

## **Production BER Loopback Scenarios for MARS**

The following slides indicate possibilities for performing loopback testing of the MARS DCS data channels after the systems is deployed. Due to the obvious inaccessibility of the subsea node it will be necessary to perform all BERT tests from the shore.

The passthrough mode is already available and does not entail any modification to the CISCO router configurations.

The other configurations shown require that the CISCO router are capable of transferring raw BERT traffic without performing error correction, which would corrupt the results at the BERT tester. If the routers can transfer the BERT traffic but do perform error correction, perhaps the error results can still be checked via the router console.

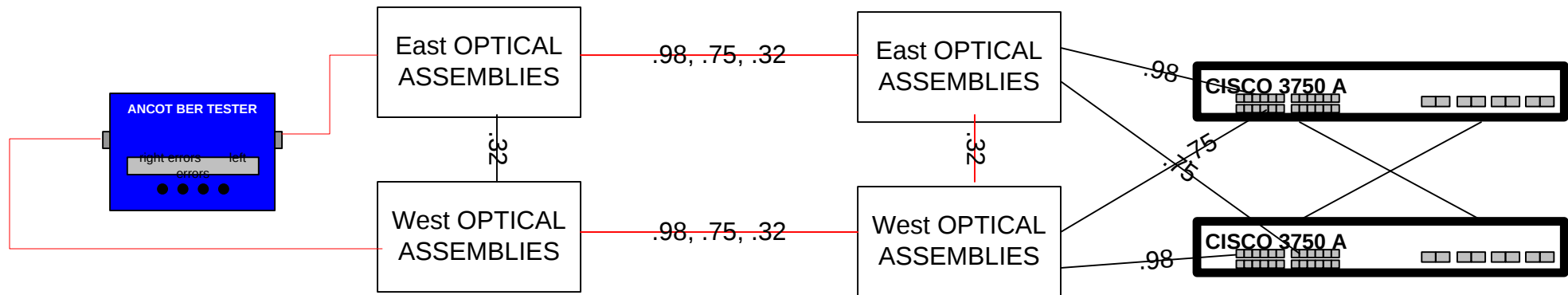
The TWO ROUTER method entails routing the BERT traffic via a cross over cable (or an ethernet cable connecting the two routers). The 1555.75 channel in the diagram continues to function for the transfer of the science data

The ONE ROUTER method is a contingency if the TWO ROUTER method does not work. This would be the case if a router can port BERT data from one of its ethernet ports to the other but cannot route BERT data over a crossover cable to another router. This test would interrupt science data since both the 1558.98 and 1555.75 channels are detained for BERT traffic

The FULL ROUTER test uses routers at both ends. A BERT tester would be attached without operator intervention. (In the previous methods an operator must insert the BERT tester into the optical channel. The requirement still stands, that the CISCO routers can protect the BERT traffic around the loop.

SHORE

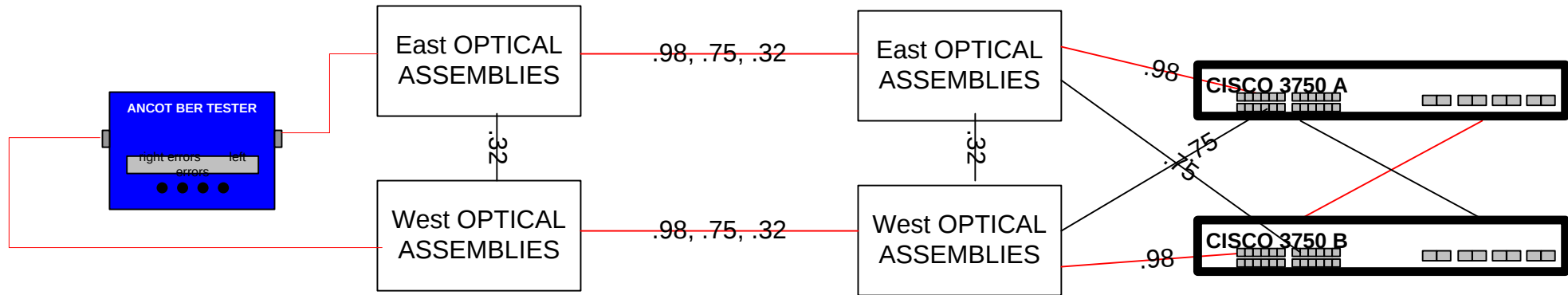
SUBSEA



**PASS THROUGH**  
**Test Using 1549.32 Pass Through**  
**(no routing issues)**

SHORE

SUBSEA

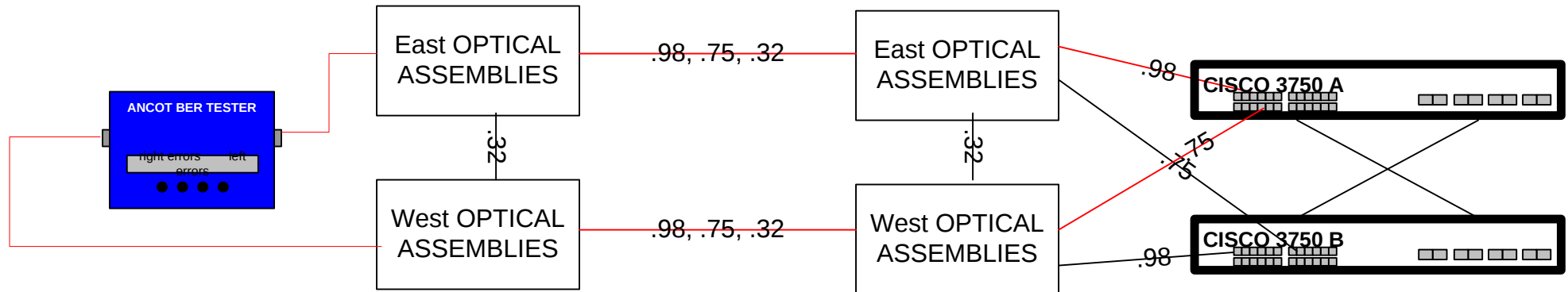


## TWO ROUTER

Test Using 1555.75 or 1558.98 Data Channel  
(no interruption of DCS data)

SHORE

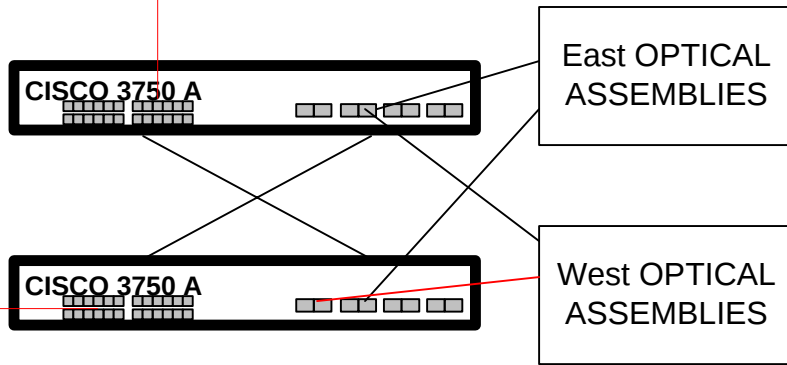
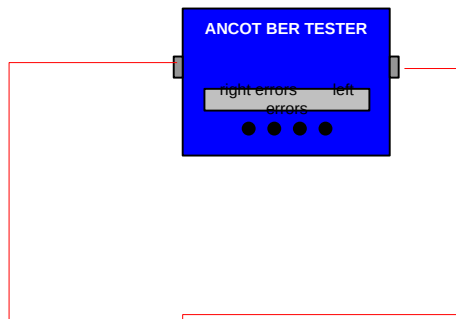
SUBSEA



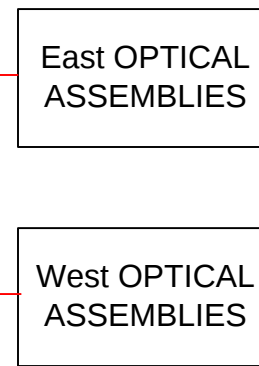
**ONE ROUTER**

**Test Using 1555.75 with 1558.98 Data Channel  
(Science Port Swapover Required)**

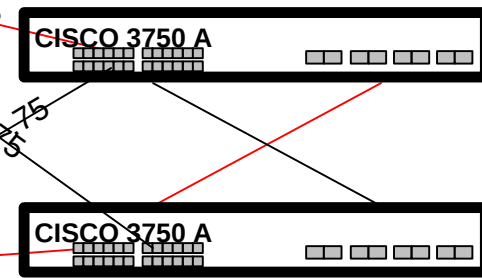
## SHORE



.98, .75, .32



.98



.75

.98

**FULL ROUTER**  
**Test of 1558.98 Via CISCO Router**  
**(Operator Intervention Not Required)**