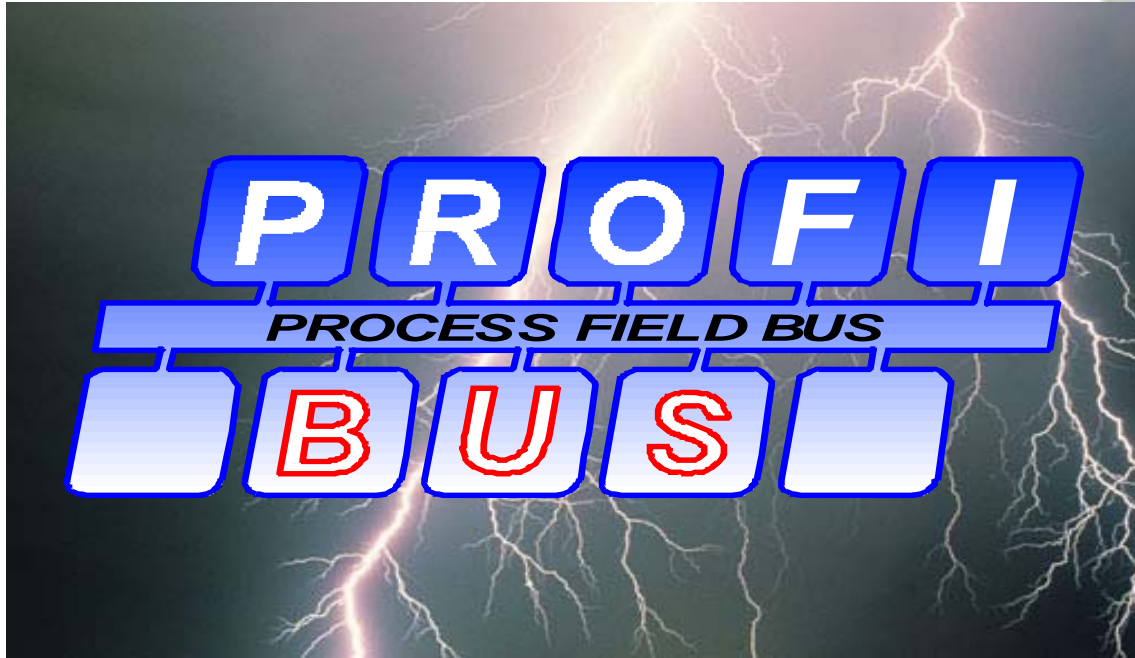




Overview





Overview



❑ PROFIBUS Expert Talk

☑ Chapter 1 - Overview



☑ Chapter 2 - Bus Physics & Wiring



☑ Chapter 3 - PROFIBUS Basics



☒ Chapter 4 - PROFIBUS Details



☑ Chapter 5 - Diagnostic & Troubleshooting



☒ Chapter 6 - PROFIBUS DP Extensions



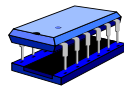
☒ Chapter 7 - PROFIBUS for Process Automation



☒ Chapter 8 - New Features



☒ Chapter 9 - ASICs



☑ Chapter 10 - PROFIBUS Interface Center



☑ = Recommended
☒ = Optional

Overview



❑ Customer Expectations

✓ Cost Savings



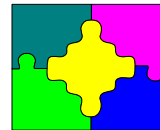
✓ Flexibility



✓ Reliable & Future oriented



✓ Solution for all Automation Needs



✓ Interoperability & Vendor Independence



! Standard !



Overview



**How does PROFIBUS
fulfill all these needs?**

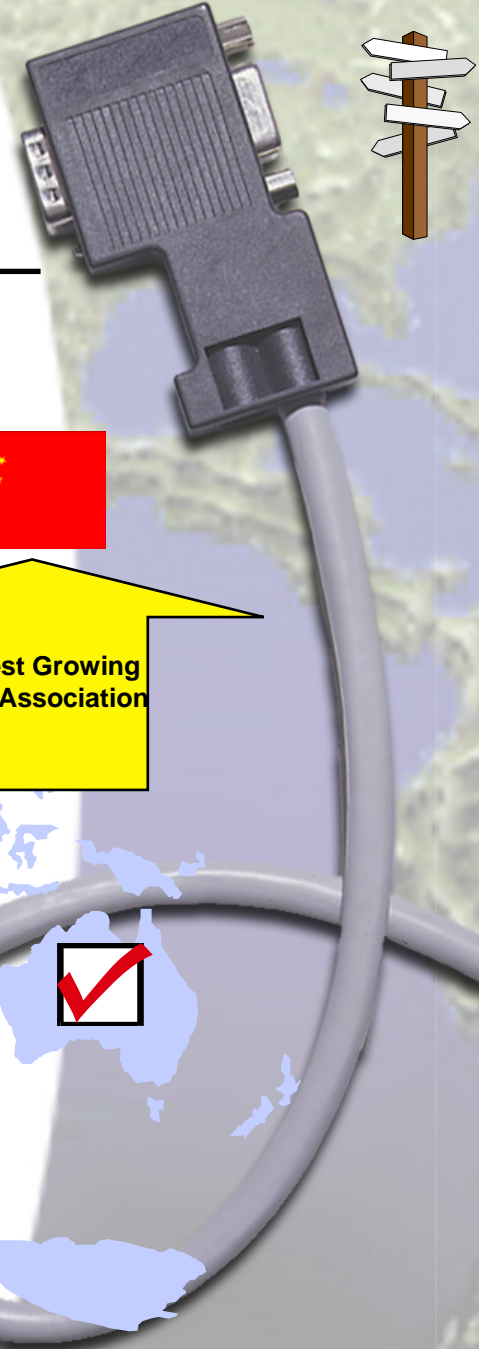


Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

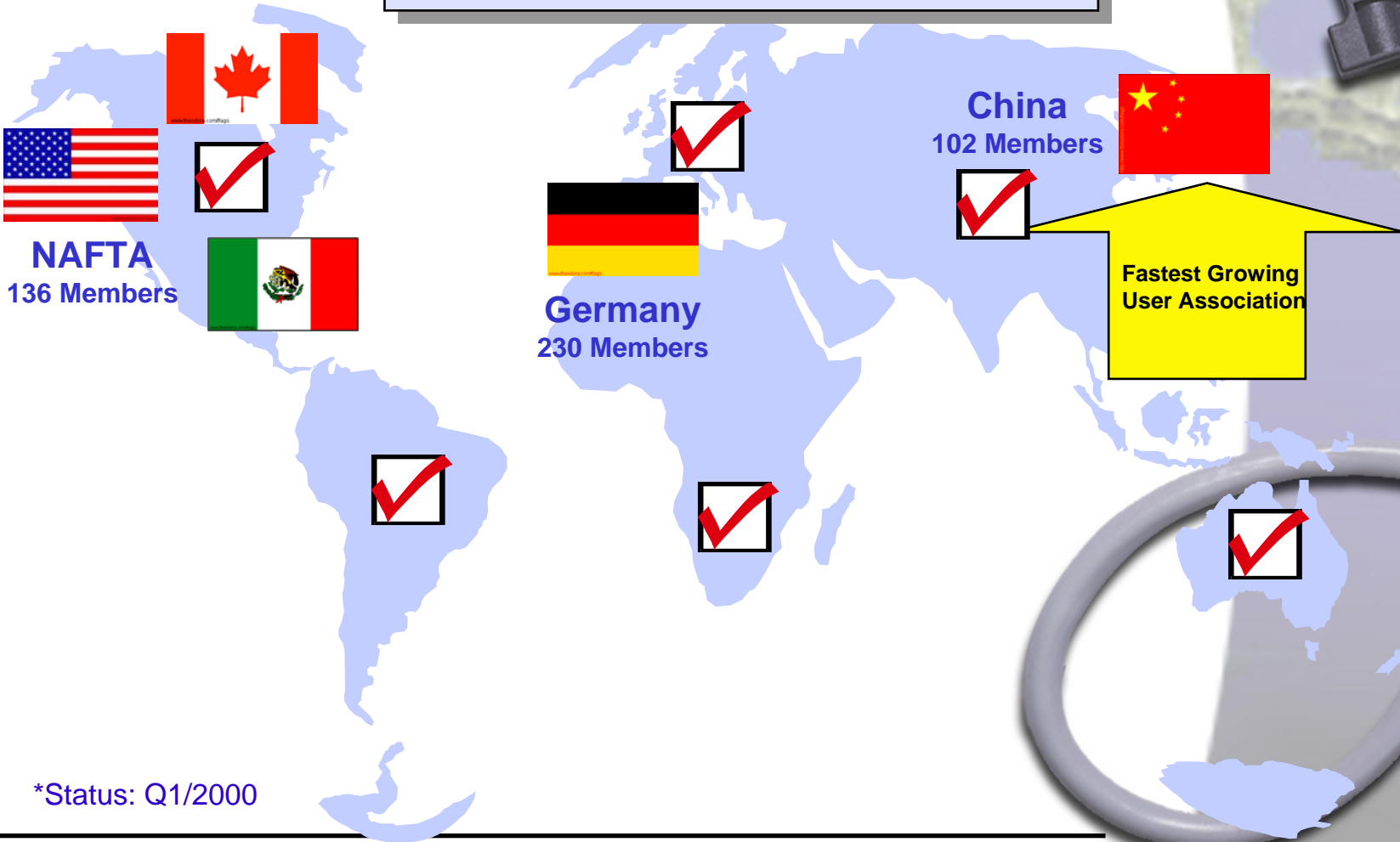
**PROFIBUS is part of
the Open Standard
IEC 61158**



Overview



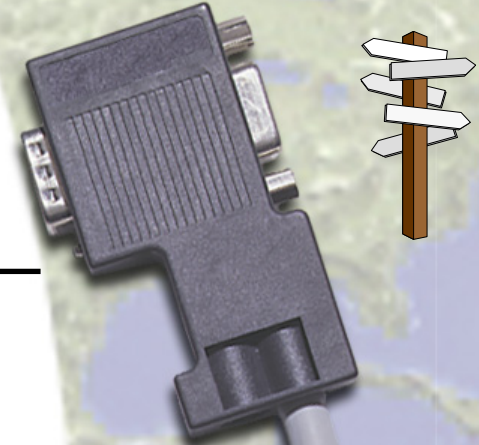
PROFIBUS International *



*Status: Q1/2000



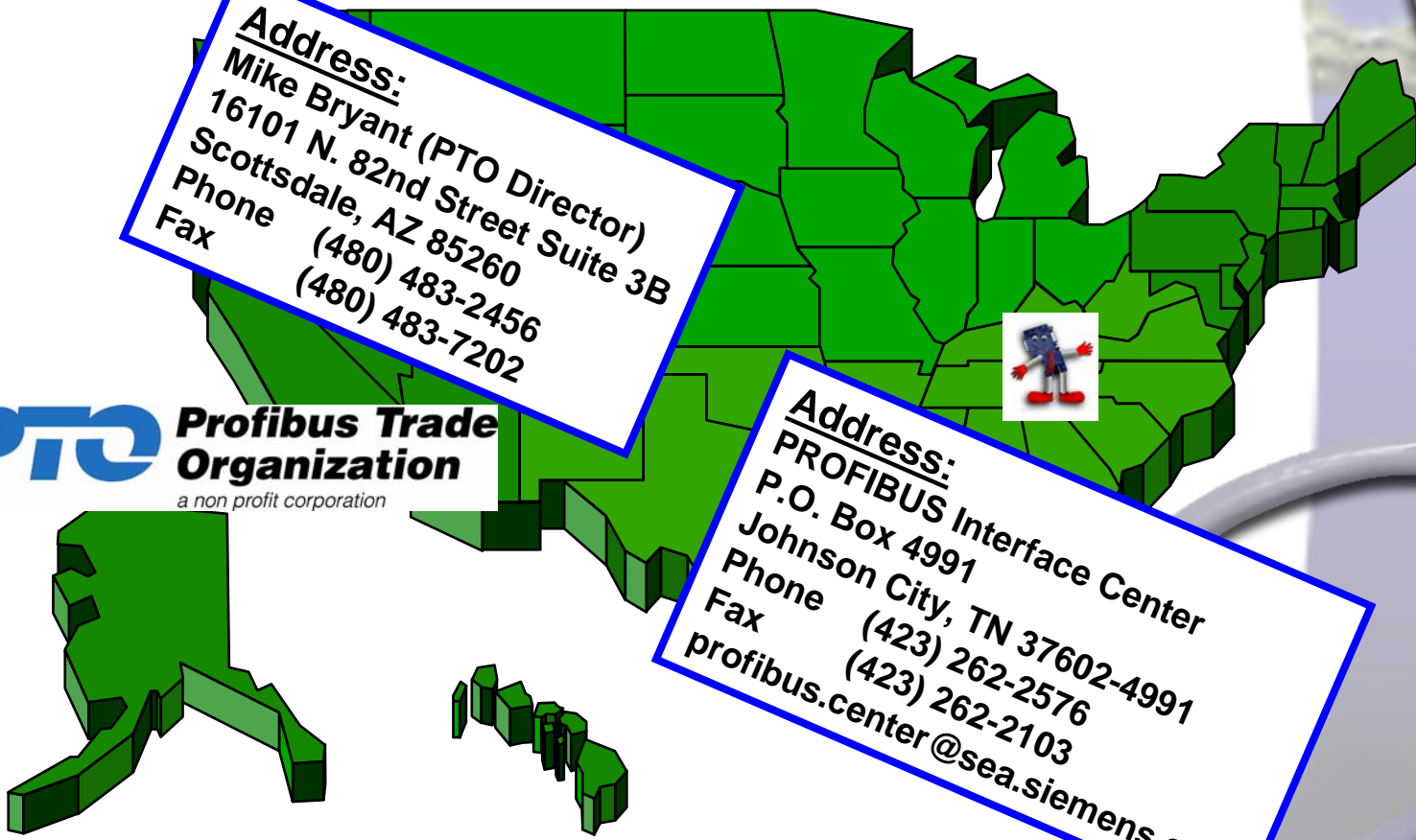
Overview



□ How does PROFIBUS work? - continued

Address:
Mike Bryant (PTO Director)
16101 N. 82nd Street Suite 3B
Scottsdale, AZ 85260
Phone (480) 483-2456
Fax (480) 483-7202

Address:
PROFIBUS Interface Center
P.O. Box 4991
Johnson City, TN 37602-4991
Phone (423) 262-2576
Fax (423) 262-2103
profibus.center@sea.siemens.com





Overview



Interoperability & Vendor Independence



1,000 members in 23 user associations *



1,900 products from more than 280 different vendors *

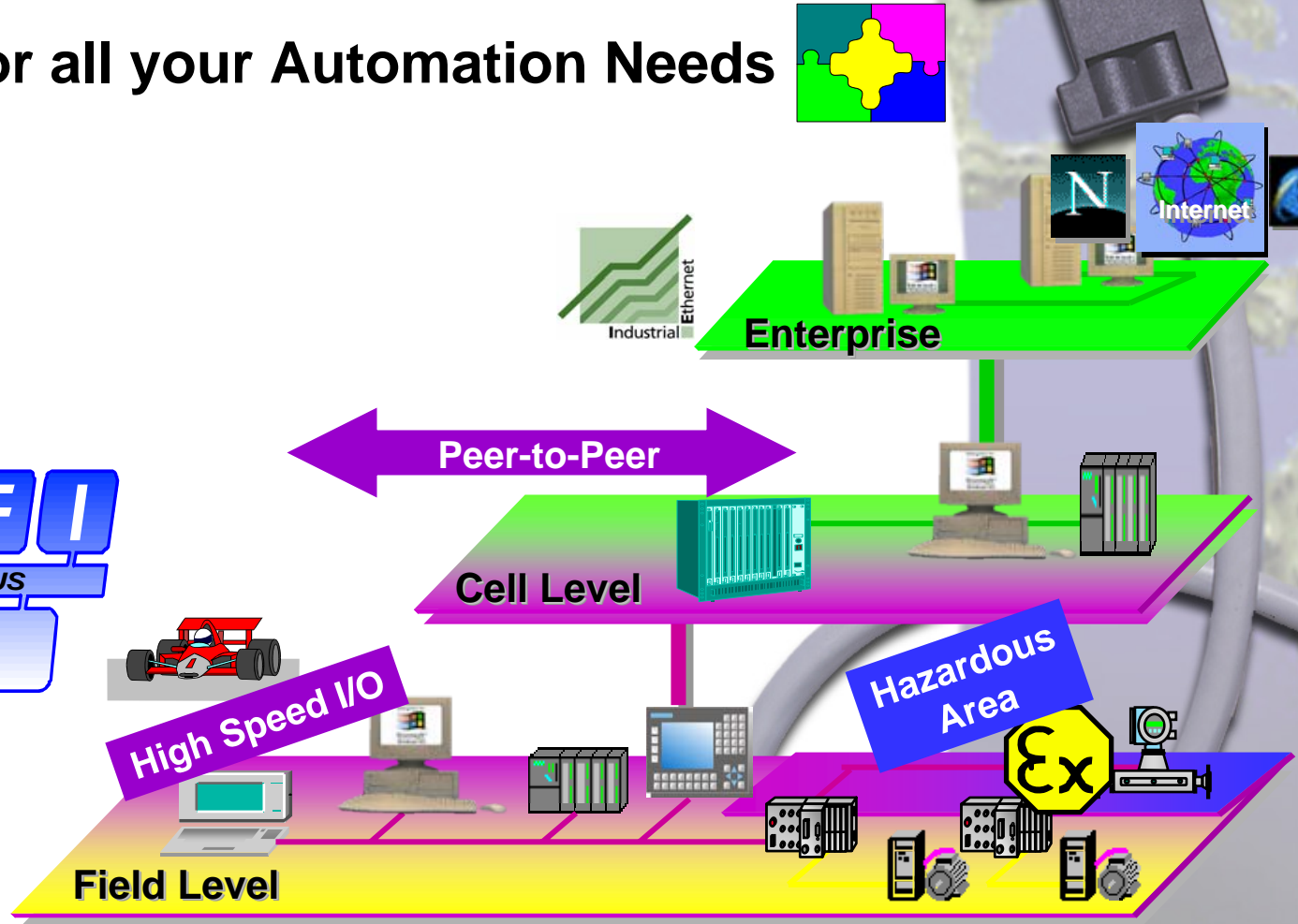
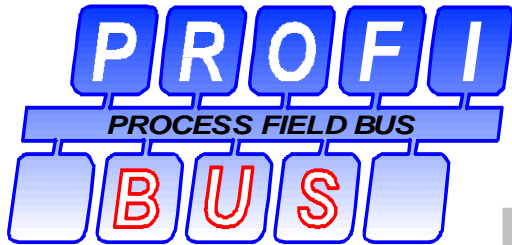
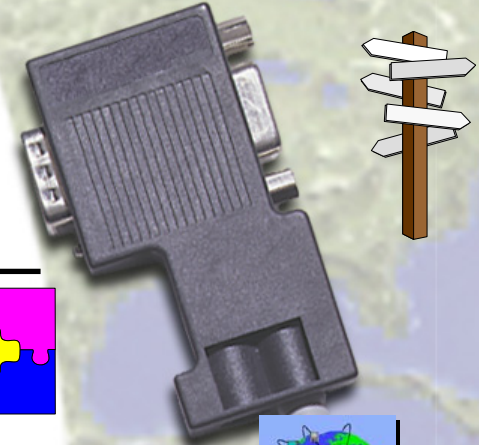
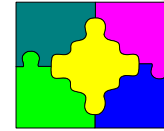


*Status: Q1/2000



Overview

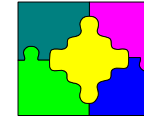
□ Solution for all your Automation Needs



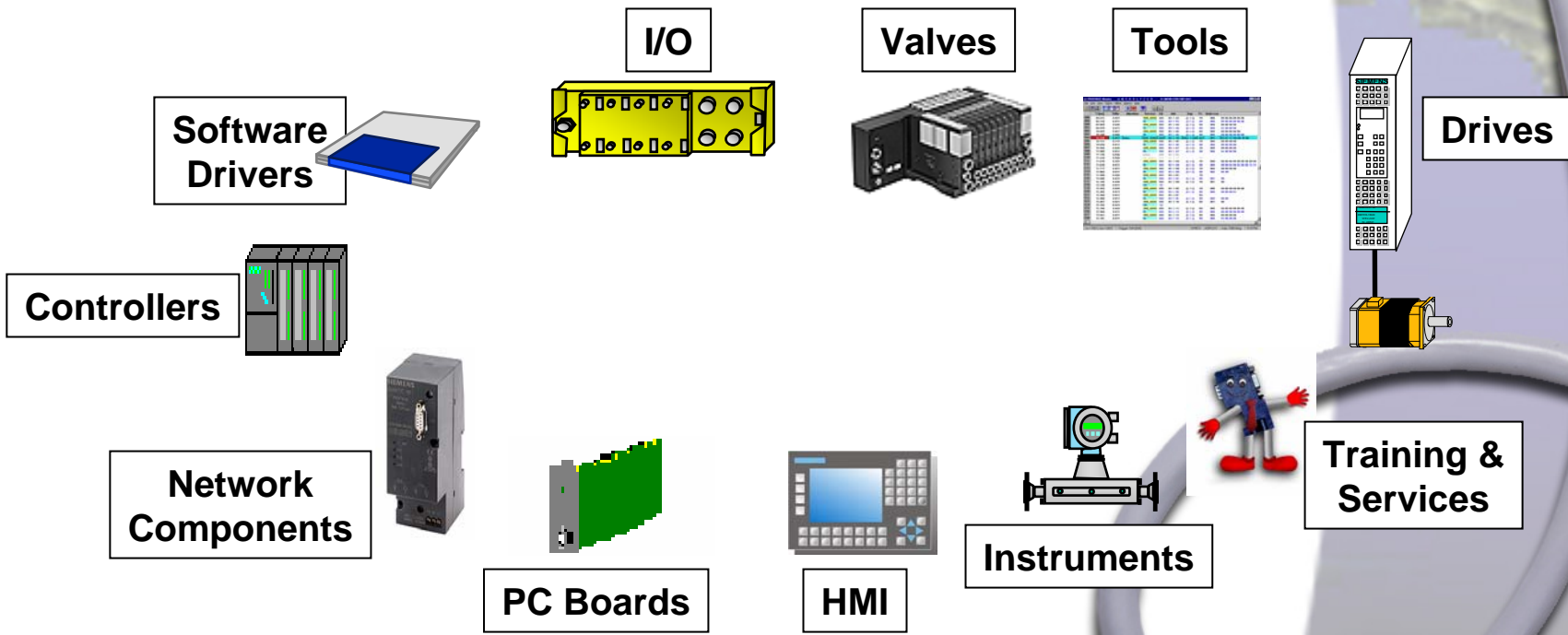
Overview



❑ Solution for all your ... (continued)



☑ 1,900 products from more than 280 different vendors



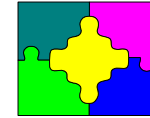
...see Electronic Product Guide on www.profibus.com for complete list



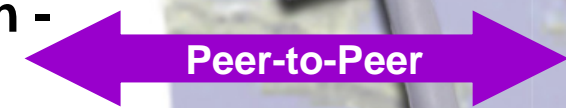
Overview



Solution for all your ... (continued)



Peer-to-Peer (Fieldbus Message Specification - FMS)



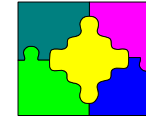
- ✓ Connection oriented communication
- ✓ Definition of communication objects
- ✓ Transmission rate up to 12 Mbaud
- ✓ Several masters can participate
- ✓ Master-master communication
- ✓ Several master can write to the same field device
- ✓ Up to 244 bytes of user data



Overview



Solution for all your ... (continued)



High Speed I/O (Decentralized Periphery - DP)



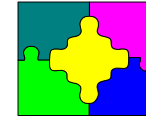
- ✓ High speed data exchange
- ✓ Transmission rate up to 12Mbaud
- ✓ Several masters can participate
- ✓ ONE master ONLY can write to a field device
- ✓ Up to 244 bytes of user data
- ✓ Same cables & components as Peer-to-Peer
- ✓ Operation together with Peer-to-Peer in one network possible



Overview



Solution for all your ... (continued)



Hazardous Area (Process Automation - PA)



- ✓ Protocol is DP - PA field devices are controlled by standard DP Master
- ✓ According to IEC 1158-2 - different physical setup
- ✓ Transmission rate 31.25kbaud
- ✓ Power and data are transferred via the same wire



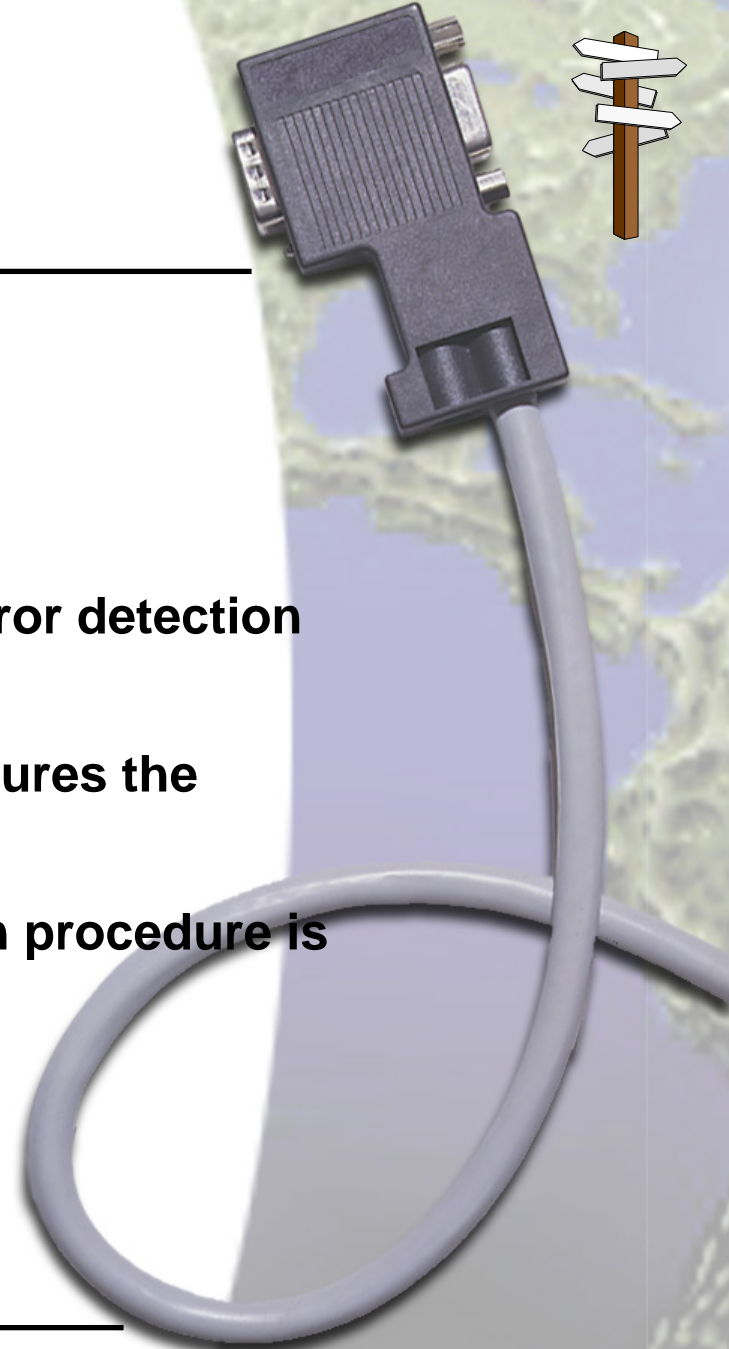
Overview



Reliable & Future Oriented



- ...because PROFIBUS is deterministic
- ...because methods for diagnostic & error detection are built into the system
- ...because PROFIBUS International ensures the quality together with test labs
- ...because a detailed test & certification procedure is available & established





Overview



❑ Reliable & Future Oriented (continued)



☑ More than 3,000,000 Nodes installed... *



*Status: Q1/2000

Overview

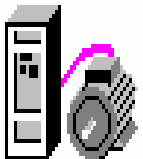


❑ Reliable & Future Oriented (continued)



☑ Standard is stable - NOT static!

- × PROFIBUS PA Certification
- × Maintenance of the PROFIBUS Physical, Data-Link and Application Layer
- × **Fiber Optics**
- × PROFIBUS-DP Specification and Maintenance (DPV1 Extensions)
- × Intrinsic Safety
- × Electro-mechanics for IP20 and IP65/67
- × PROFIBUS on Ethernet
- × IEC 1131 Communication Function Blocks
- × Human Machine Interfaces (HMI)
- × PROFIBUS PA Profile
- × **Safety Profile**
- × Open Integration (OPC Interface)
- × Device Description Language
- × GSD Specification for PROFIBUS-DP
- × **PROFIDrive Profile**
- × Coordination of Activities for the Use of PROFIBUS With PLCs



PROFIBUS International Working Groups

Overview



Flexibility...

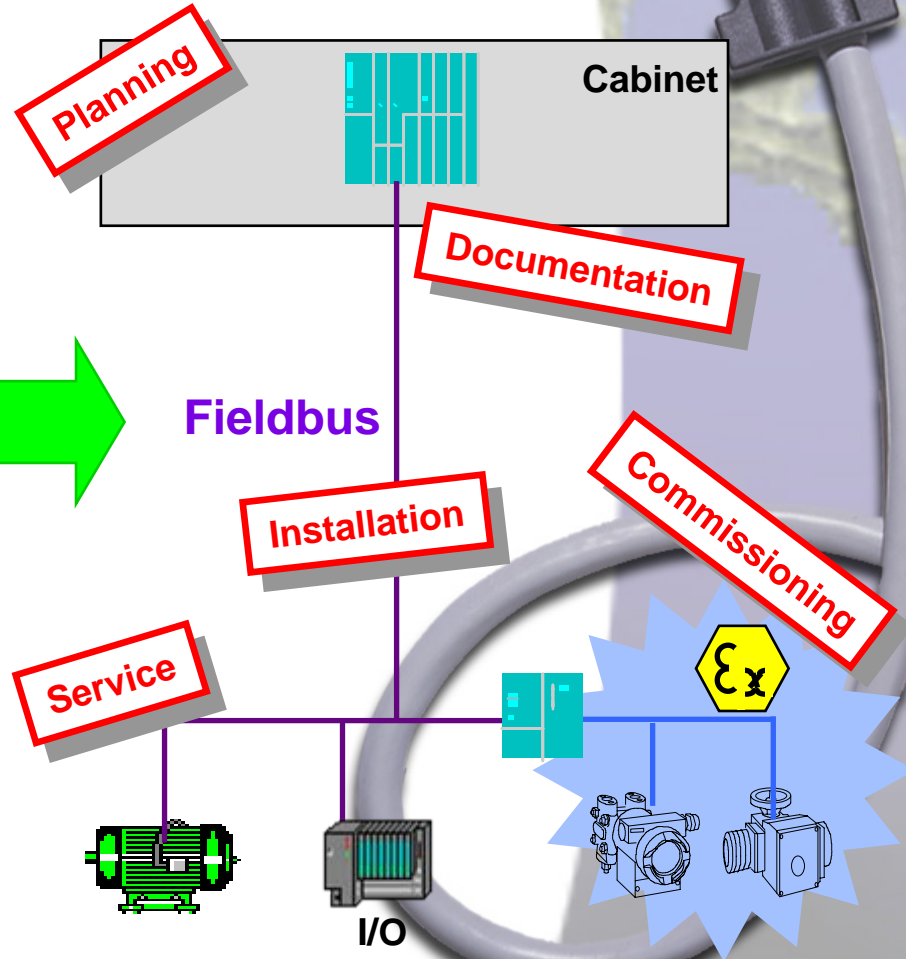
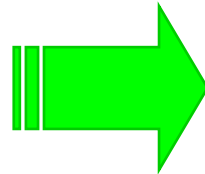
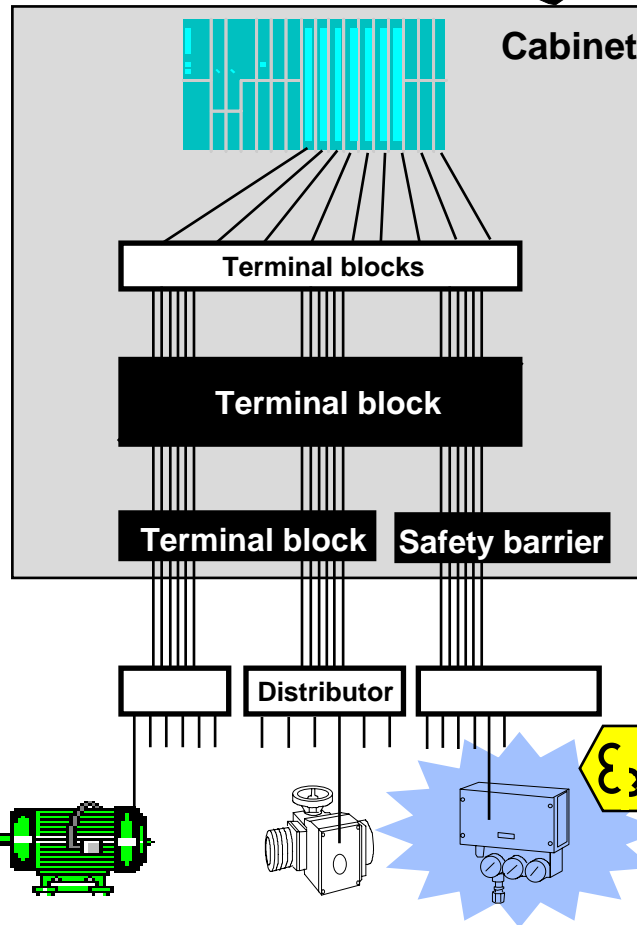


- ...because of number of products and vendors
- ...because of the variety of services (peer-to-peer, high speed I/O and hazardous area)
- ...because of the possible network topologies (line, tree, star, ring)
- ...because of the number of stations you can connect, the distance you can cover and the amount of data you can transfer
- ...because it is easy to expand an existing network

Overview



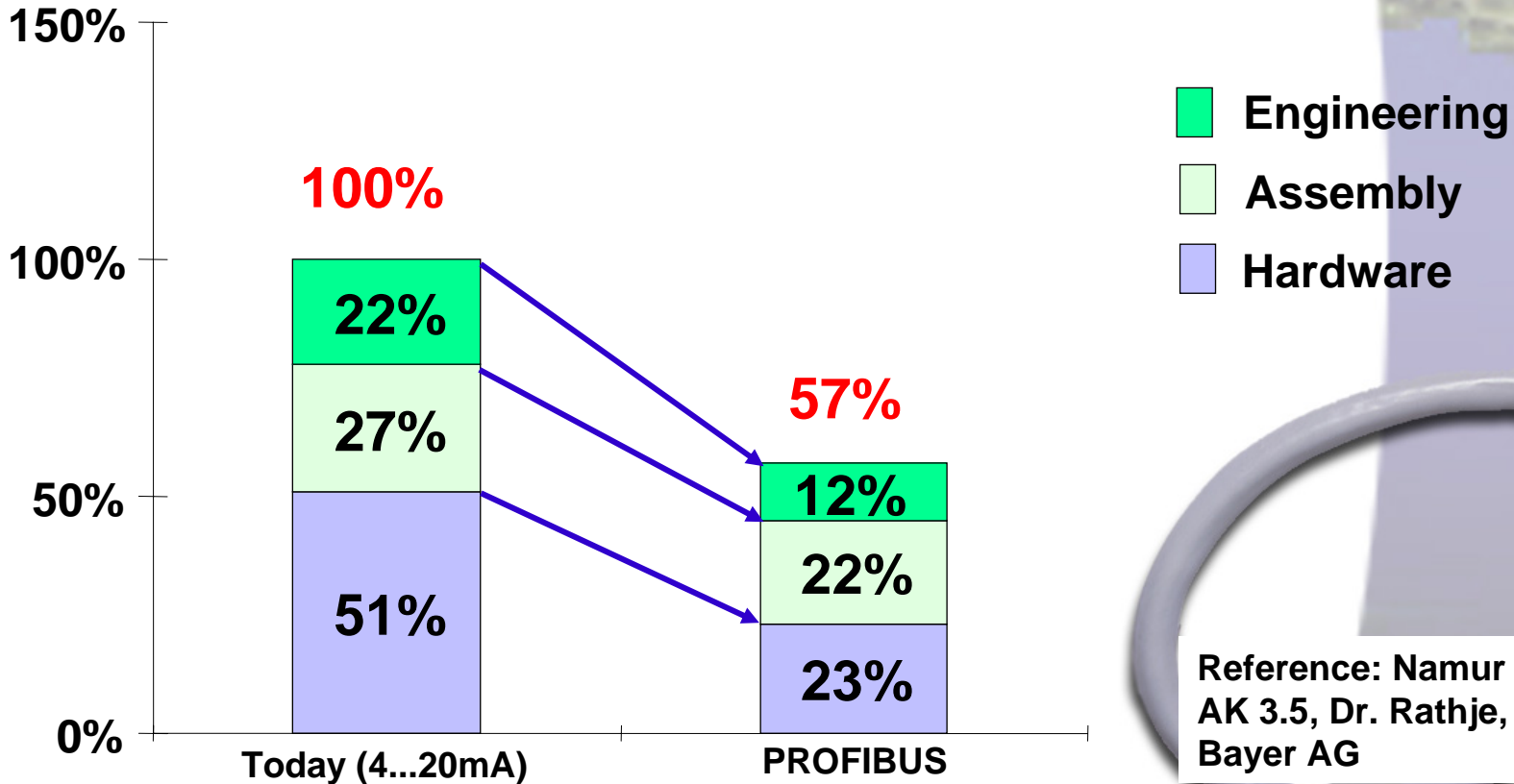
Cost Savings



Overview



Cost Savings (continued)



Reference: Namur
AK 3.5, Dr. Rathje,
Bayer AG