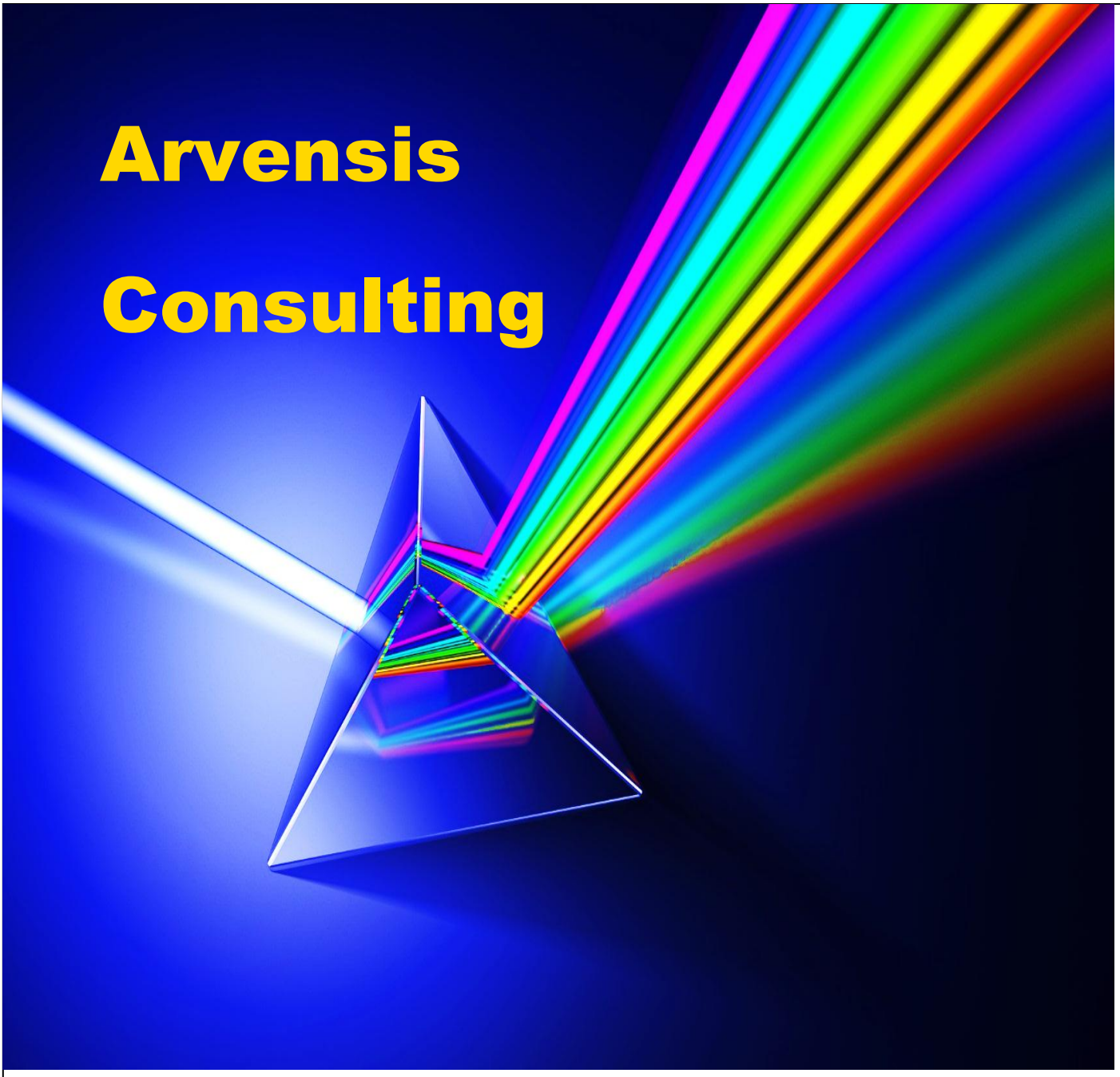


PASSIVE CWDM

USER CASES

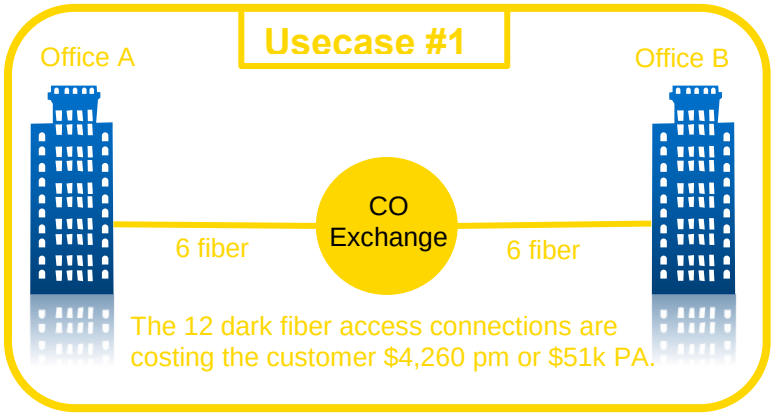
The immediate cost benefits of Passive CWDM are substantial. The added benefits are also worthy of a mention and this review will highlight the savings that can be realised as well as the additional synergies that are inherent of a passive solution. The passive nature means no additional power consumption or cooling of the equipment is required

PASSIVE CWDM

USER CASES

USECASE #1: CUSTOMER WANTS TO RECUCE THEIR INTERCITY OFFICE-OFFICE CONNECTIVITY COSTS.

A customer has 6 dark fiber connections between their 2 offices in the CBD using the standard UFB model for fiber connectivity. Each fiber connection is connected via the local Central Office (CO). The customer is looking for ways to reduce monthly costs.



Solution: The customer can retain a single dark fiber service between their 2 office premises and relinquish the remaining 5 services to realise significant savings once they install a CWDM solution. In this instance an 8# passive CWDM solution would be ideal as that would allow for 2 spare channels for future.

Outcome: The ongoing savings would be $3,550 pm or $42,600 pa

Option A: The customer can purchase their own CWDM optical transceivers from their relevant OEM suppliers. In this instance the cost to the customer would only be the passive CWDM devises at $2k. The savings expected would be $3,550 pm or $42,600 pa and break-even after 1 month. Note: This option does not take into account the cost of the transceivers the customer will source themselves at the OEM price from their vendors.

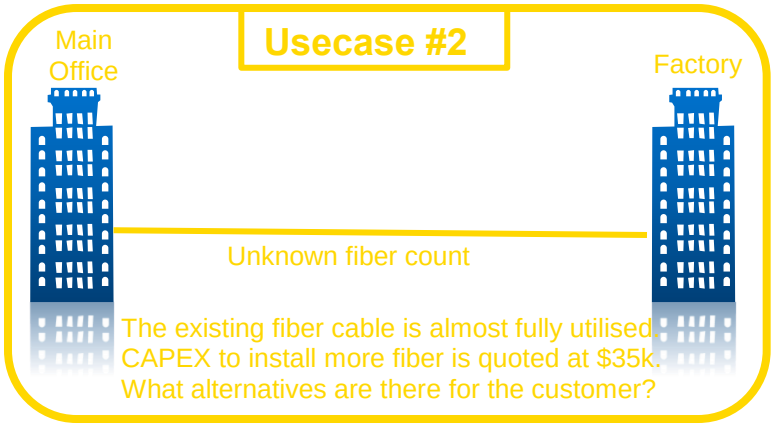
Option B 1Gb Solution: 6 x 1Gb turnkey solution with all 12x CWDM transceivers, patch cables and passive CWDM devices supplied would cost the customer a total of $4,5k. The year 1 savings would be $38k and no new OPEX costs to use the additional 2 space channels other the cost of optical transceivers. Payback within 2 months.

Option C 10Gb Solution: 6x 10Gb turnkey solution with all 12x CWDM transceivers, patch cables and passive CWDM devices supplied would cost the customer a total of $13.5k. The year 1 savings would be $30k and no new OPEX costs to use the additional 2 space channels other the cost of optical transceivers. Payback within 8 months.

Conclusion: A turnkey solution for a passive 8 channel CWDM solution will hugely benefit this customer opportunity and also allow for an additional 2 channels for future growth while still realising a year on year OPEX saving of $42.600. The customer can upgrade any of the 1Gb interfaces at any time by changing out the transceivers.

USECASE #2: CUSTOMER NEEDS TO INCREASE FIBRE CAPACITY TO ONE OF THEIR MANUFACTURING PLANTS.

A customer with a large manufacturing plant is running out of fiber between their main office and one of their plant facilities on the same property. A 3rd party quote to install additional 24 fiber cable capacity has come in at $35k for build, installation and testing. The customer is looking for a way to delay CAPEX spend and requires several more connections as a result of growth.



Solution: The customer can use one of their spare fibers to deploy a passive CWDM solution between the main office and the plant facility. In this instance an 8# passive CWDM solution would be ideal as that would allow for 8 spare channels for future growth as well as the use of the remaining spare fibers.

Outcome: The customer has low cost options available to them that will enable the delay CAPEX spend by 1-2 years or longer if the fiber assets are properly managed using other technologies.

Option A: The customer can purchase their own CWDM optical transceivers from their relevant equipment suppliers. In this instance the cost to the customer would only be the passive CWDM devises at $2k and the cost of their vendor OEM CWDM transceivers at the time when required

Option B: The customer may prefer to take a proactive approach to free up additional fiber count at the time of deploying a CWDM solution in order to have the spare fibers ready for use when needed. The best way forward for the customer would be a turnkey solution so as to migrate all 8 their 1Gb services over to the CWDM solution as this is the lowest cost outlay of $4.5k that is required.

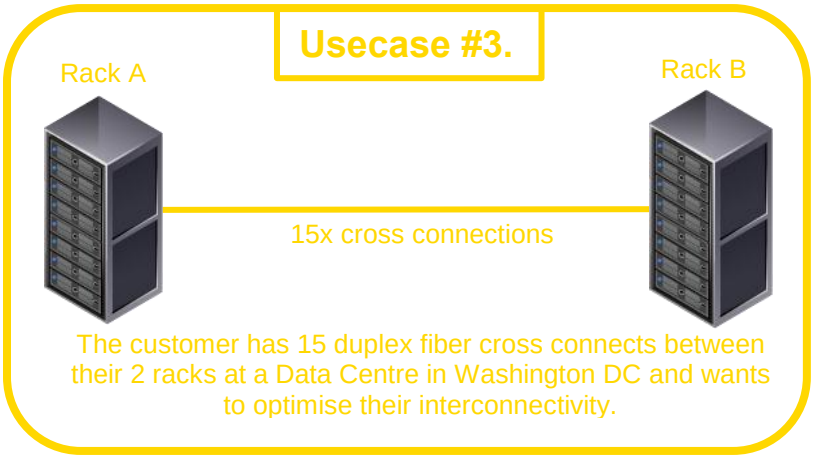
Option C: A mix of connectivity may be required for the customer's needs. In this case it is assumed that there would be 4x 1Gb and 4x 10Gb interfaces required. A turnkey solution in this instance would see the customer laying out $8.5k for a CWDM solution. There may not be sufficient motivation for this unless the delay in $35k CAPEX spend is sufficiently warranted.

Option D: The customer may consider the use of Bidirectional transceivers in order to reduce their current fiber usage by as much as 50%. The use of a Bidirectional transceiver will all the customer to migrate from using a fiber pair to single fiber working thus releasing 1 fiber strand in each instance. Costs will vary from $75-$375 depending on transceiver type, line rate and optical power

Conclusion: Further discussion with the customer is needed to determine the "best fit" for their situation. All of the options will allow the customer to delay the CAPEX spend as well the ability to reuse the equipment in the future if needed. The use of an 18 channel may result for a cable installation to be completely unnecessary. An interim solution would be to consider using an 8 channel CWDM solution and then adding another solution in a few years when it's needed.

USECASE #3: CUSTOMER WANTS TO REDUCE DATA CENTRE INTERCONNECT COSTS BETWEEN THEIR 2 EQUIPMENT RACKS.

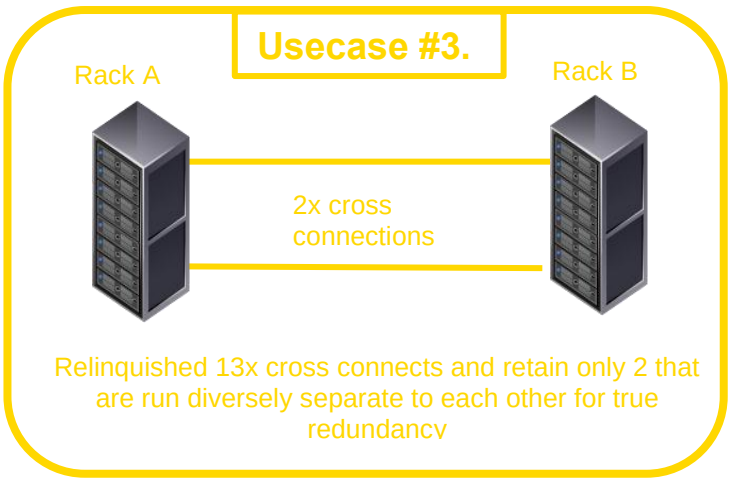
A customer has 2 racks located at a Washington DC Data Centre and has noticed that their data center fees are high. An analysis of their monthly invoice has identified the high cost being due to the multitude of interconnects in place and would like to reduce these monthly costs. Each cross connect rental is US$350pm



Solution: The customer is paying US$5,250 (NZ$7,7k) pm or US$63k (NZ$92,6k) PA. The customer can retain 2 interconnects that are diversely separated from each other for redundancy between the 2 racks. Deploying 2x 8 channels CWDM solutions, one solution per interconnect route using a single fiber only. Each route will retain a spare fiber for future growth.

Outcome: The ongoing savings would be US$4,550 (NZ$6.7k) pm or US$54,600 (NZ$80.4k) pa with future growth options available

Option A: The customer can purchase their own CWDM optical transceivers from their relevant equipment suppliers. In this instance the cost to the customer would only be the passive CWDM devices at NZ$4.5k. The savings expected would be NZ$6,7k pm or NZ$80.4k pa and break-even after 1 month. Note: This option does not take into account the cost of the transceivers as the customer will source themselves at the OEM price from their vendors.



Option B 1Gb Solution: 15 x 1Gb turnkey solution with all 30x CWDM transceivers, patch cables and passive CWDM devices supplied would cost the customer a total of NZ$10,4k. The year 1 savings would be NZ$70k and no new OPEX costs to use the additional 2 space fibers when required. The CWDM solution would provide the customer with 1 spare channel for growth and the ability to add another 2 CWDM 8 channel devices when growth drives the need for additional channels 2. Payback in 2 months.

Option C 10Gb Solution: 15 x 10Gb turnkey solution with all 30x CWDM transceivers, patch cables and passive CWDM devices supplied would cost the customer a total of NZ$39k. The year 1 savings would be NZ$31k and no new OPEX costs to use the additional 2 space fibers when required. The CWDM solution would provide the customer with 1 spare channel for growth and the ability to add

another 2 CWDM 8 channel devices when growth drives the need for additional channels 2 months. Payback in 6 months.

Conclusion: A turnkey solution for a 2 passive 8 channel CWDM solutions will hugely benefit this customer opportunity and also allow for an additional 1 channel spare for future growth with the ability to add another 2 CWDM devices in the spare chassis slots and connect to the 2 spare fibers while still realising a year on year OPEX saving of NZ$80.400.

Additional savings may be possible with further investigation into how the cross connects are provided by the Data Center.

ADVANTAGES OF ARVENSIS CONSULTING:

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We only use products from quality manufacturers that have proven their worth. We don't source from the cheapest but from manufacturers we have trusted and collaborated with over years.

GUARANTEE

Everything we supply comes with a 12 month guarantee from patch cables to electronics. Our faith in our manufacturers and suppliers gives us the confidence to stand by our solutions.

DOCUMENTATION

Arvensis-Consulting can supply you with all the relevant documentations and training in order to manage you CWDM solutions. We have used CWDM solutions for several years and have come up with best practices and records through experience.

DESIGN SUPPORT

Arvensis-Consulting won't sell you a box of equipment and leave it to you to sort out. We tailor everything to your needs and can assist with all design aspects to ensure everything works as intended.

TRIED AND TESTED

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OUTCOMES FOCUSED

Our primary focus is as always, keep it simple and deliver the maximum outcome to enable you to cut costs.

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