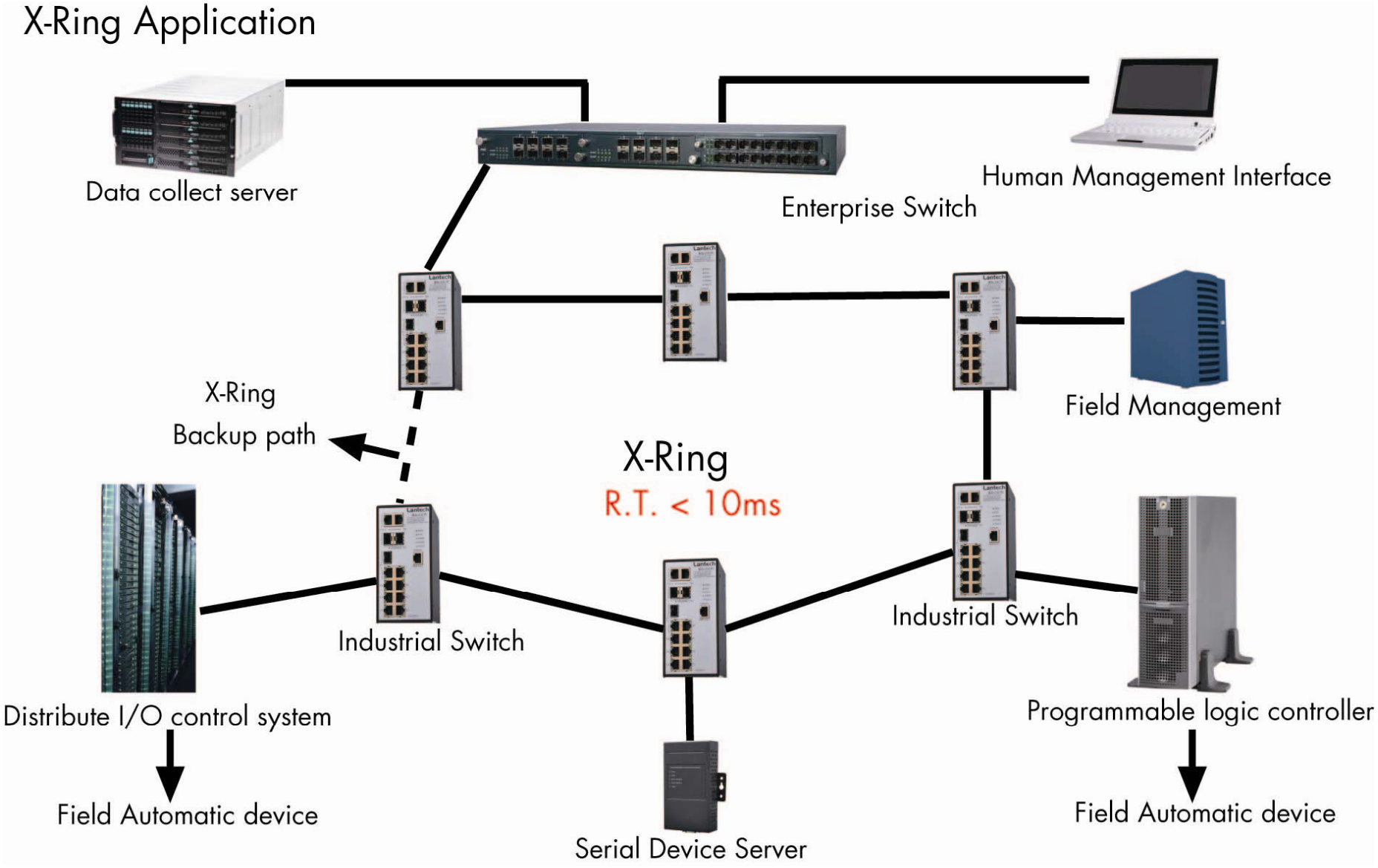
Lantech

Pioneering Industrial and IP Networks

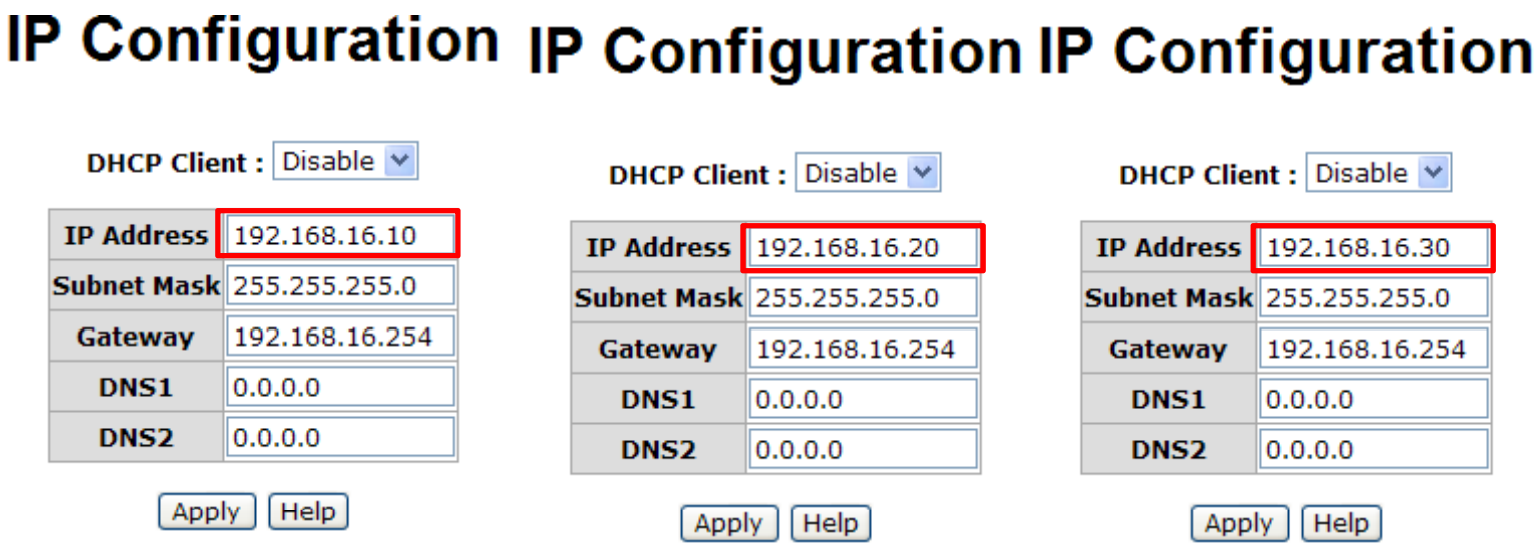
X-Ring Instruction Guide

X-Ring Application



Topic: Use 3 “IES-2307C” to set up X-Ring.

Step 1: Assign different IP address for each switches.



Configuring X-Ring

X-Ring provides a faster redundant recovery than Spanning Tree topology. The action is similar to STP or RSTP, but the algorithms not the same.

In the X-Ring topology, every switch should enable X-Ring function and assign two member ports in the ring. Only one switch in the X-Ring group would be set as a backup switch that would be blocked, called backup port, and another port is called working port. Other switches are called working switches and their two member ports are called working ports. When the failure of network connection occurs, the backup port will automatically become a working port to recovery the failure.

The ring master can negotiate and place command to other switches in the X-Ring group. If there are 2 or more switches in master mode, then software will select the switch with lowest MAC address number as the ring master. The X-Ring master ring mode will be enabled by the X-Ring configuration interface. Also, user can identify the switch as the ring master from the R.M. LED panel of the LED panel on the switch.

The system also supports the coupling ring that can connect 2 or more X-Ring group for the redundant backup function and dual homing function that prevent connection lose between X-Ring group and upper level/core switch.

Enable X-Ring: To enable the X-Ring function. Marking the check box to enable the X-Ring function.
Enable Ring Master: Mark the check box for enabling this machine to be a ring master.
1st & 2nd Ring Ports: Pull down the selection menu to assign two ports as the member ports. 1st Ring Port is the working port and 2nd Ring Port is the backup port. When 1st Ring Port fails, the system will automatically upgrade the 2nd Ring Port to be the working port.
Enable Coupling Ring: To enable the coupling ring function. Marking the check box to enable the coupling ring function.
Coupling port: Assign the member port.
Control port: Set the switch as the master switch in the coupling ring.
Enable Dual Homing: Set up one of port on the switch to be the Dual Homing port. In an X-Ring group, maximum Dual Homing port is one. Dual Homing only work when the X-Ring function enable.
And then, click "Apply" to apply the configuration.

[Note]
When the X-Ring function enable, user must disable the RSTP. The X-Ring function and RSTP function cannot exist at the same time. Remember to execute the "Save Configuration" action, otherwise the new configuration will lose when switch power off.

Step 2:
Click the X-Ring protocol.
And enable switch 1 as ring master.

Note: It is an easy way to confirm
if the X-Ring setting is correct or not.

Please notice the green circle.
If ring master has a blocking port and
your setting should be correct.

X-Ring Configuration

☑ Enable Ring		
☑ Enable Ring Master		
1st Ring Port	Port.01	FORWARDING
2nd Ring Port	Port.02	BLOCKING
☐ Enable Couple Ring		
Couple Port	Port.03	LINKDOWN
Control Port	Port.04	LINKDOWN
☐ Enable Dual Homing		
Homing Port	Port.05	LINKDOWN
☐ Enable Dual Ring		
1st Ring Port	Port.01	FORWARDING
2nd Ring Port	Port.02	BLOCKING

This switch is Ring Master.

Apply Help

192.168.16.10

X-Ring Configuration

☑ Enable Ring		
☐ Enable Ring Master		
1st Ring Port	Port.01	FORWARDING
2nd Ring Port	Port.02	FORWARDING
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Couple Port	Port.03	LINKDOWN
Control Port	Port.04	LINKDOWN
☐ Enable Dual Homing		
Homing Port	Port.05	LINKDOWN
☐ Enable Dual Ring		
1st Ring Port	Port.01	FORWARDING
2nd Ring Port	Port.02	FORWARDING

Apply Help

192.168.16.20

X-Ring Configuration

☑ Enable Ring		
☐ Enable Ring Master		
1st Ring Port	Port.01	FORWARDING
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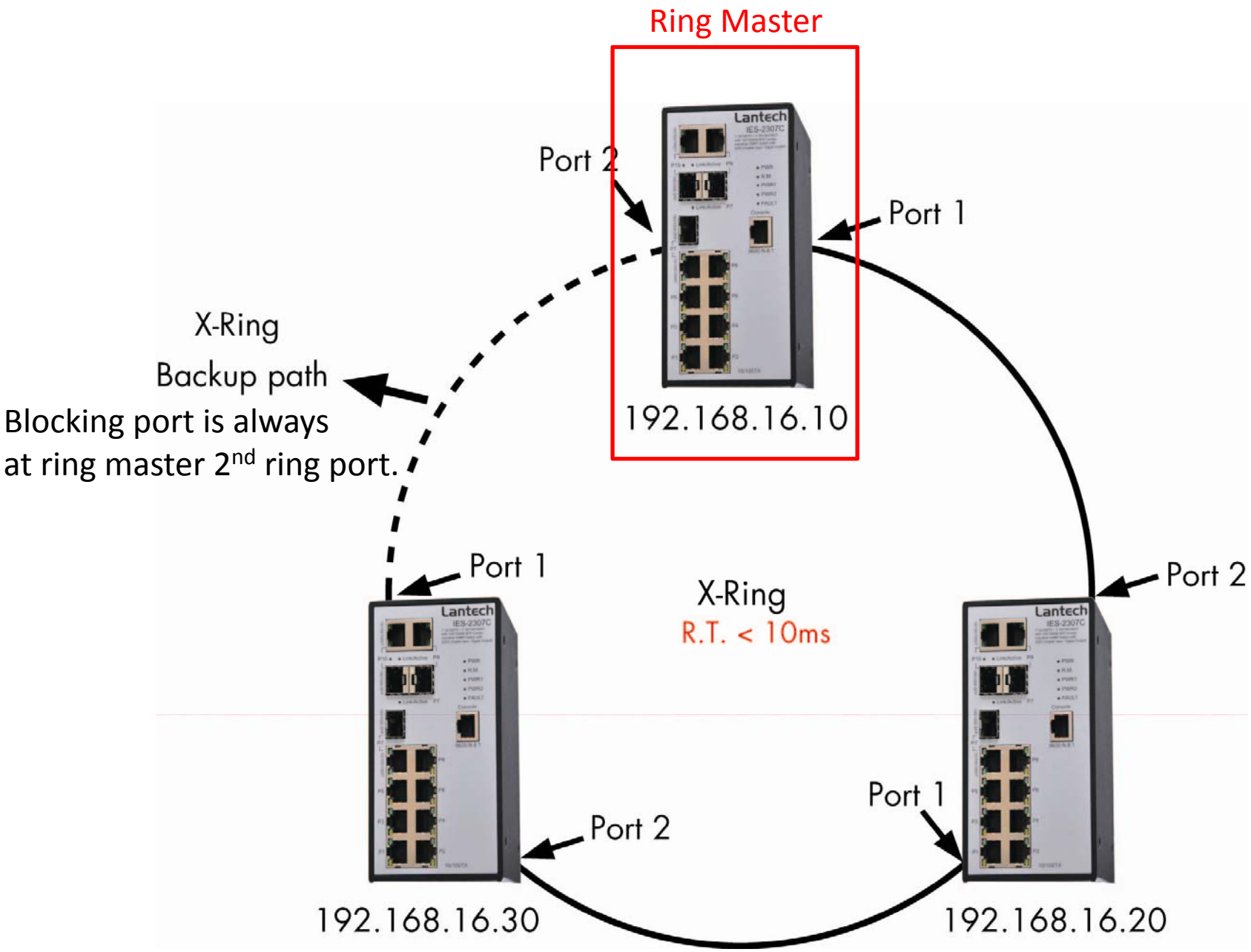
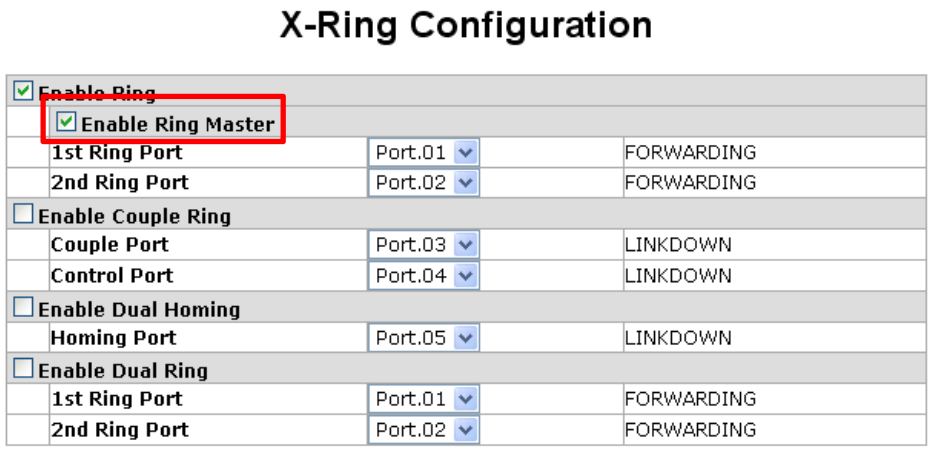
1st Ring Port	Port.01	FORWARDING
2nd Ring Port	Port.02	FORWARDING

Apply Help

192.168.16.30


Ring Master
Port 2
Port 1
X-Ring
Backup path
Blocking port is always
at ring master 2nd ring port.
192.168.16.10
Port 1
Port 2
X-Ring
R.T. < 10ms
Port 2
Port 1
192.168.16.30
192.168.16.20

We can enable 2 or more ring master also.
The X-Ring protocol will decide which one is backup ring master by MAC address value.



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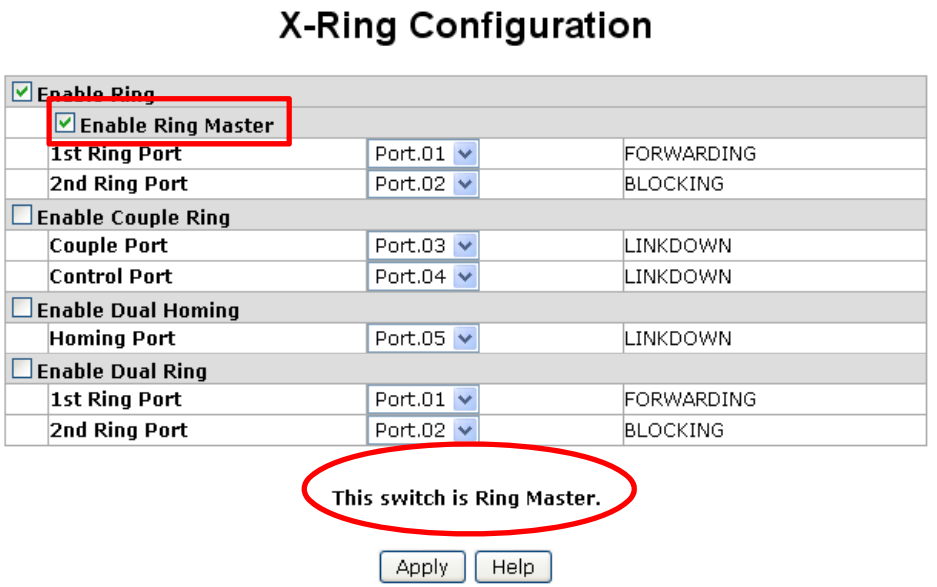

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Ring Tool Recovery time test method:

1. We send the test packet from NIC #1 to NIC #2.
2. Because of the X-Ring topology we can see the data flow.
3. When the X-Ring topology change the data flow will be change too.
4. Ring tool will capture the test packet when NIC #2 not only receive data.
5. It will calculate test packet the interval in ms.