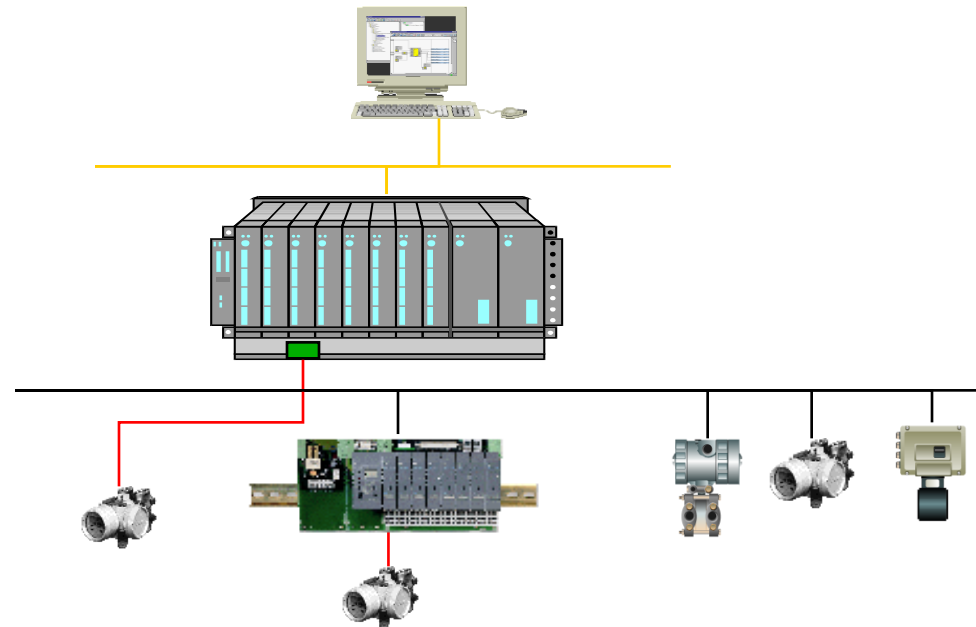


Industrial Automation



1.5 Control System Architecture

Principle

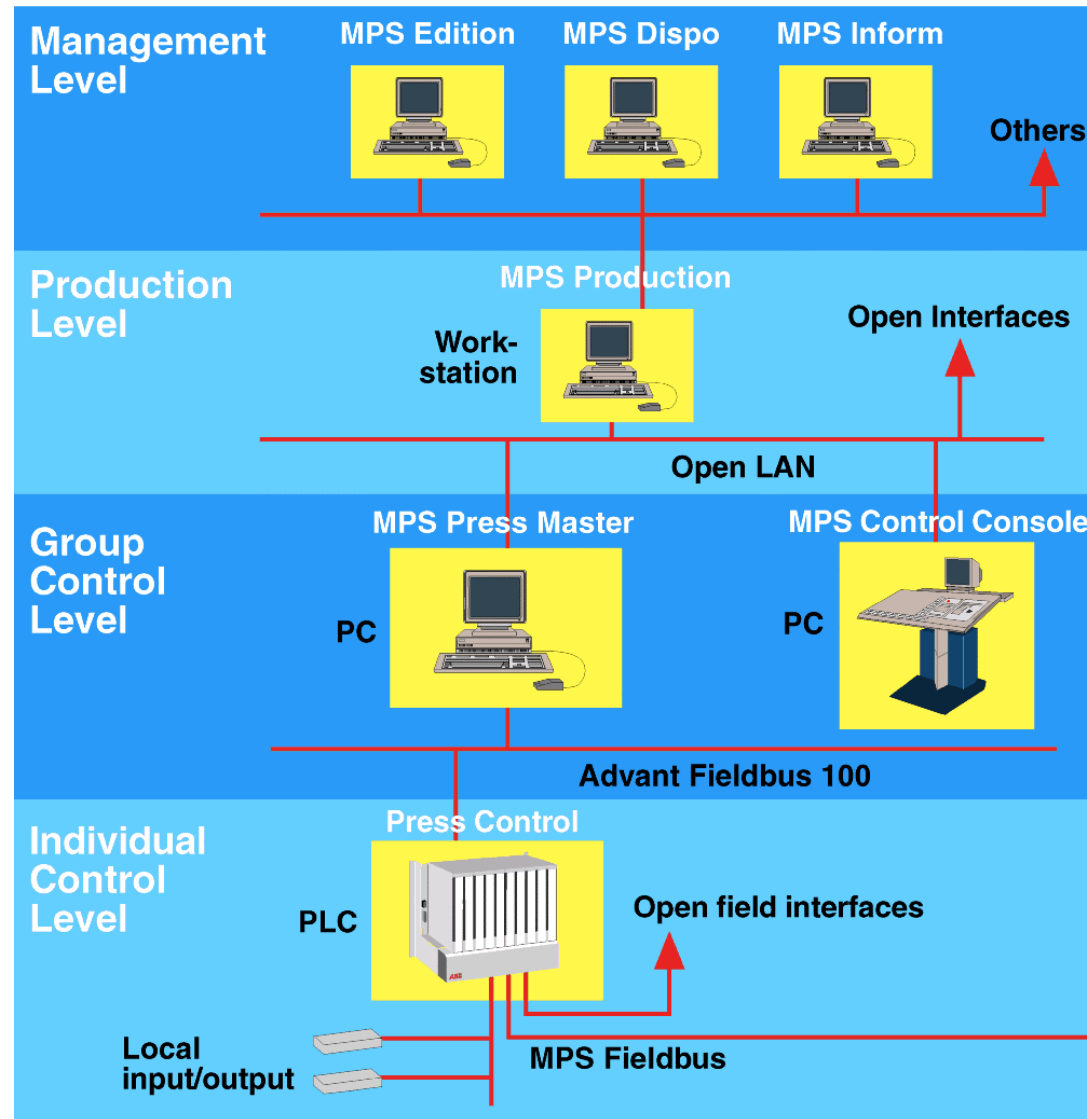
The control system has to suit the plant, not the reverse

The structure of the control system should reflect that of the plant

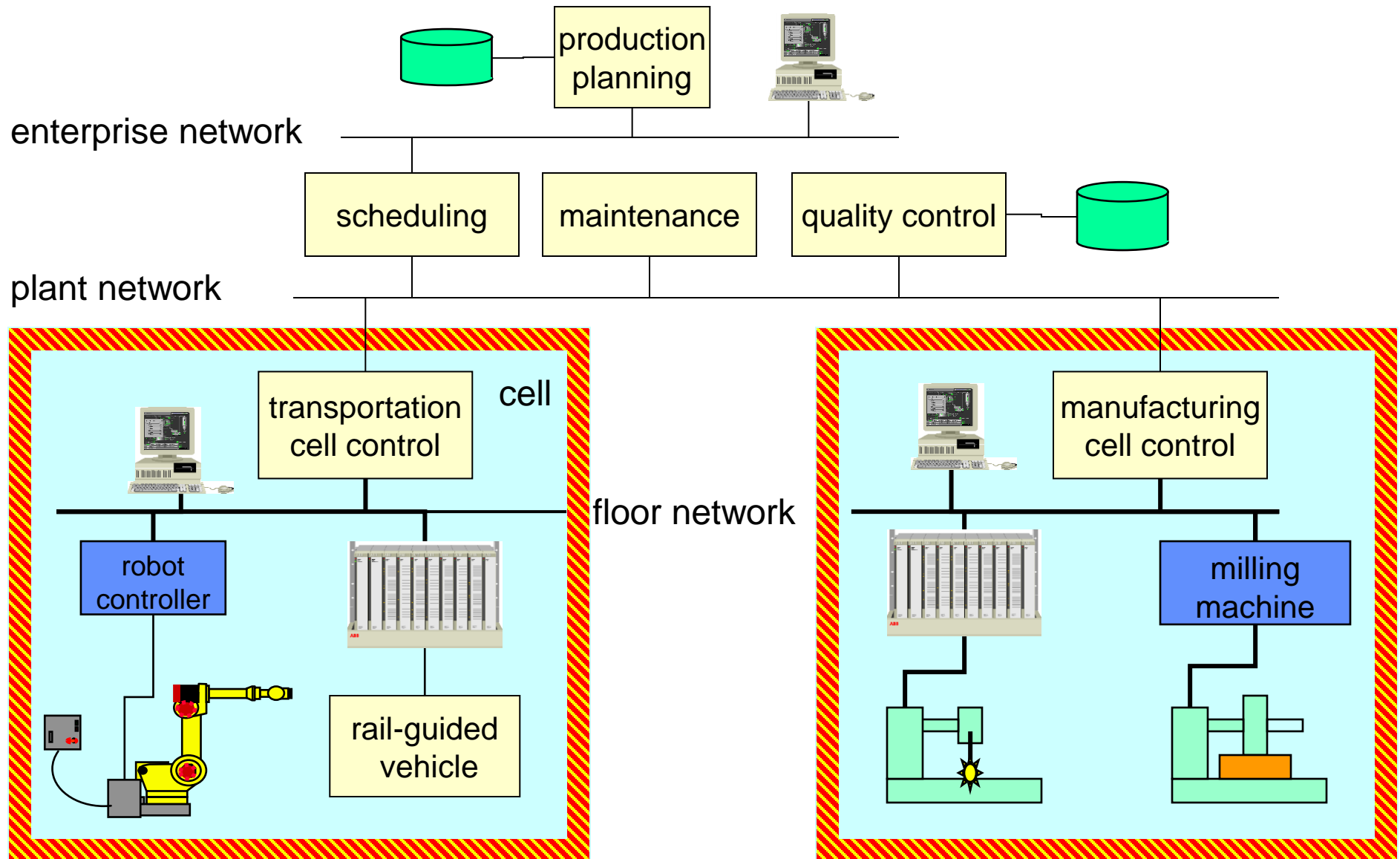
Ideally, each unit of the plant should have its own controller, interacting with the controllers of the other, related units, mirroring their physical interaction.

Example: Airbus: a wing is delivered with its own computers.

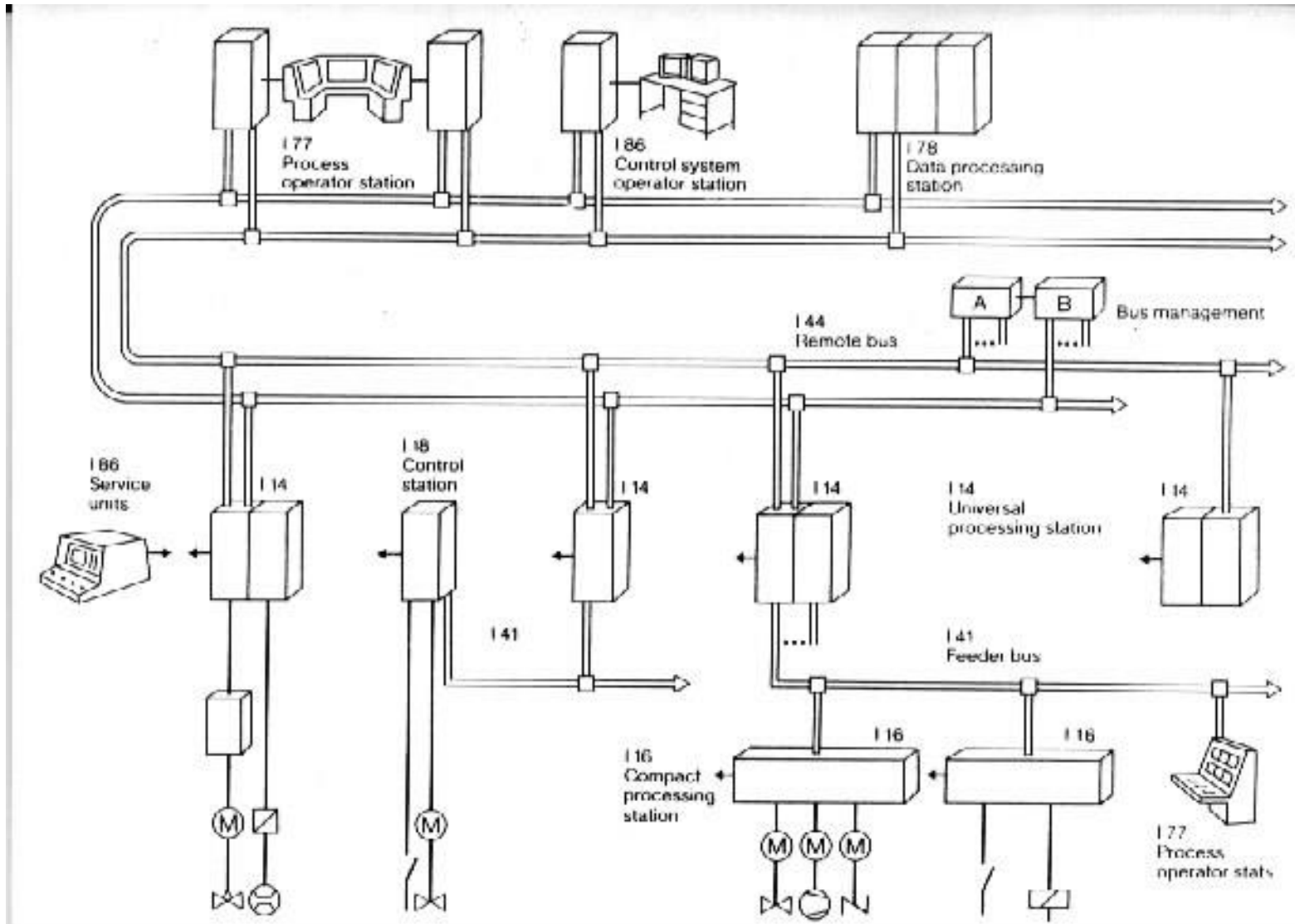
Example: Printing Architecture



Example: Production management system

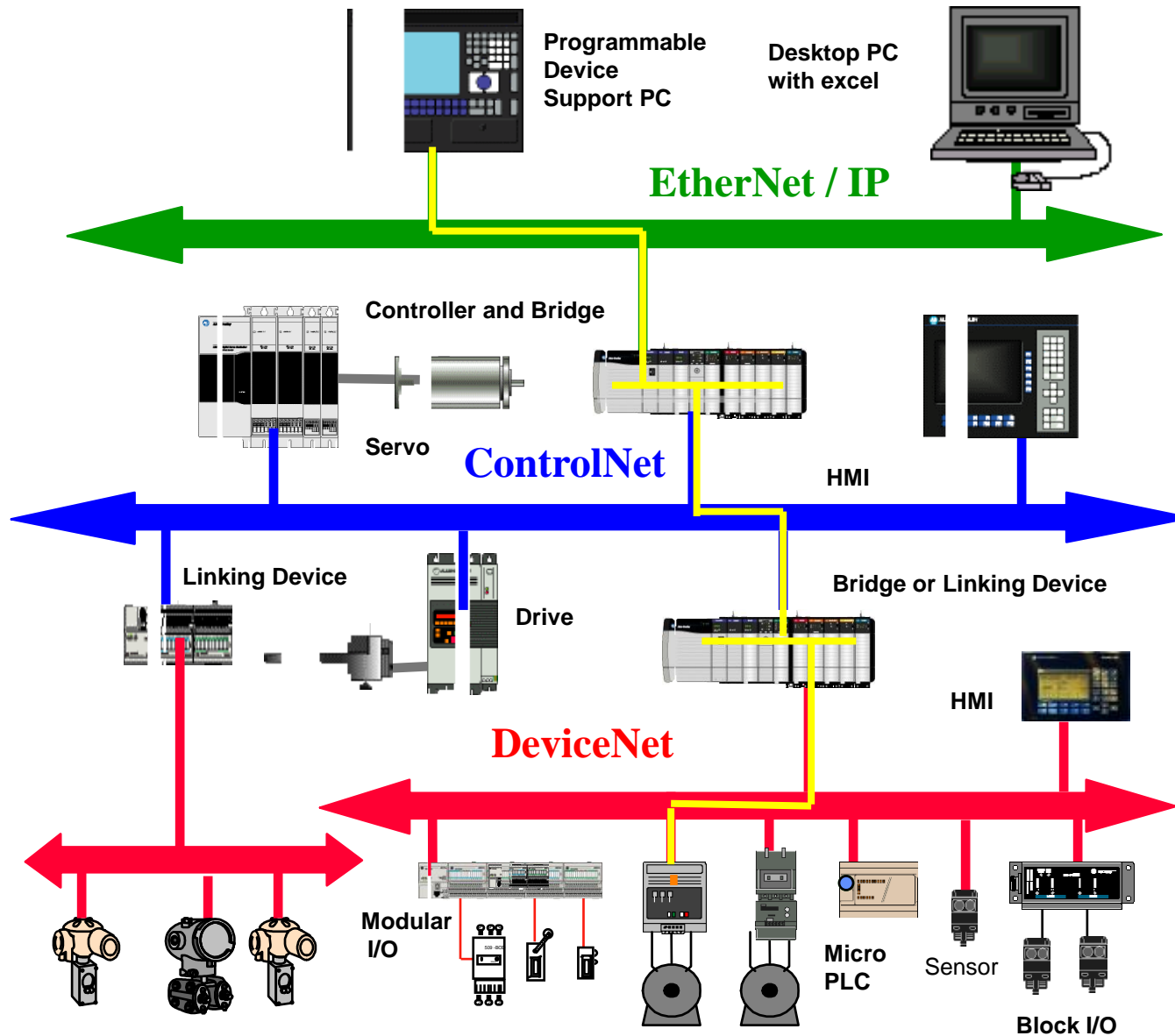


Example: Power plant control - 1980 (!)



Control systems look similar

Example: Rockwell (Allen-Bradley) NetLinx



Example: Emerson's PlantWeb (Delta V)

You can choose the level of redundancy your application requires, including:

- Redundant Ethernet network communications
- Redundant controllers
- Redundant power supplies
- Redundant H1 FOUNDATION fieldbus interface and bus power
- Redundant digital HART I/O
- Redundant MODBUS and other RS485 serial communications
- Redundant workstations

Rugged control and field interfaces

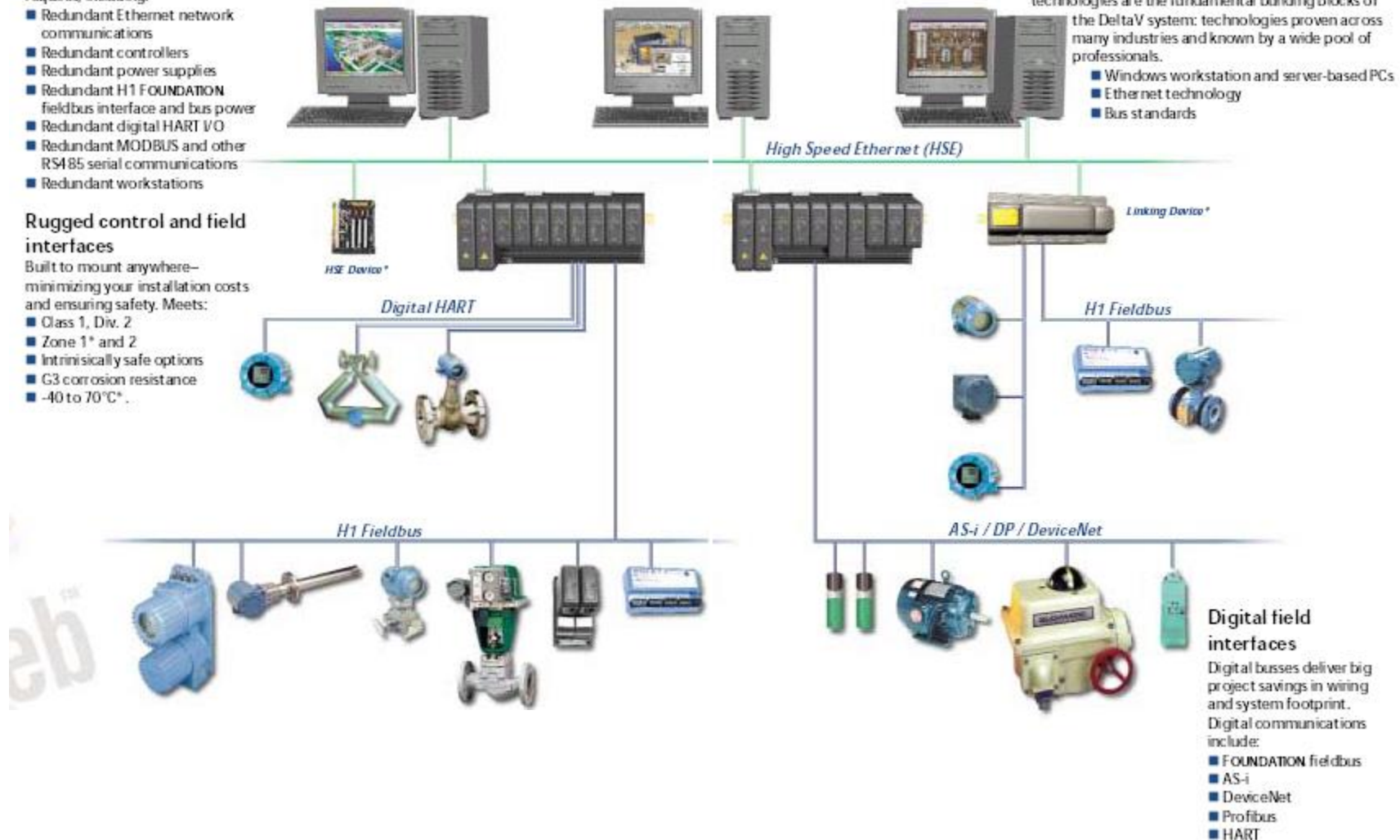
Built to mount anywhere—minimizing your installation costs and ensuring safety. Meets:

- Class 1, Div. 2
- Zone 1* and 2
- Intrinsically safe options
- G3 corrosion resistance
- -40 to 70°C*

Commercial off-the-shelf technologies

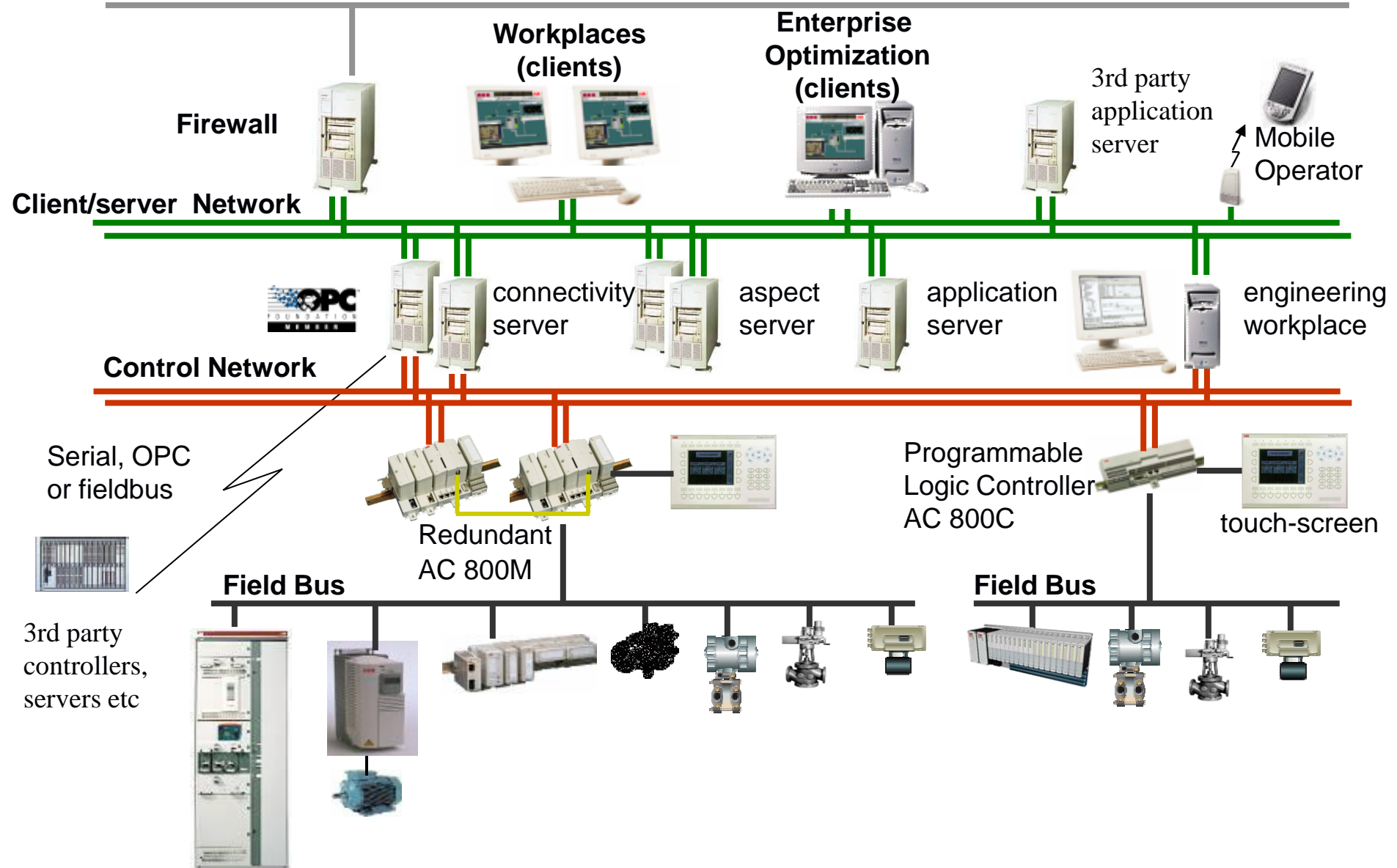
Proven, low-cost, easily integratable commercial technologies are the fundamental building blocks of the DeltaV system: technologies proven across many industries and known by a wide pool of professionals.

- Windows workstation and server-based PCs
- Ethernet technology
- Bus standards

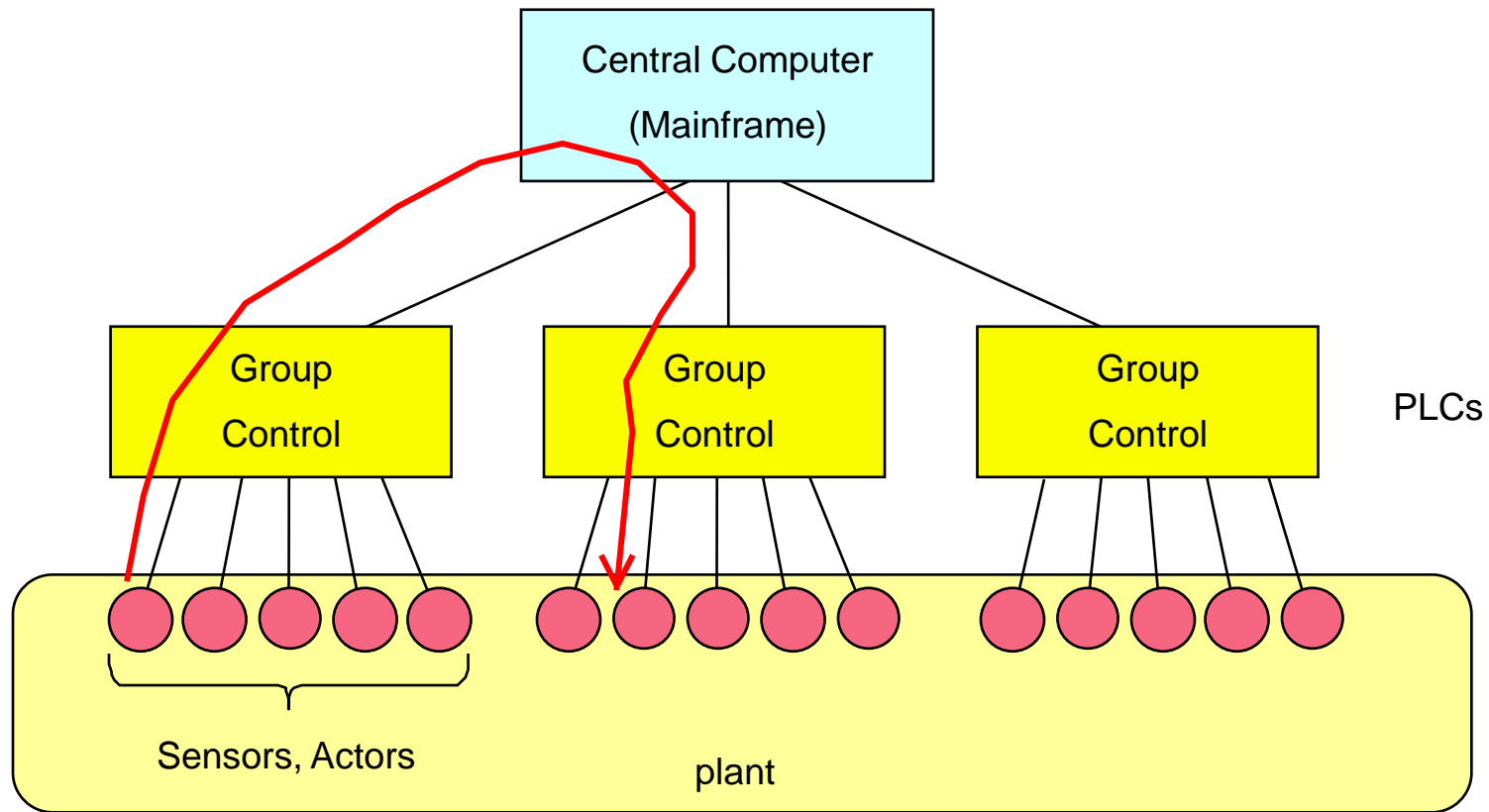


Example: ABB Industrial IT (redundant system)

Plant Network / Intranet



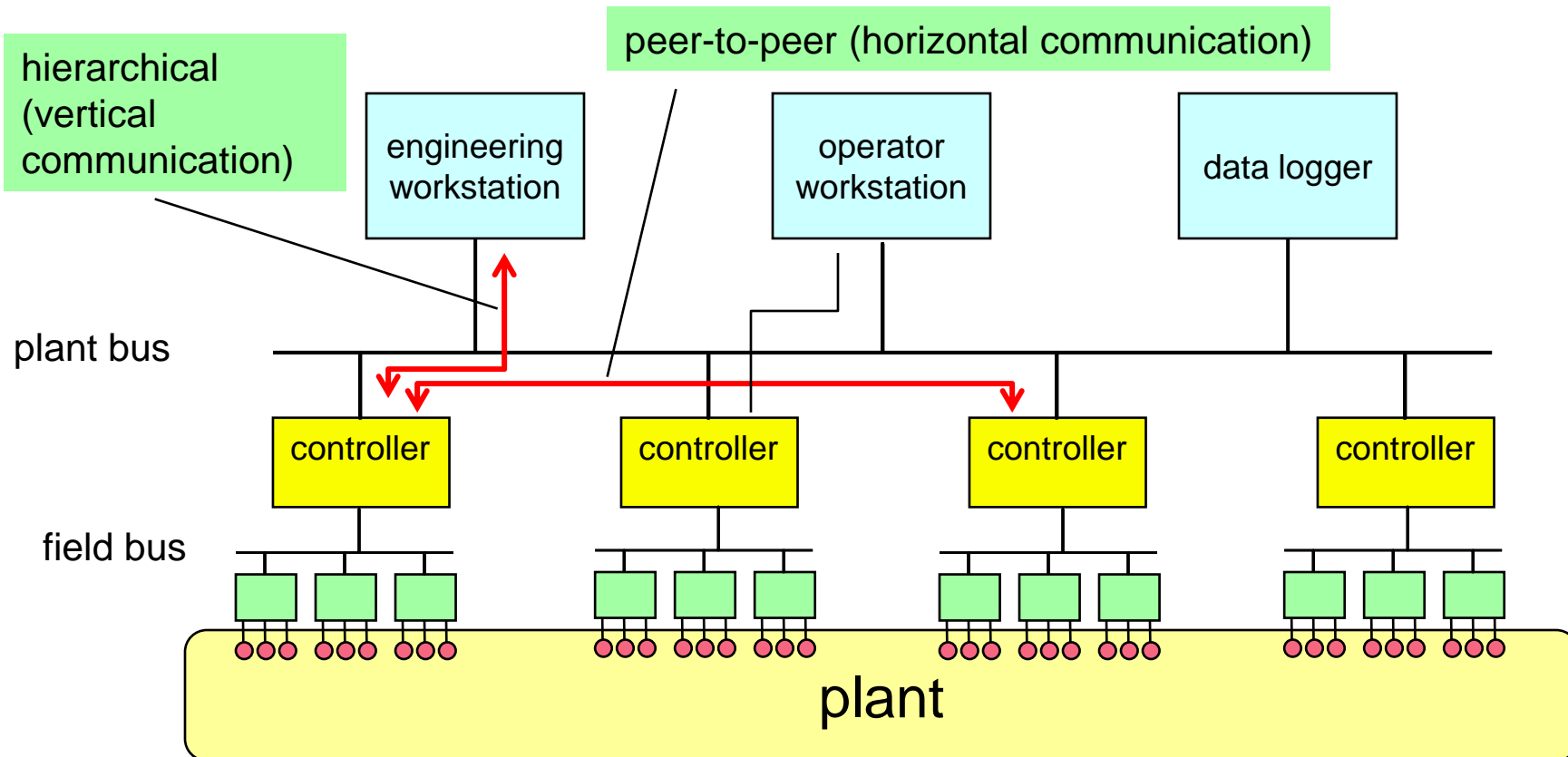
Centralized Control Architecture (classical)



Classical, hierarchical, centralized architecture.

The central computer only monitors and forwards commands to the PLCs

Decentralized Control System (DCS)



all controllers can communicate as peers (without going through a central master), restricted only by throughput and modularity considerations.

Note: Honeywell's "DCS™" stands for "Distributed Control System", it is not a decentralized control system, but a control system for the process industry.

