

Regeneration Elimination



In today's highly competitive optical network market, service providers and system vendors require a cost-effective solution to address reach extension. By eliminating the need for regenerators and intermediate sites, the BTI Netstender™ addresses this problem while keeping Capital Expenses (CAPEX) and Operating Expenses (OPEX) in check. Combining functionality into a single, space-efficient product greatly reduces the deployment cost and operational complexity of adding each incremental function.

Significant first-cost savings generated by the Netstender for both small and major network carriers alike justify the cost-of-change. Further motivation to invest in this solution is the superior 'total-cost-of-ownership' profile as additional wavelengths are added.

The application of the Netstender for extended reach of a single channel OC-192/STM-75 link for distances of 60 to 135 km is shown in Figure 1. Traditionally, the solution would be to use a tribless ADM as a regenerator at an intermediate site to extend the reach of the network. However, by using the Netstender for pre- and post-amplification at end sites the resultant savings are significant since the regenerator cost is over 75% higher.

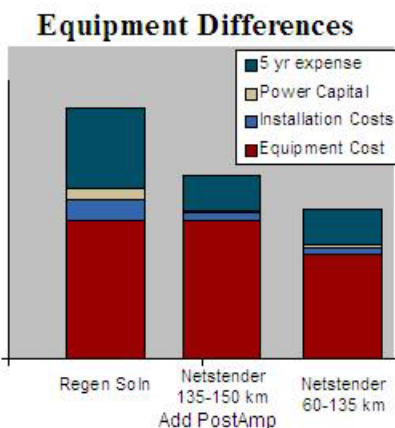


Figure 1: Single Channel Enhanced Reach: 60 to 135 km

In constructing this comparison, the following costs were considered:

- OC-192 2 Fiber ring 1550 Regeneration ADM
- Install Frame (1 day)
- Mechanical drawing, installation and cabling, documentation, management overhead, commissioning (7 days)
- 5 year maintenance cost, 2 node ring: 1-800 support, software upgrades, filter change, NMS charge

The price of the 'tribless' ADM used for regeneration in this scenario varies on the size of the carrier. Carriers usually capitalize the installation costs of the equipment and the majority use 3rd party engineering firms for installation. The largest cost associated with the installation inside an office is not the actual equipment install, but rather the organization overhead effort required to align drawings, submissions for approval, etc.

Yearly cost for software upgrades for the shelf and NMS plus 1-800 tech support is typically 10% of purchase price.

Either a centralized power system or a frame/shelf system is used to power the equipment. If a centralized power system is used, there is a 'tax' charged to the system to cover the rectifiers and battery backup. If no central power system exists, then shelf/rack based rectifiers and battery backups are required.

With over 95% savings for additional connections, Netstender benefits are obvious when network growth requires a second OC-192 link.

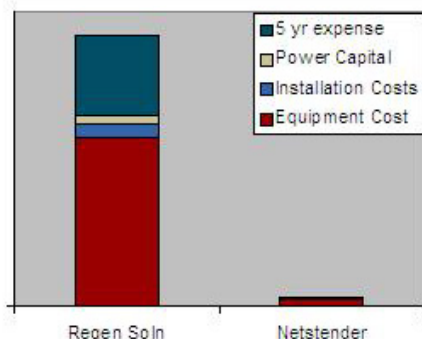


Figure 2: Second Channel Enhanced Reach: 60 km to 135 km

When the second Netstender is connected, installation time is reduced from seven days to five, no frame is required and cost of ownership decreases. (Note: The Netstender requires the addition of a filter module for WDM multiplexing of the second channel)

The application of the Netstender for extended reach of a single channel OC-192/STM-75 link for distances of 150 to 270km is shown in Figure 3.

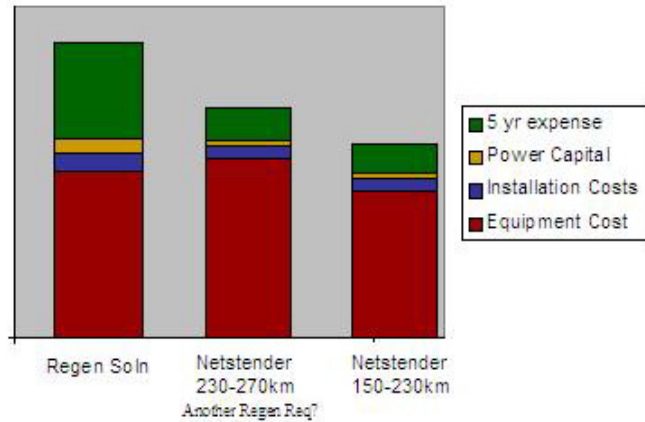


Figure 3: Single Channel Enhanced Reach: 150 km to 270 km

Costs calculated using the same primary inputs as the previous comparison show that savings from Netstender use remain significant at 50% less cost of ownership than a regenerator solution. However, the savings are slightly less in this application as an intermediate site is required for Netstender line amplification.

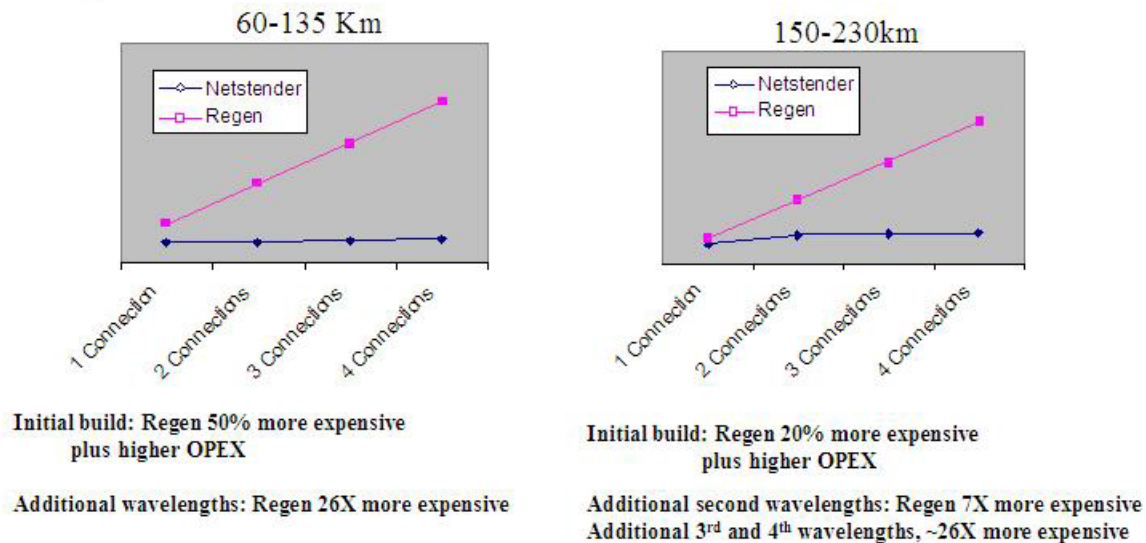


Figure 4: Extended Reach Cost Comparison

To remain competitive, system providers require a solution that allows them to increase network reach while ensuring that the cost of future growth is kept to a minimum. By driving cost and complexity out of the network, The Netstender offers significant economic savings.