Single-Pair-Ethernet (SPE)

Actual market situation

Applications

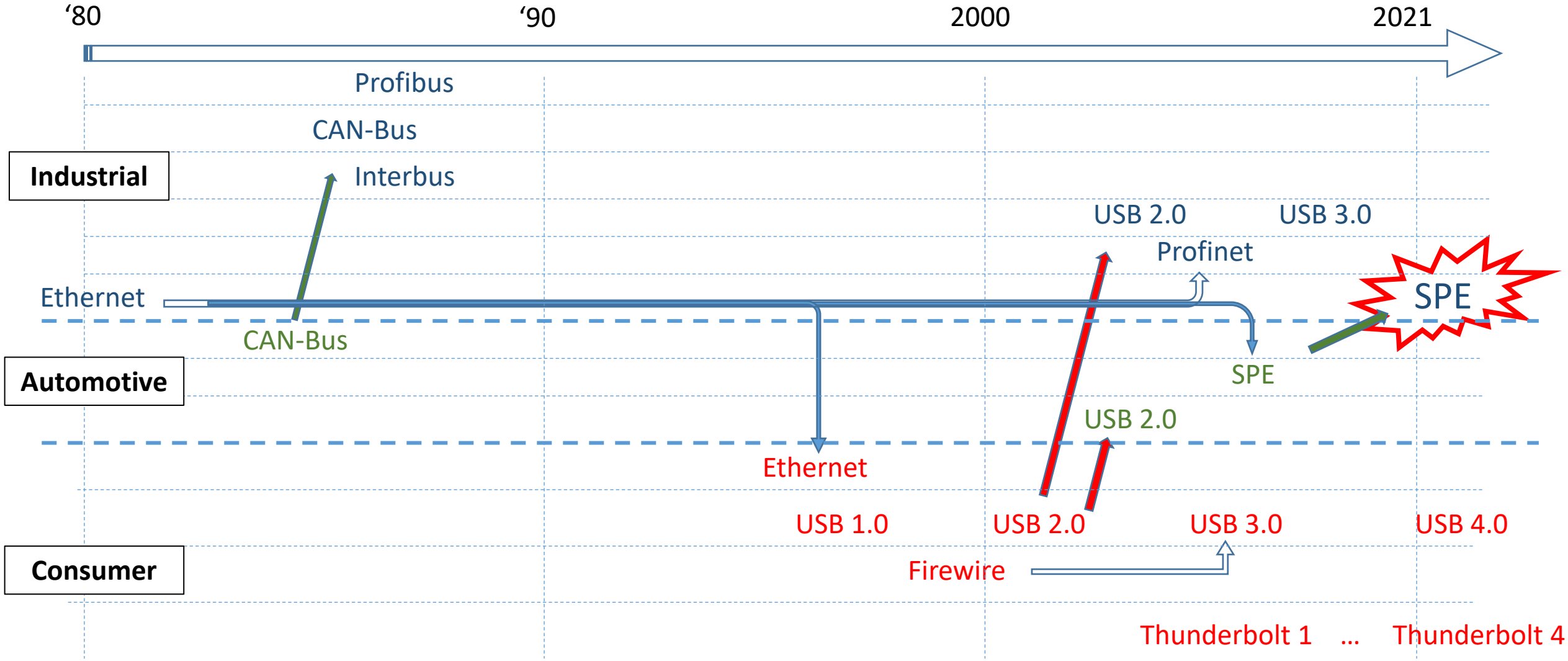
Technology trend

Advantages

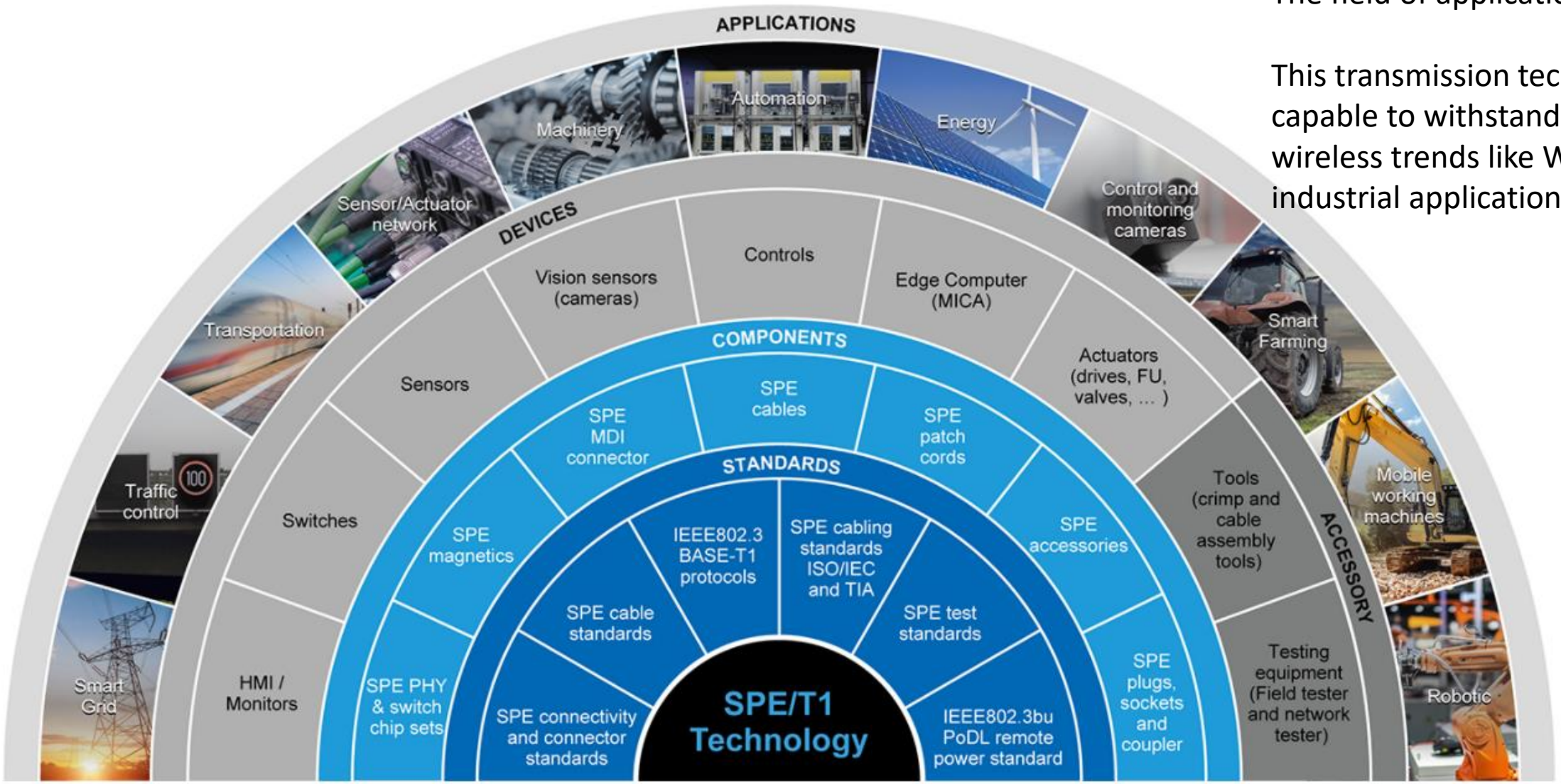
Editor: CEAM TM

Milestones of cable based data transmission technologies

Drivers: Higher data throughput > shorter response time > lower installation cost



SPE applications/ components/ standards:



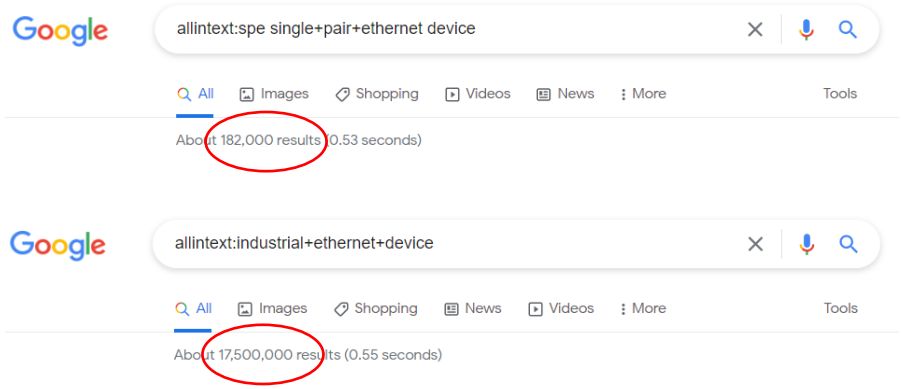
The field of applications is huge.

This transmission technology is capable to withstand the emerging wireless trends like WiFi-6 or 5G in industrial applications.

SPE technology trend:

SPS 2021: only 2 highlights were posted on the homepage

November 2021:
182.000 highlights were found on GOOGLE for „SPE“ and
17.500.000 for „Industrial Ethernet“ keywords.



Summary:

- The visible activities about SPE accessories are fairly low. (Nov 2021)

- But there are **8,5 Mio**. entries for „SPE-cables“ and **20,5 Mio**. for „industrial ethernet cables“.
  This indicates, compared to the wide range of IE-cables, that the cable manufacturers and harness maker are prepared for the first appliances.

SPE cable types and benefits:

Depending on the application, SPE-cable types could follow the Profinet cable variants:
- **A** for fixed installation (solid conductor)
- **B** for semi flexible applications (7-wire)
- **C** for special applications e.g. drag chain (7 or 19-wire)
- **R** for robotic applications

with the different insulation- and jacket compounds to meet the standardised or special requirements.

<u>Further applications are:</u>

- Process Industry with advanced physical layer specification (Ethernet-APL)
- Transportation
- Shipbuilding
- Windmill
- Building Automation applications. (e.g. surveillance, car park management)
- …

Benefits of using a SPE-cable vs. Industrial Ethernet cable:

+ breakthrough of Ethernet at the field area, down to „smart“ sensors. No gateways needed.
+ less time for parametrization, programming and more features for the appliances.
+ easy to connect
+ PoDL.
+ small cable for small appliances (e.g. smart sensors)
+ less copper
+ less cost for the assembly – lower TCO
+ less weight
+ less compounds (ecological footprint)
+ With 10Base-T1L channel distance up to 1000m.