

	<b><i>Product Bulletin</i></b>
No: GFW-3058 Date: February 6, 2009	Category: 8000 Process I/O To: 1/5, 2, 3, 4

## **8000 Process I/O with PACSystems and Series 90 Controllers**

### **Summary**

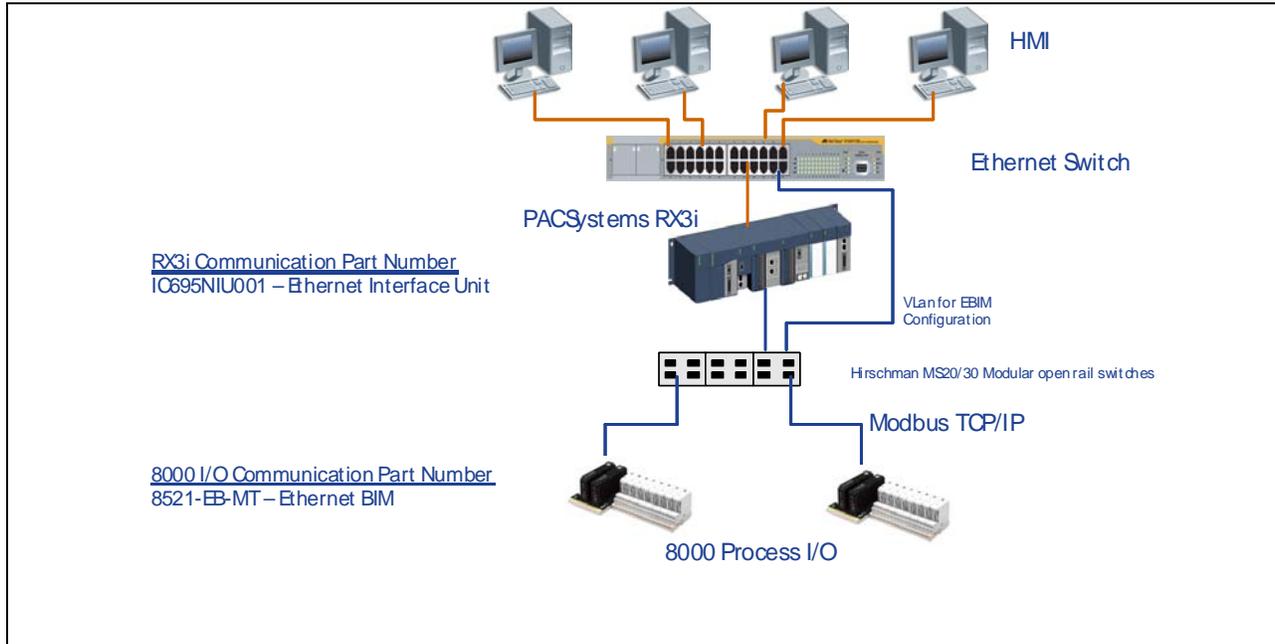
The purpose of this bulletin is to outline how the 8000 Process I/O interfaces with PACSystems and Series 90 controllers.

The 8000 Process I/O line provides an excellent solution for customers who need I/O that will be exposed to rugged environments (extreme temperatures, corrosion, vibration) or where Intrinsically Safe I/O is required. 8000 Process I/O can be mounted in a safe area or Division 2 / Zone 2 hazardous area. For general purpose I/O the field wiring that connects up to the I/O can originate from a safe area or Division 2 / Zone 2 hazardous area. The Intrinsically Safe I/O can be mounted in a Division 2 / Zone 2 hazardous area with field wiring originating from a Division 1 / Zone 1 or Zone 0 hazardous area.

## Configuring 8000 I/O

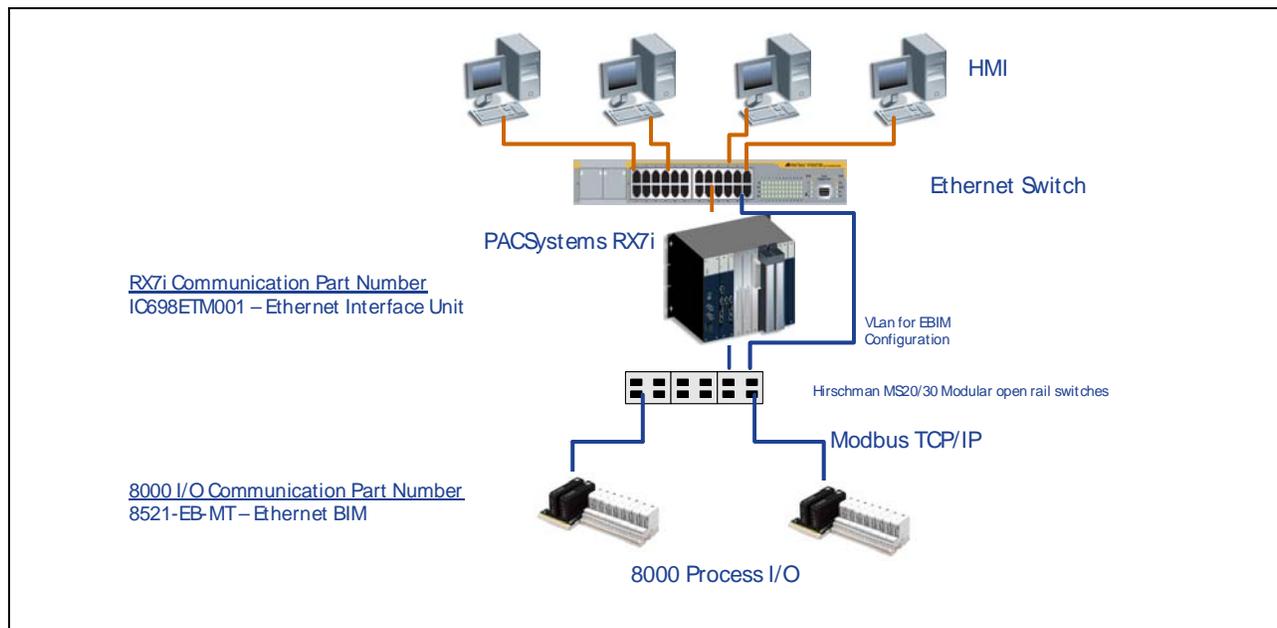
8000 I/O is configured using the 8000 I/O Workbench. For Modbus TCP, configuration can be performed over the Ethernet. For the Modbus RTU and Profibus DP protocols, a serial cable is used. Both the software and serial cable are available in part number 8455-SW-CF.

### ***RX3i with 8000 Process I/O via Ethernet***



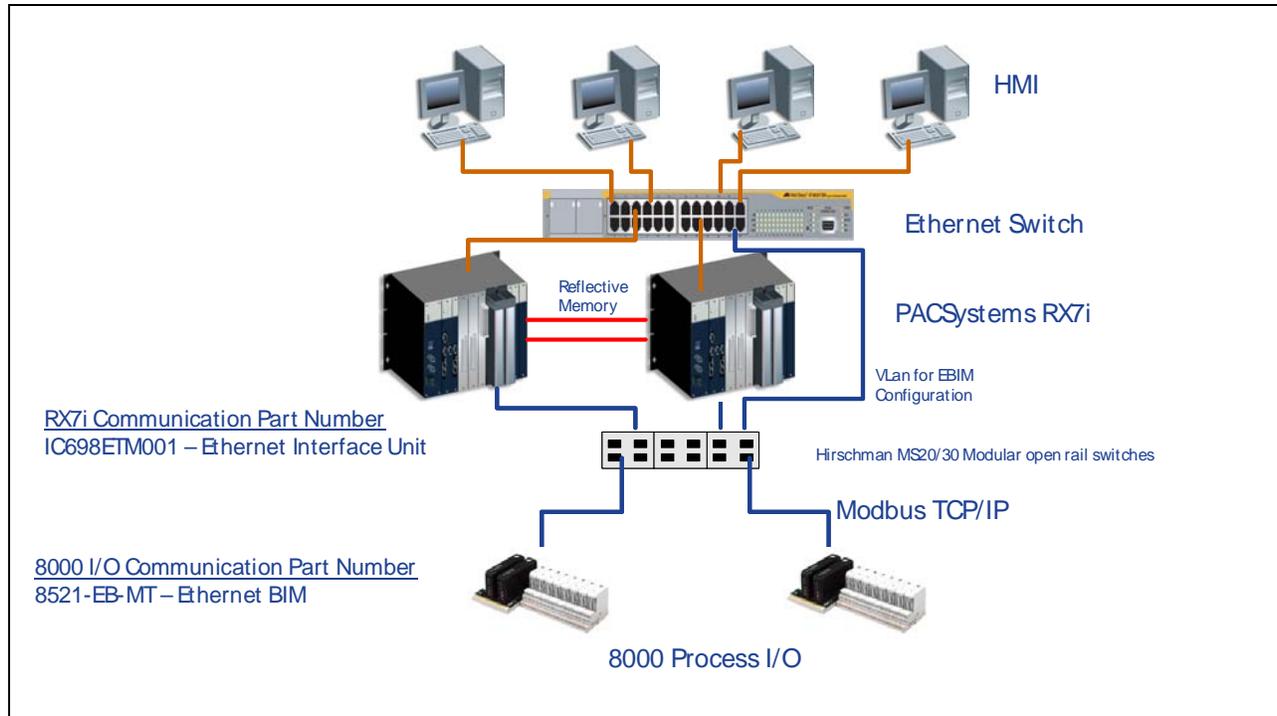
- The PACSystem used for communications to the Ethernet bus interface module (EBIM) acts as a Modbus master (client). The EBIMs are Modbus slaves (servers).
- Modbus TCP/IP channel commands are issued via COMREQ instructions in the PAC Controller to read and write I/O data from and to the EBIM.
- To configure the EBIM from the Engineering Workstation an additional VLAN should be setup to allow communications from the Engineering Workstation to the EBIM. The MOST Workbench is used to configure the EBIM.
- Details on how to setup Proficy Process Systems with MOST Ethernet I/O can be found in the *Application Note: 8000io\_pac\_pps\_modbus\_tcp\_appnote.doc*.

## ***RX7i with 8000 Process I/O via Ethernet***

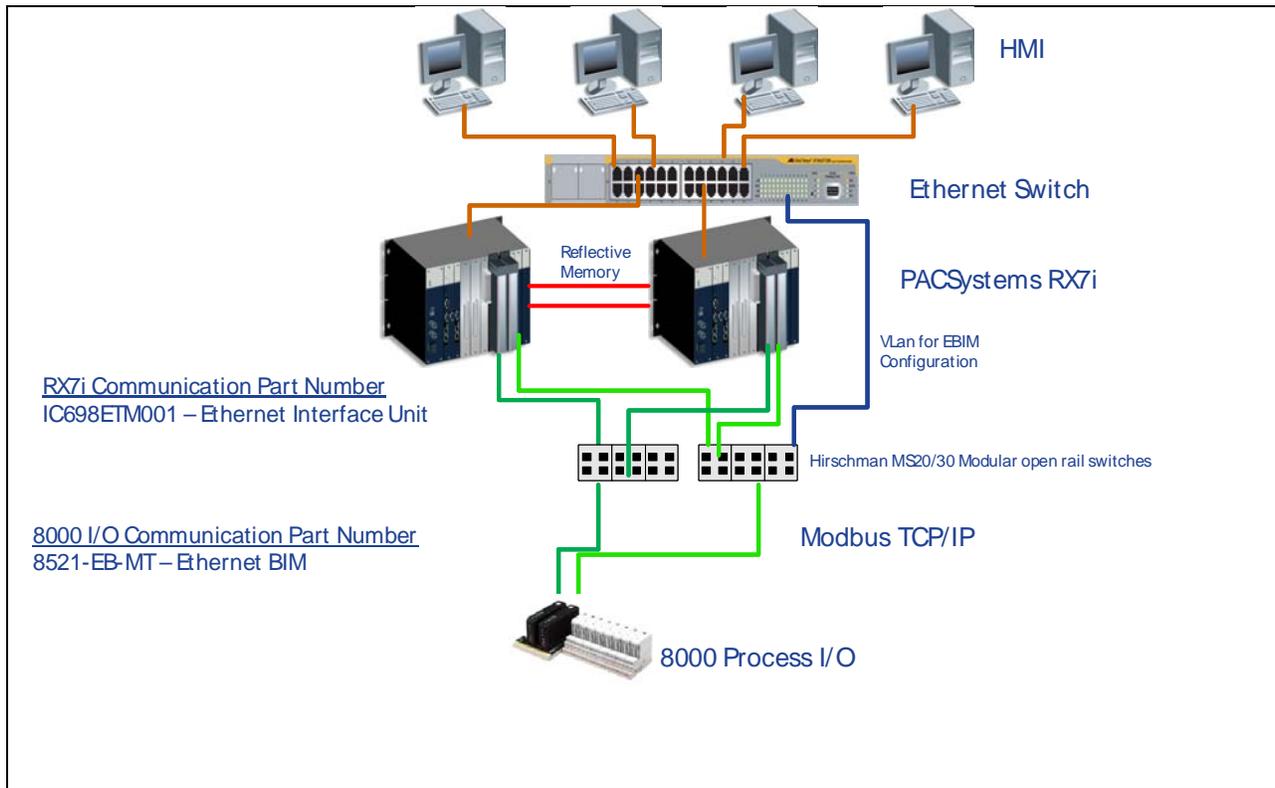


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- Modbus TCP/IP channel commands are issued via COMREQ instructions in the PAC Controller to read and write I/O data from and to the EBIM.
- To configure the EBIM from the Engineering Workstation an additional VLAN should be setup to allow communications from the Engineering Workstation to the EBIM. The MOST Workbench is used to configure the EBIM.
- Details on how to setup Proficy Process Systems with MOST Ethernet I/O can be found in the *Application Note: 8000io\_pac\_pps\_modbus\_tcp\_appnote.doc*.

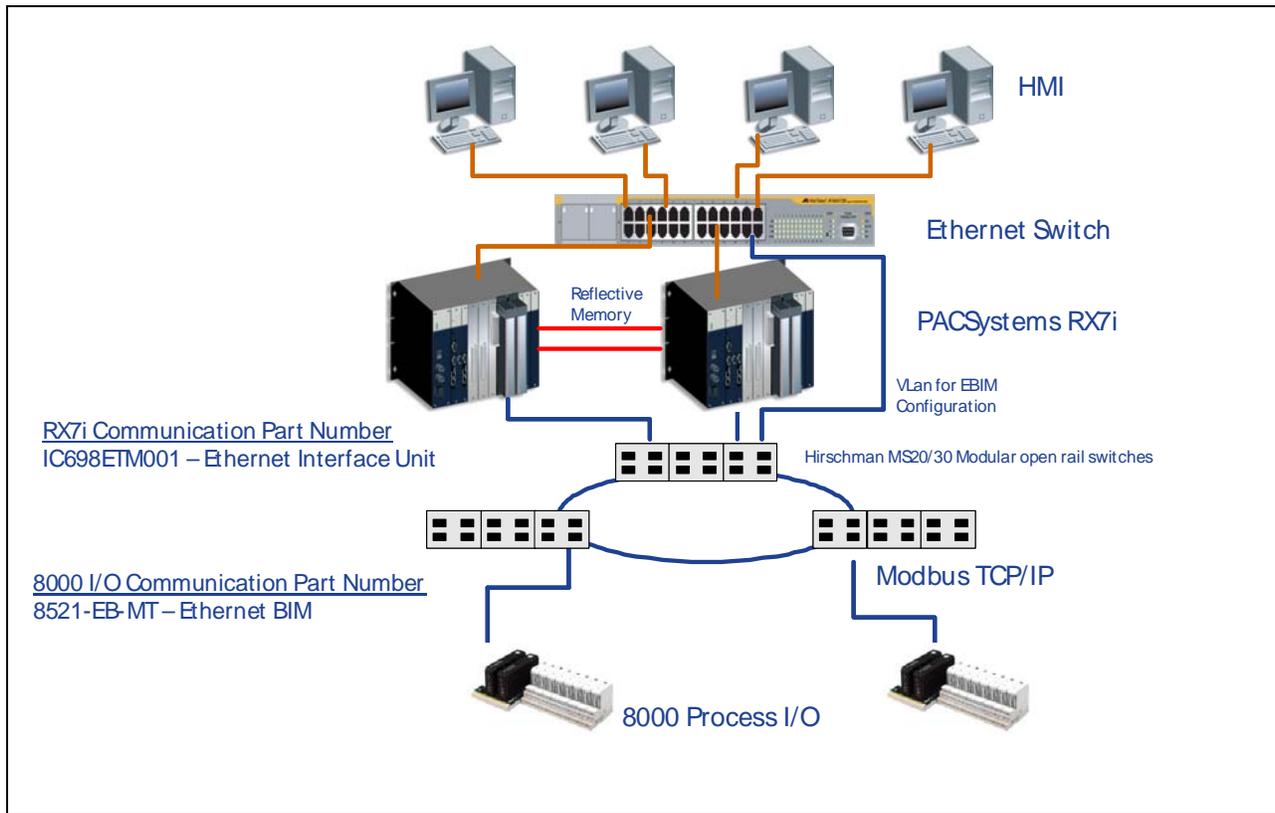
### Redundant RX7i Controller with 8000 I/O in a Star Topology



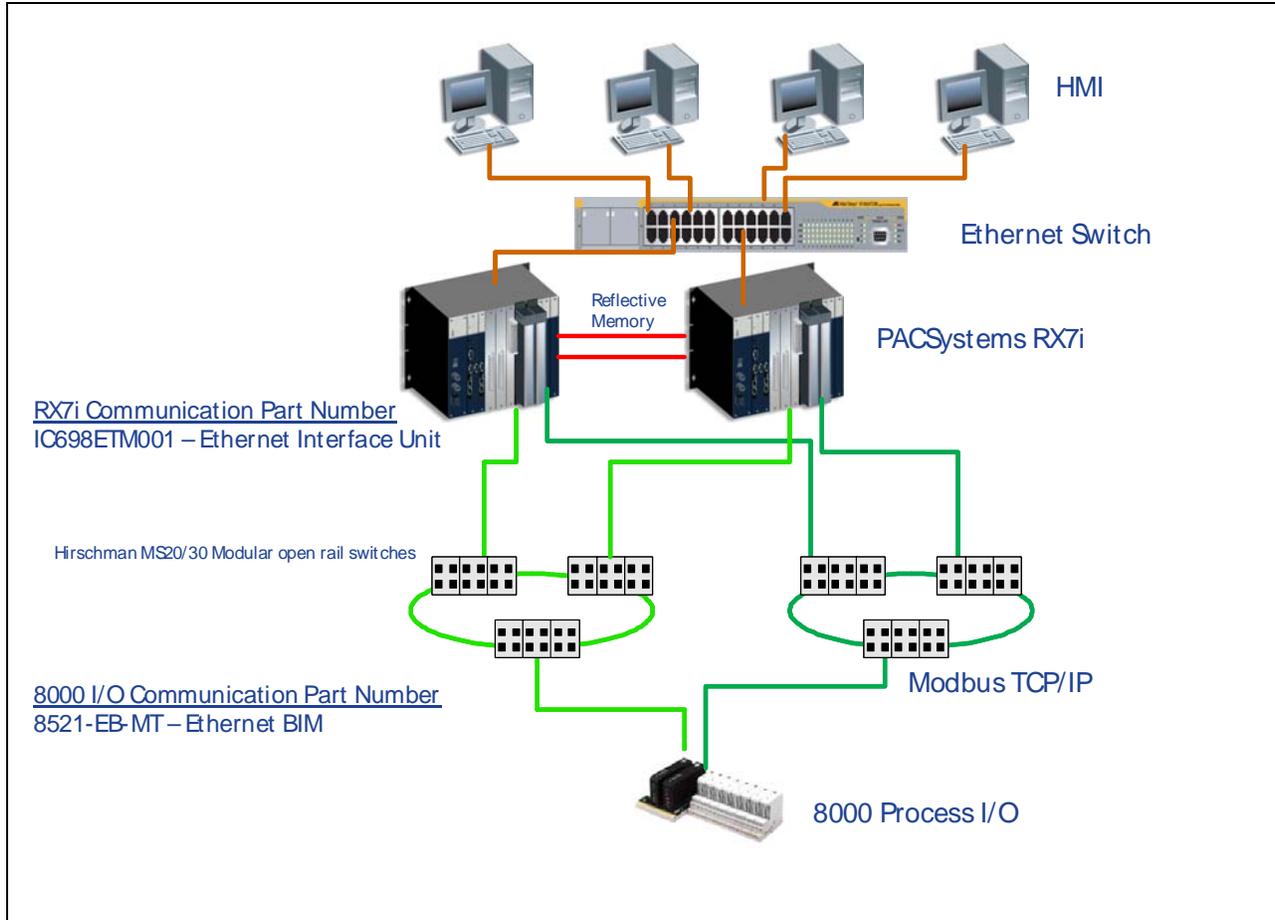
### Redundant RX7i Controller with 8000 I/O in a Dual Star Topology



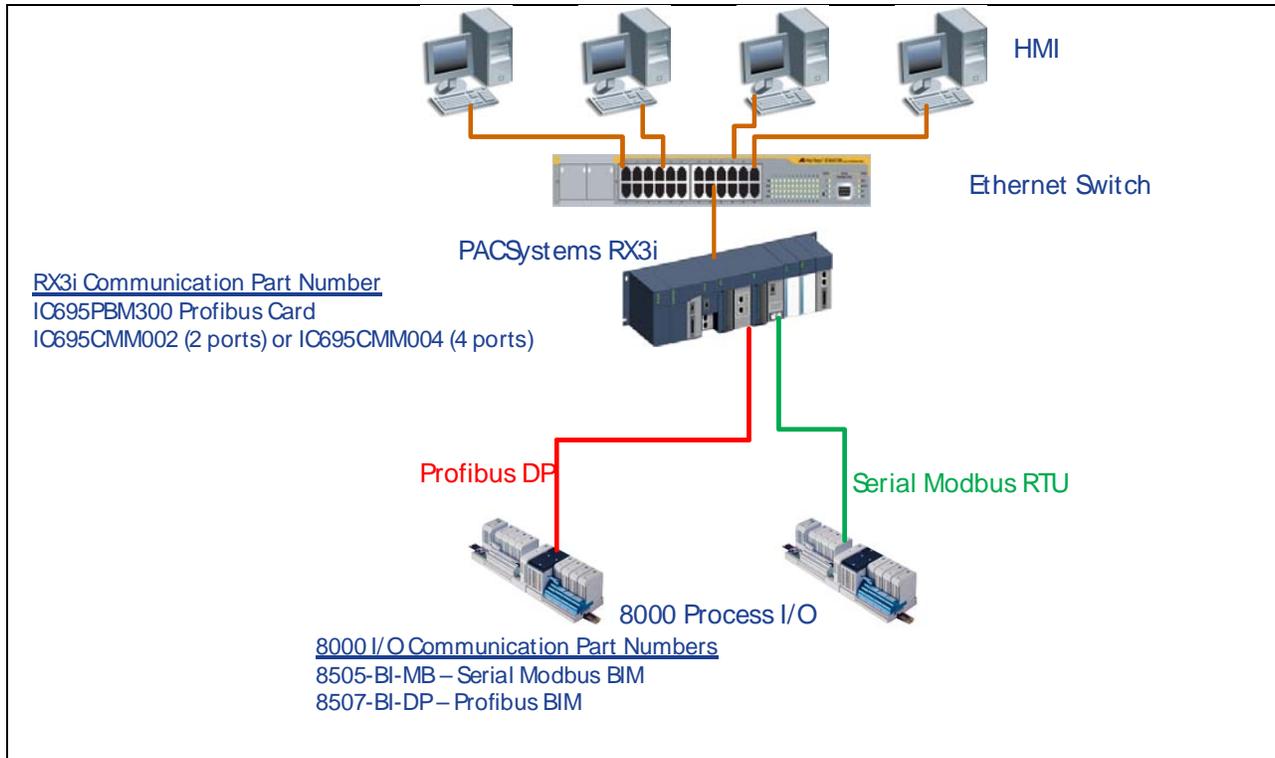
## Redundant RX7i Controller with 8000 I/O in a Ring Topology



**Redundant RX7i Controller with 8000 I/O in a Dual Ring Topology**



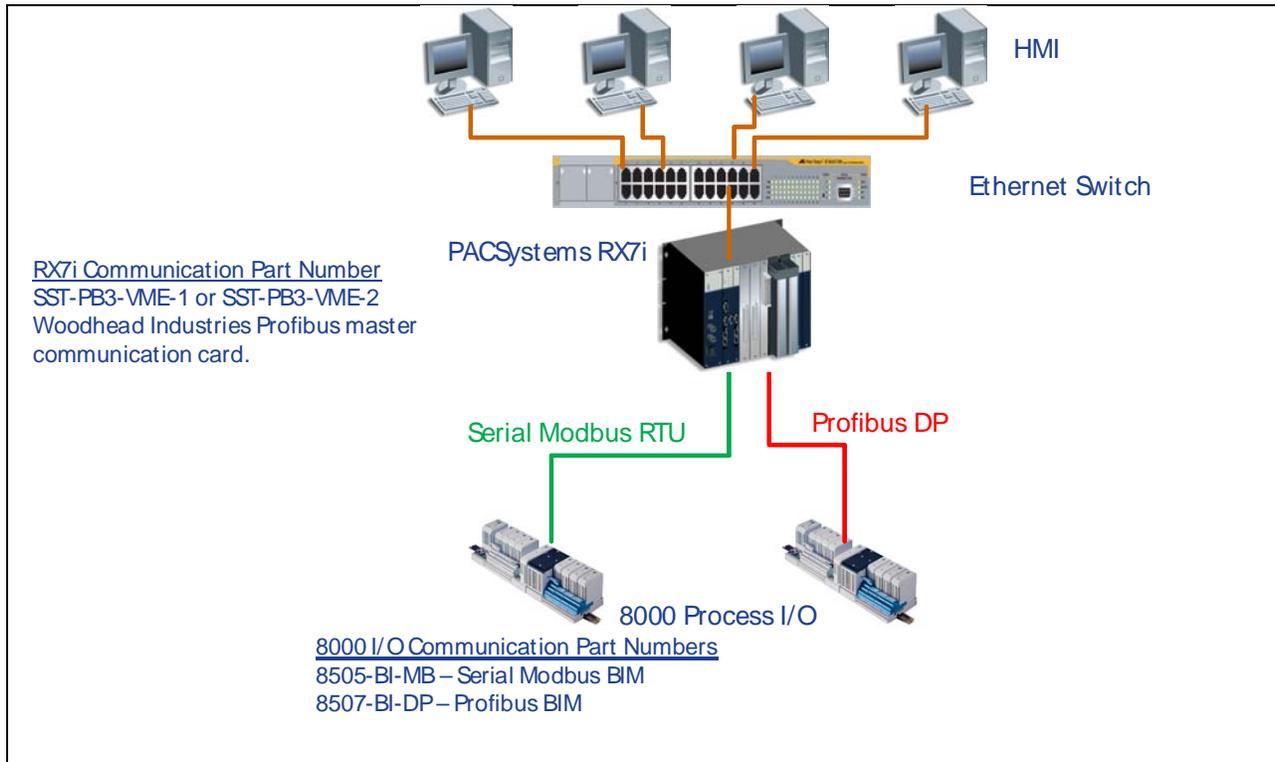
## ***RX3i and PPS with 8000 Process I/O via Profibus and Serial Modbus***



### PACSystems RX3i Communications

- IC695CMM002 (2 ports) or IC695CMM004 (4 ports) is used as a Modbus master in the RX3i rack to communicate over an RS485 link to the Modbus bus interface modules (BIM). The RS485 serial network can support multiple drops.
- IC695PBM300 is used as a Profibus master to communicate to Profibus bus interface modules.
- Details on how to setup a Process System with MOST Modbus serial I/O can be found in the *Application Note: 8000io\_pac\_pps\_rx3i\_modbus\_rtu\_appnote.doc*.
- Details on how to setup a Process System with MOST Profibus I/O can be found in the *Application Note: 8000io\_pac\_pps\_rx3i\_profibus\_hart\_appnote.doc*.

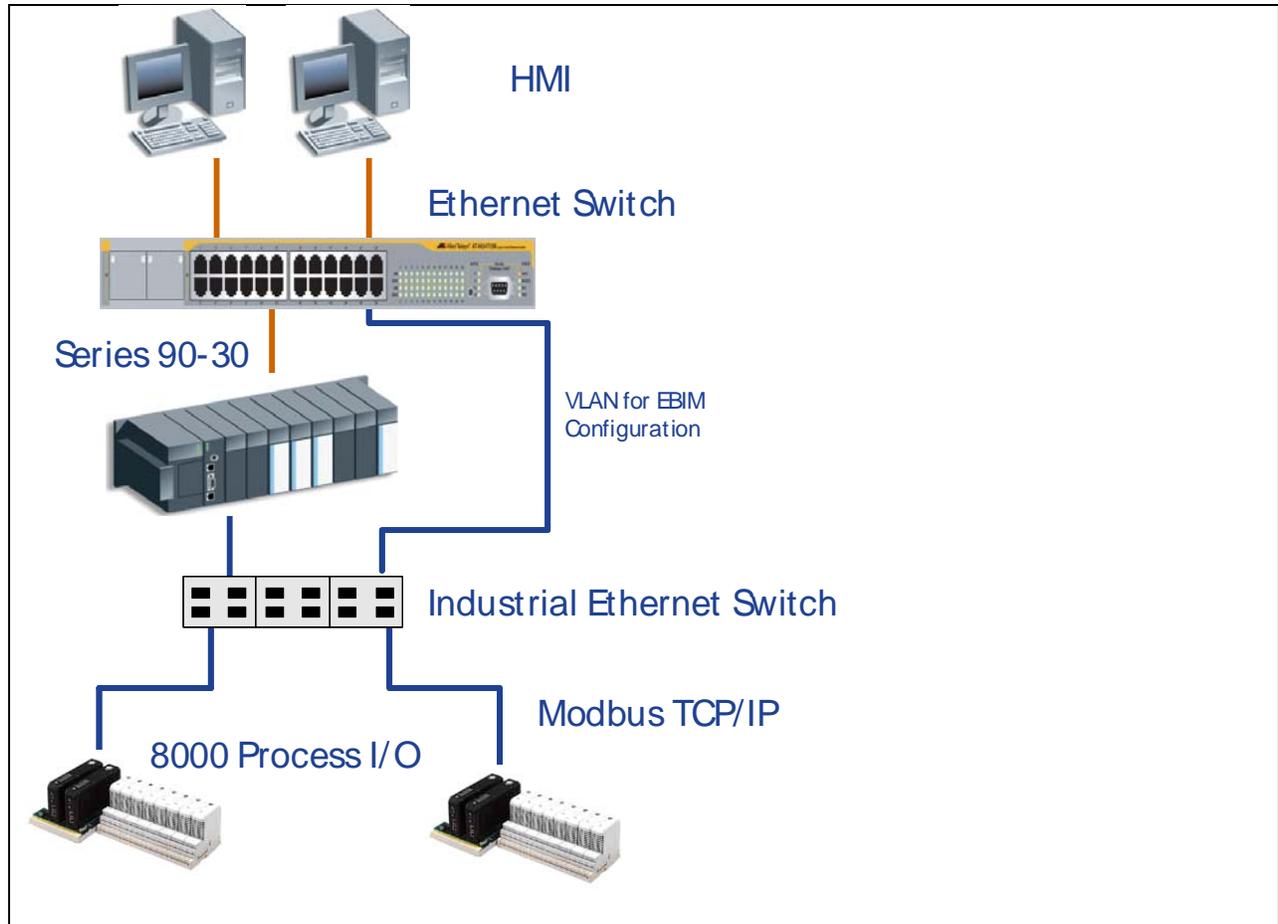
## ***RX7i and PPS with 8000 Process I/O via Profibus and Serial Modbus***



### PACSystems RX7i Communications

- *MODBUS MASTER APPLICATION CODE FOR PACSystems RX7i* must be loaded onto the RX7i CPU in order to have either the RS232 or RS485 port on the CPU module support Modbus master communications. The application code can be downloaded from <http://support.gefanuc.com> (Developer Downloads).
- Applied Solution AS12041 is used to interface a PACSystem with either the SST-PB3-VME-1 or SST-PB3-VME-2 Woodhead Industries Profibus master communication card. The applied solution can be downloaded from <http://support.gefanuc.com> (Developer Downloads). See *Application Note: 8000io\_pac\_pps\_rx7i\_profibus\_hart\_appnote.doc* for more details.

## Series 90 – 30 Controller with 8000 Ethernet I/O



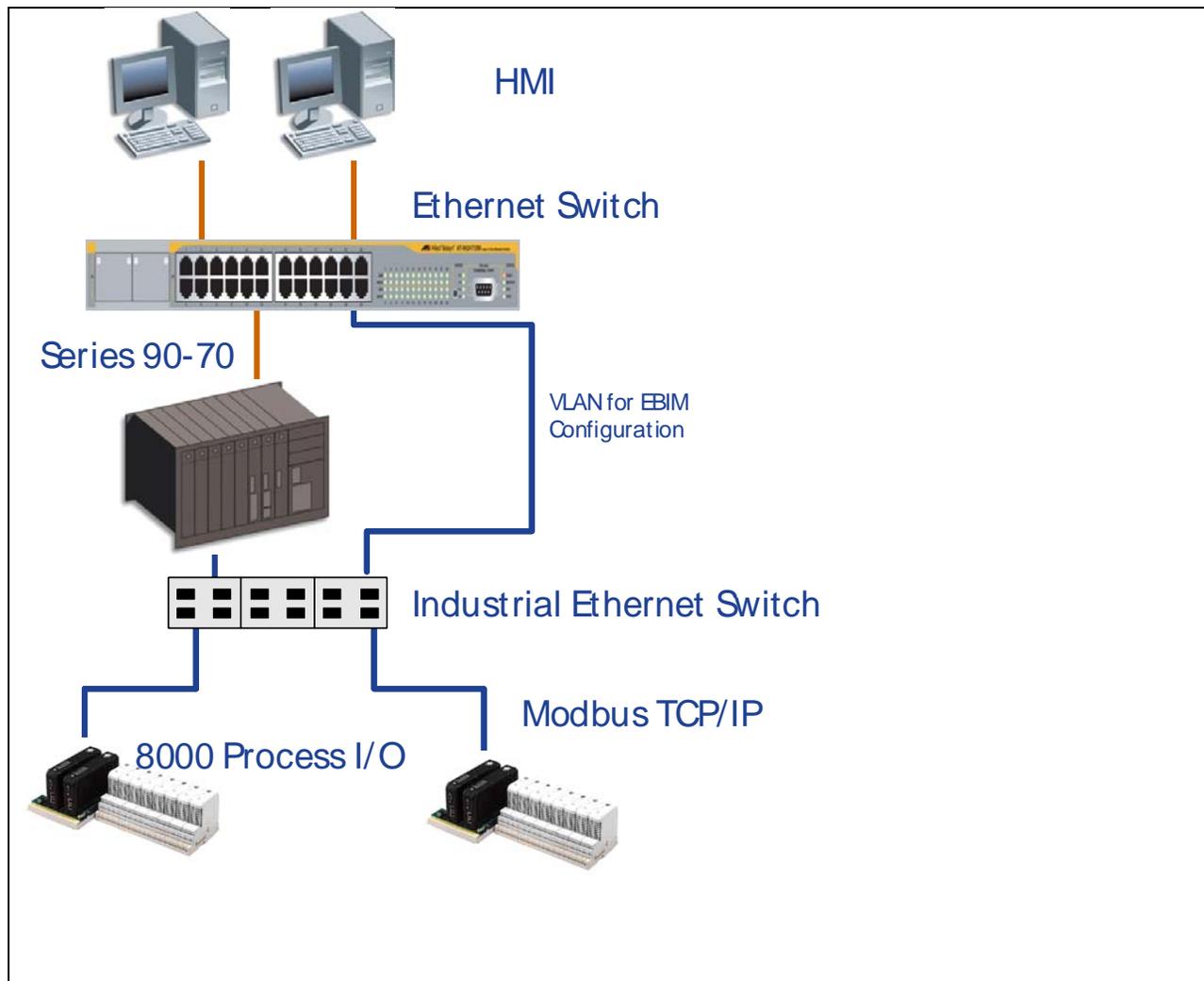
### 90-30 Communications

- The Series 90-30 PLC used for communications to the Ethernet bus interface module (EBIM) acts as a Modbus master (client). The EBIMs are Modbus slaves (servers).
- Modbus TCP/IP channel commands are issued via COMREQ instructions in the Series 90-30 PLC to read and write I/O data from and to the EBIM.
- The 90-30 Ethernet interfaces that support Modbus channel commands include: IC693CMM321-FH or higher, embedded interface on CPU364, and embedded interface on the CPU374.

### 8000 I/O Communication Part Number

- 8521-EB-MT – Ethernet BIM

## Series 90-70 connectivity with 8000 Process I/O via Ethernet



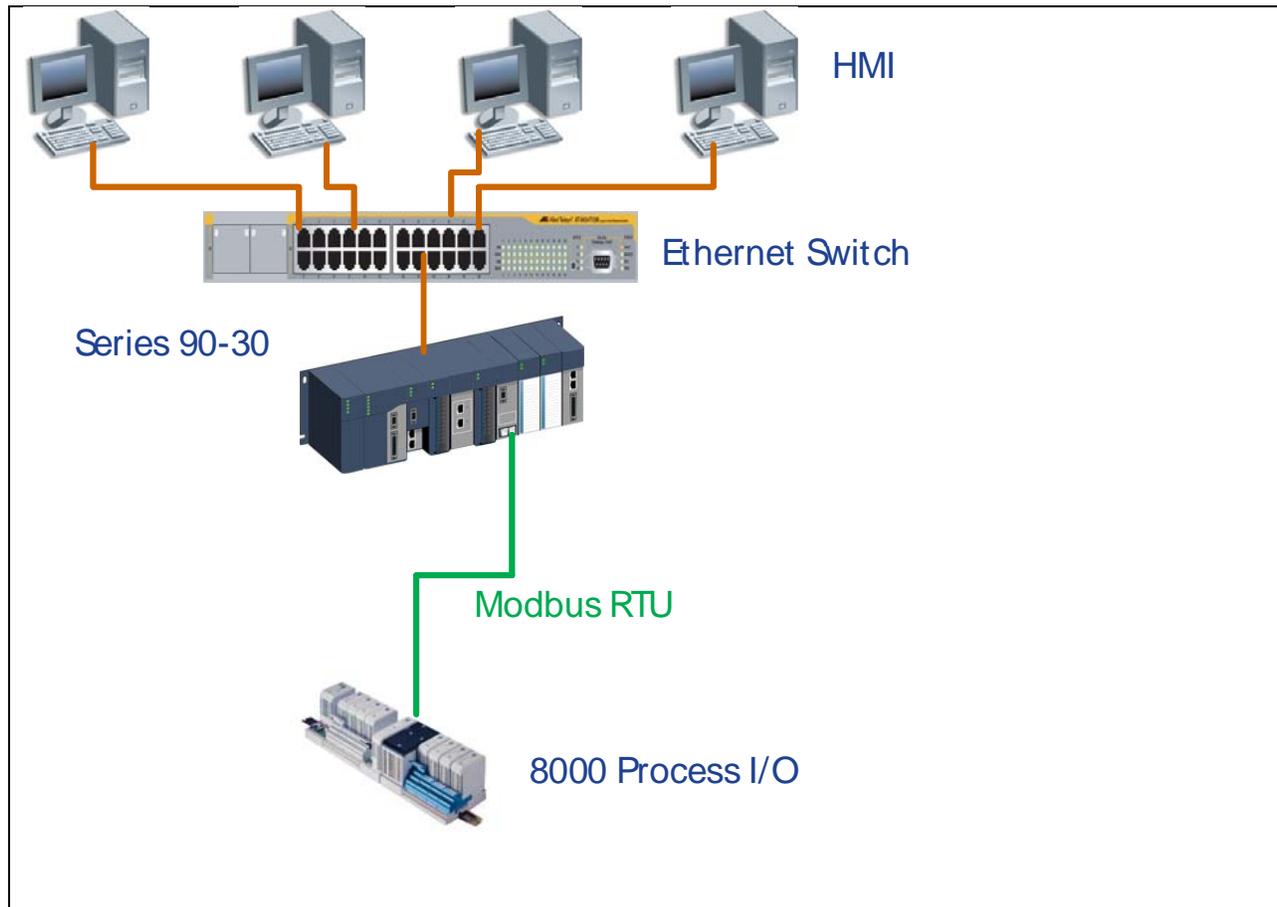
### 90-70 Communications

- The Series 90-70 PLC used for communications to the Ethernet bus interface module (EBIM) acts as a Modbus master (client). The EBIMs are Modbus slaves (servers).
- Modbus TCP/IP channel commands are issued via COMREQ instructions in the Series 90-70 PLC to read and write I/O data from and to the EBIM.
- The 90-70 Ethernet interface that supports Modbus channel commands is IC697CMM742 Type 2.

### 8000 I/O Communication Part Number

8521-EB-MT – Ethernet BIM

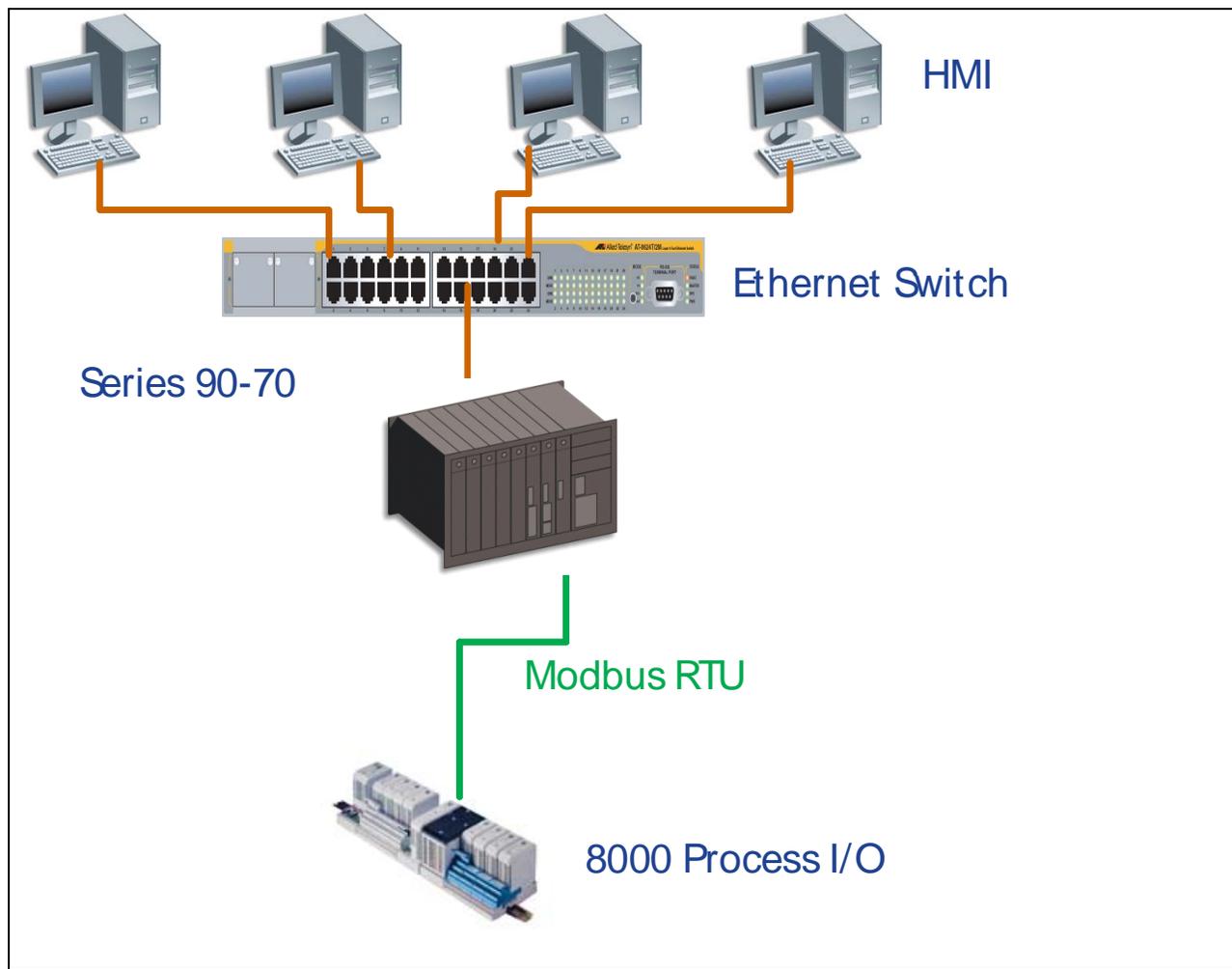
## Series 90-30 PLC with 8000 Serial Modbus RTU



### 90-30 Communications

- Horner Electric 90-30 Modbus RTU Master module (HE693RTM705) can be used to read and write I/O from and to the 8000 Modbus RTU BIM.
- If the system has a 90-30 CPU IC693CPU363 then Modbus RTU Master Communications can be carried out using the CPU's serial port. This is an alternative to the option pictured and is documented in Modbus RTU Master Manual (GFK-2220B).
- If the 90-30 system includes a PCM card with 192 KB or more of memory then a Mega Basic program can be downloaded from <http://support.gefanuc.com> to carry out Modbus RTU Master Communications with the BIM. This is an alternative to the option pictured.

## Series 90-70 PLC with 8000 Modbus RTU I/O



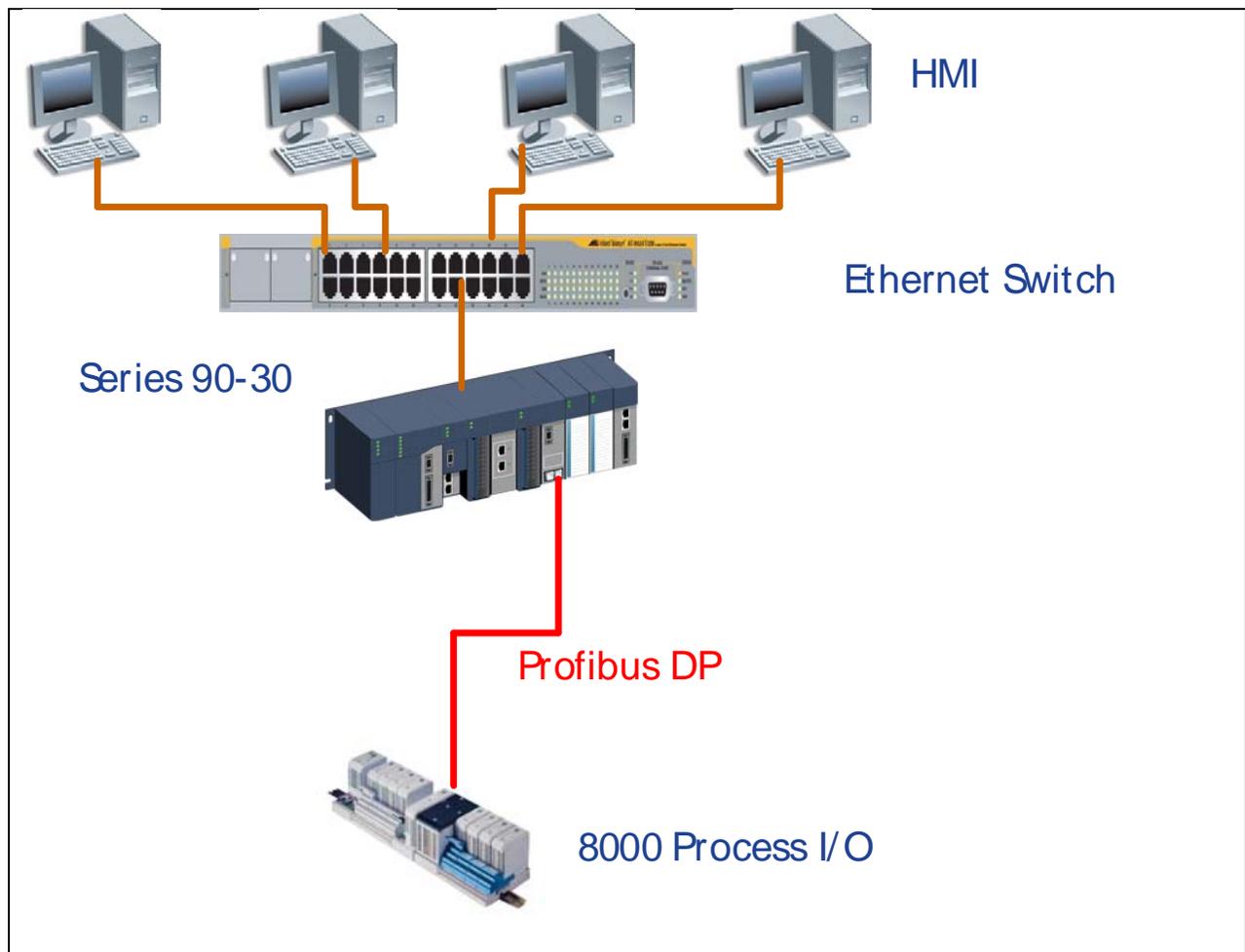
### 90-70 Communications

- A PCM card (IC697PCM711) can provide Modbus RTU master functionality. See GE Fanuc Knowledgebase article KB6701 at <http://support.gefanuc.com>.

### 8000 I/O Communication Part Numbers

8505-BI-MB – Serial Modbus BIM

## Series 90-30 PLC with 8000 Profibus I/O



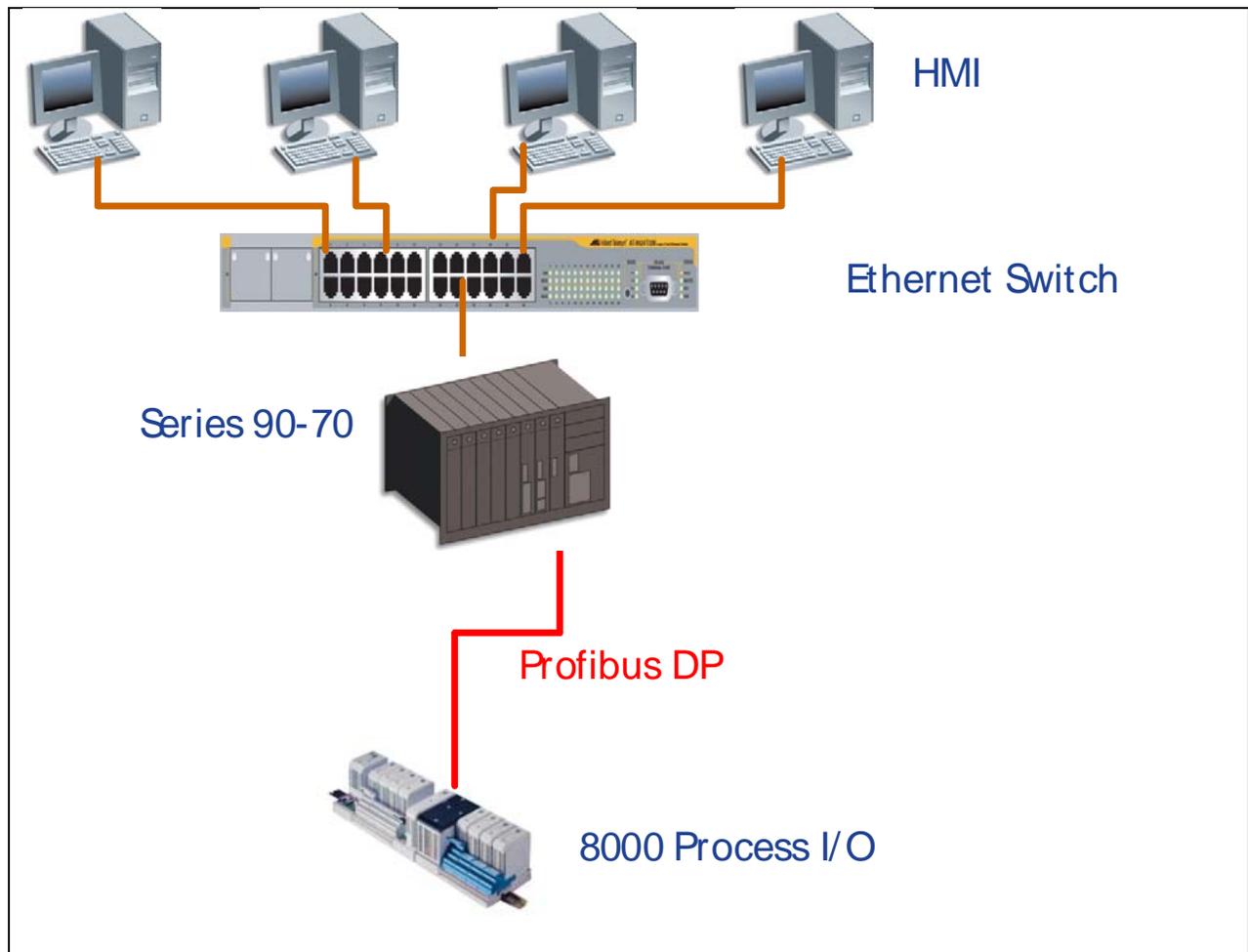
### 90-30 Communications

The 90-30 module IC693PBM200 supports Profibus Master Communications with the Profibus BIM. See Profibus Master Manual (GFK-2121A).

### 8000 I/O Communication Part Numbers

8507-BI-DP – Profibus BIM

## Series 90-70 PLC with 8000 Profibus I/O



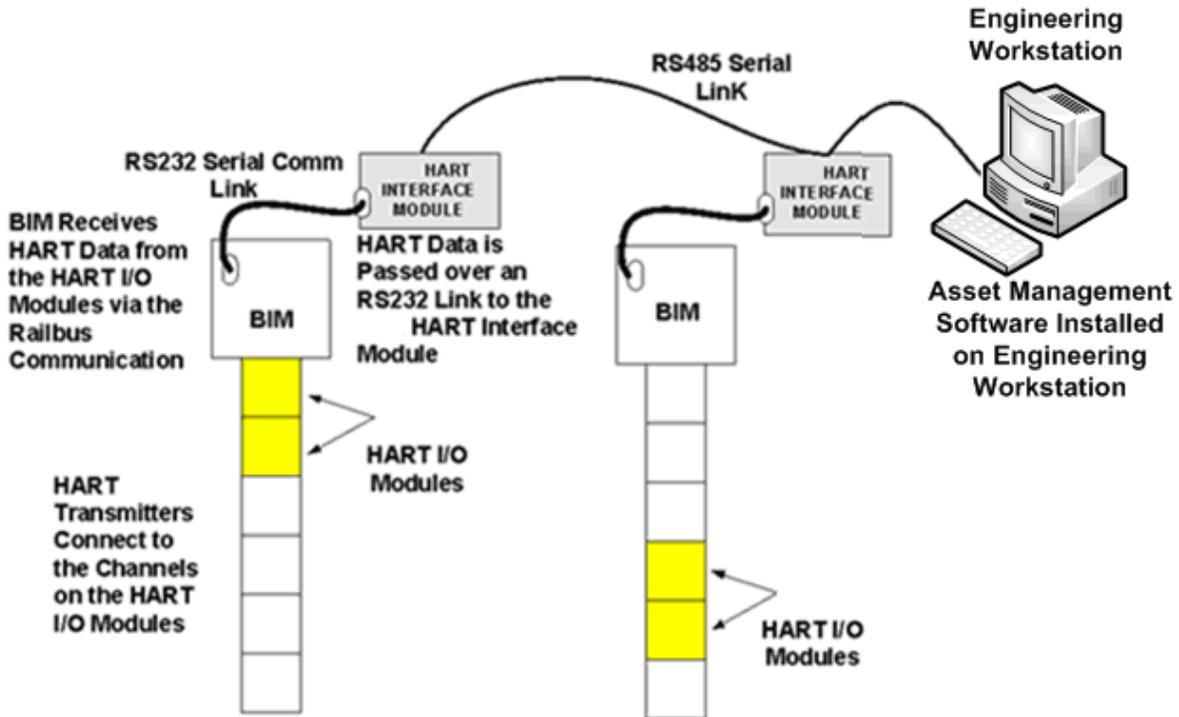
### 90-70 Communications

GE Fanuc 90-70 PLC can be used as a Master on a Profibus network using a Profibus VME card from Woodhead Industries and the Applied Solution AS12041 03. The Applied Solution can be downloaded from <http://support.gefanuc.com>.

### 8000 I/O Communication Part Numbers

8507-BI-DP – Profibus BIM

## HART Communications for Profibus and Modbus RTU BIMs



- For all systems with 8000 Process I/O using either Profibus or Modbus RTU BIMs HART data can be passed through to the Engineering Workstation over an RS485 serial network using the HART interface module (Part 8512). The Engineering Workstation can display the data using an asset management software package.
- HART pass through requires an RS485 interface card installed in the Engineering Workstation.