ETHERNET POWERLINK

POWERLINK

The standard for Industrial Ethernet

Why Ethernet

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- Old fieldbus technologies are limiting new demanding applications
  - Low bandwidth
  - Limited topologies

- Ethernet is a safe investment
  - High performance, higher productivity
  - Manufacturer independent
  - Proven technology

Why real-time Industrial Ethernet

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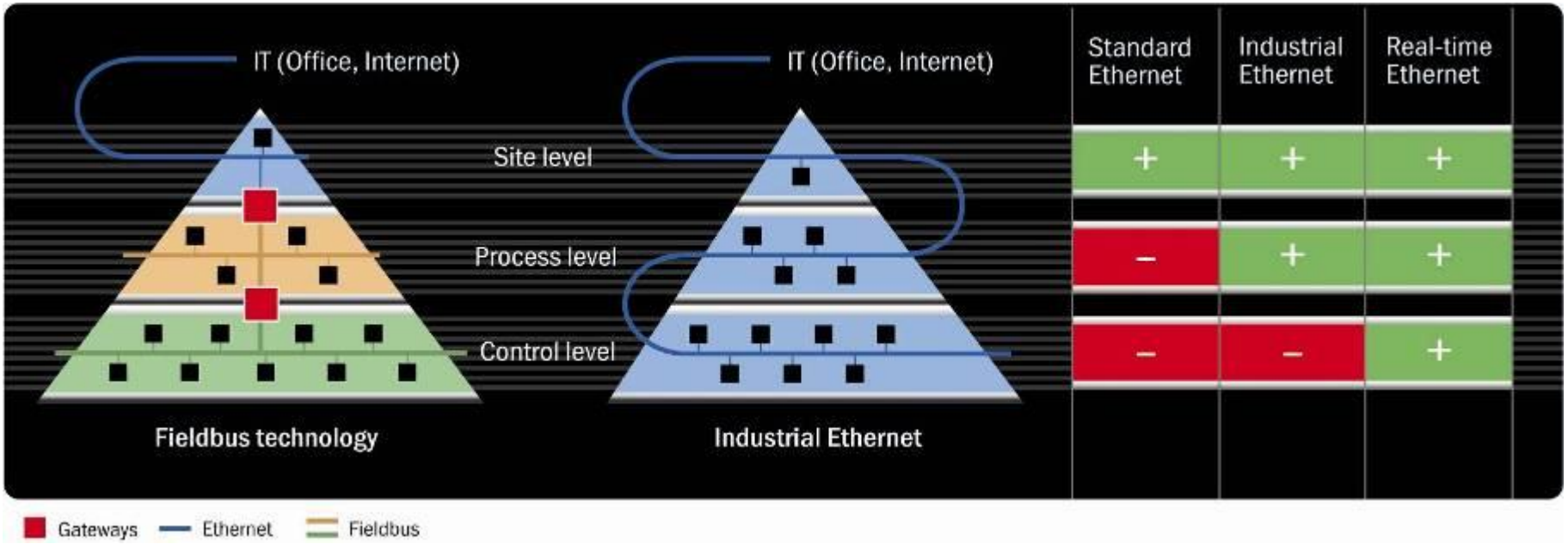
- Standard Ethernet is not deterministic
  - Designed for office application
  - Not for time critical information

- Real-time Industrial Ethernet is required for
  - Critical processes, control level and sensor systems

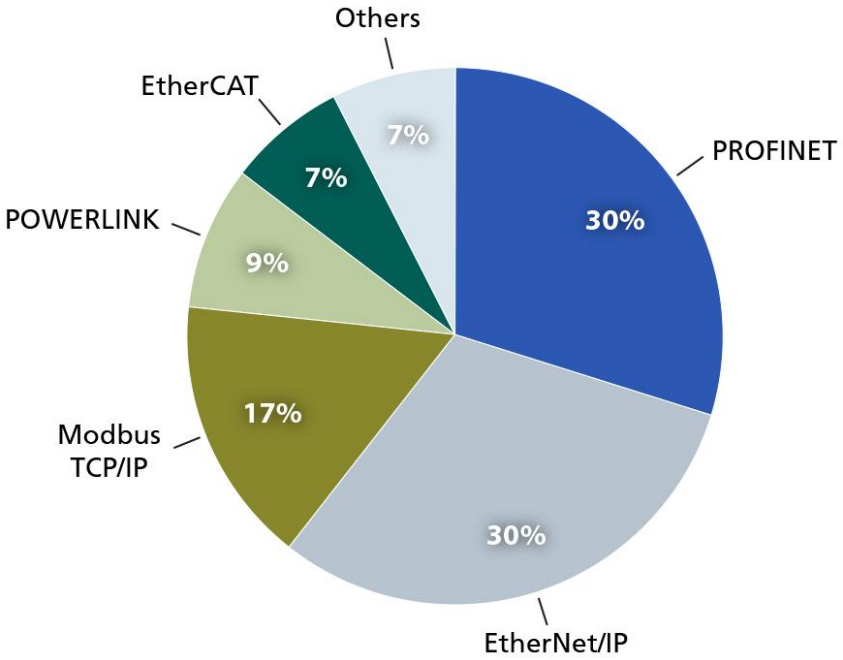


Why POWERLINK

- Maximum performance
- Absolute openness
- Based on Standard Ethernet
- Designed for Integrated Automation
- Lowest Total Cost of Ownership

POWERLINK market

- Worldwide leader for real-time Ethernet solutions
- 3,200 OEMs trust in POWERLINK
- More than 1,1 million POWERLINK systems installed



Source IMS Research 2013

POWERLINK is Chinese official standard

- Industrial Ethernet National Standard GB/T-27960

How it works

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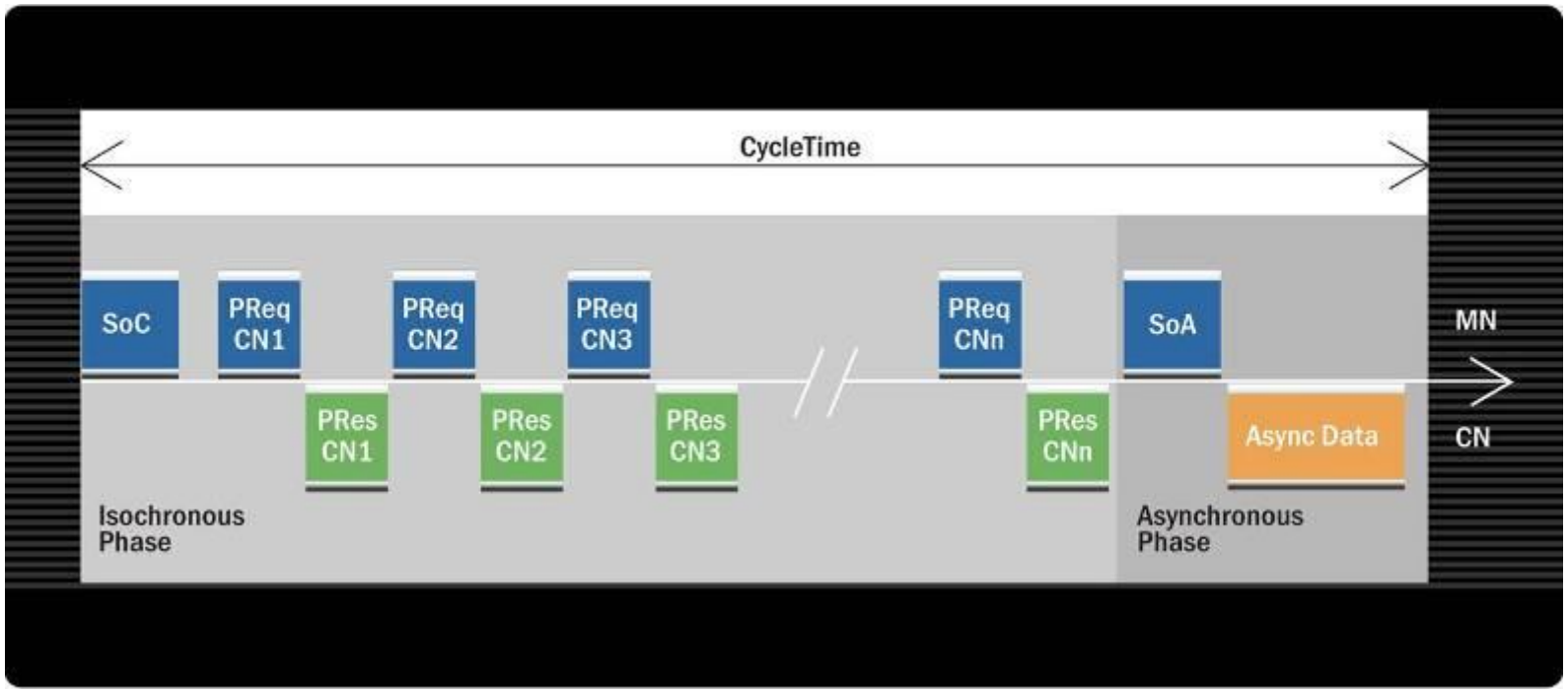
- Simplicity
  - Basic and robust mechanism
  - No complex time synchronization
  - Adequate to industrial automation



Efficient technology

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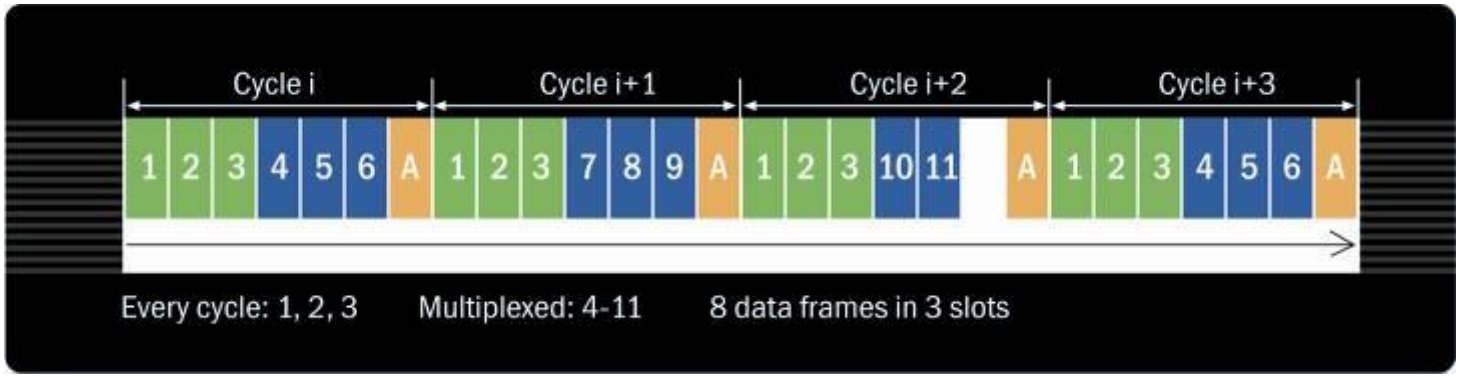
- Direct slave to slave communication
  - Fastest drive to drive reaction time
  - Centralized or decentralized architecture

- Multiplexed slot assignment
  - No need to exchange all data at fastest cycle time
  - Ideal for Integrated Automation



Efficient technology

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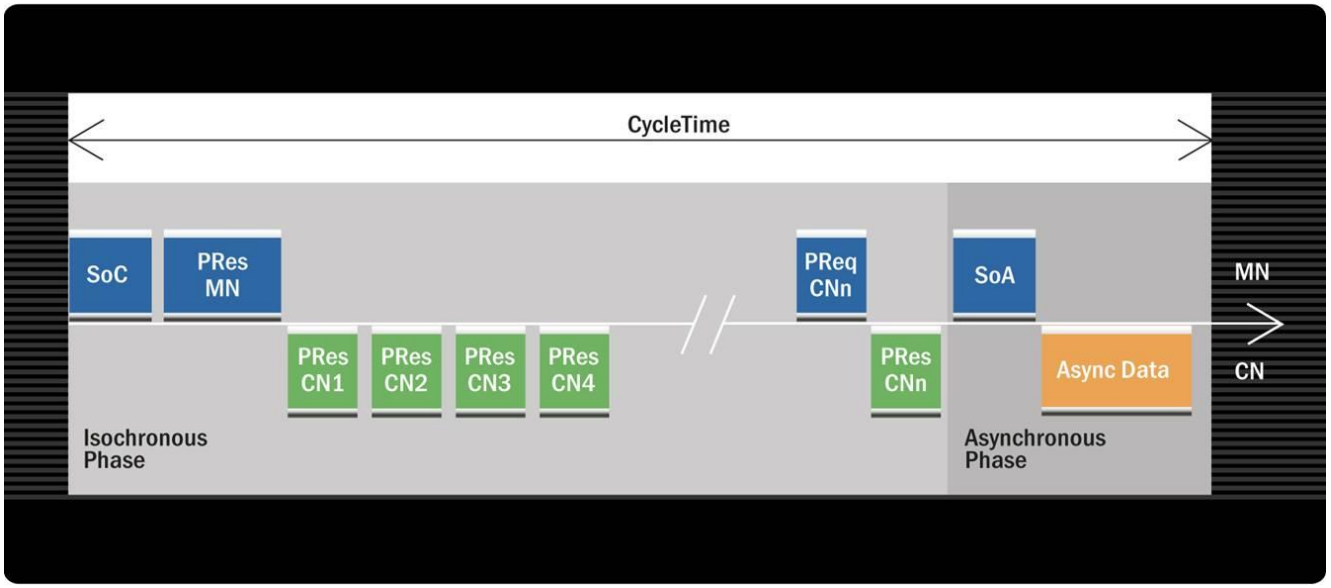
- Poll Response Chaining
  - Position Control Loop
  - Current Control Loop



Efficient technology

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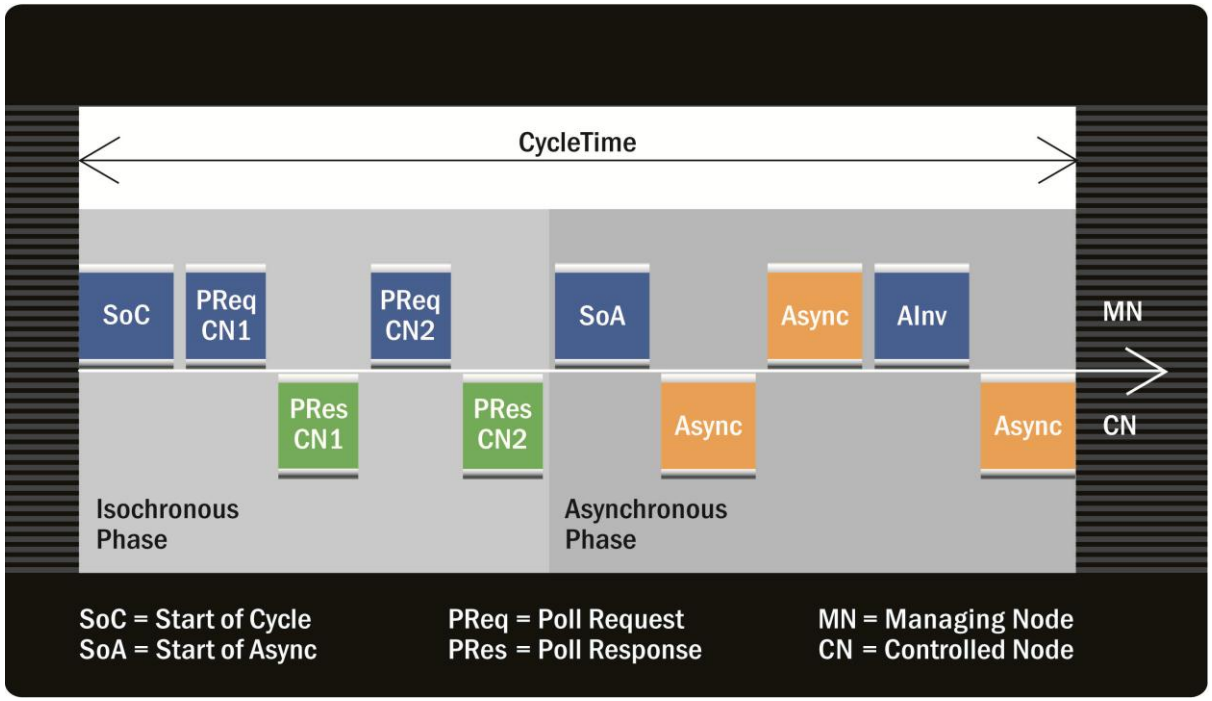
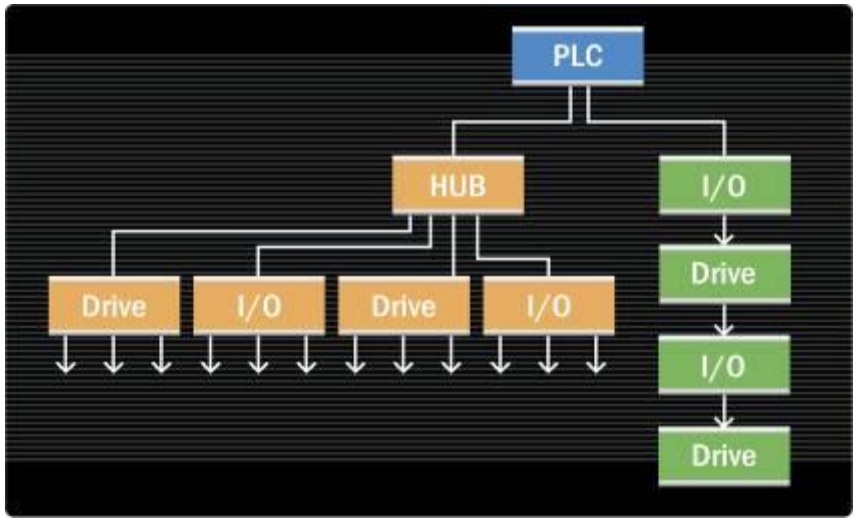
- Multiple Asynchronous Send
  - Increased asynchronous bandwidth
  - Ideal for standard Ethernet traffic



Easy operation

- Hot Plug
  - Higher productivity, modular system concepts
  - No violation of real-time behaviour
- Topology flexibility
  - 100% free choice of star, tree, ring, or daisy chain
  - No limits on system extensions



Wideband networking capabilities

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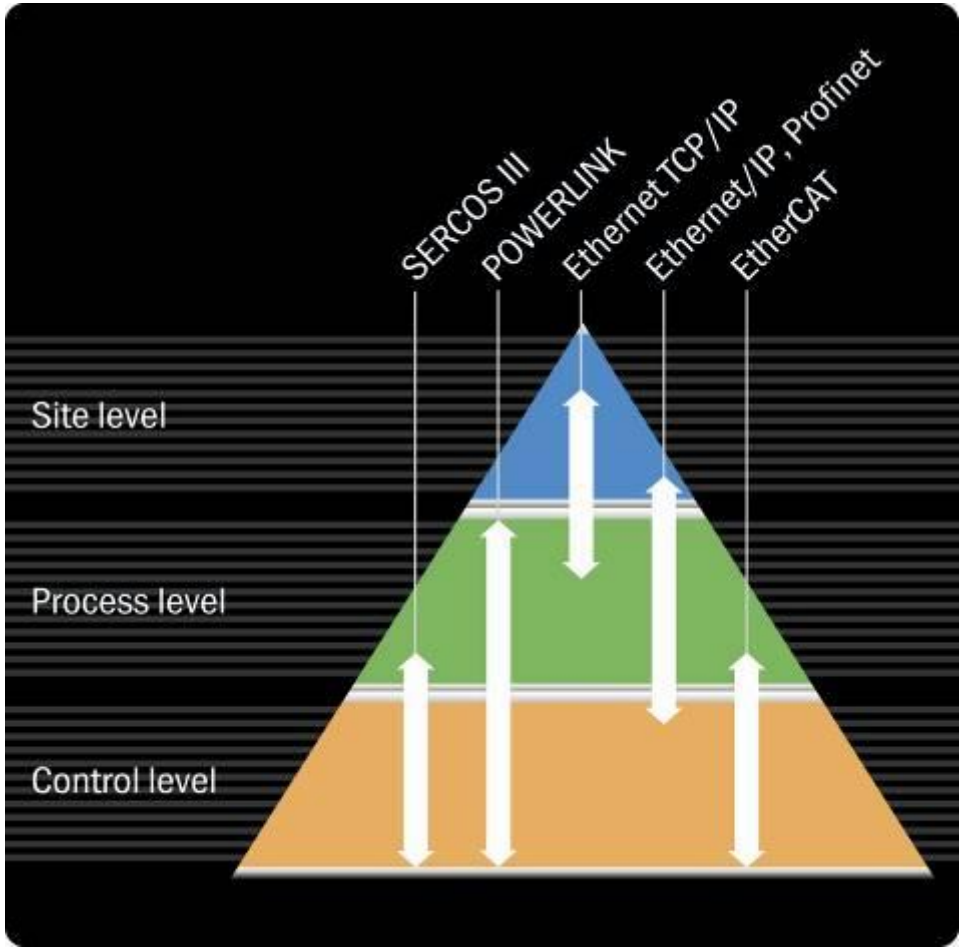
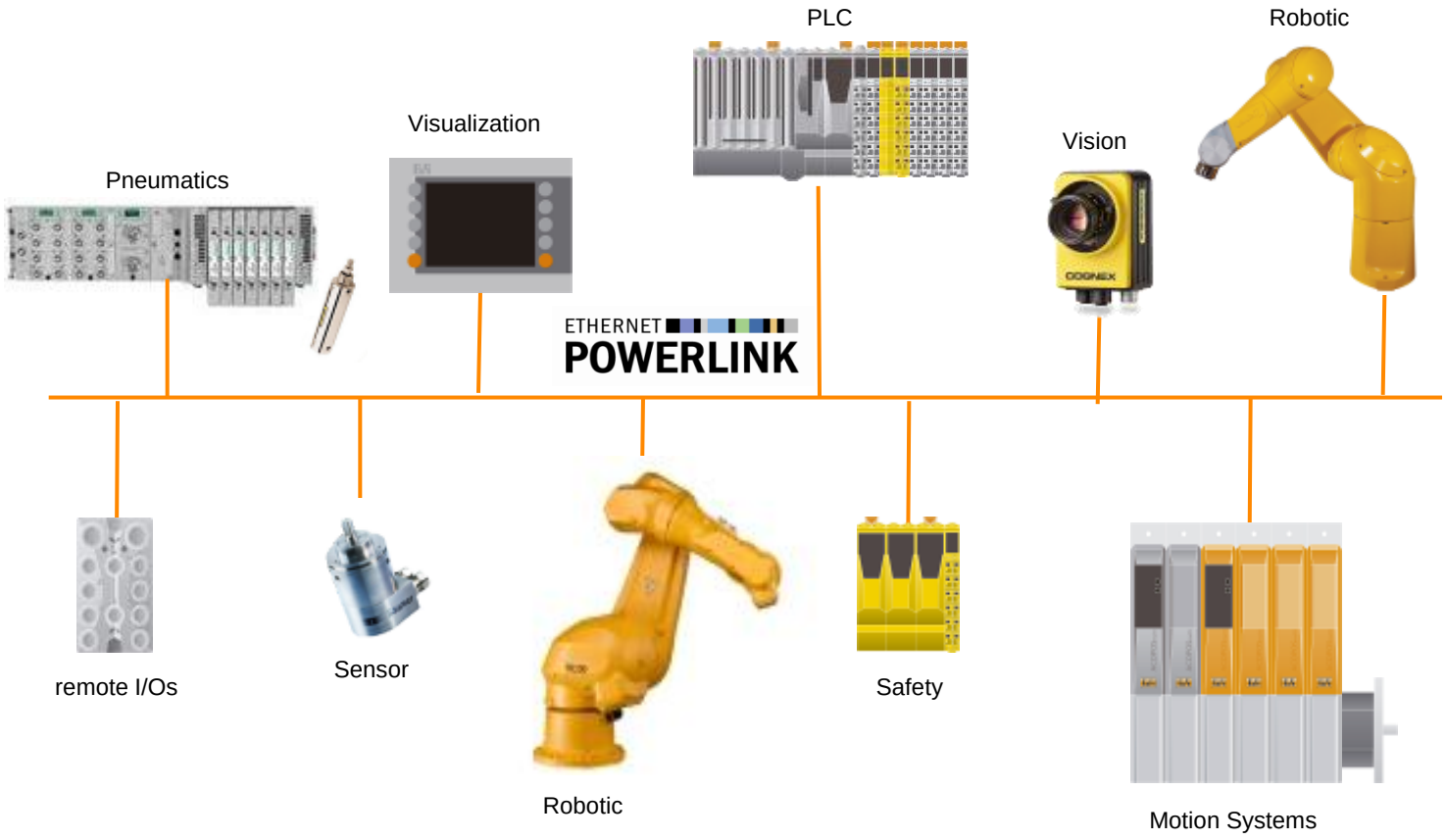
- POWERLINK fulfills all network requirements
  - One technology from motion to process



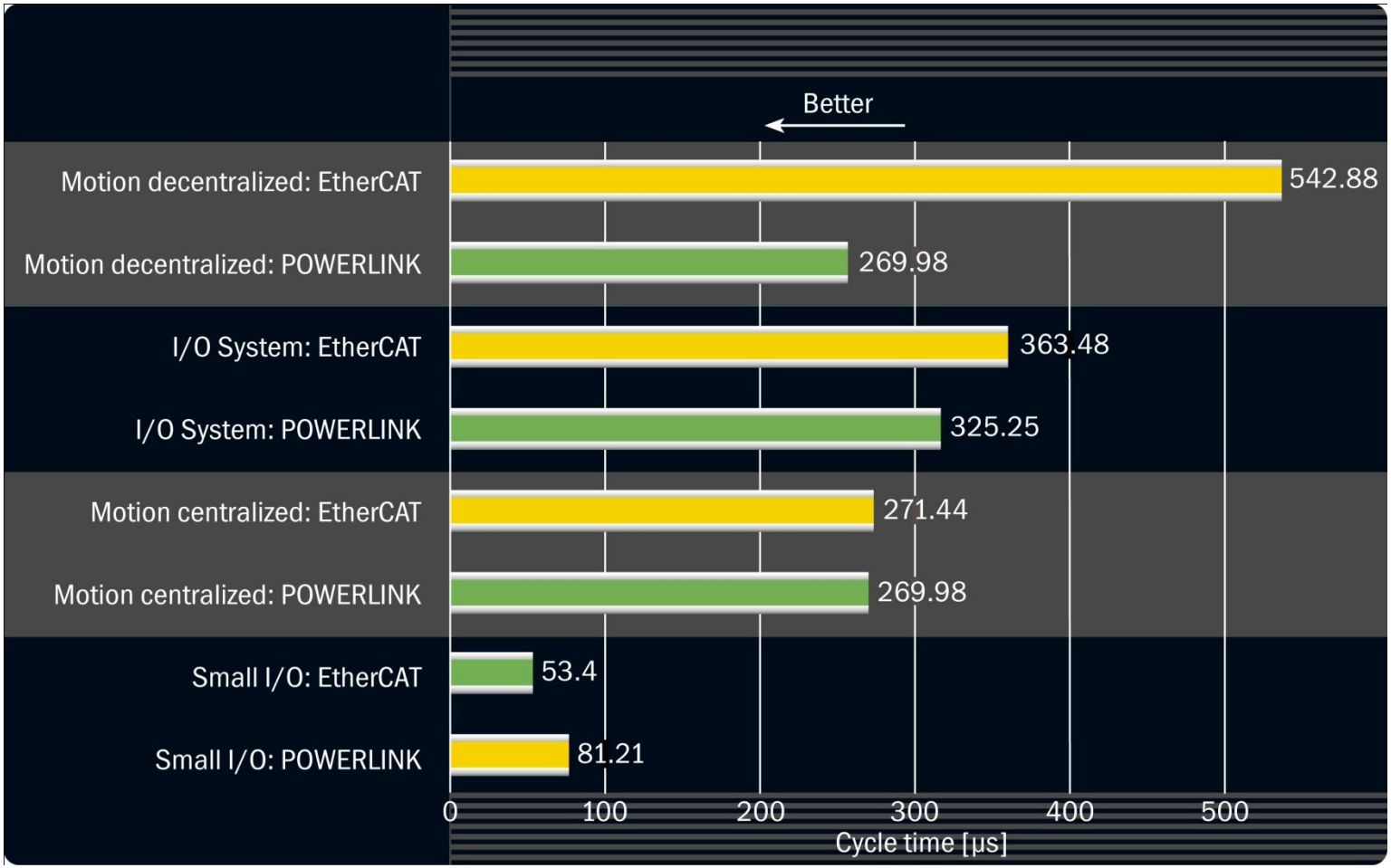
Everything connected to one network

- Perfect for Integrated Automation



Performance

- POWERLINK is faster than EtherCAT in many applications!



The fastest network in the world!

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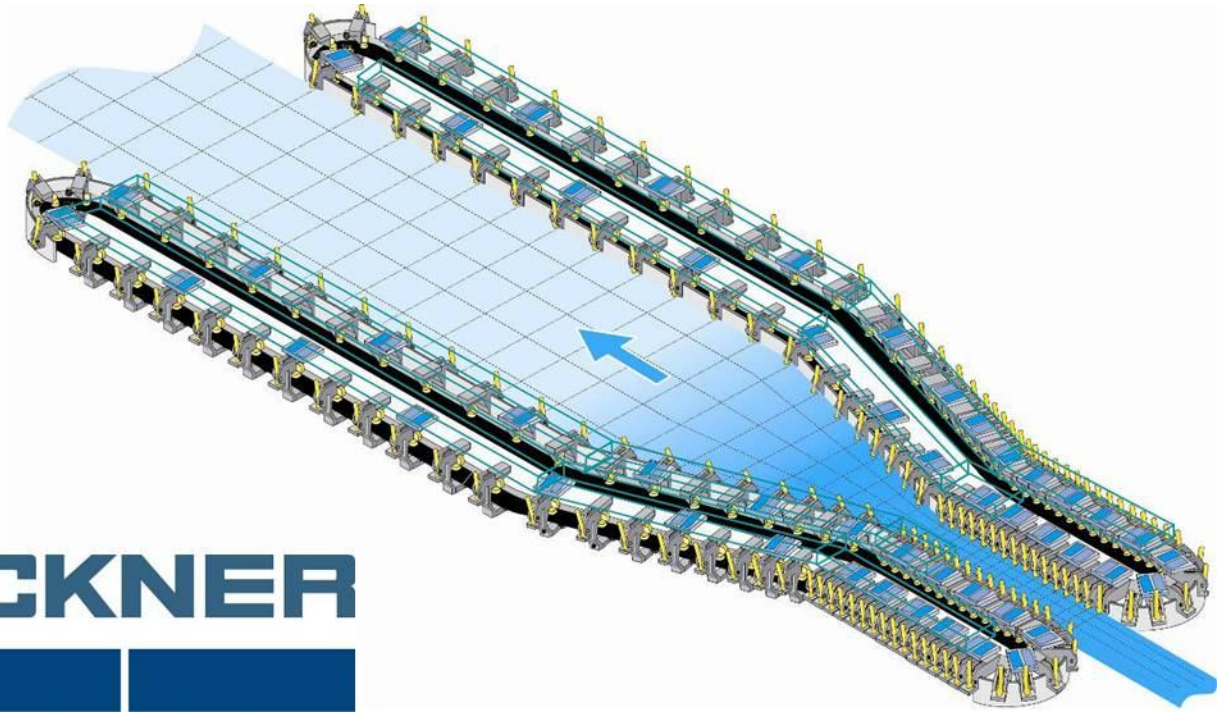
- **728** axes in **400µs**
- … realized, not just theory!



BRÜCKNER

High availability

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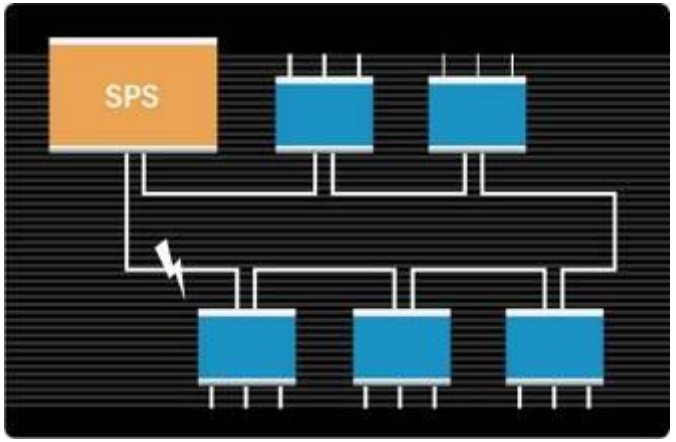
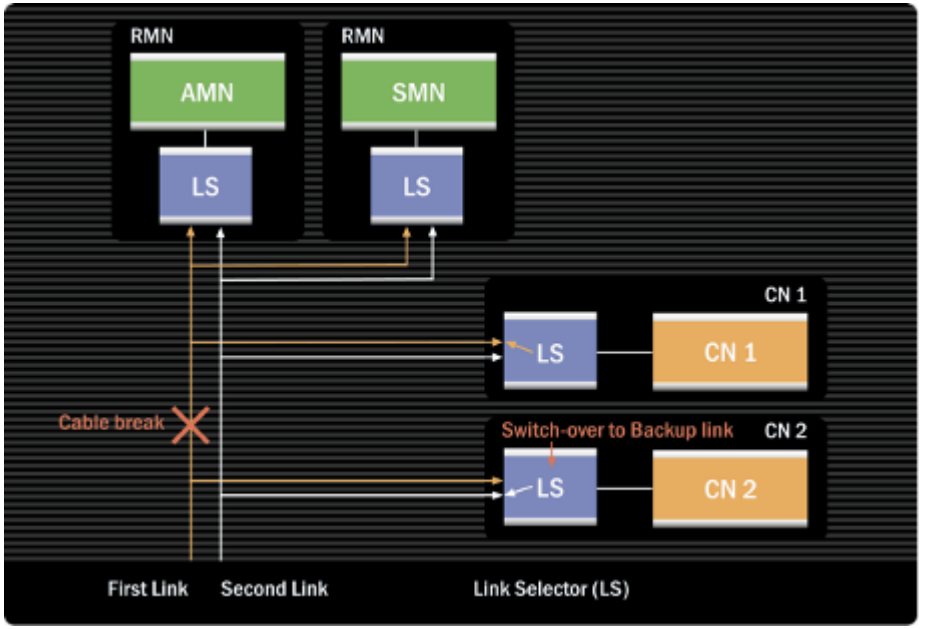
- Ring redundancy
- Full medium redundancy
- Redundant master
- No downtime





openSAFETY

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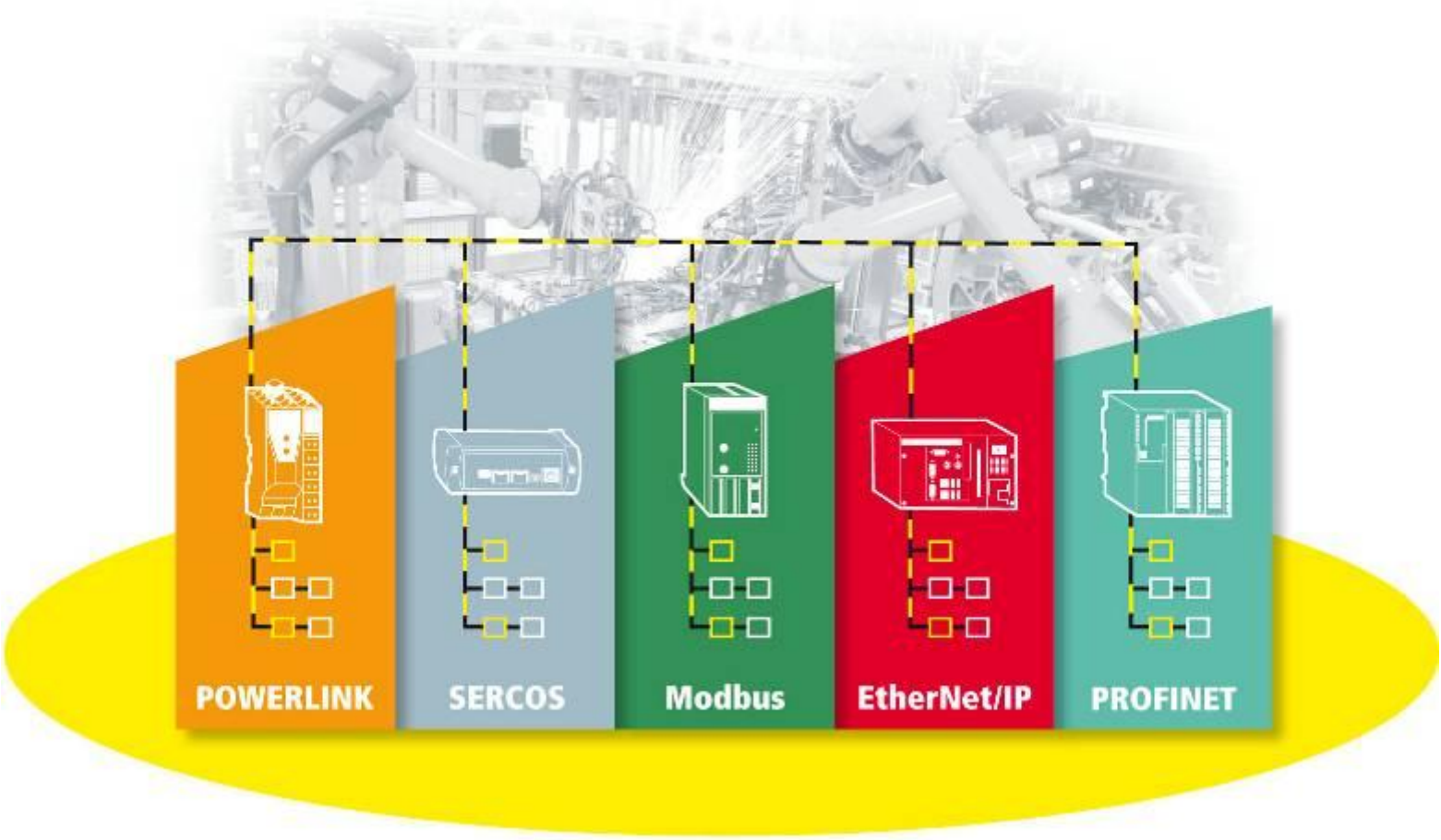
- One Safety standard for every bus system



Total Cost of Ownership

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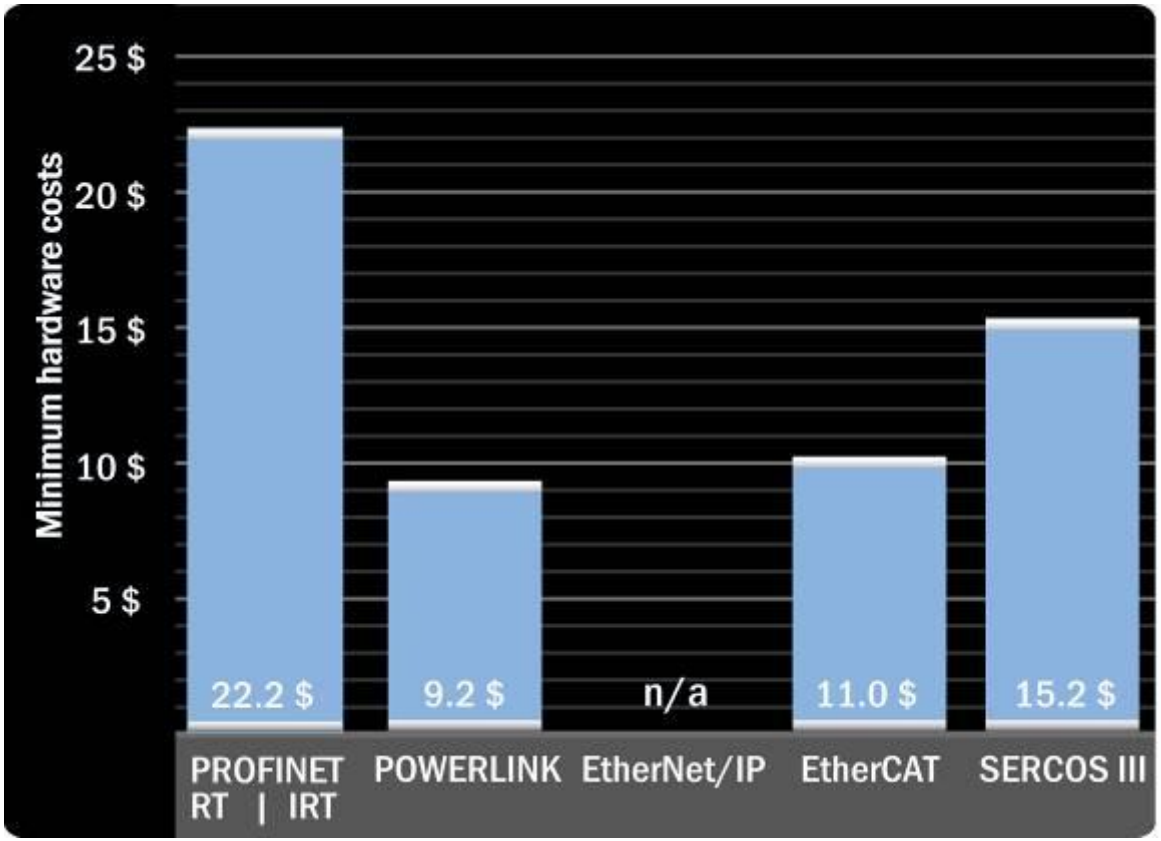
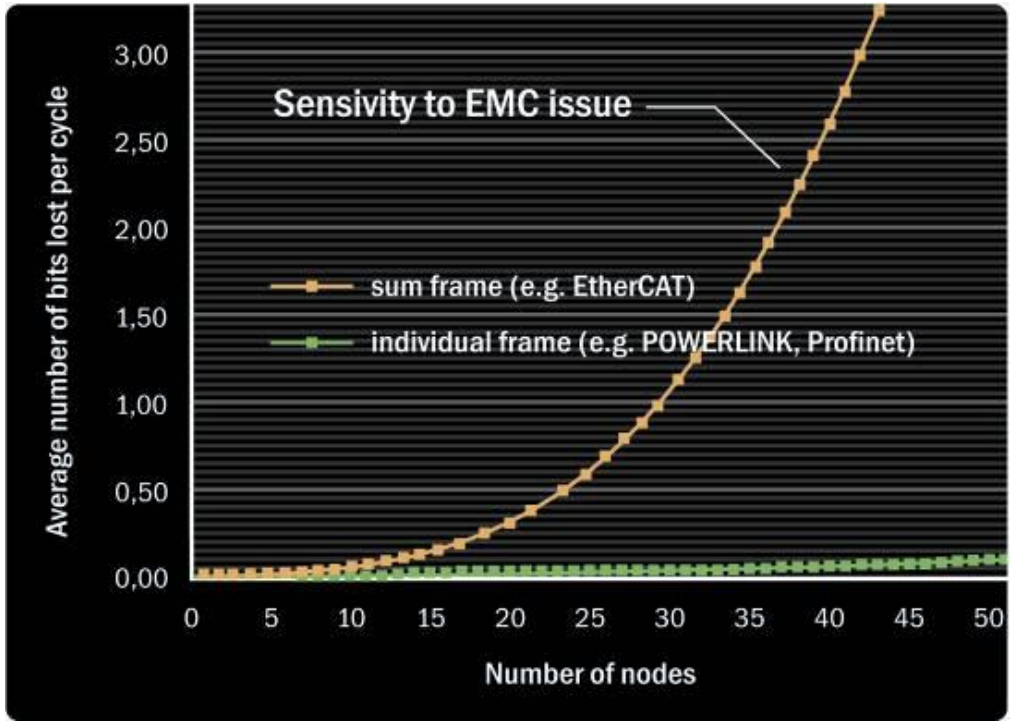
- Reduced Total Cost of Ownership
  - No license - no patents
  - Free software stack - minimum hardware cost



Electro magnetic compatibility

- New machines include numerous electronic power components

- POWERLINK has an excellent EMC immunity



Your benefits

- OEM
  - High performance
  - Open technology
  - Easy integration and diagnostic
- Users
  - Cost reduction
  - Increased productivity
  - Reduced downtime
- Component manufacturer
  - Enter the largest established market
  - No specific hardware required
  - Training and worldwide support available

Industrial Ethernet FACTS

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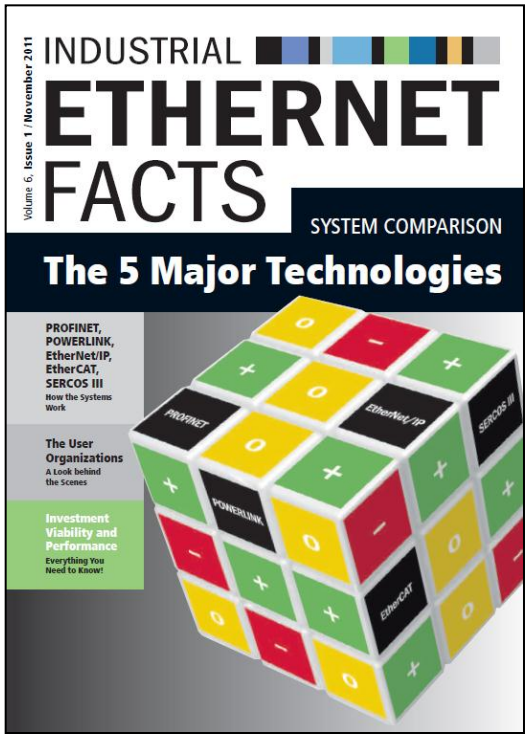
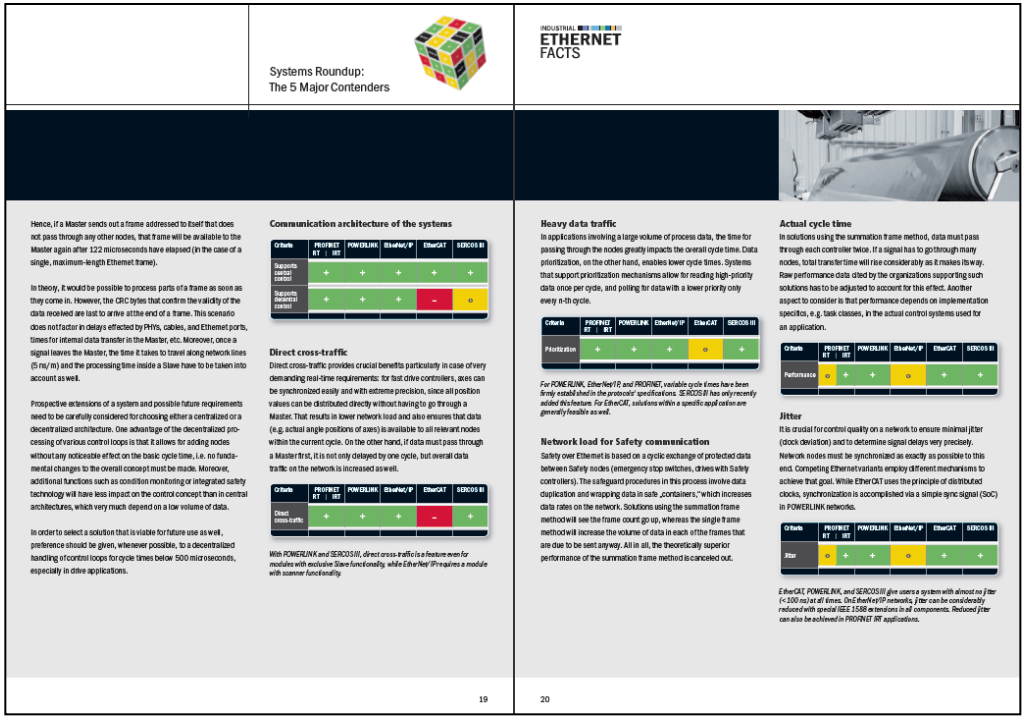
- Comparison of 5 major Industrial Ethernet technologies
- Available at http://www.ethernet-powerlink.org/





POWERLINK news

ETHERNET POWERLINK Standardization Group

www.ethernet-powerlink.org/

LinkedIn

www.linkedin.com/groups?about=&gid=2331103

Thank you for your attention