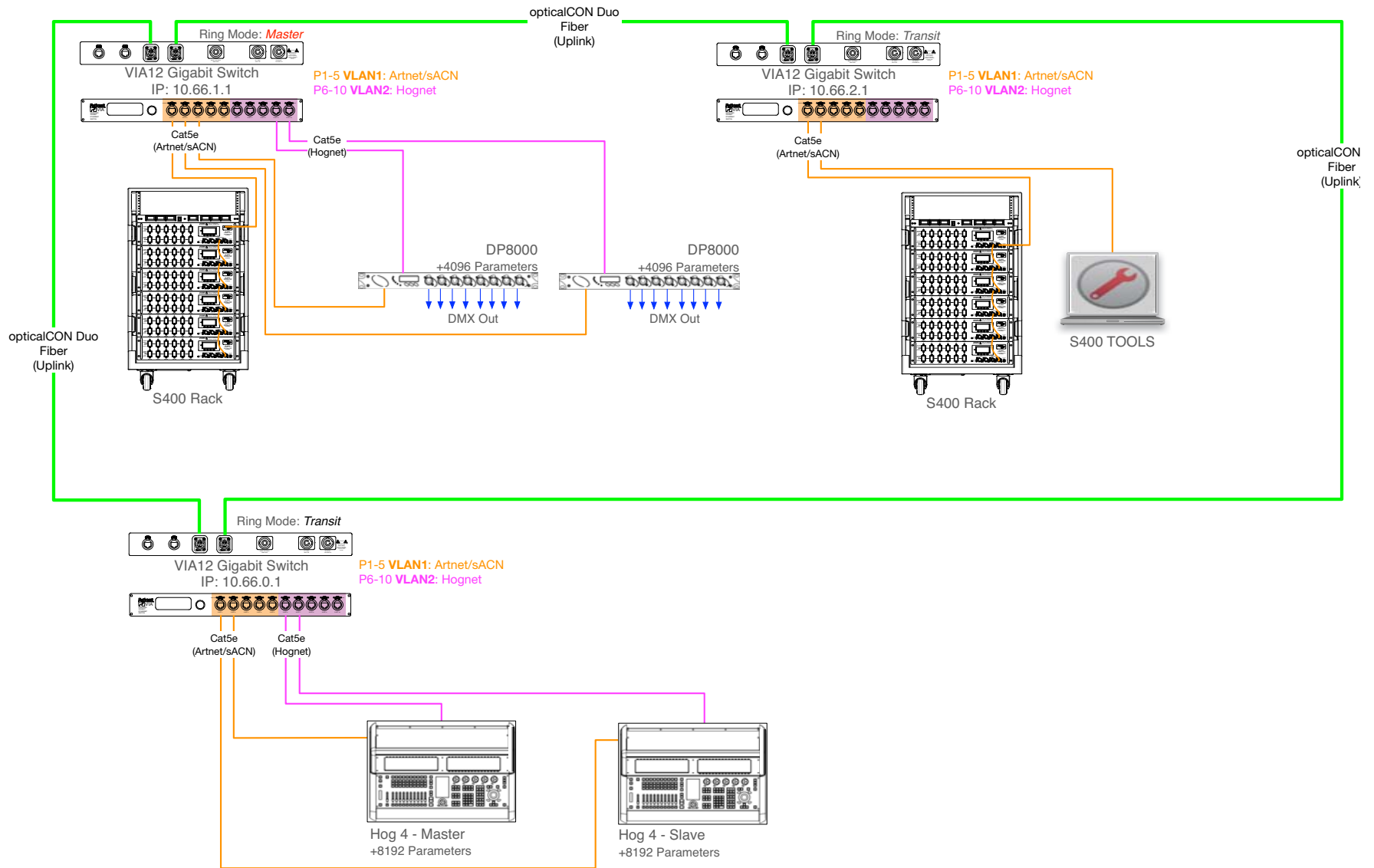


Figure 37: Sample Hog4 System utilizing VIA12 Gigabit Switches and opticalCON Duo in a Ring Network with VLANs w/ DP8000 Processors and PRG Series 400® Racks @ Backstage

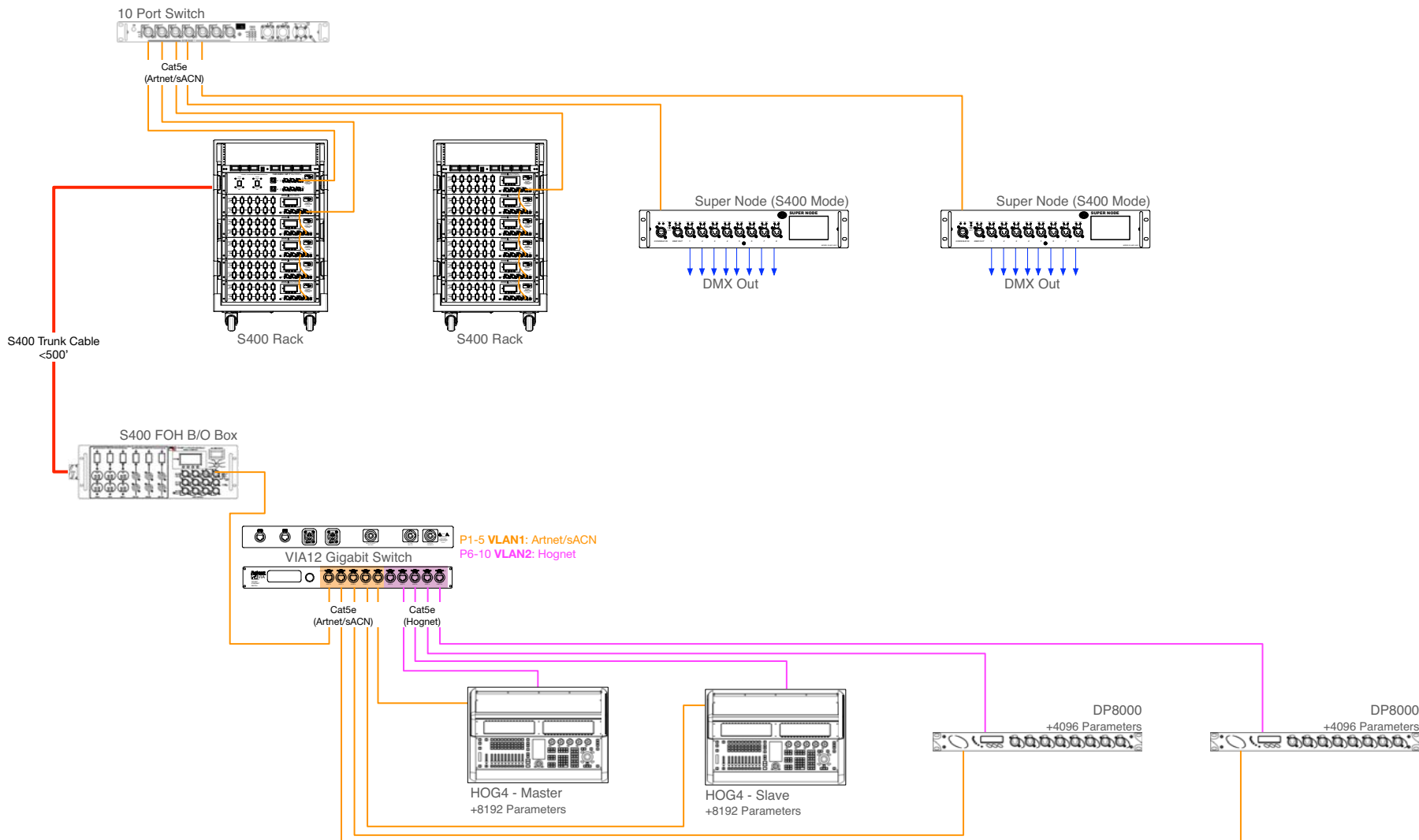


Figure 38: Sample Hog4 System utilizing PRG Series 400® FOH Breakout Box and VIA12 Gigabit Switch with VLANs w/ DP8000 Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



Avolites

Sapphire/Arena- Titan Series

Components



Arena
+12 Universes of DMX Processing
+8 DMX Ports
ecode: 3035A-



Sapphire Touch
+16 Universes of DMX Processing
+8 DMX Ports
ecode: 30342-



Quartz
+16 Universes of DMX Processing
+4 DMX Ports



Titan Network Processor
+16 Universes of DMX Processing
+8 DMX Ports

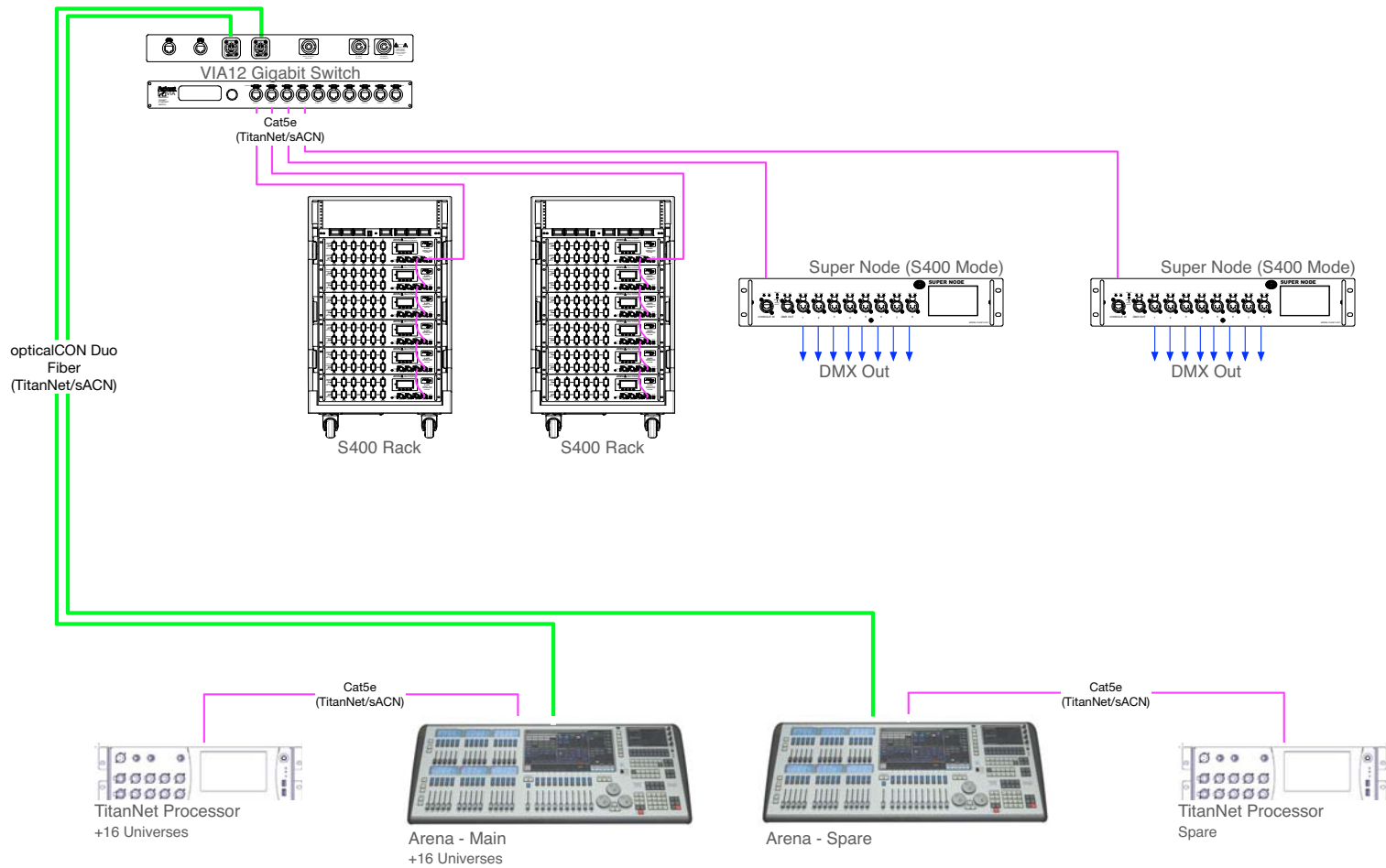


Figure 39: Sample Avolites System utilizing VIA12 Gigabit Switch and opticalCON Duo Fiber w/ TitanNet Processors @ FOH • PRG Series 400® Racks @ Backstage

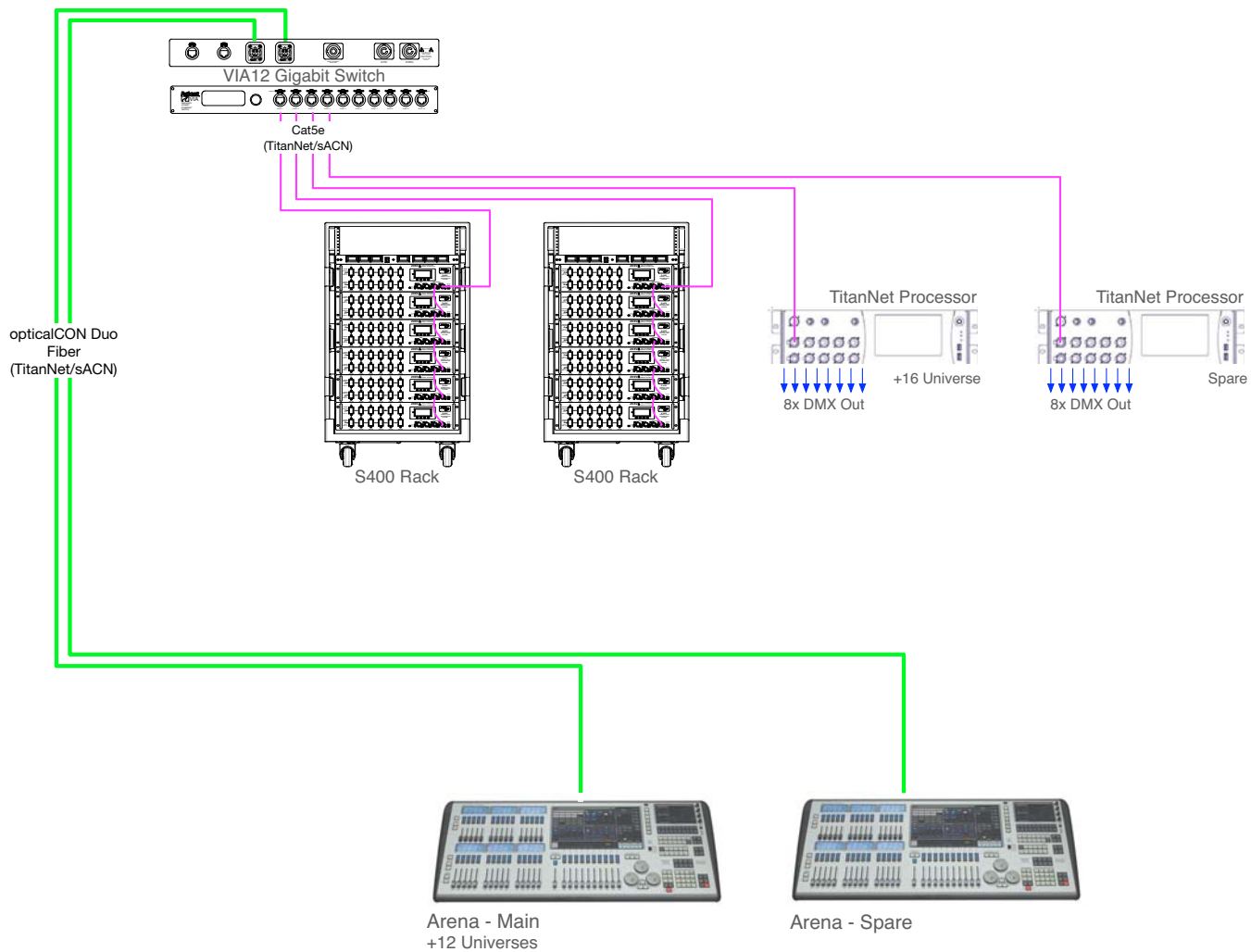


Figure 40: Sample Avolites System utilizing VIA12 Gigabit Switch and opticalCON Duo Fiber w/ PRG Series 400® Racks and TitanNet Processors @ Backstage

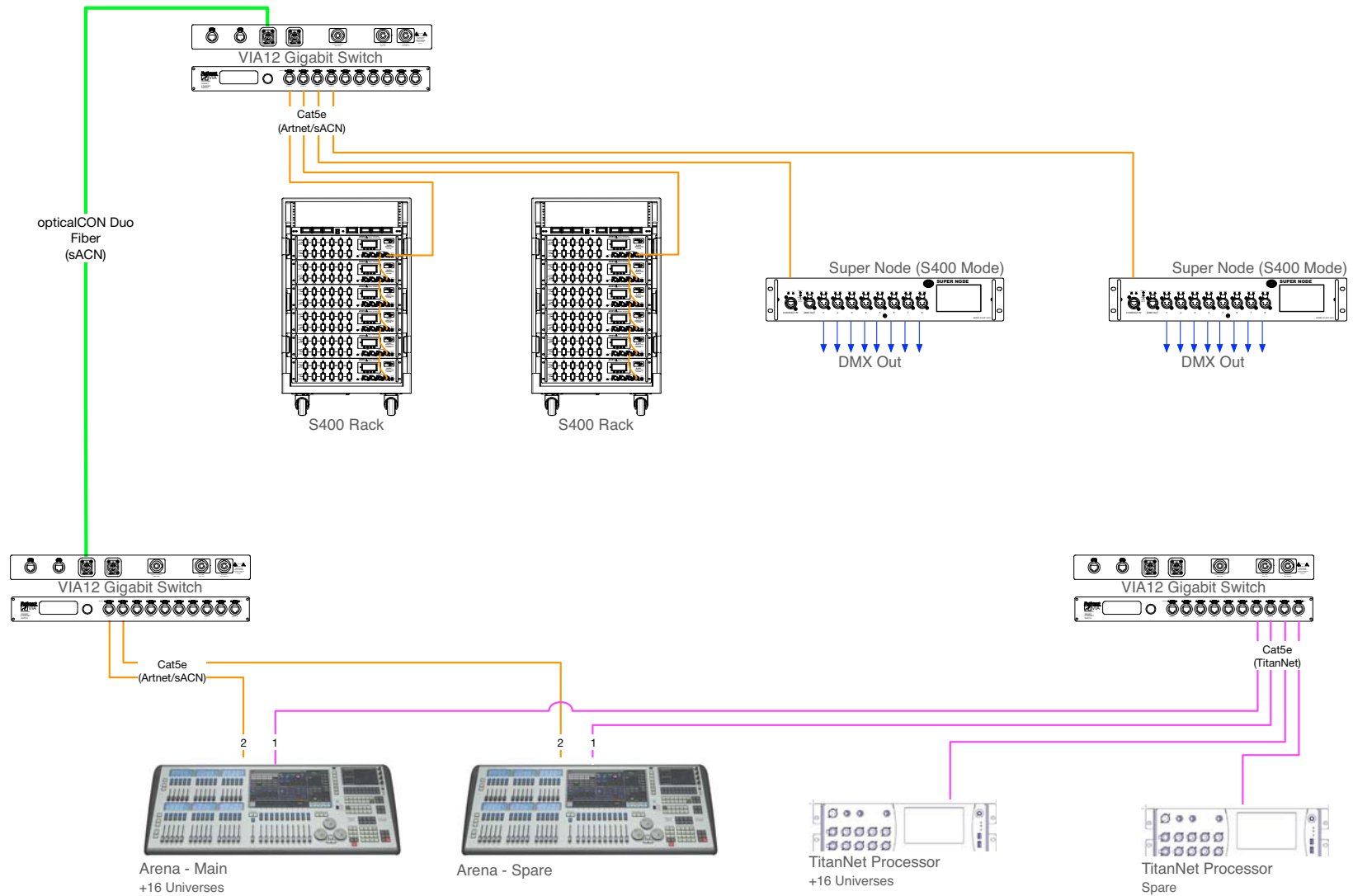


Figure 41: Sample Avolites System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber w/ TitanNet Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

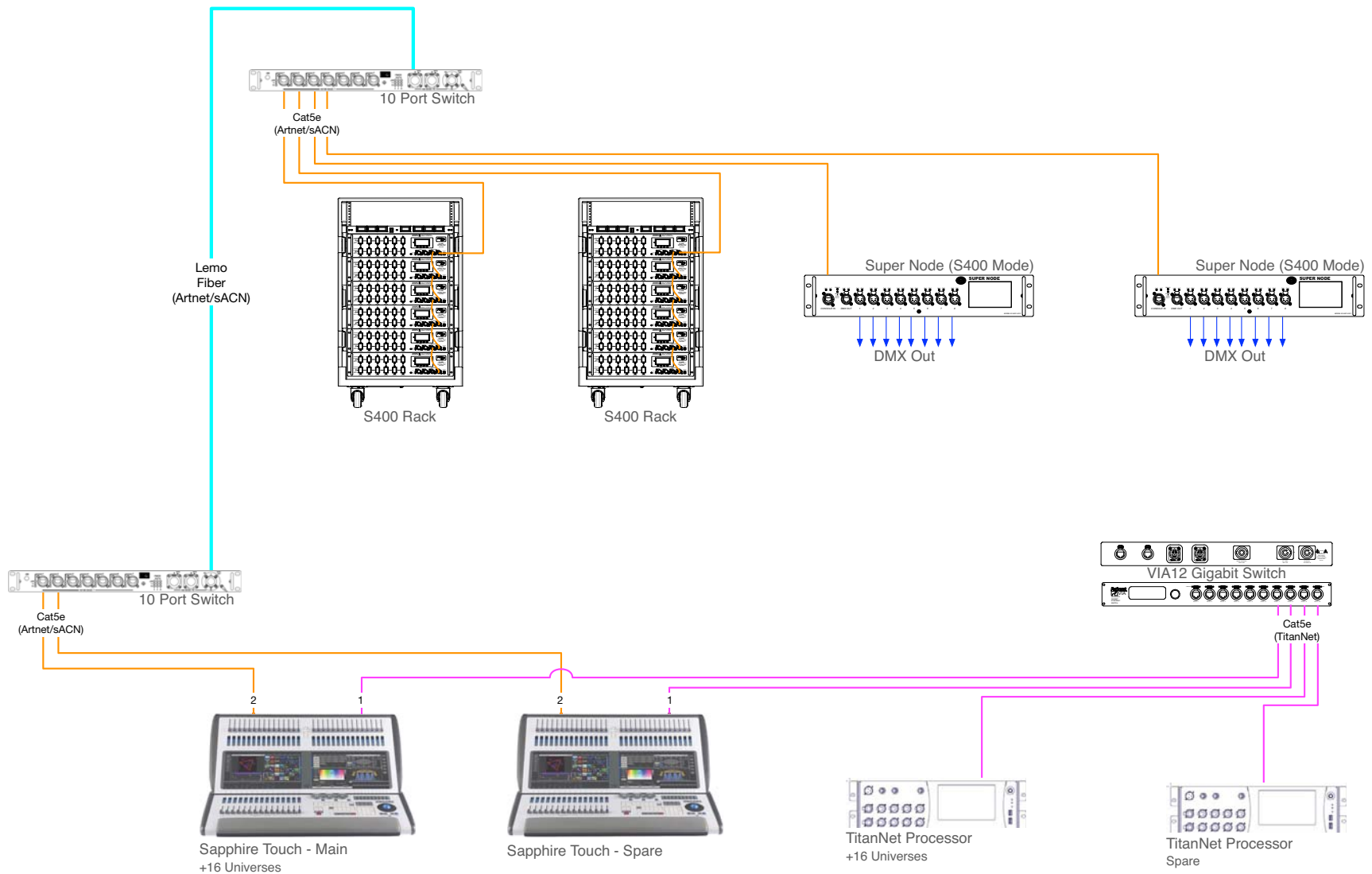


Figure 42: Sample Avolites System utilizing PRG 10 Port Switches and Lemo Fiber w/ TitanNet Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

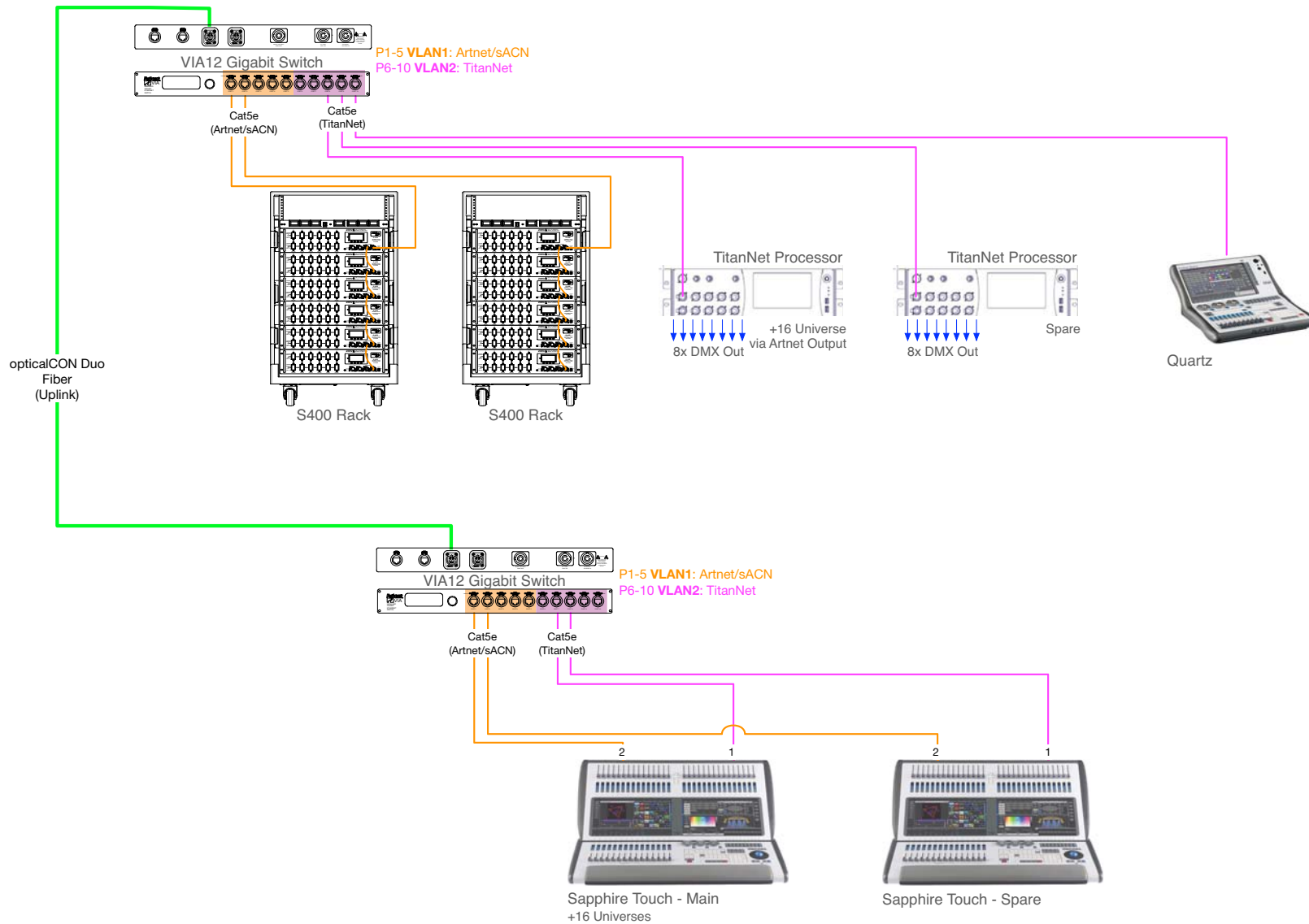


Figure 43: Sample Avolites System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber with VLANs w/ TitanNet Processors and PRG Series 400® Racks @ Backstage

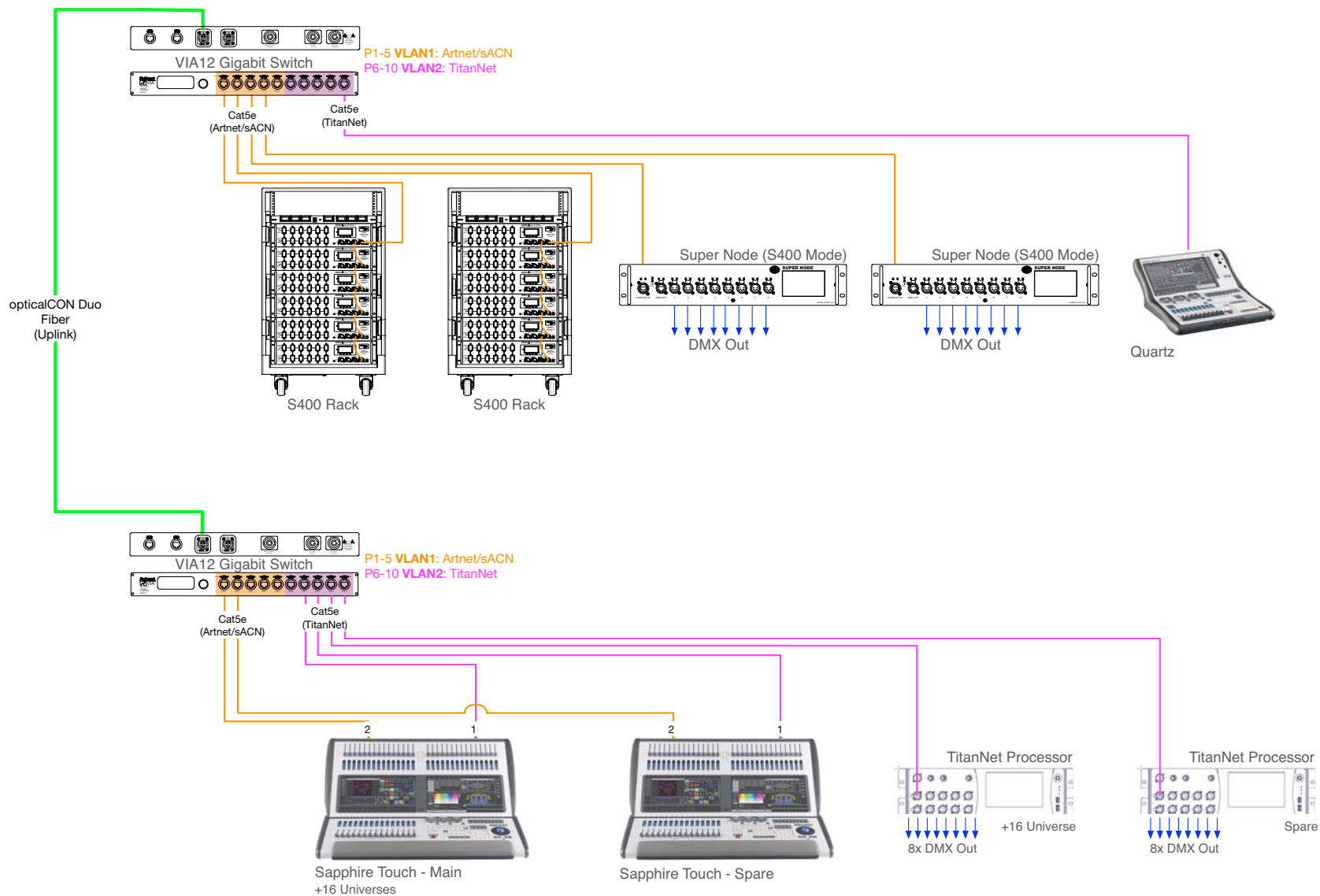


Figure 44: Sample Avolites System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber with VLANs w/ TitanNet Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

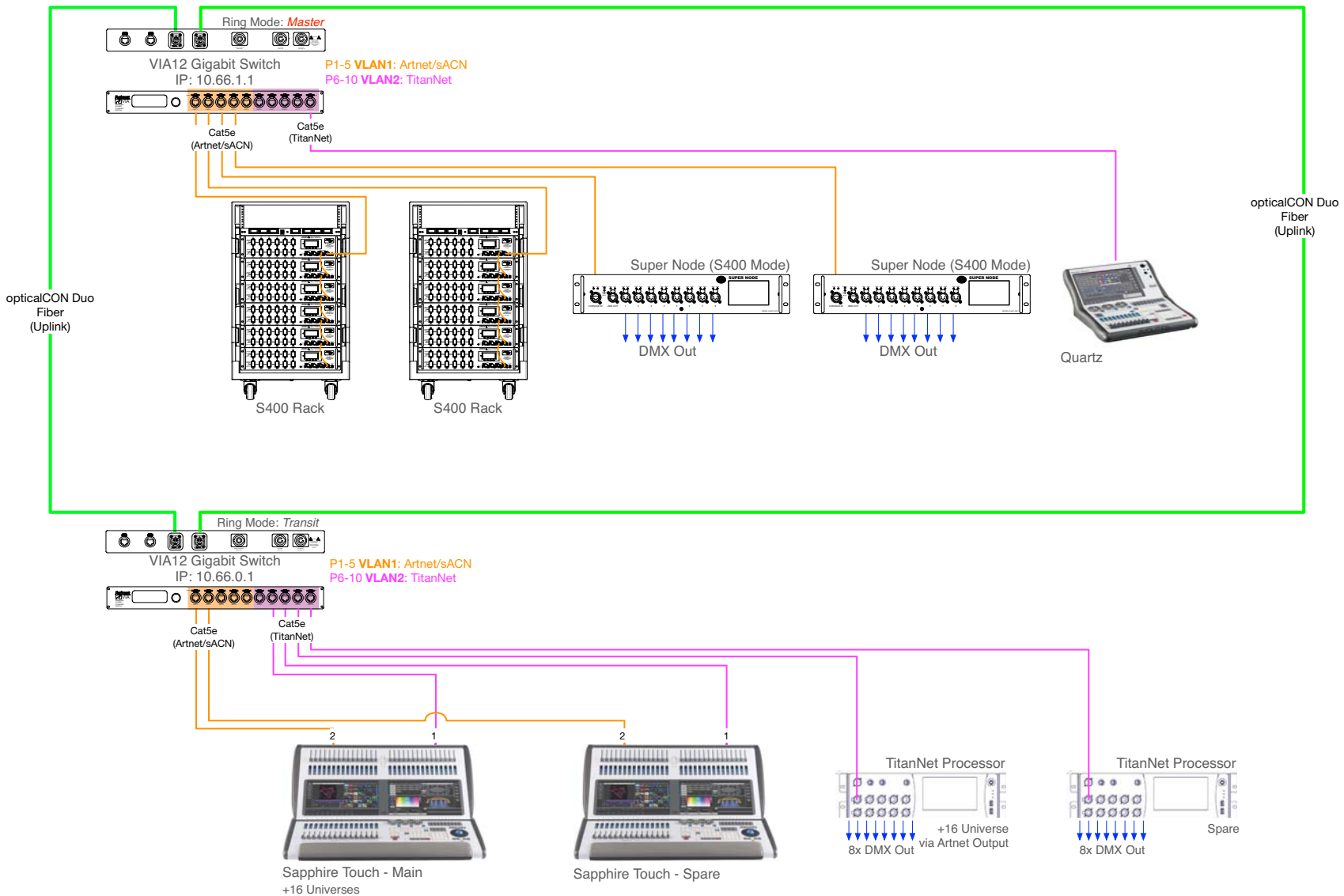


Figure 45: Sample Avolites System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber in a Ring Network with VLANs w/ TitanNet Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

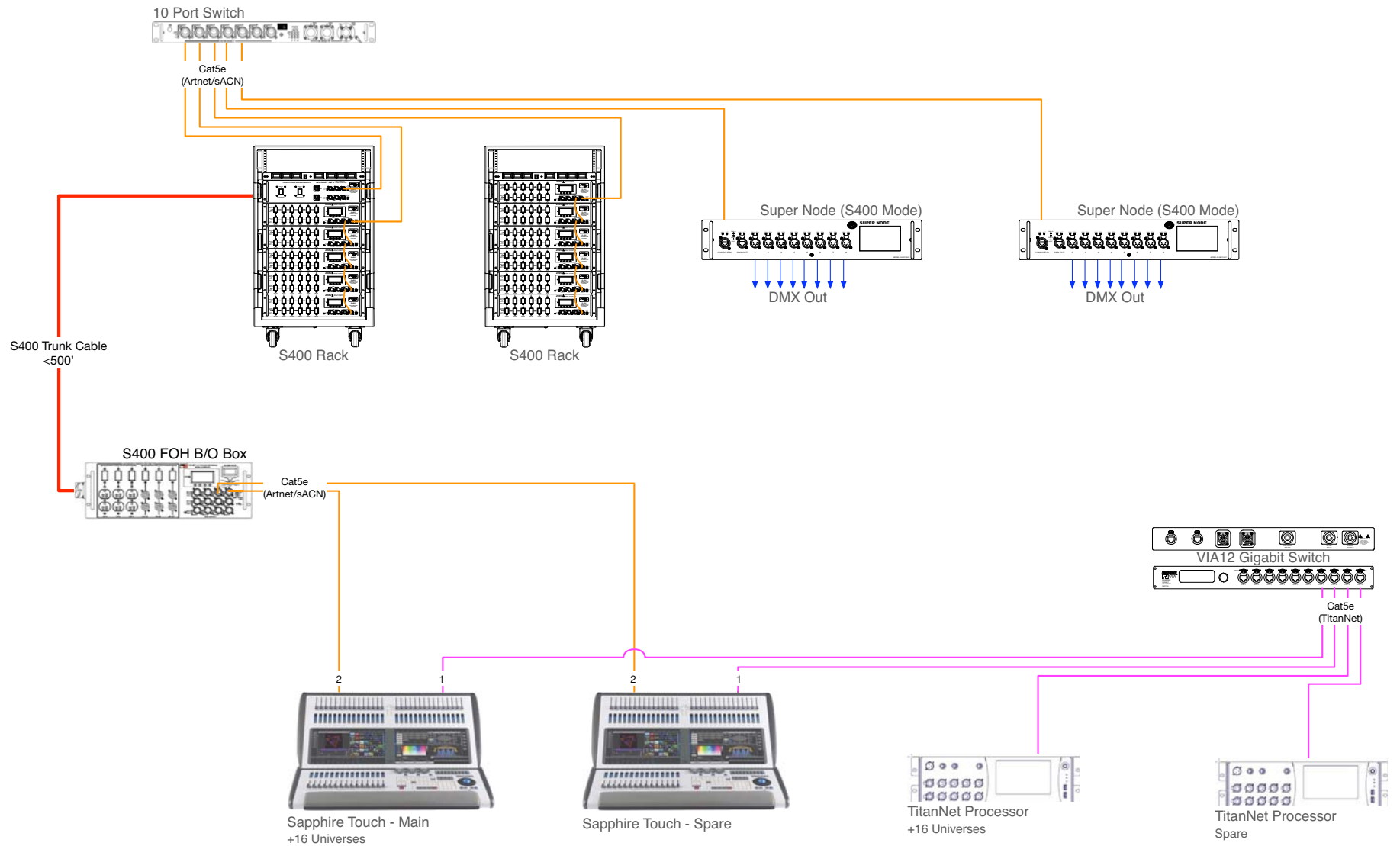


Figure 46: Sample Avolites System utilizing PRG Series 400® FOH Breakout Boxes and VIA12 Gigabit Switches w/ TitanNet Processors @ FOH • PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

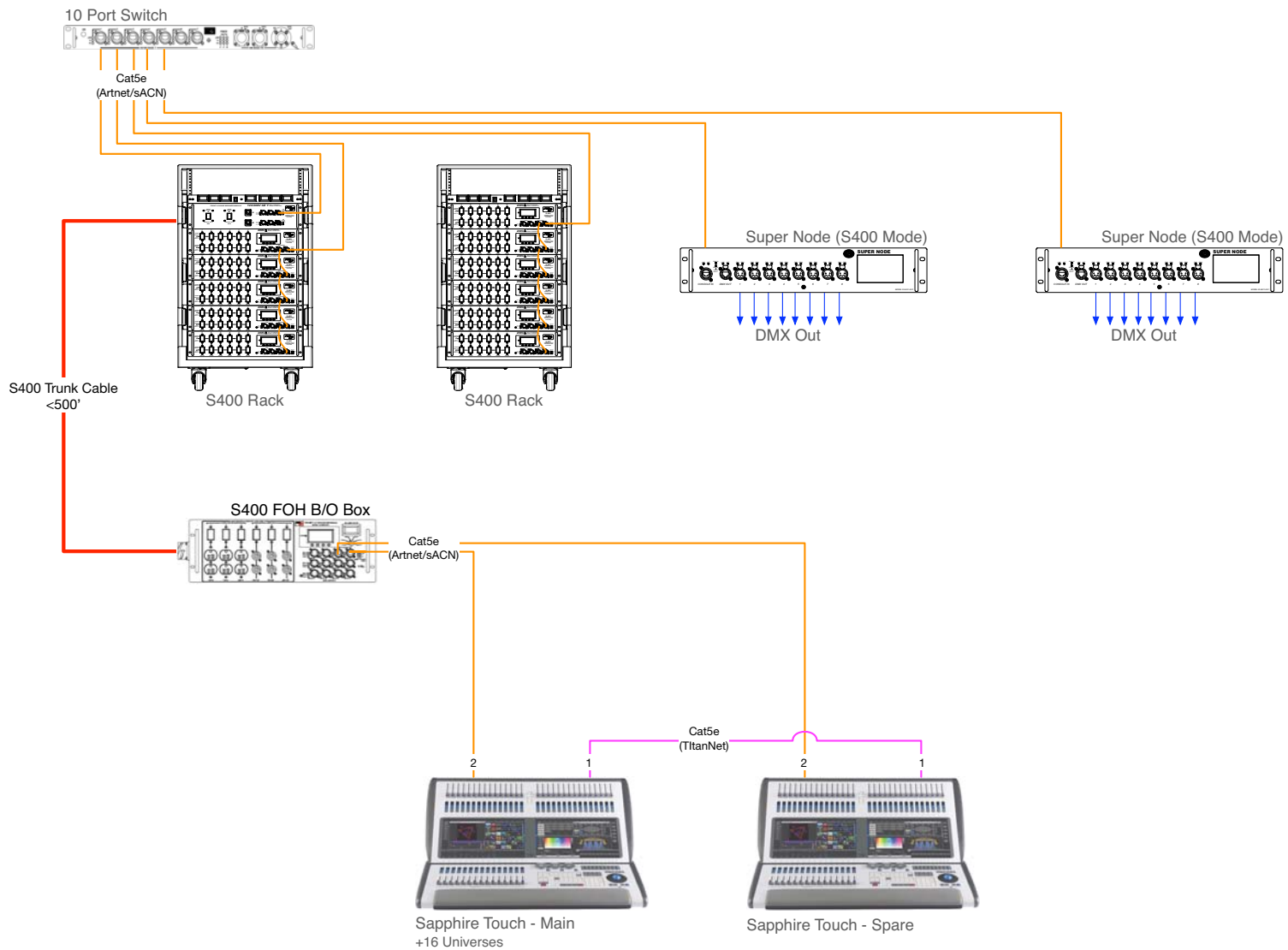


Figure 47: Sample Avolites System utilizing PRG Series 400® FOH Breakout Boxes and PRG 10 Port Switches w/PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



ChamSys

MQ Series

Components



MagicQ MQ100 Pro 2014
+64 Universes of DMX Processing
+4 DMX Ports
ecode: 36003-



MagicQ MQ200 Pro 2014
+64 Universes of DMX Processing
+4 DMX Ports
ecode: 3600D-



MagicQ MQ300 Pro 2014
+64 Universes of DMX Processing
+4 DMX Ports

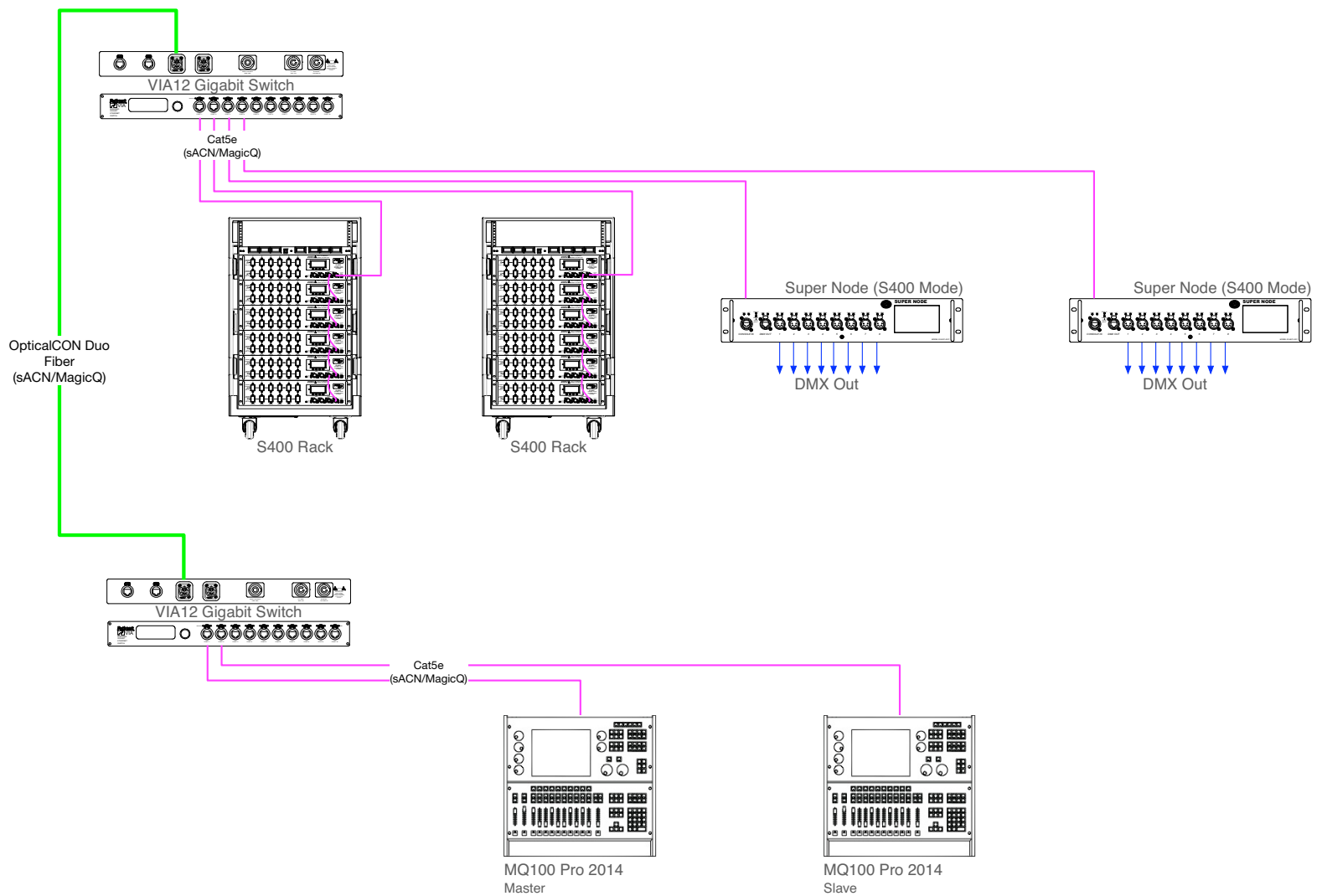


Figure 48: Sample ChamSys System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

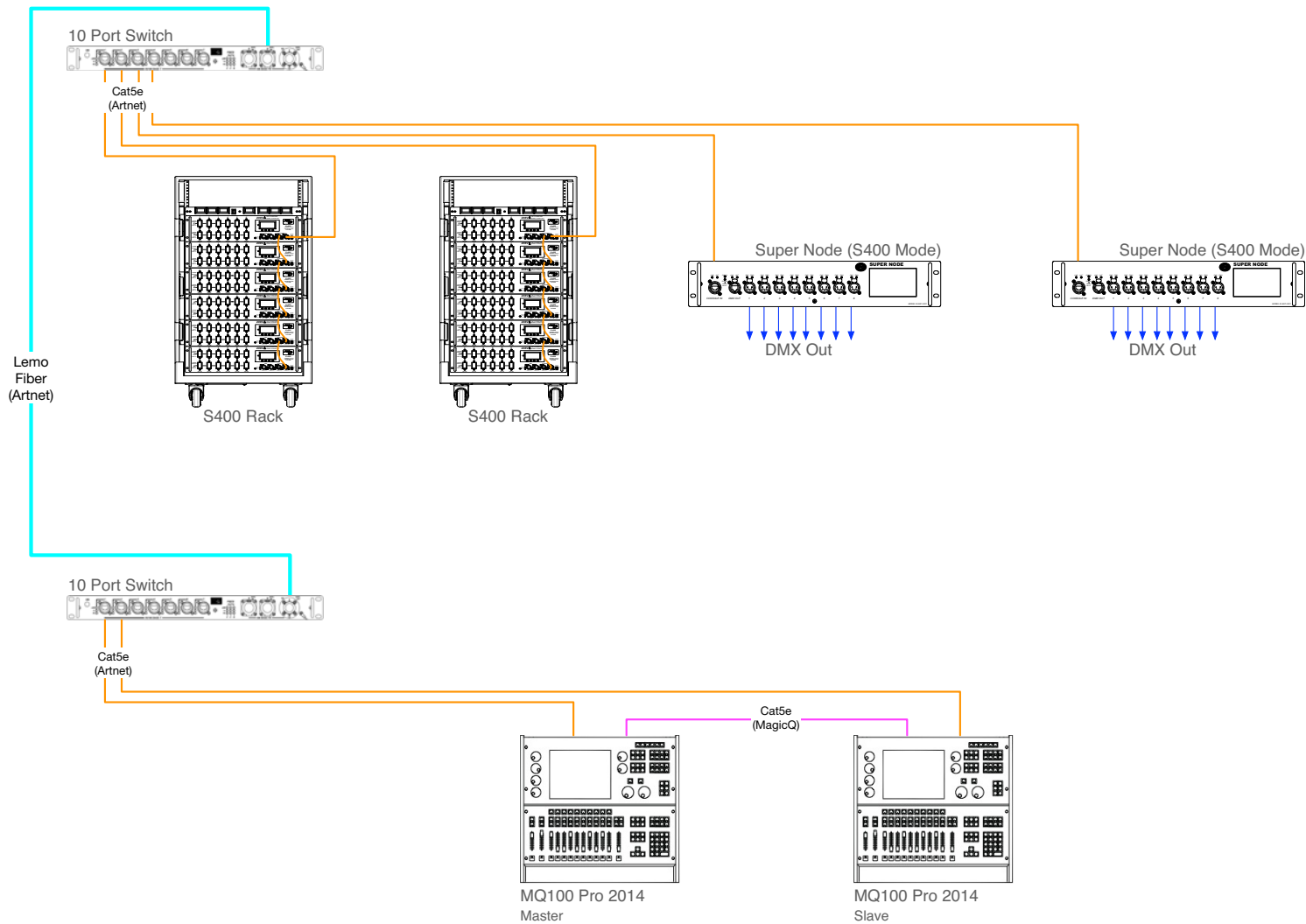


Figure 49: Sample ChamSys System utilizing PRG 10 Port Switches and Lemo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

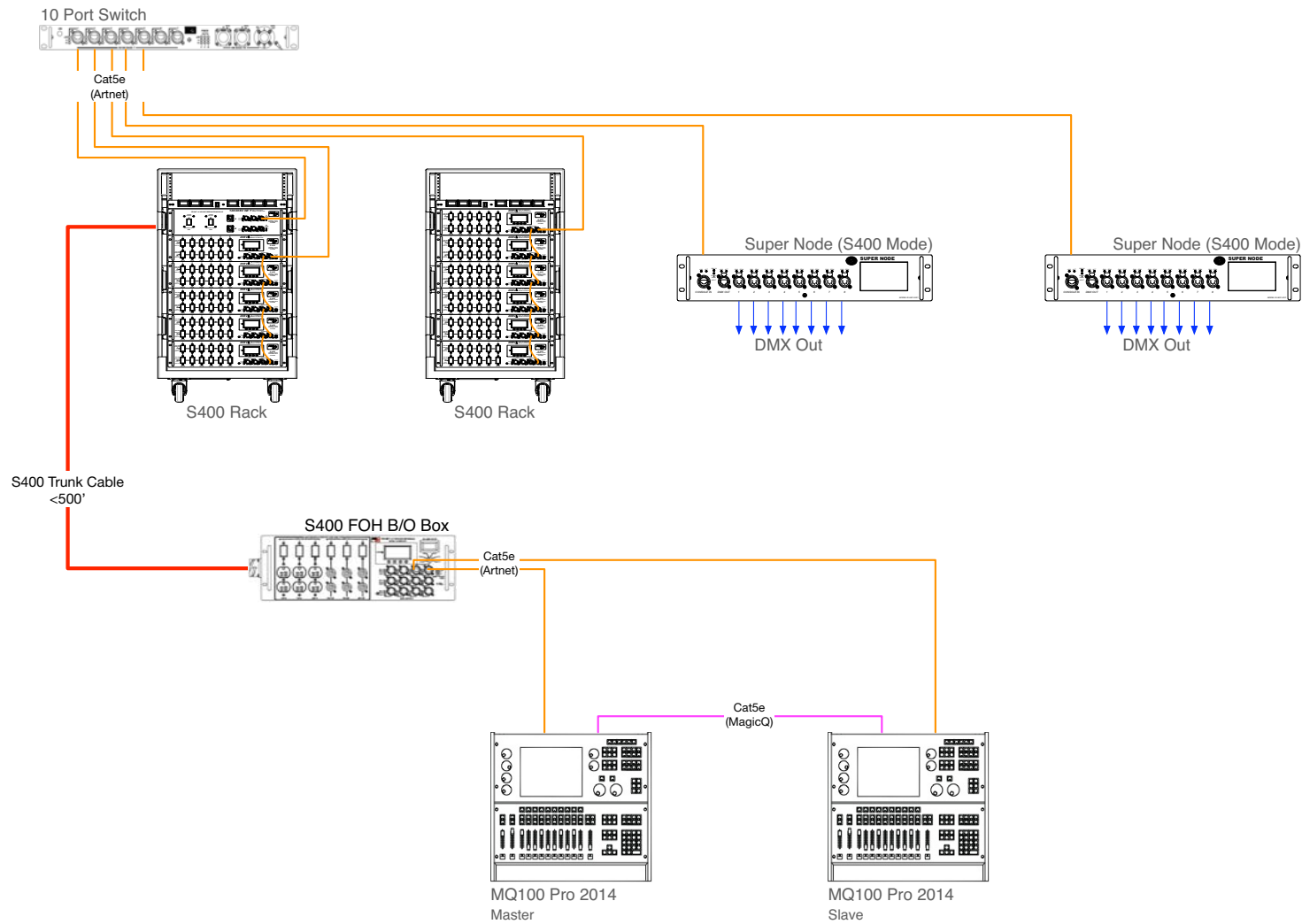


Figure 50: Sample ChamSys System utilizing PRG Series 400® FOH Breakout Boxes w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



Martin

M-Series

Components



M6

+8 to 64 Universes of DMX Processing
+4 DMX Ports
ecode: 3609C-



M1

+4 to 16 Universes of DMX Processing
+4 DMX Ports



M2PC

+4 to 128 Universes of DMX Processing
+2 DMX Ports

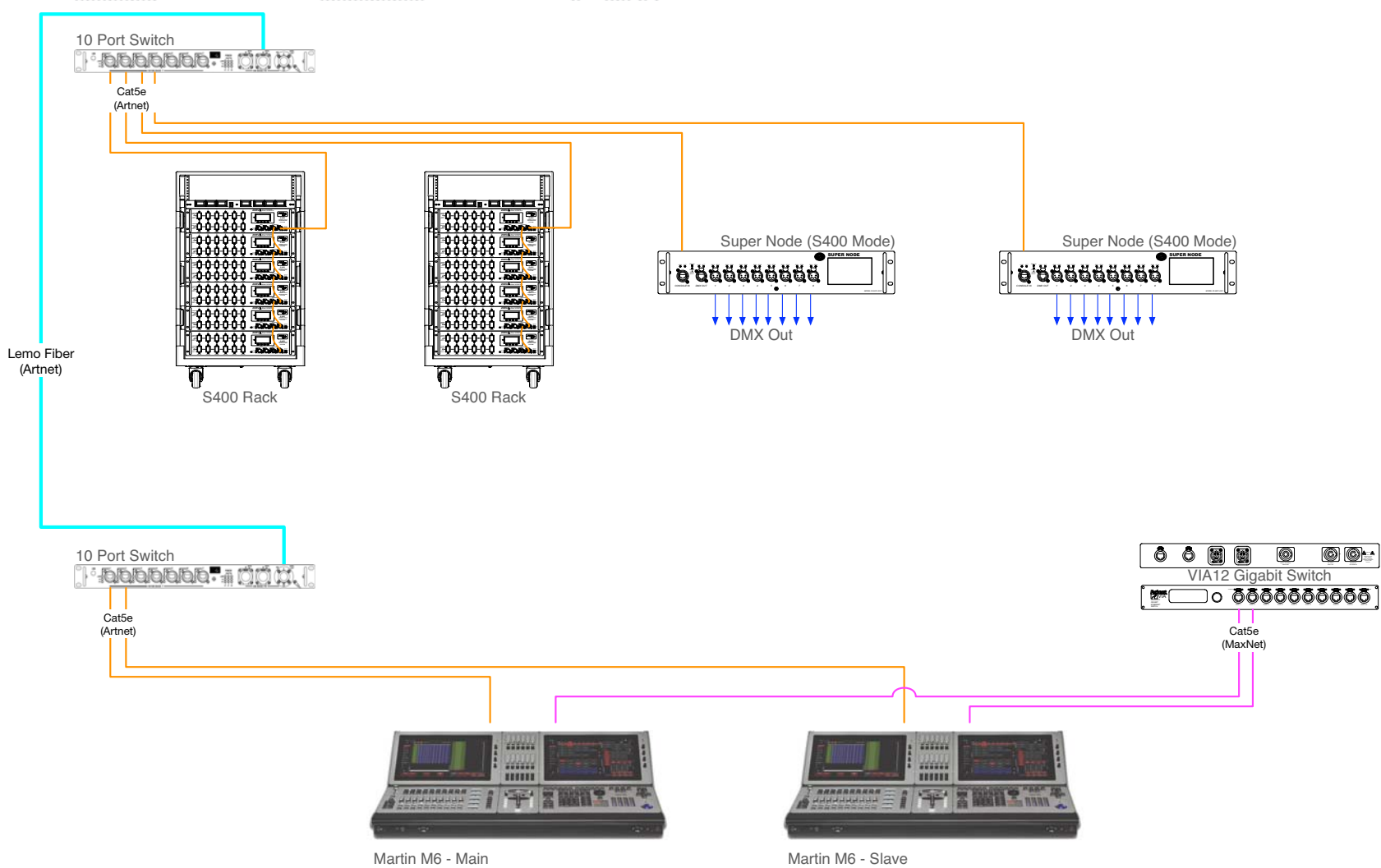


Figure 51: Sample Martin System utilizing PRG 10 Port Switches and Lemo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

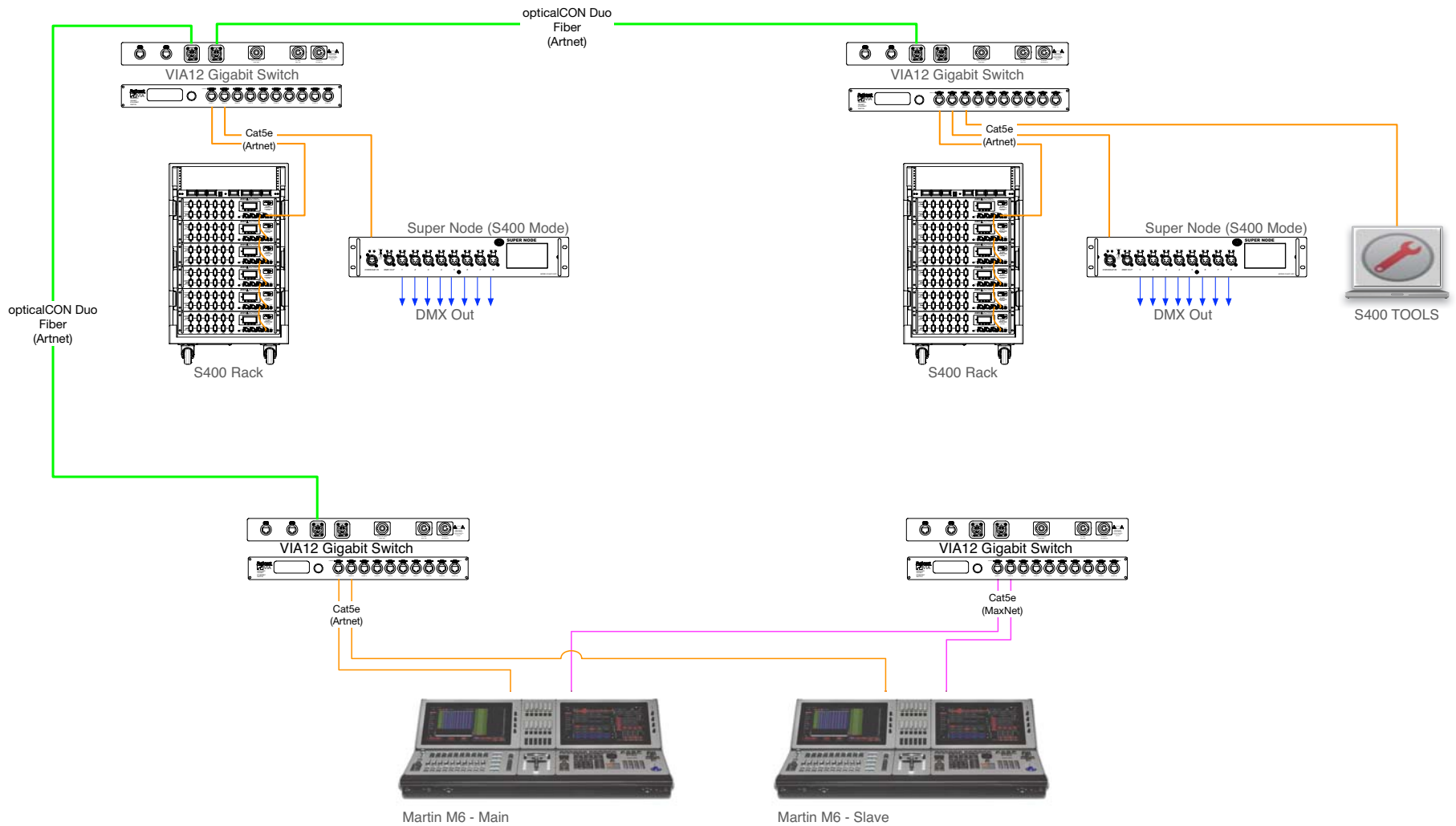


Figure 52: Sample Martin System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage

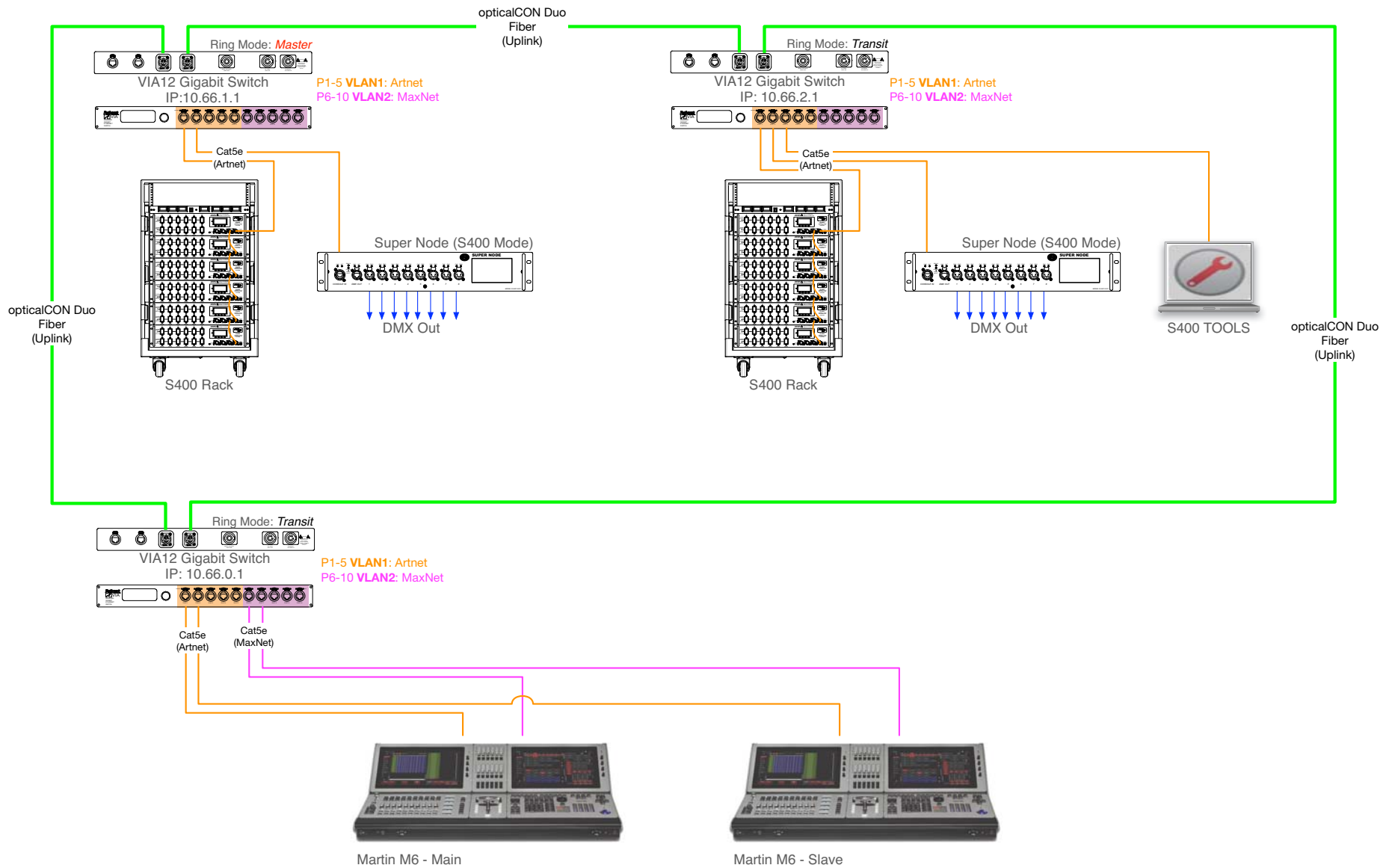


Figure 53: Sample Martin System utilizing VIA12 Gigabit Switches and opticalCON Duo Fiber in a Ring Network with VLANs w/ PRG Series 400® Racks and Super Nodes in S400 Mode @ Backstage



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PRG Lighting Systems Networking Guide

Version as of: February 26, 2017

PRG part number: 02.3004.1000.0 D

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