# norwia

# Application examples with the one card solution
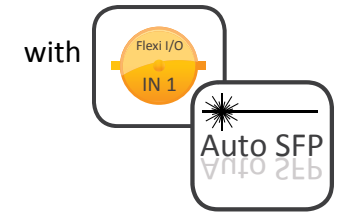
OC-4B-SDI

Format flexible
Application flexible
One-card solution
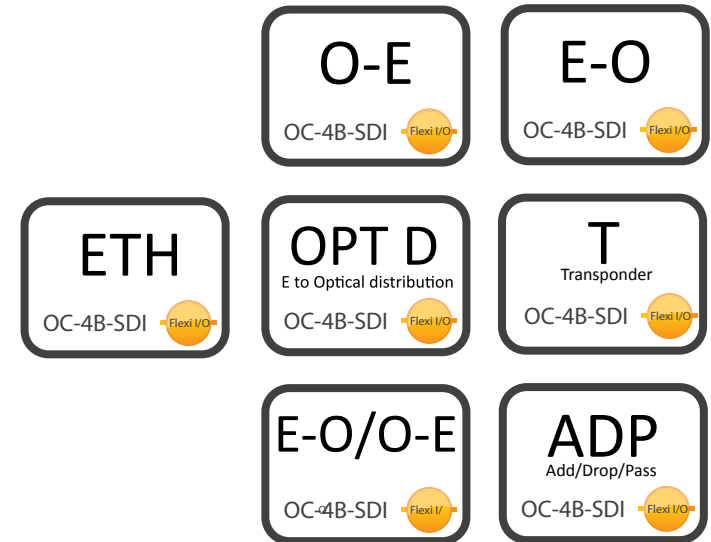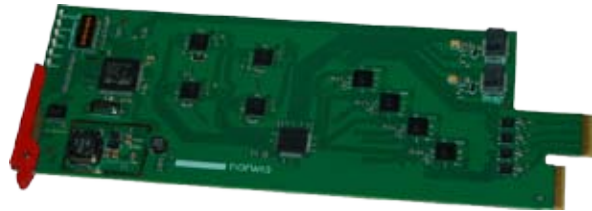
giving value

# OC-4B-SDI

with

Flexi I/O
IN 1

Auto SFP

## The Flexible 1 card solution for Optical distribution

You are looking at a true 1 cards solution that can solve many of your Optical distribution challenges.

=

| O-E | E-O |
| --- | --- |
| OC-4B-SDI  Flexi I/O | OC-4B-SDI  Flexi I/O |

| ETH | OPT D | T |
| --- | --- | --- |
| | E to Optical distribution | Transponder |
| OC-4B-SDI  Flexi I/O | OC-4B-SDI  Flexi I/O | OC-4B-SDI  Flexi I/O |

| E-O/O-E | ADP |
| --- | --- |
| | Add/Drop/Pass |
| OC-4B-SDI  Flexi I/ | OC-4B-SDI  Flexi I/O |

## Why buy the OC-4B-SDI

| | | OC-4B-SDI | Others |
| --- | --- | --- | --- |
| 1 | Flexi I/O   Technology with Auto SFP configuration | ✓ | ✗ |
| 2 | Flexible 1 card solution | ✓ | ✗ |
| 3 | Free controller with frame, including GUI status monitoring | ✓ | ✗ |
| 4 | Simple upgrade path (multichannel TX and/or RX) | ✓ | ✗ |
| 5 | Up to 100 meters with 3G-SDI (Belden 1694A) | ✓ | ✗ |
| 6 | Flexible frame supply inputs, including mixed supplies | ✓ | ✗ |
| 7 | Optical link, distribution, add/drop/pass in one card | ✓ | ✗ |
| 8 | 3G-SDI & Ethernet on the same card | ✓ | ✗ |
| 9 | Lower cost of maintenance (spares inventory) | ✓ | ✗ |
| 10 | Easy logistics handling with 1 card | ✓ | ✗ |

If you are planning a solution with a 1 card solution then look at the versatile OC-4B-SDI for the miniHUB Optical distribution platform.

The following pages of examples configuration you will see the flexibility of the OC-4B-SDI card. Count up how many different cards you would use to provide the same examples, you will be amazed!, and this is only the start!

# 1 channel Optical video link with loop through input & Distributed 8 x 3G-SDI o/p

Single channel application that can be upgrade via SFP purchase to (2,3 or 4) channels by simply plugging into insisting purchased system. This system is good for galvanic isolation (lightning isolation) for isolating different building or Transmissions tower to main complex building.

## System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10580 TX single Channel SFP
1 x 10593 RX single Channel SFP

3G-SDI → **E-O** OC-4B-SDI Flexi I/O → **O-E** OC-4B-SDI Flexi I/O → 8 x 3G-SDI
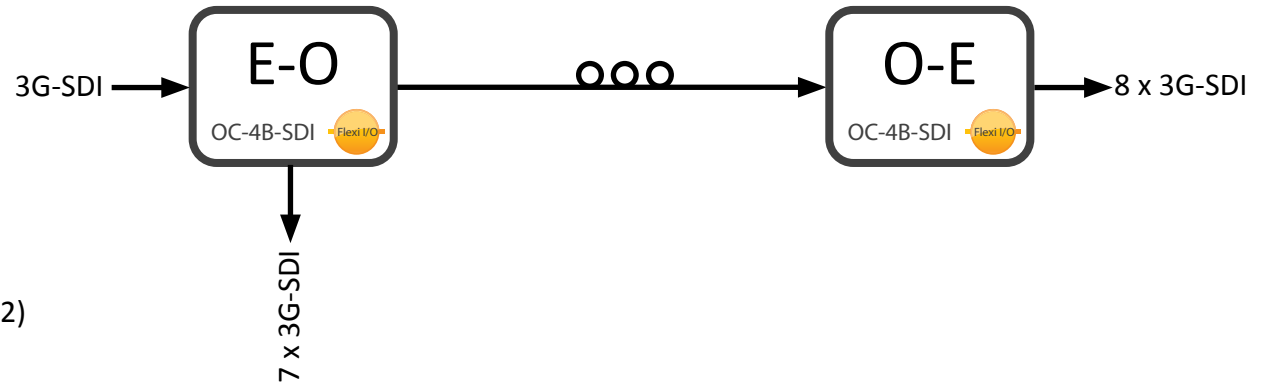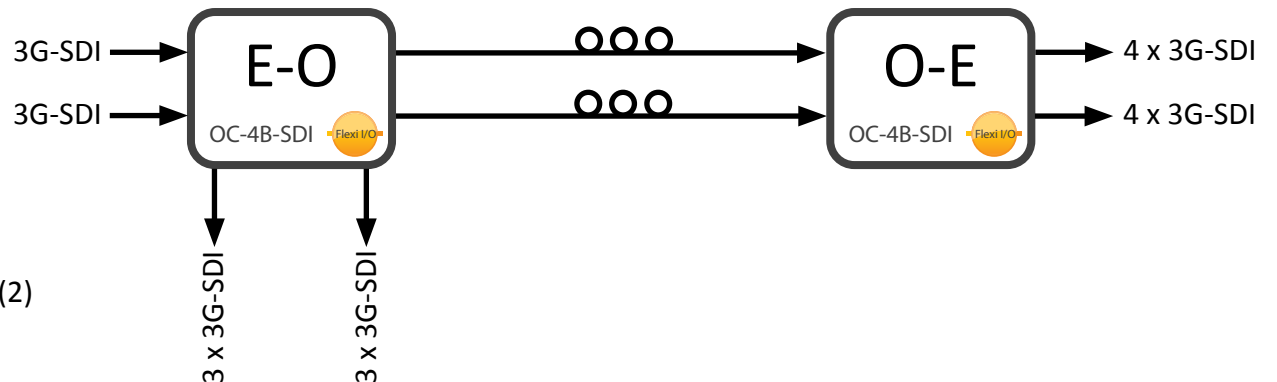
7 x 3G-SDI

# 2 channel Optical video link with loop through input & Distributed 2 x (4 x 3G-SDI) o/p

2 channel video solution for simple links between remote locations, ie: Camera to truck, studio to central technical room. Upgradable from (3 or 4) channel with just an SFP purchase.

## System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10581 TX Dual Channel SFP
1 x 10594 RX Dual Channel SFP

3G-SDI →
3G-SDI → **E-O** OC-4B-SDI Flexi I/O → → **O-E** OC-4B-SDI Flexi I/O → 4 x 3G-SDI
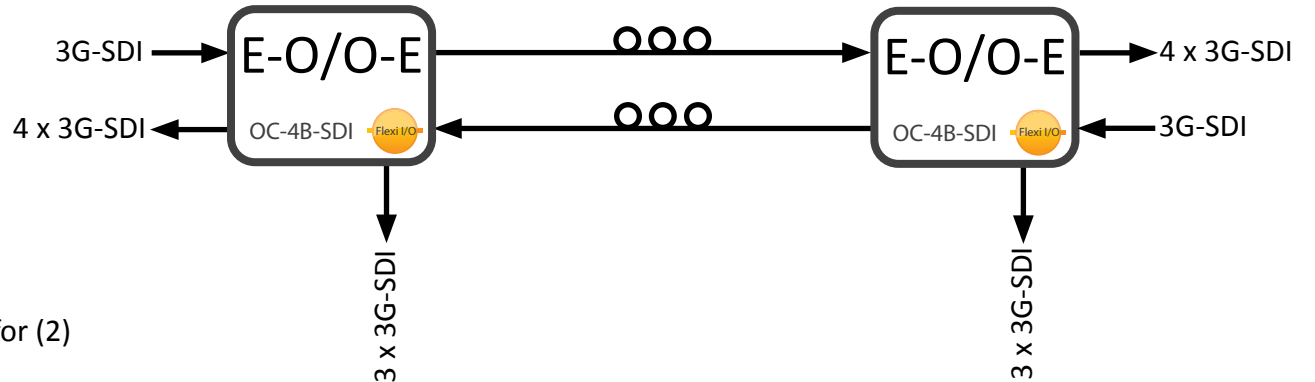→ 4 x 3G-SDI

3 x 3G-SDI    3 x 3G-SDI

# 1 channel RX + 1 channel TX Optical video link with loop through inputs & distributed (4 x 3G-SDI) outputs

2 channel application where remote monitoring is needed. Each channel also give (4) 3G-SDI outputs per channel at the RX end and (3) loop though outputs for distribution or monitoring. The system can be easily upgraded to (3 or 4) channel simply by plugging in a new SFP.

### System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10580 TX single Channel SFP
1 x 10593 RX single Channel SFP

3G-SDI → **E-O/O-E** OC-4B-SDI Flexi I/O → 4 x 3G-SDI
4 x 3G-SDI ← **E-O/O-E** OC-4B-SDI Flexi I/O ← 3G-SDI
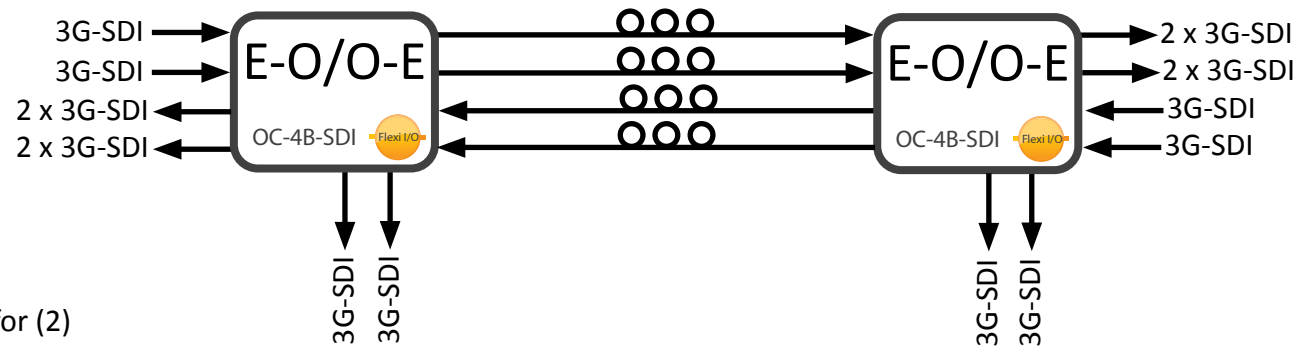3 x 3G-SDI
3 x 3G-SDI

# 2 channel RX + 2 channel TX Optical video link with loop through inputs & distributed 2 x 3G-SDI outputs

This system gives users 2 channels in each direction on 4 fibers. Each RX channels has (2) 3G-SDI outputs and (1) loop through for each input channel. System can be upgraded to a CWDM system by purchasing the (10638 & 10639 CWDM modules and appropriate CWDM SFP's at a later date.

### System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10580 TX single Channel SFP
1 x 10593 RX single Channel SFP

3G-SDI → **E-O/O-E** OC-4B-SDI Flexi I/O → 2 x 3G-SDI
3G-SDI → → 2 x 3G-SDI
2 x 3G-SDI ← ← 3G-SDI
2 x 3G-SDI ← ← 3G-SDI
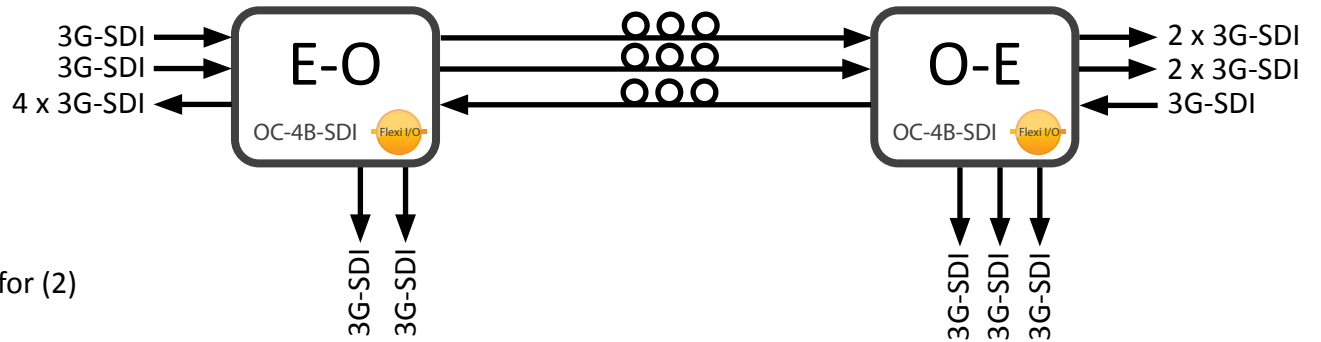3G-SDI 3G-SDI
3G-SDI 3G-SDI

# 3 channel Optical video link with loop through input & Distributed (2 x 3G-SDI) & (4 x 3G-SDI) o/p

This system provides 2 channels TX and 1 channel RX, in total 3 channel. The single channel SFP can be replaced at both ends to provide an extra optical channel if needed without any difficulty with the Auto SFP functionality and Flexi I/O technology that the OC-4B-SDI possesses. This configuration can be used for delivering (2) channels to a TX tower and receiving a confirmation signal back to the communications center.

## System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10581  TX Dual Channel SFP
1 x 10593  RX Single Channel SFP
1  x 10596  RX Dual Channel SFP
1 x 10580  TX Single Channel SFP



E-O — OC-4B-SDI — Flexi I/O
O-E — OC-4B-SDI — Flexi I/O
3G-SDI / 3G-SDI / 4 x 3G-SDI (inputs)
2 x 3G-SDI / 2 x 3G-SDI / 3G-SDI (outputs)
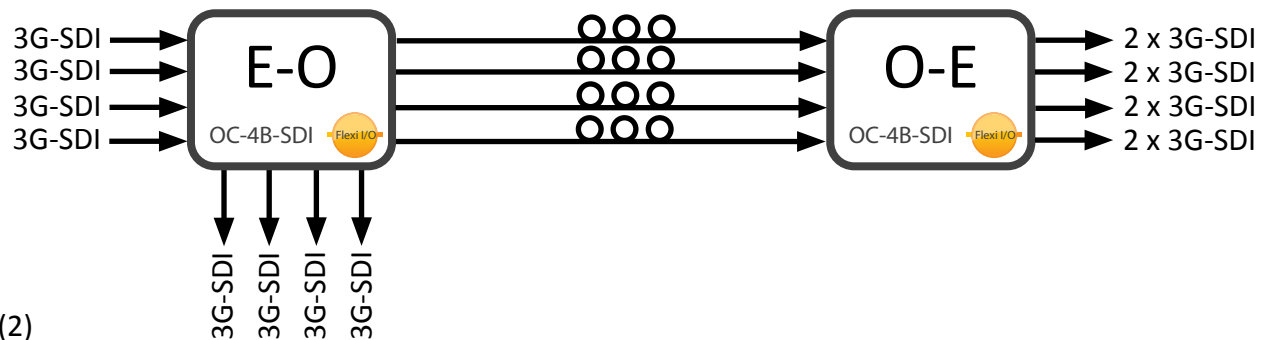3G-SDI / 3G-SDI (E-O bottom)
3G-SDI / 3G-SDI / 3G-SDI (O-E bottom)

# 4 channel Optical video link with loop through input & Distributed 4 x (2 x 3G-SDI) o/p

This system is great for mass Optical video distribution with an easy upgrade path to 16 channels within the (1) miniHUB frame. Make your backbone video distribution system future proof against ongoing video bit rates as they increase and cooper distances fall. Connect multiple video routers together over distances that coax can't achieve.

## System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
2 x 10581  TX Dual Channel SFP
2 x 10596  RX Dual Channel SFP



E-O — OC-4B-SDI — Flexi I/O
O-E — OC-4B-SDI — Flexi I/O
3G-SDI / 3G-SDI / 3G-SDI / 3G-SDI (inputs)
2 x 3G-SDI / 2 x 3G-SDI / 2 x 3G-SDI / 2 x 3G-SDI (outputs)
3G-SDI / 3G-SDI / 3G-SDI / 3G-SDI (E-O bottom)

# 2 Channel TX WDM Optical video link with loop through inputs & distributed (4 x 3G-SDI) outputs

2 channel application WDM system. This system is more cost effective when you only need two channels per fiber rather then going to a CWDM system.
Each channel also give (4) 3G-SDI outputs per channel at the RX end and (3) loop though outputs for distribution or monitoring.

## System components:

2 x 10556 miniHUB Frame with (1) power supply *option for (2)
2 x 10561 OC-4B-SDI card
1 x 10584 TX Dual Channel SFP  (1550-1310)
1 x 10594 RX Dual Channel SFP
2 x WDM multiplexers
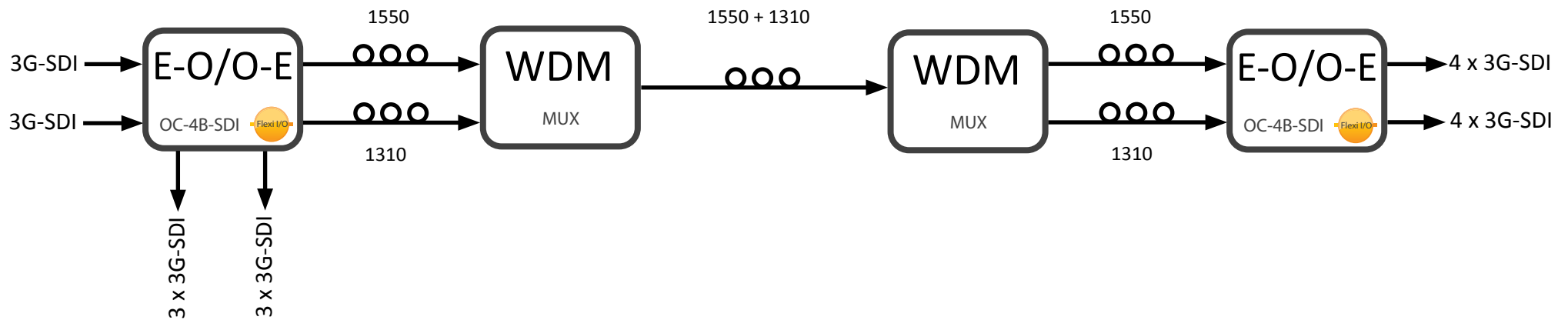
# 16 channel Optical video link with loop through input & Distributed 4 x (2 x 3G-SDI o/p (16 channel TX)

This system can be used for mass video distribution from building to building or just to extend the fresh hold of Electrical 3G-SDI. This system is housed in two miniHUB frames (1 per end) and is extremely compact and cost effective for mass video distribution. If the system needs to have bidirectional functionality then it is as simple as swapping over the SFP's at each end and creating for example a 14 transmit and 2 receive system in a matter of minutes.
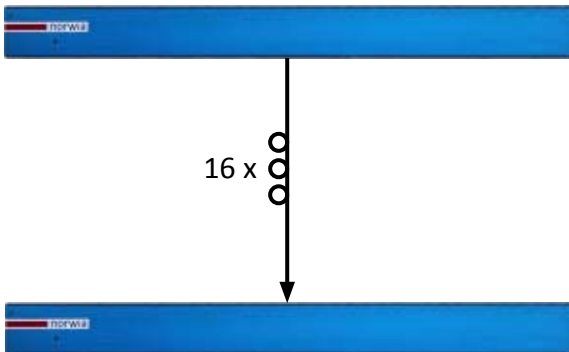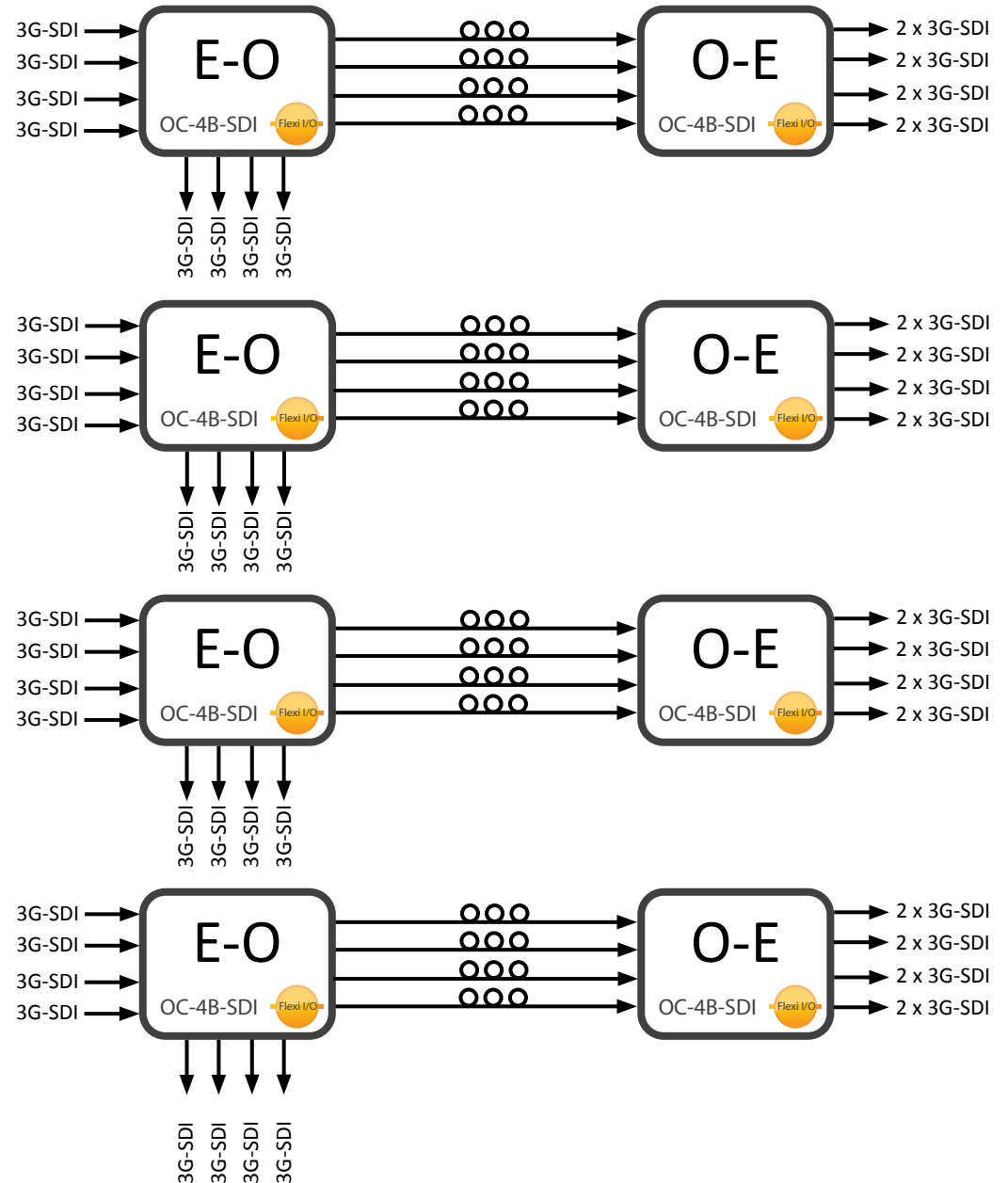
## System components:

**Transmit site**
1 x 10556 miniHUB Frame with (1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
8 x 10581 2 x TX Channel SFP

**Receive site**
1 x 10556 miniHUB Frame with (1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
8 x 10596 2 x RX channel SFP

# 16 channel Optical video link with loop through input & Distributed 4 x (2 x 3G-SDI) o/p
## (12 channel TX + 4 channel RX)

The flexibility of the miniHUB system allows for bi-directional distribution as in the example below. This system can be used when the user needs to send a lot of program material in one direction and have several return channel for prof or monitoring. This system can be used for mass video distribution from building to building or just to extend the fresh hold of Electrical 3G-SDI. This system is housed in two miniHUB frames (1 per end).
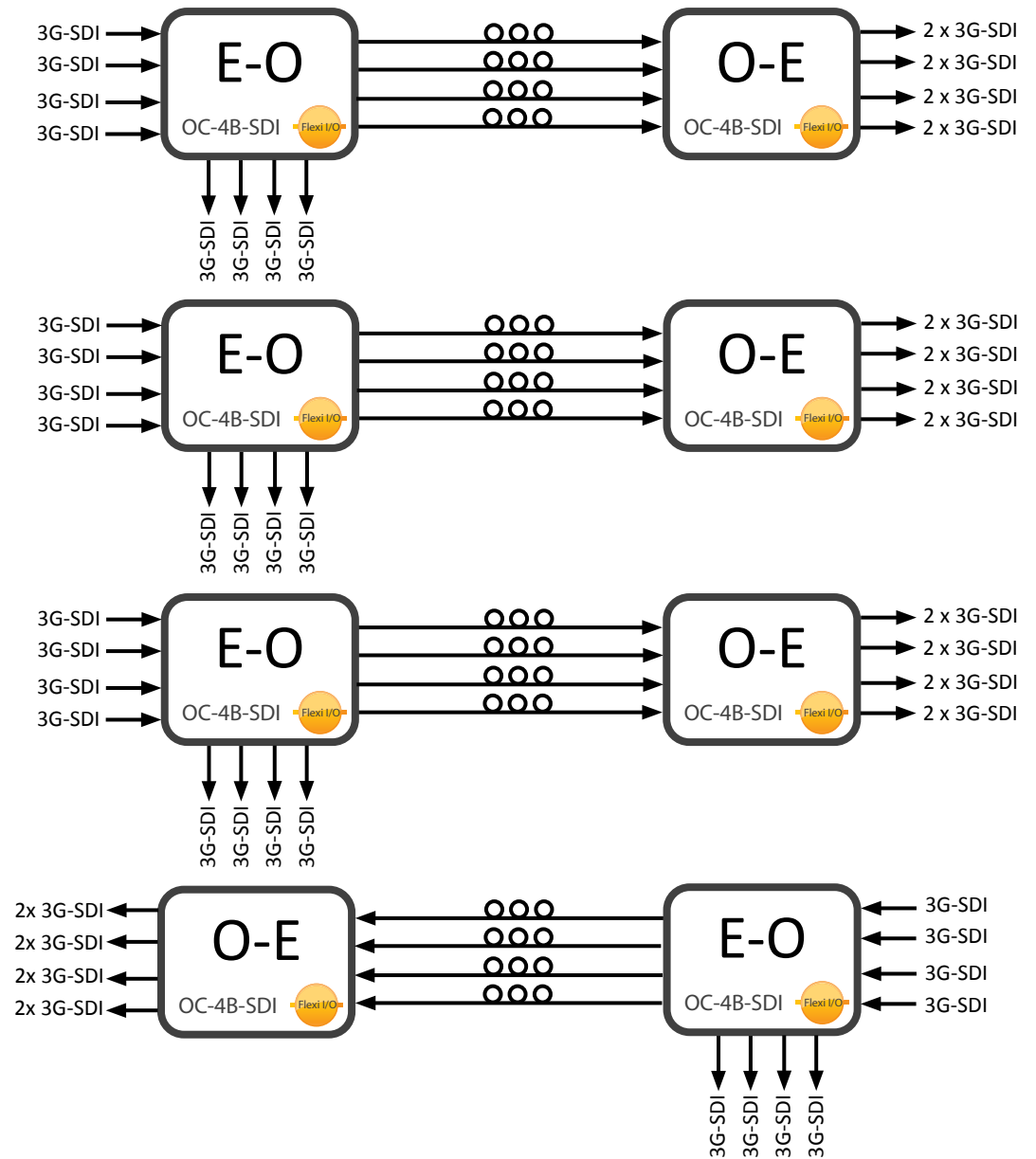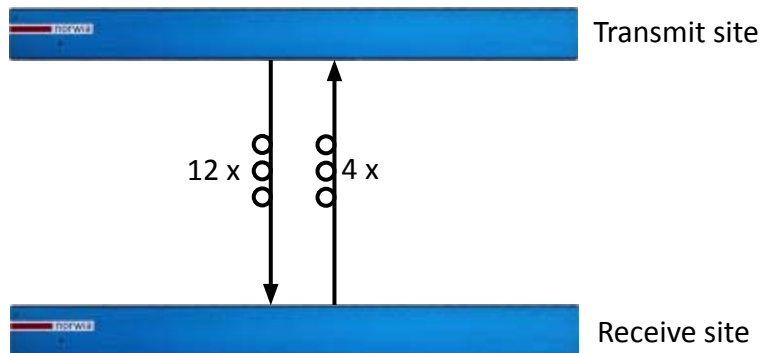
## System components:

**Transmit site**
1 x 10556 miniHUB Frame with (1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
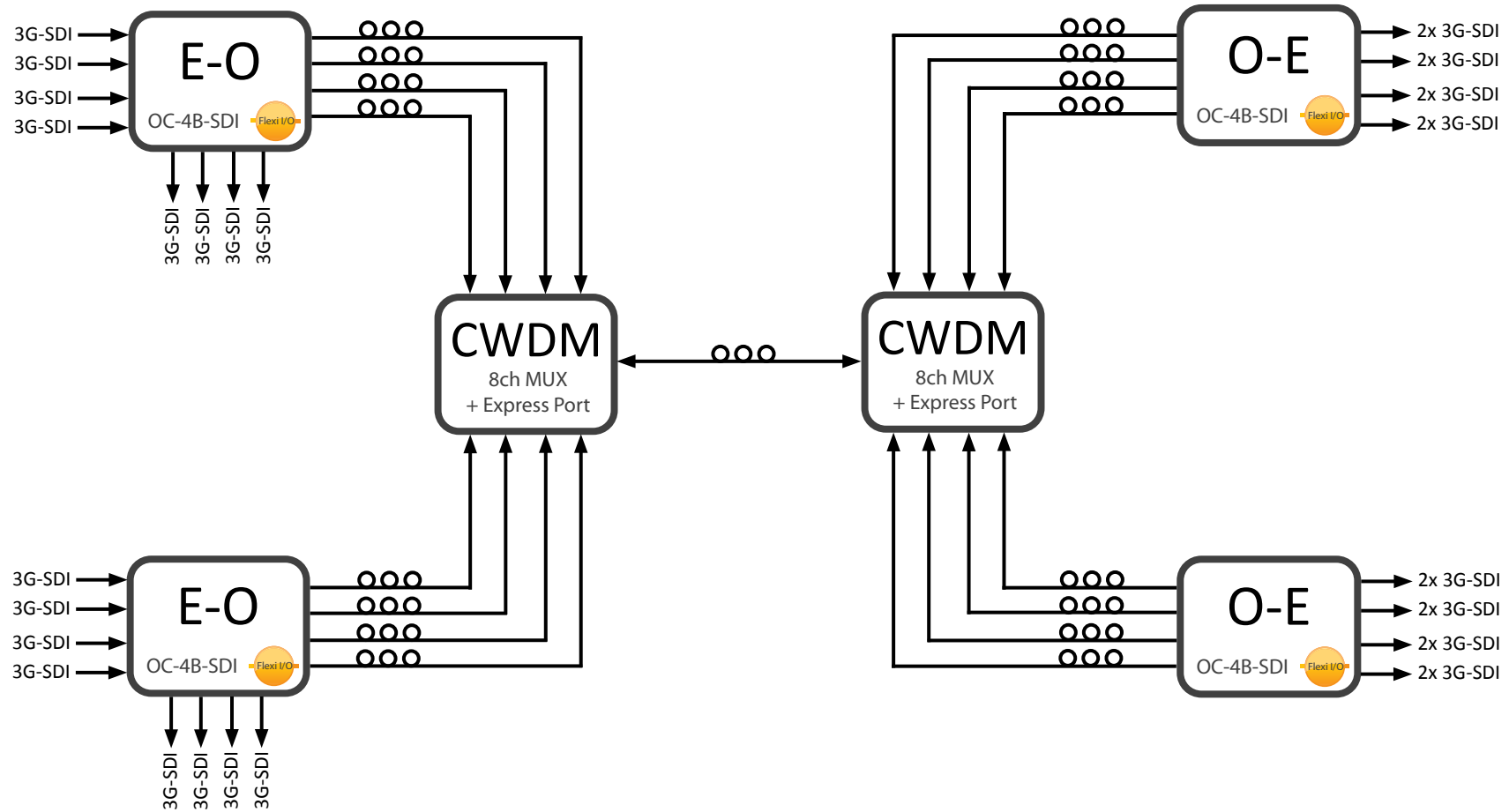6 x 10581 2 x TX Channel SFP
2 x 10596 2 x RX channel SFP

**Receive site**
1 x 10556 miniHUB Frame with (1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
6 x 10596 2 x RX channel SFP
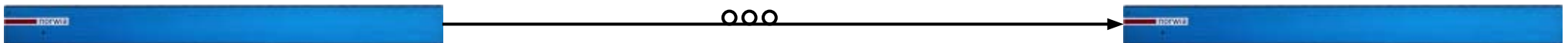2 x 10581 2 x TX Channel SFP

# 8 channel CWDM Optical video link with loop through input & Distributed 4 x ( 2 x 3G-SDI) o/p

This system can be used for mass video distribution from building to building or just to extend the fresh hold of Electrical 3G-SDI. This system is housed in two miniHUB frames (1 per end) and is extremely compact and cost effective for mass video distribution. If the system needs to have bidirectional functionality then it is as simple as swapping over the SFP's at each end and creating for example a 14 transmit and 2 receive system in a matter of minutes.

# 16 channel CWDM Optical video link with loop through input & Distributed 4 x (2 x 3G-SDI) o/p

When you have the use of only one fiber over a large distance, then a CWDM system can be used for mass video distribution from building to building or between sporting arena's to broadcaster or outside broadcaster. This system is housed in two miniHUB frames (1 per end) and is extremely compact and cost effective for mass video distribution. If the system needs to have bidirectional functionality then it is as simple as swapping over the SFP's at each end and creating for example a 14 transmit and 2 receive system in a matter of minutes.
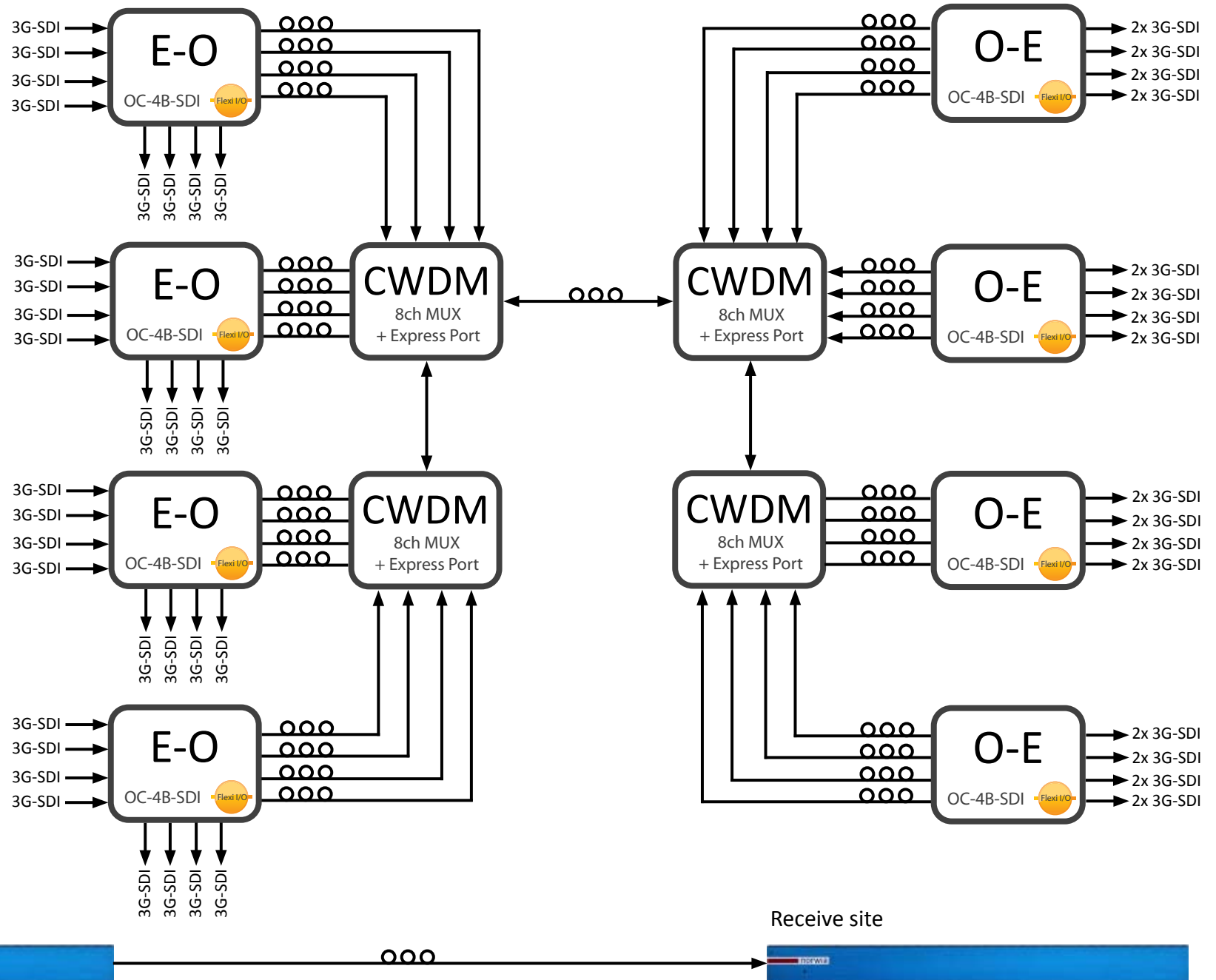
## System components:

**Transmit site**
1 x 10556 miniHUB Frame with
(1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
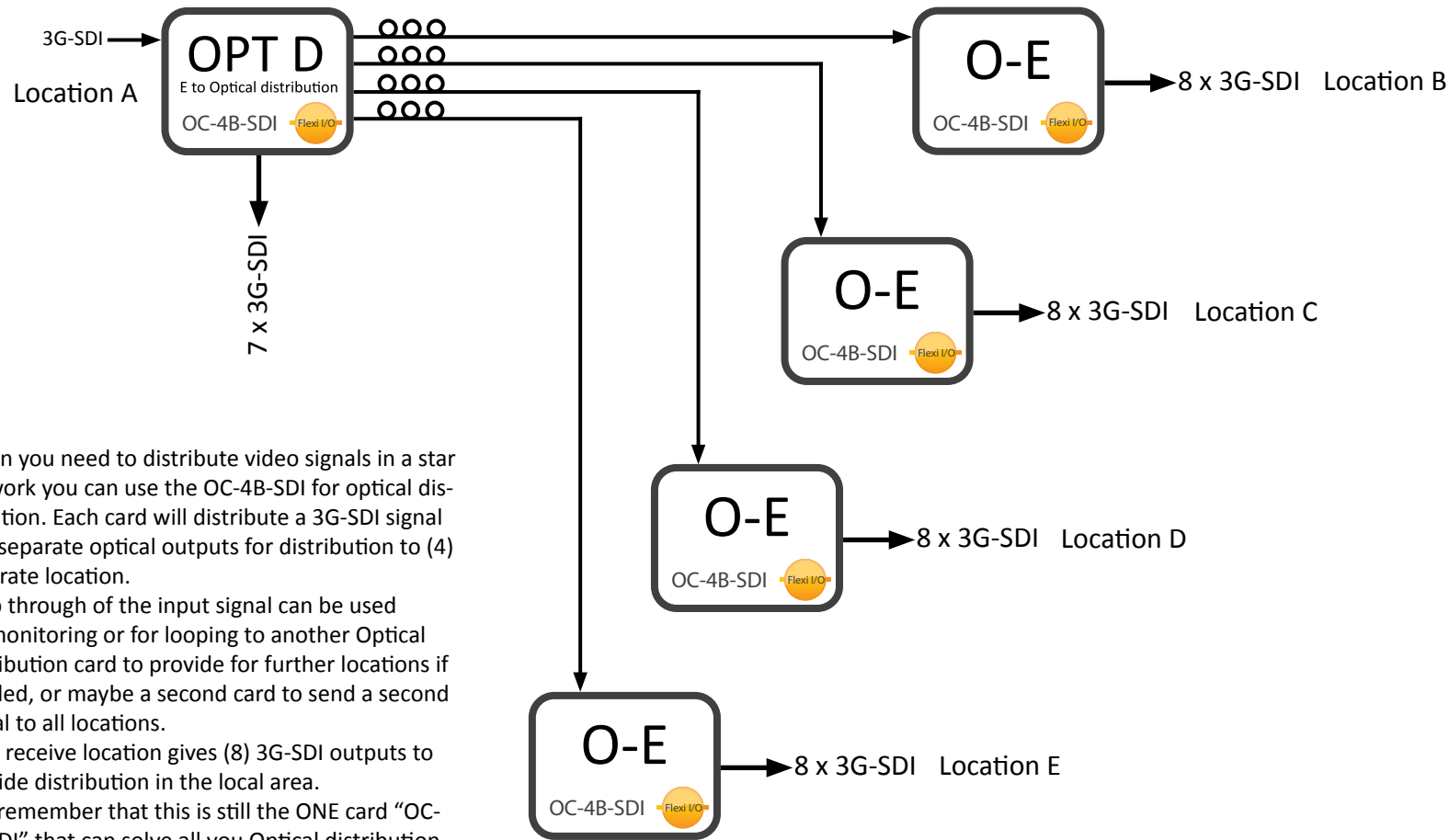2 x 10638 CWDM MUX
8 x CWDM Dual TX Channel SFP

**Receive site**
1 x 10556 miniHUB Frame with
(1) power supply *option for (2)
4 x 10561 OC-4B-SDI card
2 x 10639 CWDM MUX
8 x CWDM Dual RX channel SFP



Transmit site

Receive site

# Mass Optical video distribution

3G-SDI → **OPT D**
E to Optical distribution

Location A

OC-4B-SDI    Flexi I/O

7 x 3G-SDI

**O-E**
OC-4B-SDI    Flexi I/O
→ 8 x 3G-SDI    Location B

**O-E**
OC-4B-SDI    Flexi I/O
→ 8 x 3G-SDI    Location C

**O-E**
OC-4B-SDI    Flexi I/O
→ 8 x 3G-SDI    Location D

**O-E**
OC-4B-SDI    Flexi I/O
→ 8 x 3G-SDI    Location E

When you need to distribute video signals in a star network you can use the OC-4B-SDI for optical distribution. Each card will distribute a 3G-SDI signal to 4 separate optical outputs for distribution to (4) separate location.
Loop through of the input signal can be used for monitoring or for looping to another Optical distribution card to provide for further locations if needed, or maybe a second card to send a second signal to all locations.
Each receive location gives (8) 3G-SDI outputs to provide distribution in the local area.
Just remember that this is still the ONE card "OC-4B-SDI" that can solve all you Optical distribution challengers. This one card solution keeps your inventory and spares cost to a minimum while keeping your cost of ownership under control.
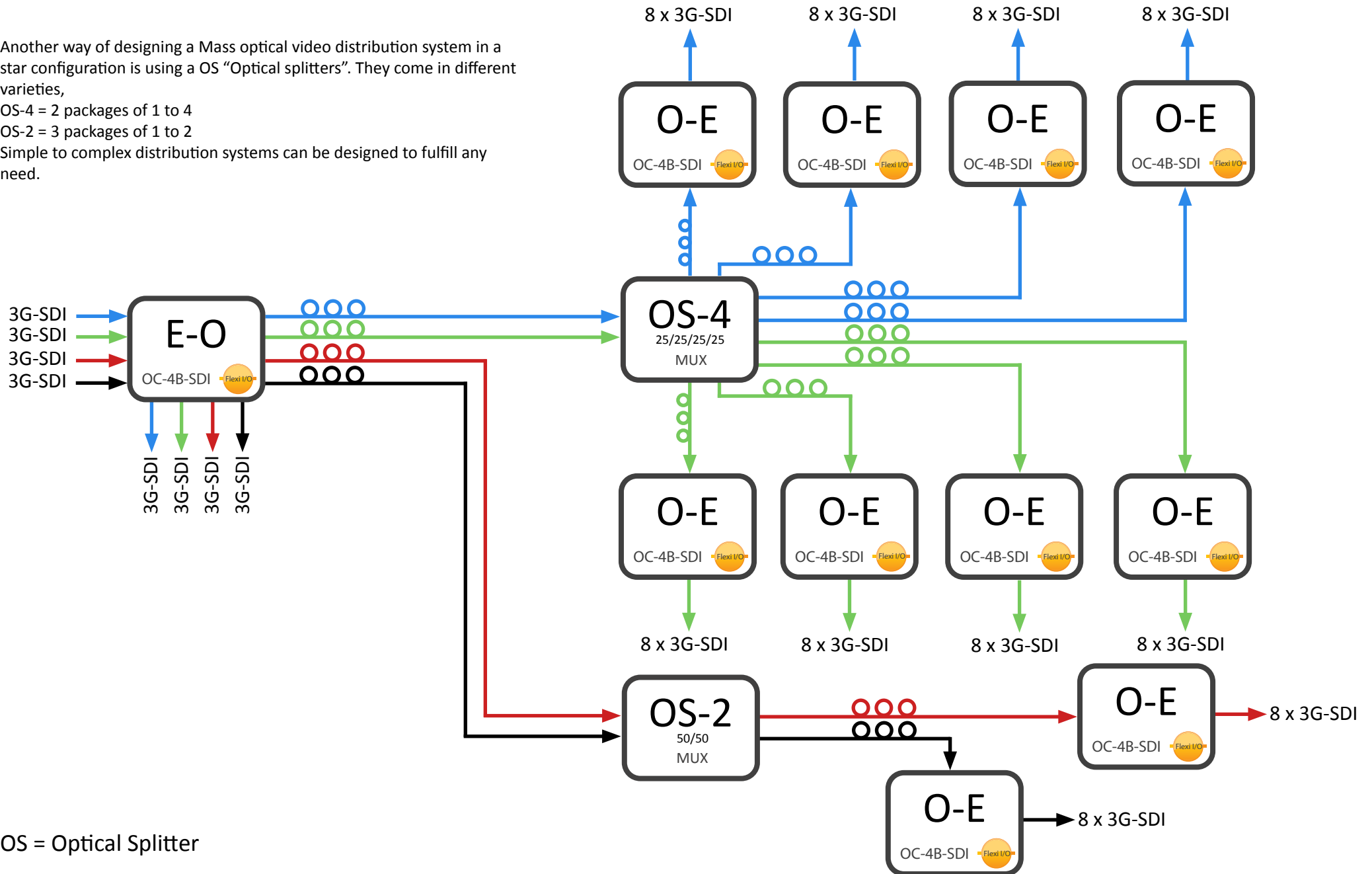
## System components:

**Transmit site**
1 x 10556 miniHUB Frame with
(1) power supply *option for (2)
1 x 10561 OC-4B-SDI card
2 x 10581 TX Dual channel

**Each Receive site**
1 x 10556 miniHUB Frame with
(1) power supply *option for (2)
1 x 10561 OC-4B-SDI card
1 x 10593 RX Single channel

# Mass Optical video distribution using OS (Optical Splitter)

Another way of designing a Mass optical video distribution system in a star configuration is using a OS "Optical splitters". They come in different varieties,
OS-4 = 2 packages of 1 to 4
OS-2 = 3 packages of 1 to 2
Simple to complex distribution systems can be designed to fulfill any need.

8 x 3G-SDI  8 x 3G-SDI  8 x 3G-SDI  8 x 3G-SDI

**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O

3G-SDI
3G-SDI
3G-SDI
3G-SDI

**E-O** OC-4B-SDI Flexi I/O

3G-SDI  3G-SDI  3G-SDI  3G-SDI

**OS-4** 25/25/25/25 MUX

**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O
**O-E** OC-4B-SDI Flexi I/O

8 x 3G-SDI  8 x 3G-SDI  8 x 3G-SDI  8 x 3G-SDI

**OS-2** 50/50 MUX

**O-E** OC-4B-SDI Flexi I/O → 8 x 3G-SDI

**O-E** OC-4B-SDI Flexi I/O → 8 x 3G-SDI
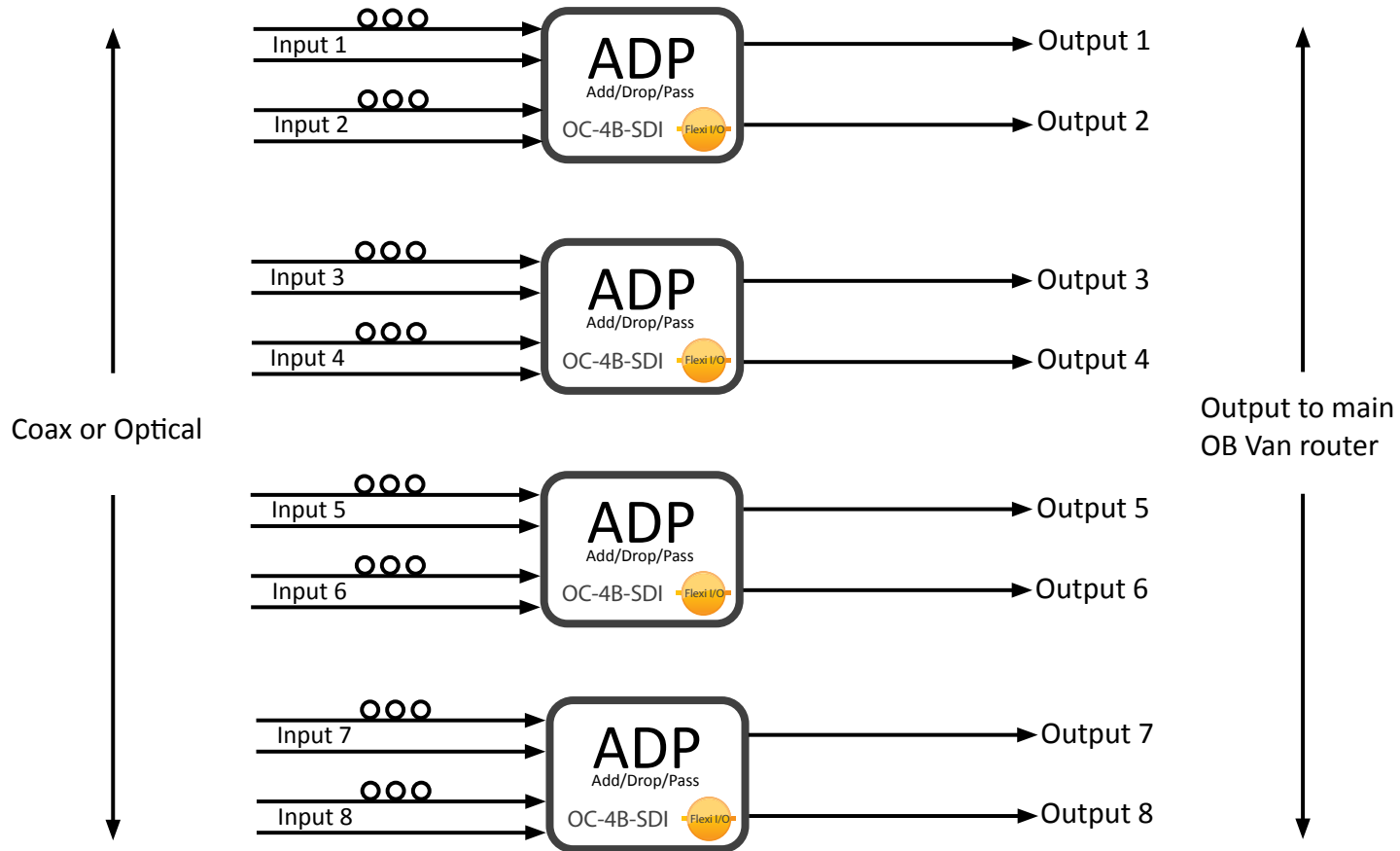
OS = Optical Splitter

# Dual Transponder optical video distribution with 4 x 3G-SDI o/p per signal, per site
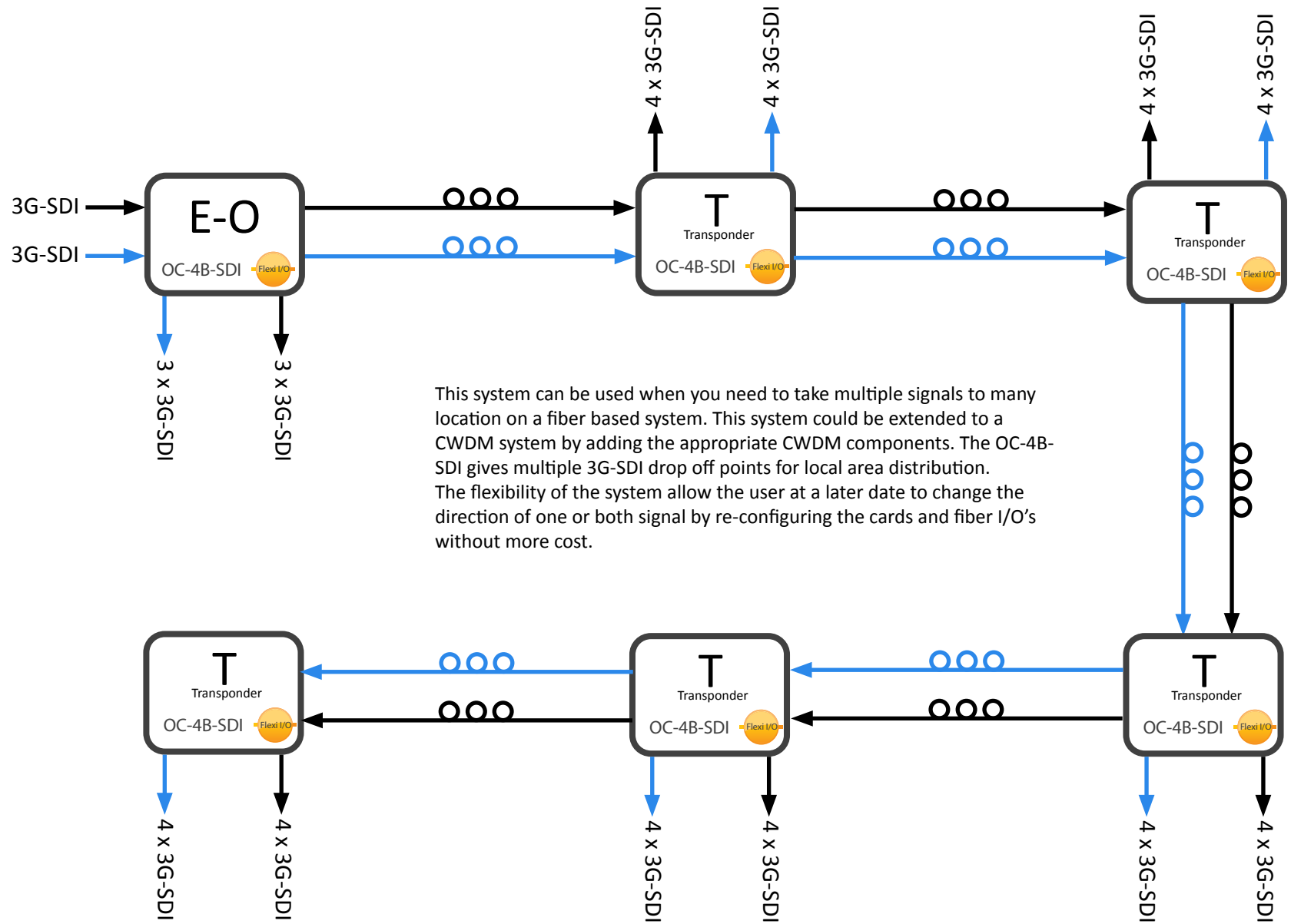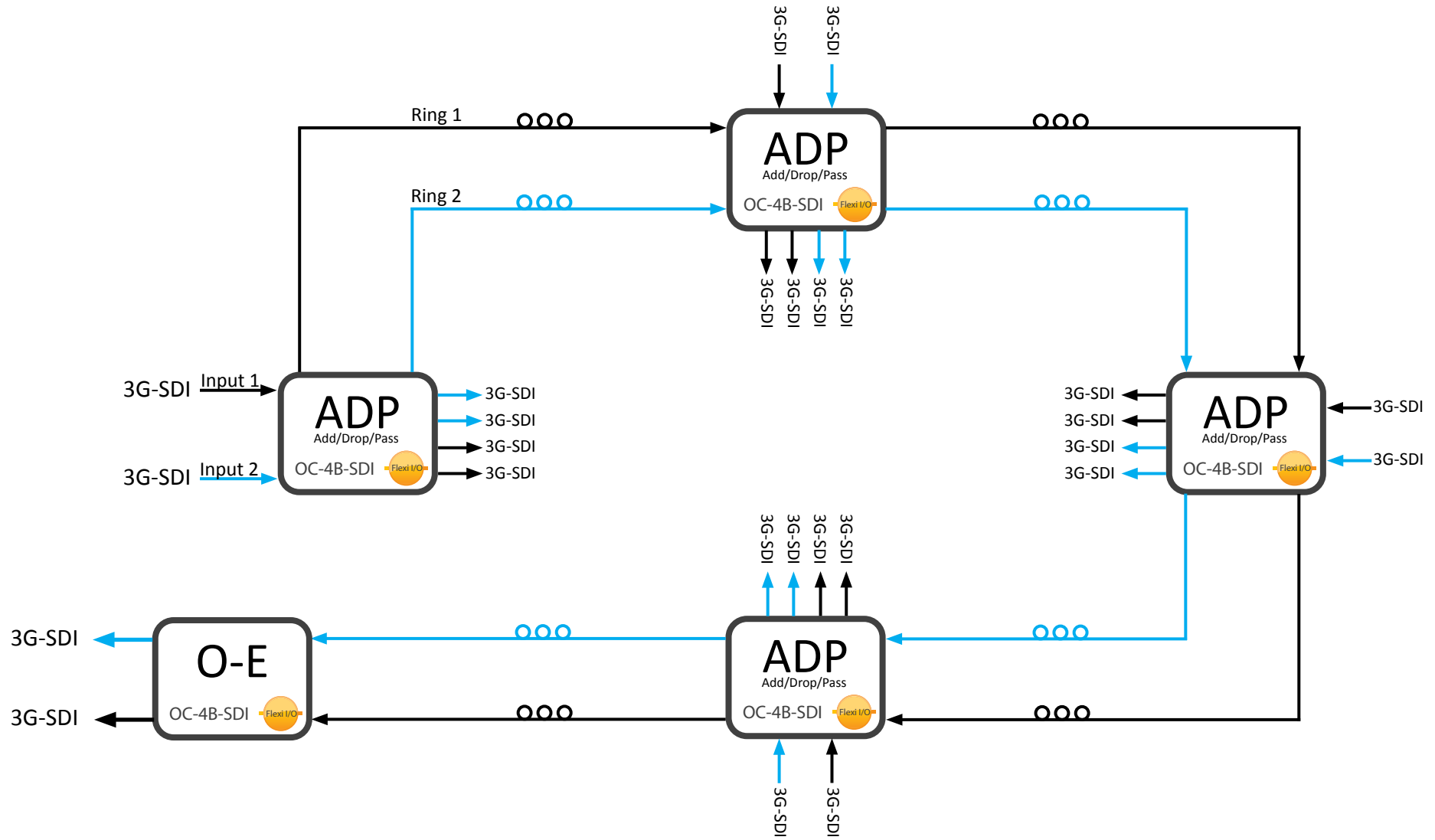
This system can be used when you need to take multiple signals to many location on a fiber based system. This system could be extended to a CWDM system by adding the appropriate CWDM components. The OC-4B-SDI gives multiple 3G-SDI drop off points for local area distribution.

The flexibility of the system allow the user at a later date to change the direction of one or both signal by re-configuring the cards and fiber I/O's without more cost.

# Automatic ADP application - OB Truck input select

The Automatic ADP function will automatically route the signal once an input cable has been connected to the input side of the ADP inputs, this is either Coax or Fiber. The choice is usually made depending on the distance the signal is away from the truck. Coax for short distance and Fiber for long distance.

Input 1
Input 2

**ADP**
Add/Drop/Pass
OC-4B-SDI · Flexi I/O

Output 1
Output 2

Input 3
Input 4

**ADP**
Add/Drop/Pass
OC-4B-SDI · Flexi I/O

Output 3
Output 4

Coax or Optical

Input 5
Input 6

**ADP**
Add/Drop/Pass
OC-4B-SDI · Flexi I/O

Output 5
Output 6

Output to main
OB Van router

Input 7
Input 8

**ADP**
Add/Drop/Pass
OC-4B-SDI · Flexi I/O

Output 7
Output 8

# Automatic ADP application - ring structure

# Ethernet application with 3G-SDI Send and Returen channels
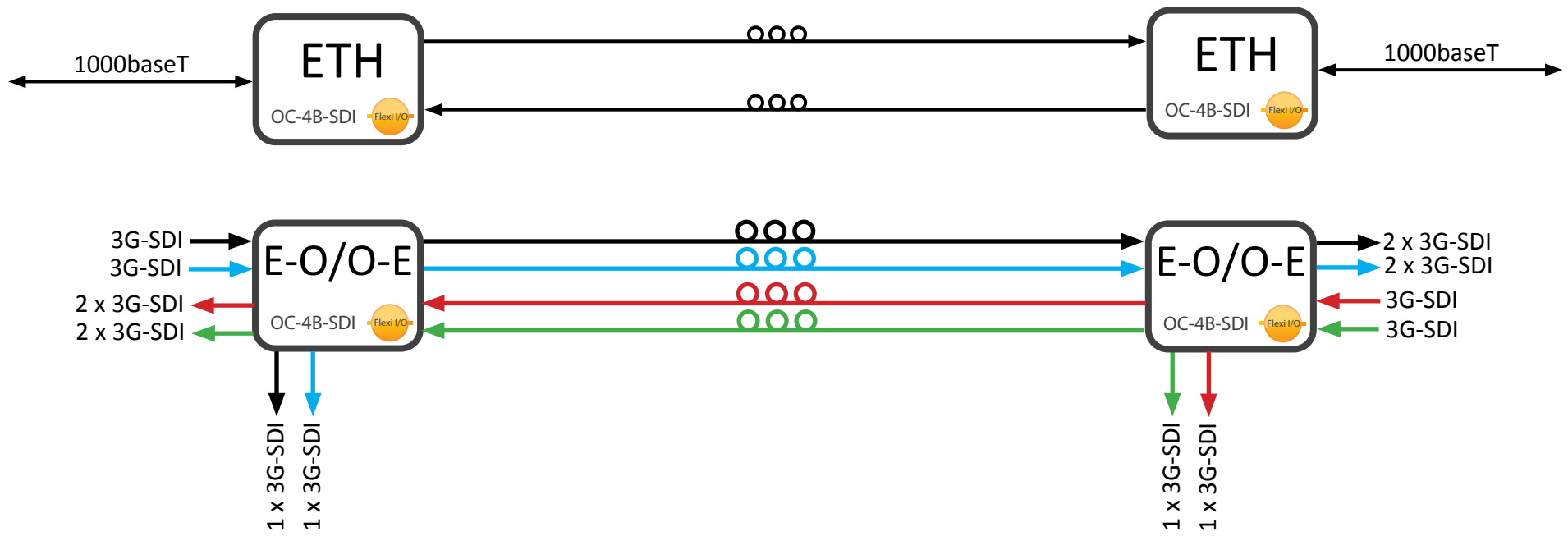
# norwia

Norwia is a fresh breath of air and unlike all other predecessors will bring innovation and cutting edge thinking to the broadcast optical distribution domain.

*Competitive technology edge*

*Key industry personnel with the right stuff!*

*Better business philosophies*

*Customer centric ideologies*

These are our core fundamental and together this forms the value statement, giving value!

Vision statement

Norwia will be the best for Optical Distribution products in the sense of technical innovation, value for investment and customer relations.

… giving value

# norwia

norwia.no