

VLAN Application

Lynx connection



Technical Support

If you require assistance with any of the instructions in this application note you can contact Westermo as follows:

Sweden

www.westermo.com
support@westermo.se
Phone: +46 (0)16 42 80 00
Fax: +46 (0)16 42 80 01

France

www.westermo.fr
support@westermo.fr
Tél : +33 1 69 10 21 00
Fax : +33 1 69 10 21 01

United Kingdom

Web: www.westermo.co.uk
Technical e-mail: technical@westermo.co.uk
Telephone: +44 (0)1489 580585
Fax: +44 (0)1489 580586

Singapore

www.westermo.com
E-mail: sales@westermo.com.sg
Phone +65 6743 9801
Fax +65 6745 0670

Germany

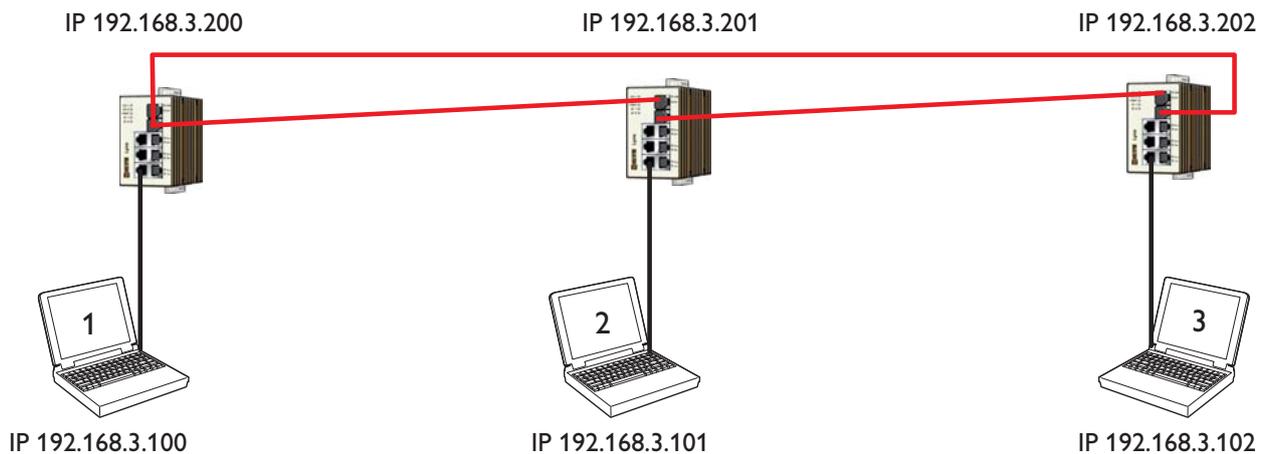
www.westermo.de
support@westermo.de
Tel: +49(0)7254 95400-0
Fax: +49(0)7254-95400-9

VLAN application

The scenario is, we have three Lynx connected in a ring running FRNT redundancy. The Lynx units are located in the same subnet and they have IP addresses 192.168.3.200, 192.168.3.201 and 192.168.3.202.

On port 2 of each Lynx there is a PC connected, those PC's are also located in the same subnet as the switches and they have IP addresses 192.168.3.100, 192.168.3.201 and 192.168.3.202.

In the first test we have not set up any VLAN configuration.



PC 1, 2 and 3 can in this application ping all other units in the network, including the switches.

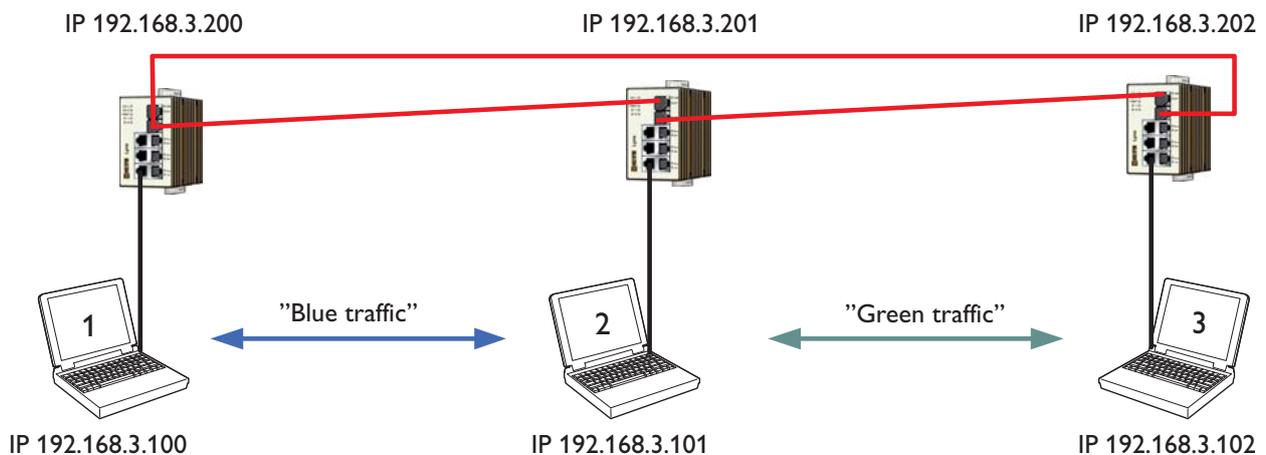
Now we want to segment this network in to two virtual networks, how do we do that.

First we have to define the rules and regulations:

PC 1 shall be connected to PC 2 but not to PC 3 (blue traffic)

PC 2 shall be connected to PC 1 and PC 3

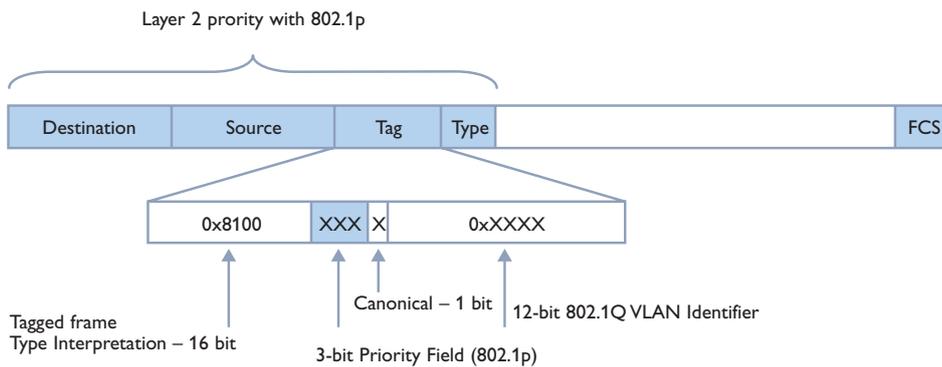
PC 3 shall be connected to PC 2 but not to PC 1 (green traffic)



Configuration of the VLAN

Since we need to segment the network into two different VLAN's and all PC's is connected to port 2 we only have to re-configure the settings on port two on each Lynx.

Since the PC's in this example do not send Q-tagged data (according to 802.1Q) the switch will add the Q-tag into the data frame, this frame will then include 1522 bytes instead of 1518. This information will include VLAN identifier and the priority information, in the example below VLAN Id is 300 and priority level is 3. Q-tagged data will then be transmitted in the FRNT network. When data is transmitted to the received PC, Lynx then can discharge the Q-tag then the frame sent to the received PC will include 1518 bytes as for a standard datagram.



Configuration of switch 1

Port 2 accepts red traffic

Name	Port Nr								Vlan Id	Pri
	1	2	3	4	5	6	7	8		
WHITE	<input checked="" type="checkbox"/>	100	7							
RED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	200	0
BLUE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300	3
GREEN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400	5					
YELLOW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	500	7					
BROWN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	600	0					
PINK	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	700	0					
Default	white	blue	red	blue	blue	green	white	white		
Remove Tag	X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

VLAN Id 300 for blue traffic

Traffic received on port 2 on switch 1 will have blue traffic stamping. The actual VLAN Id for blue traffic is 300, this is set in the corresponding field for blue VLAN Id. This switch shall also accept blue traffic received from its own port and traffic from switch 2, which is transmitting red traffic. This is indicated with the tick-boxes in the configuration matrix.

Note! The remove tag on the FRNT port shall be deactivated on all ring switches in a VLAN configured network.

Configuration of switch 2

Name	Port Nr								Vlan Id	Pri
	1	2	3	4	5	6	7	8		
WHITE	<input checked="" type="checkbox"/>	100	7							
RED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	200	0
BLUE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300	3
GREEN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400	5
YELLOW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	500	7					
BROWN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	600	0					
PINK	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	700	0					
Default	white	red	red	blue	blue	green	white	white		
Remove Tag	X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

This switch shall accept blue and green traffic, sent from switch 1 and 3. The traffic received on this port will be stamped with red traffic, the accepted traffic on this port will therefore be red, blue and green.

Con figuration of switch 3

Name	Port Nr								Vlan Id	Pri
	1	2	3	4	5	6	7	8		
WHITE	<input checked="" type="checkbox"/>	100	7							
RED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	200	0
BLUE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300	3					
GREEN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400	5
YELLOW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	500	7					
BROWN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	600	0					
PINK	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	700	0					
Default	white	green	red	blue	blue	green	white	white		
Remove Tag	X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

This switch shall accept red traffic, sent from switch 2. The traffic received on this port will be stamped with green traffic; the accepted traffic on this port will therefore be red and green.

The FRNT ports (port 7 and 8 in this configuration) all traffic is available, these ports is also referred to VLAN trunk ports. The colour of these ports is therefore white.

With this configuration:

Computer 1 can ping	Computer 2 can ping	Computer 3 can ping
- Computer 2	- Computer 1	- Computer 2
	- Computer 3	

If VLAN is configured it is not possible to ping the Lynx switches in the network, the reason is; The switch core of Lynx is connected to the white VLAN and that can not be accessed from another network. But, if you connect the PC to port 1 instead you then can ping all switches and you can also ping all other units and if it is necessary reconfigure the network, this is the reason why port 1 is always configured as a white VLAN.