

## MWAN assignment Application Note (20150526)

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### Summary

Starting from Software version 1.6.16 FlexDSL Orion3 and MiniFlex devices support fixed MultiWan (MWAN) channel allocation.

### 1 MWAN Term Definition

FlexDSL Orion3 and MiniFlex devices use virtual channel for Ethernet data transmission over DSL links or E1 interfaces. This channel called WAN. Two modems automatically assign several WAN channels into MWAN bundle to prevent loops on Ethernet layer and for increasing the data throughput. For example, two DSL lines running 3 Mbps each will create a MWAN channel with 6 Mbps Ethernet data throughput. Four E1 channels allow 8 Mbps MWAN bundle.

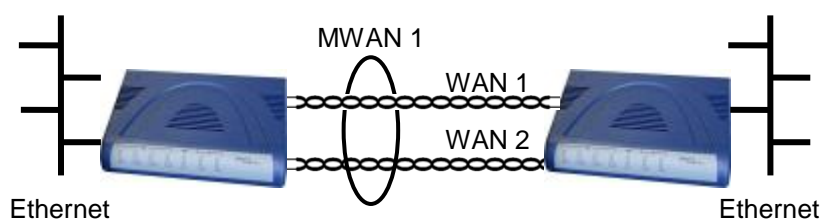


Figure 1.1 MWAN allocation over 2 channels.

If one pair or E1 channel from the bundle goes down, the MWAN decreases total bandwidth by the bandwidth of faulty channel. As MWAN can be assembled at least only from 2 WAN channels, it will be automatically deactivated if only one channel from the bundle exists.

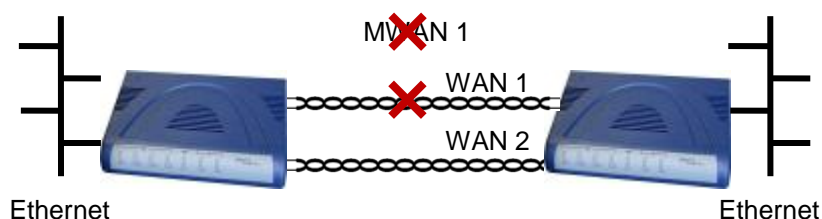


Figure 1.2 MWAN disassembly.

FlexDSL Orion3 and MiniFlex units have maximal 4 DSL or E1 ports therefore up to 4 WAN or 2 MWAN channels can be created.

All channels that carry Ethernet data such as WAN1 ... WAN4 and MWAN1 ... MWAN2 are visible in the RFC-1213 | ifTable and in LLDP-MIB SNMP tables. They can be polled by the NMS.

## 2 Unrestricted MWAN-naming

In previous software versions the MWAN naming process depended not only on the channel number (WAN1 ... WAN4) included into the bundle, but also on the channels activating order. It led to the situation where the MWAN with the same name MWAN1 pointed to different directions depending on the order what DSL link came up first. MWAN1 could be created on any channel including WAN2 and WAN4, but if second MWAN appears on WAN1 and WAN3, the previously assigned MWAN1 changed its allocation to new WAN1 and WAN3 channels, while MWAN2 appeared on WAN2 and WAN4. For example DSL2 and DSL4 came up first and MWAN1 appears on them. Then DSL1 and DSL3 came up too and MWAN1 "jumps" to DSL1 and 3 while MWAN2 appears on previously active DSL2 and 4.



Figure 2.1 "Jumping" MWAN.

This inconsistency is not critical for point-to-point connections, but will break the topology discovery for NMS with LLDP support in ring or star networks as DSL 1 + 3 and DSL2 + 4 may point to different locations.

## 3 Fixed-positioned MWAN

In the software version starting from 1.6.16 the following MWAN naming plan exists. If WAN1 is included into MWAN, the MWAN1 will be created, else MWAN2 will be used.

WAN Channels	MWAN Number
1, 2	1
1, 2, 3	1
1, 2, 3, 4	1
1, 2, 4	1
1, 3	1
1, 3, 4	1
1, 4	1
2, 3	2
2, 3, 4	2
2, 4	2
3, 4	2



**NOTE**

For point-to-point connections over three or four channels the MWAN1 still will be present even if channel WAN1 got down state.