

Reduction of Packet Loss Policy with Gigabit Small Form-Factor Pluggable Module

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ABSTRACT

There are three types of single or multimode fiber cable- RC (Russia-Canada), LC (London-Canada), SC (Singapore-Canada) which comes from TJ box (fiber joining box) as the endpoint of main Optical fiber cable (which can be at most 3456 core in general). The RC or LC or SC cable is to be connected to the Media converter and a Utp cable is released from the Media converter and connected to any port of a Switch to activate the channel for passing the bandwidth through the activated line. Now our concern of for reduction of packet loss through the channel what benefit we will get of using switch with Gigabit SFP (Small Form-Factor Pluggable) module in comparing of using Media converter with or without SFP module.

Keywords: SFP module, Optical fiber, Media converter, Switch, Packet loss

WHY PACKET LOSS OCCURS IN INTERNET NETWORK

Many faults produce packet loss. Here are main:

Connector problem

- Lose connection problem
- Many joint in cable problem
- Bandwidth problem
- Many browser at a same time problem

- Lan card problem
- Long distance problem

HOW COULD WE MEASURE PACKET LOSS

Ping and **Jitter** are measures of the speed at which we can request and receive data (**ping**) and the variation in that response time (**Jitter**).by measure these two we can find packet loss.

MEDIA CONVERTER & TJ BOX



Figure1



Figure2

In **Figure:1** TJ box or Fiber joining box, which is must to convert Optical fiber to RC,LC,SC cable & then for UTP cable.

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In **Figure:2** Media converter without SFP module where LC cable can be connected to the converter from TJ box & an UTP cable will be out as the end of the channel for connect it to Switch port.



Figure3

In **Figure:3** Media converter with SFP module where RC,LC,SC cable from TJ box is connected to the SFP module & an UTP cable will be out as the end of the channel for connect it to Switch port.



Figure4



Figure5



Figure6

In **Figure:4,5,6** show serially RC,LC,SC cable (Length of this type of cable is too short), which are used to convert Optical fiber cable usable by Switch with UTP cable.

Now we look at the Scenario:

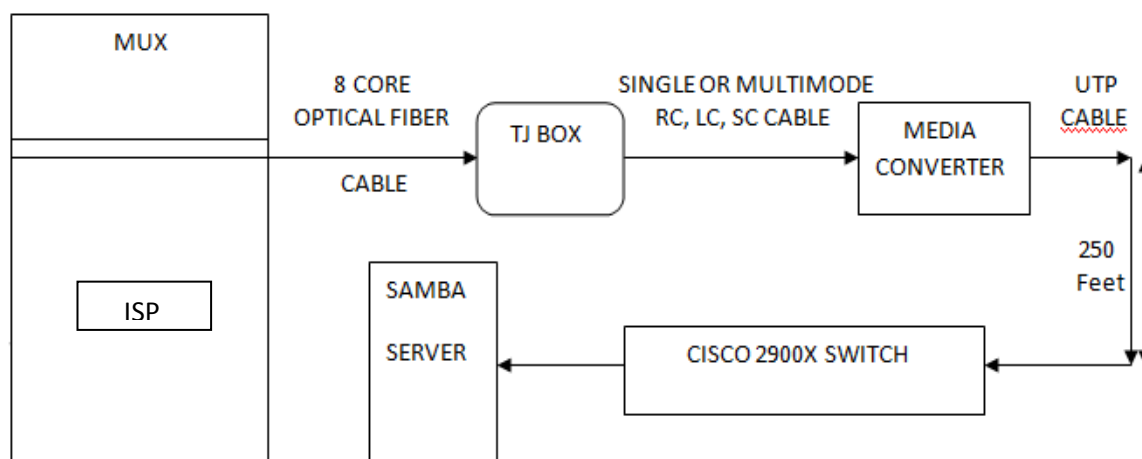


Figure7

There are two observations of this **Figure: 7** (If we ignore any other reasons of packet loss). In the position of media converter, **1st observation:** It will be without SFP module, **2nd observation:** It will be with SFP module. But both these two types of Media converter will not play any role

of reduction of Packet loss if the network shows loss of Packet for the purpose of long distance. In **Figure:7**, from media converter to switch there is about **250 ft** distance & for this long distance there will be Packet loss occurred & to reduce the loss a Repeater will be established in

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the middle of the length but this could be not remove all Packet losses that have been Now we look at the Scenario:

occurred for the long distance.

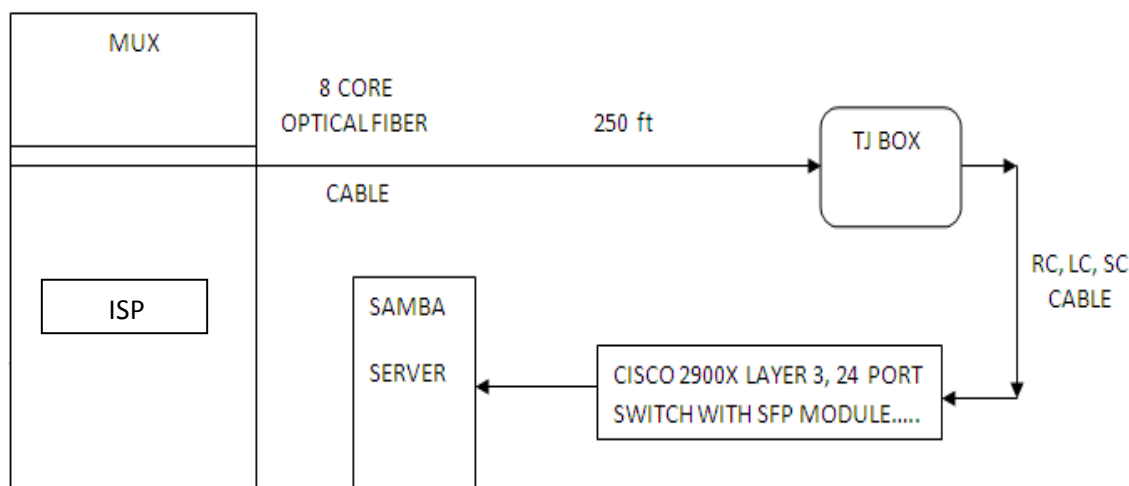


Figure8

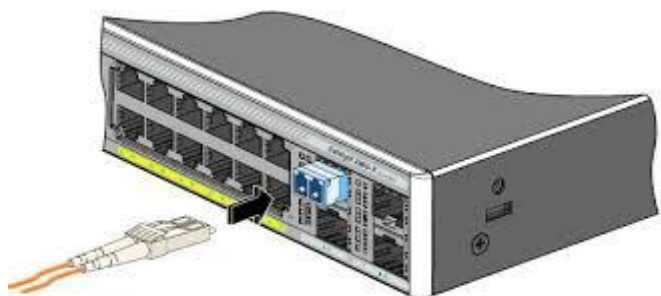


Figure9

In **Figure:8**, Media converter with or without SFP module is replaced with Cisco switch with SFP module (**Figure:9**). **250 ft UTP cable** is replaced with **250 ft Optical fiber**.

DECISION: CASE STUDY

By reduction of length of UTP Cable with Same length of Optical fiber, Packet loss is reduced, If Other causes that make Packet loss is stable. No Repeater is needed.

CONCLUSION

100% Packet loss cannot be removed in some network. **Ping** and **Jitter** measurement varies from network to network. The time of sending and receiving Packet is depending not only on distance but also for Bandwidth and for the mentioned causes.

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