

SDC Overview

Service-oriented Device Connectivity



Motivation

The operating theatre – past and nowadays

1956



Bundesarchiv, Bild 183-35590-0002
Foto: Höhne, Erich; Pohl, Erich | 17. Januar 1956

„Interoperability is an almost non-existent feature of medical devices.”
Lesh et al. 2007



Today

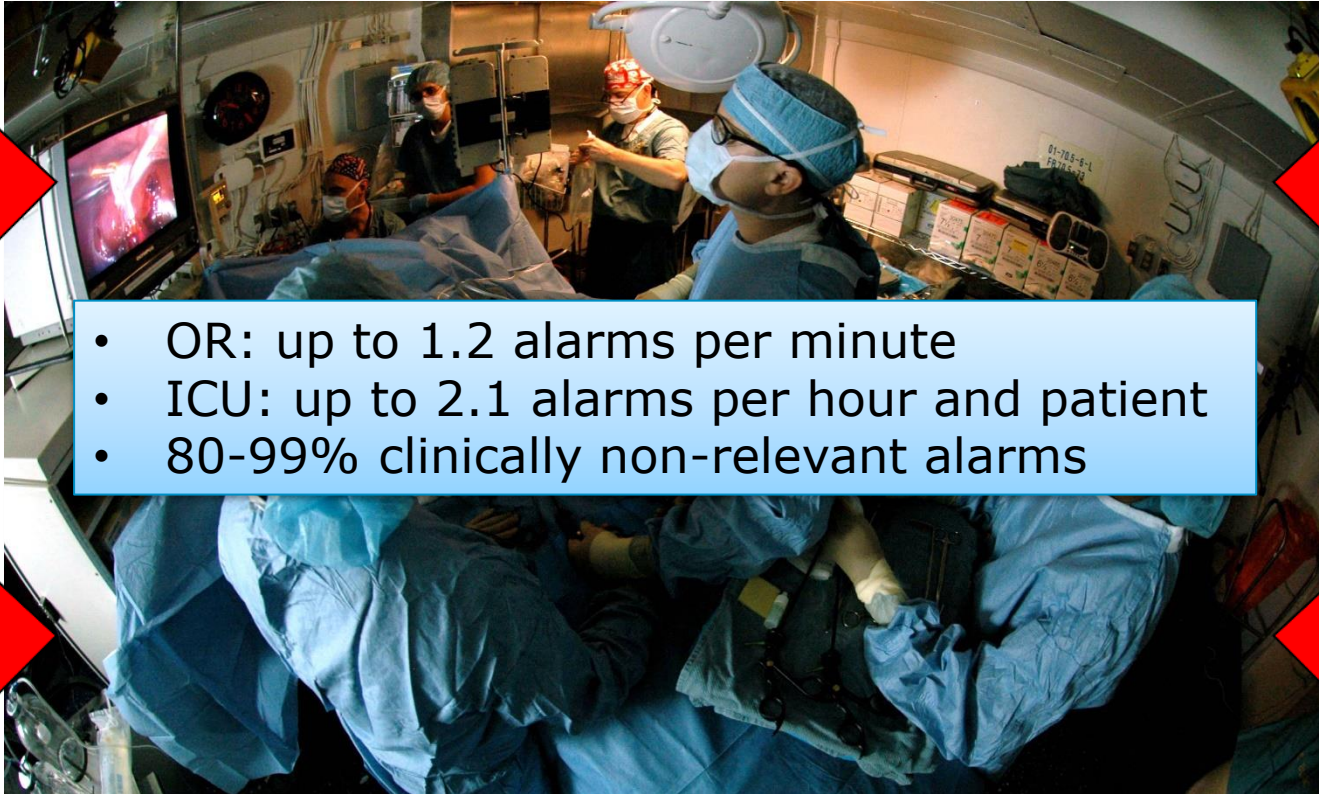
Motivation

Remote Control



Motivation

Alarming



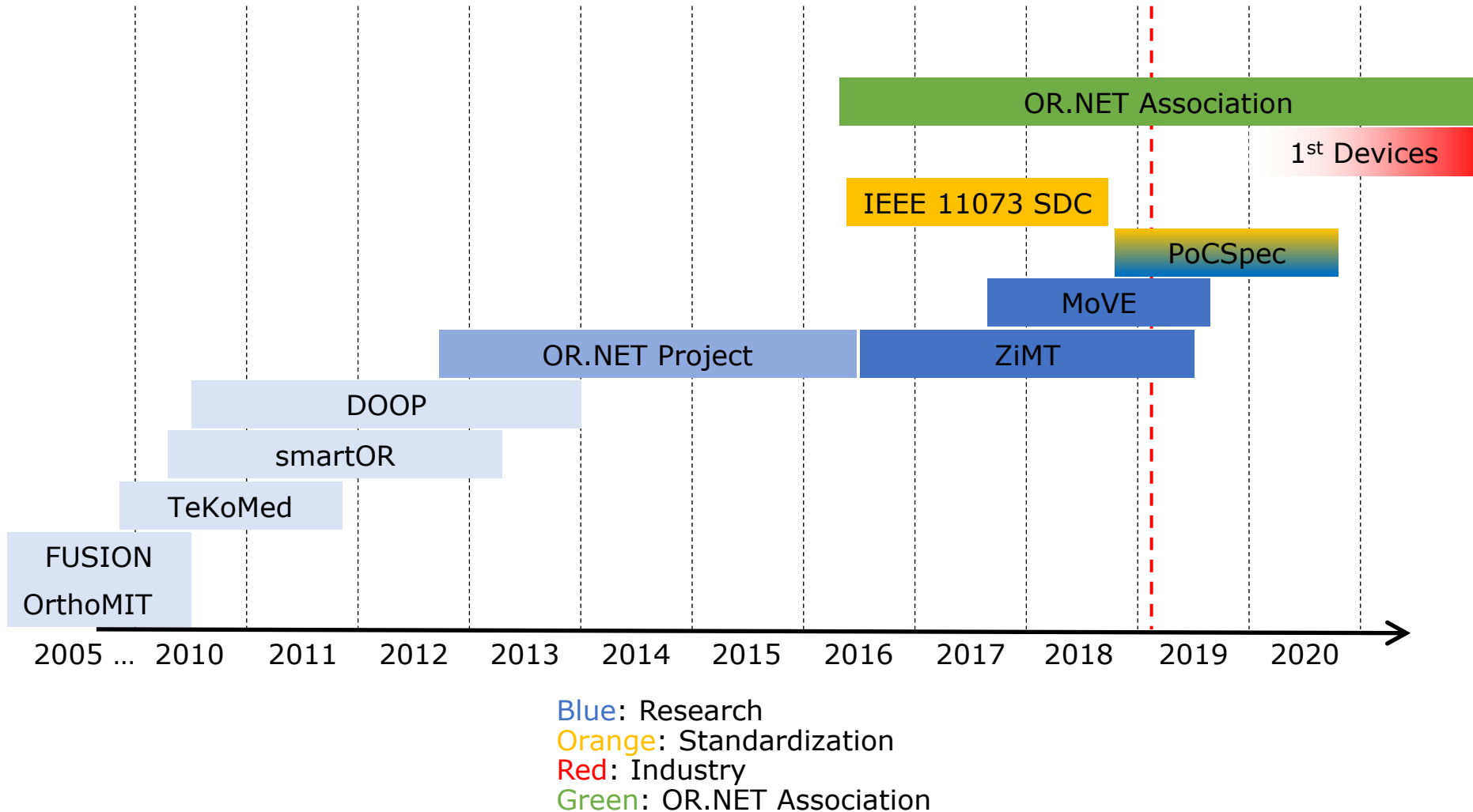
Motivation

Digitization



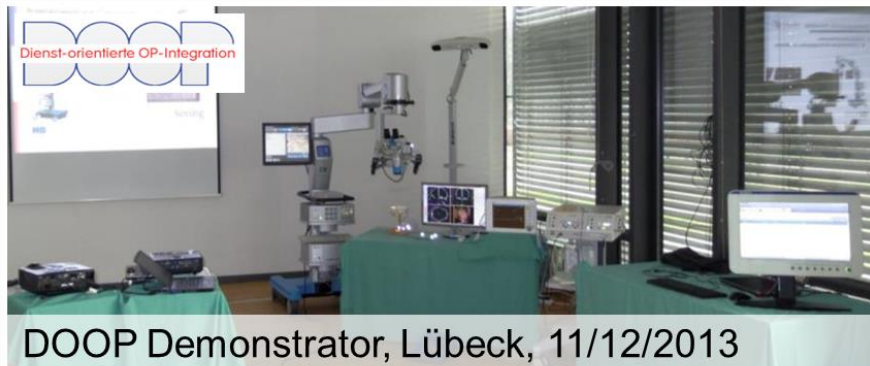
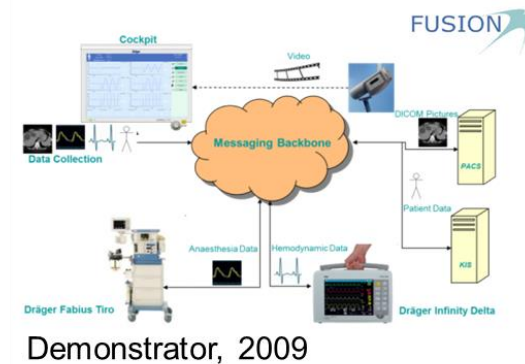
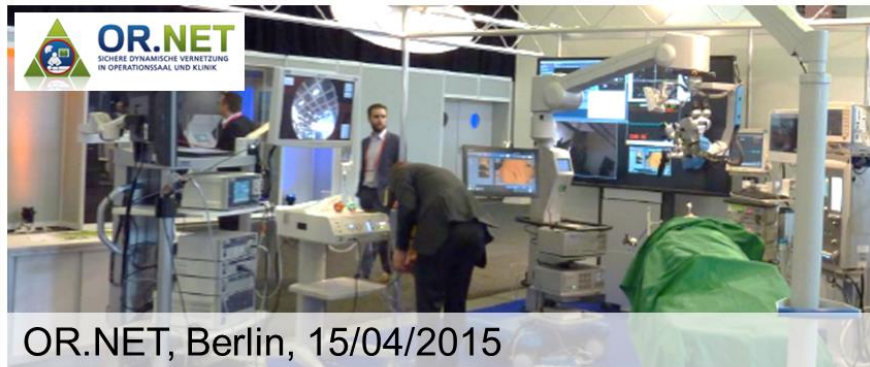
History

Research and development activities



History

Public demonstrations

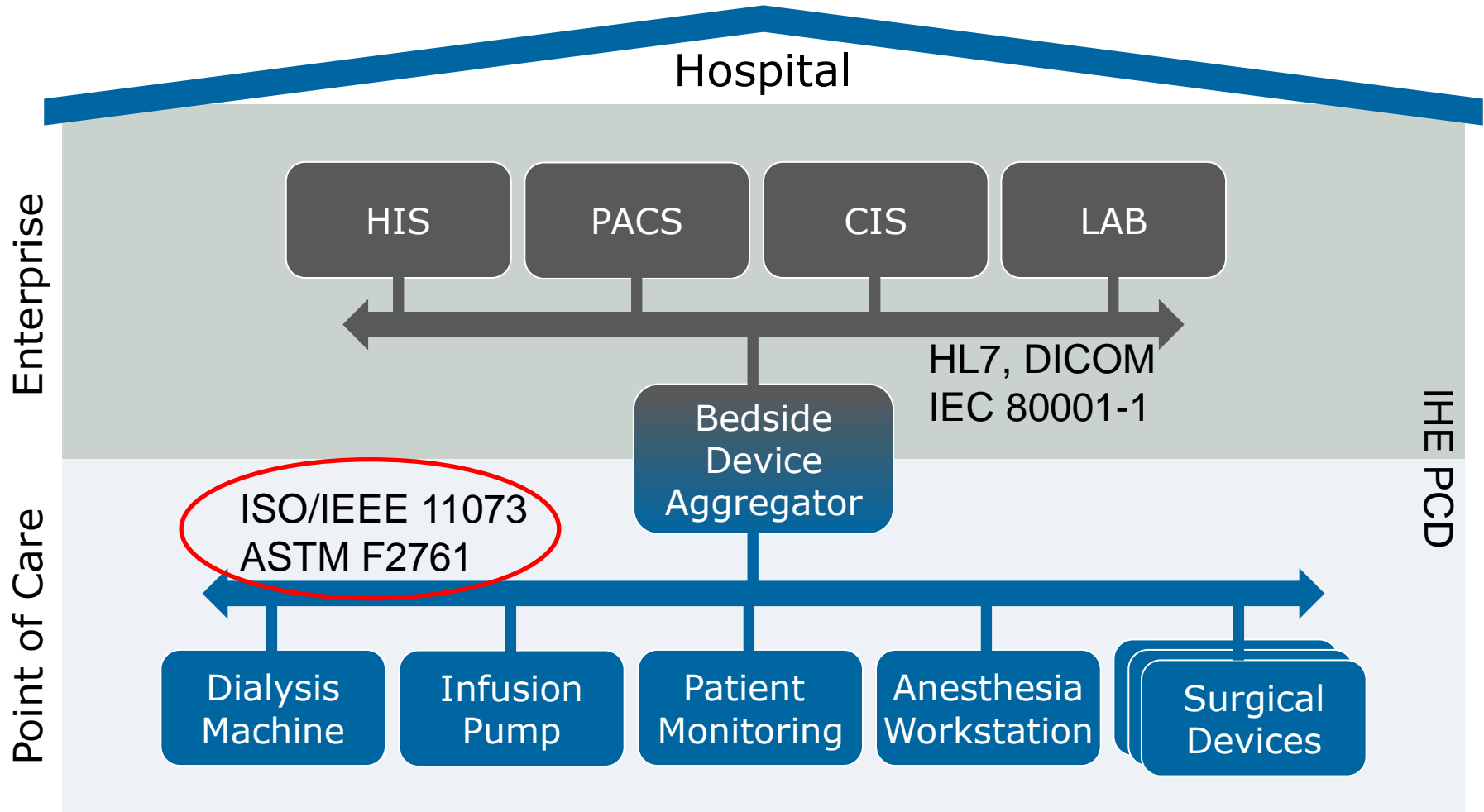


History

Latest big setup 2016 in Berlin



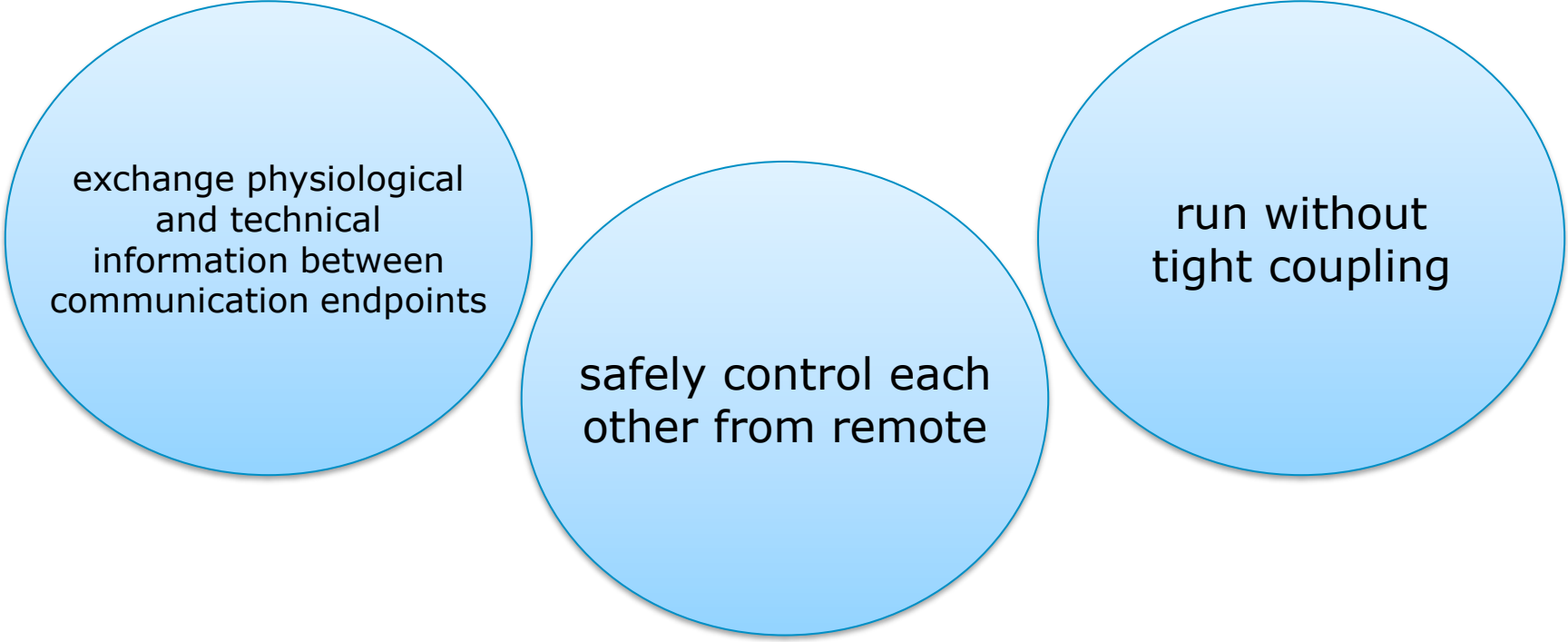
SDC Classification



SDC

Design goals

Interoperable medical devices in clinical environments
with the capability to



exchange physiological
and technical
information between
communication endpoints

safely control each
other from remote

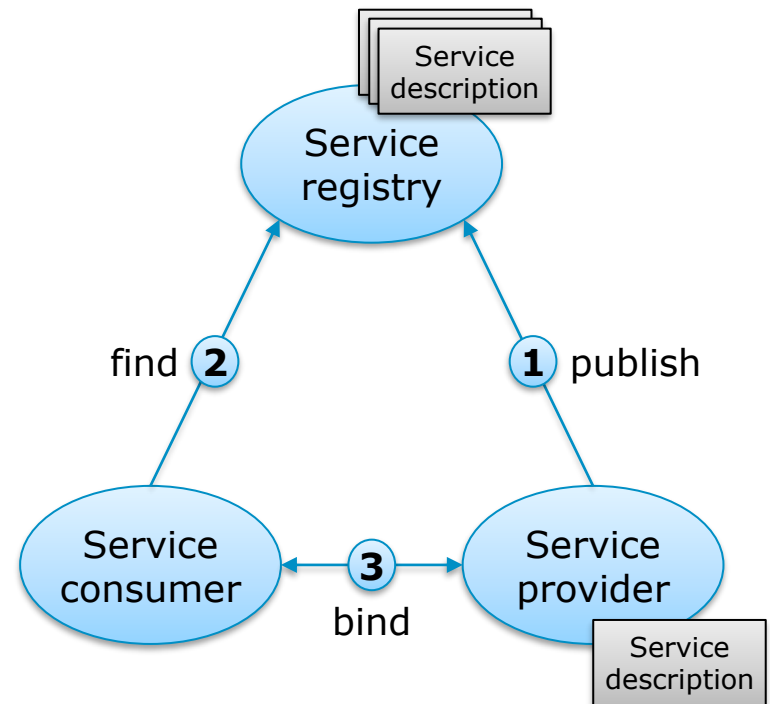
run without
tight coupling

SDC

Conceptual model

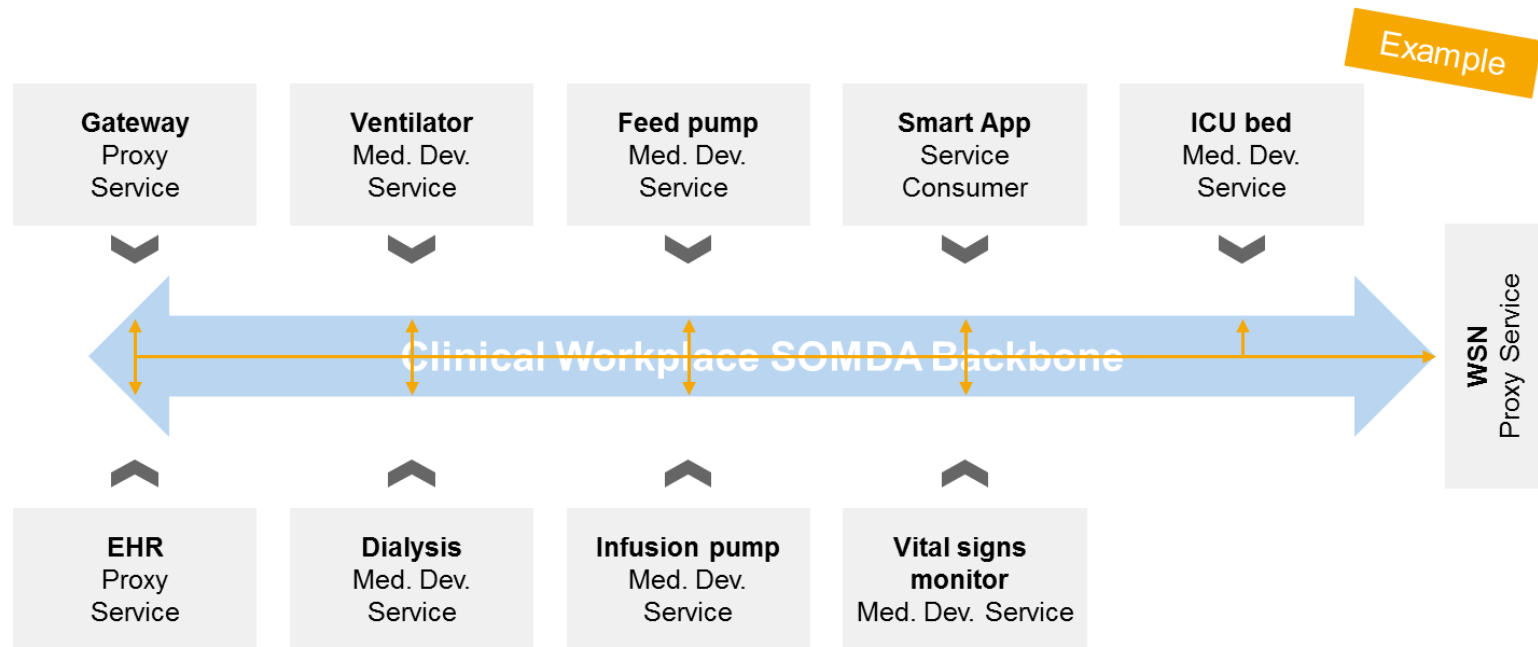
SOMDA – Service-oriented Medical Device Architecture

- Based on enterprise SOA paradigm
- Difference
 - Safety
 - Dynamic device grouping
 - Influenced by regulatory affairs



SDC

SOMDA instance



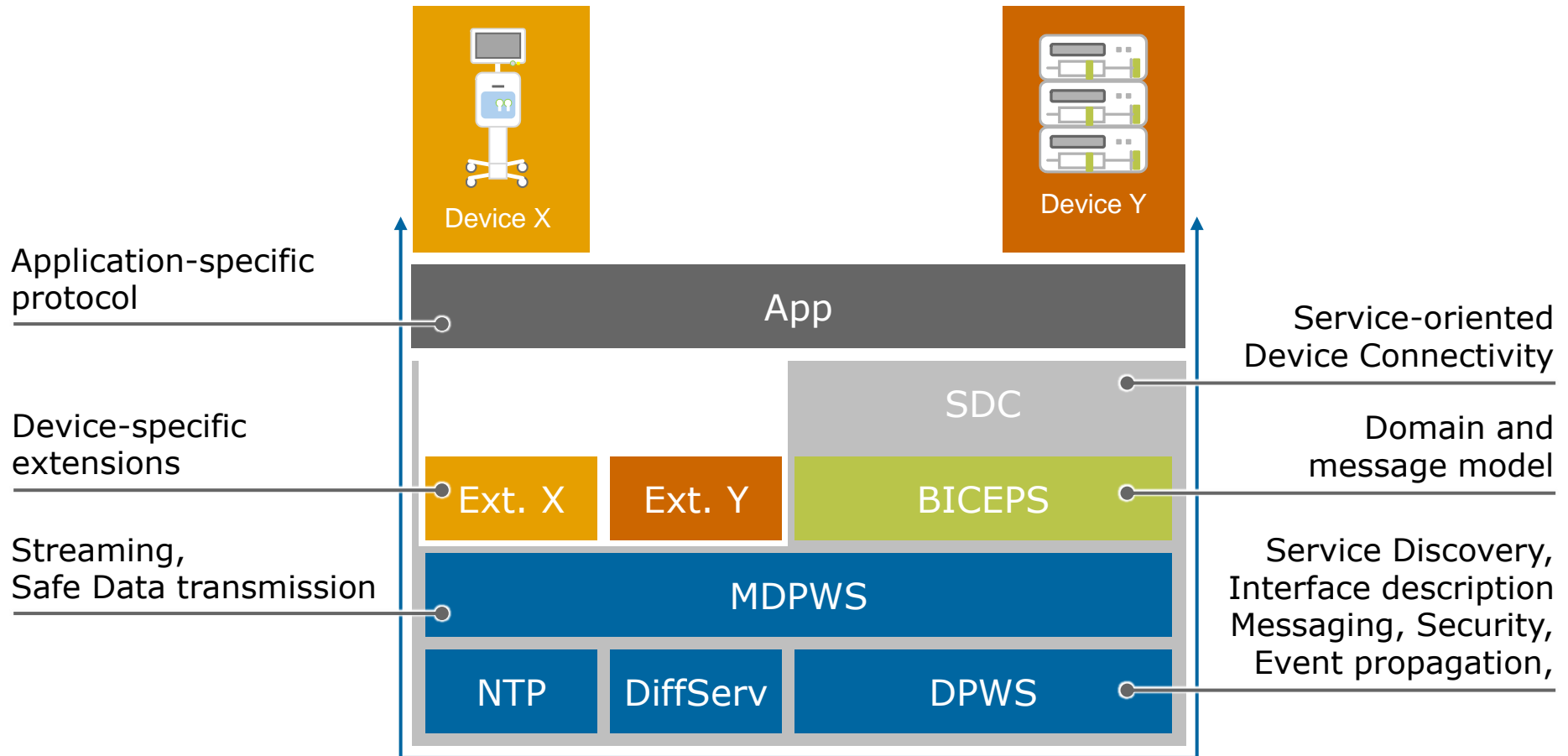
Conceptual view of a SOMDA for a clinical workplace.



Concept of a clinical workplace SOMDA does **not** make any assumptions of the underlying network topology.

SDC

Layered model



Standardization activities

IEEE 11073

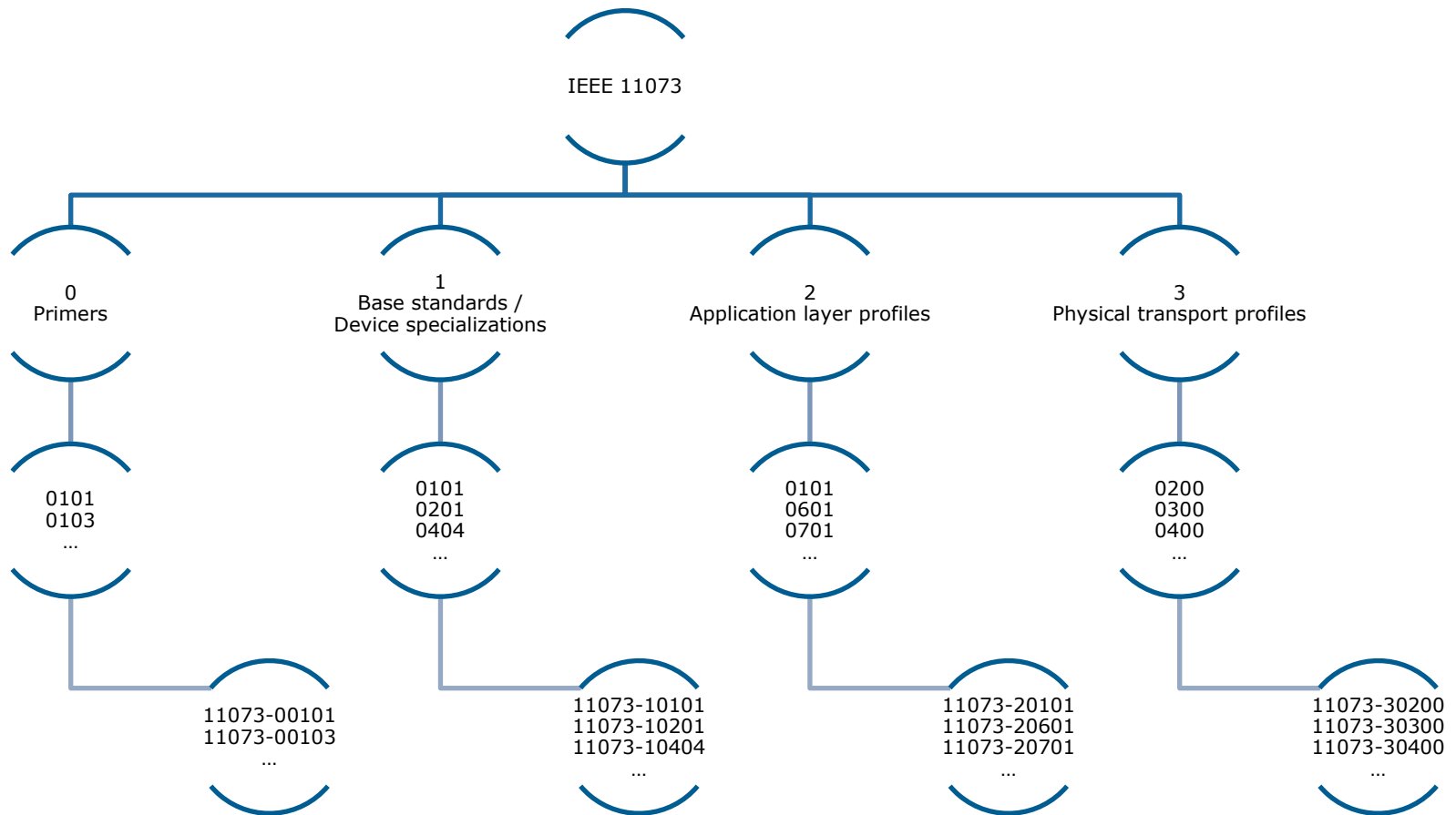
- IEEE = Institute of Electrical and Electronics Engineers
- Association of technical professionals with the objectives of “educational and technical advancement of electrical and electronic engineering, telecommunications, computer engineering and allied disciplines”.
- Example: IEEE 802.11, WLAN
- The IEEE also hosts a sequence of standards prefixed with 11073
- Those standards deal with medical device interoperability and efficient exchange of care device data



IEEE Headquarter in New York

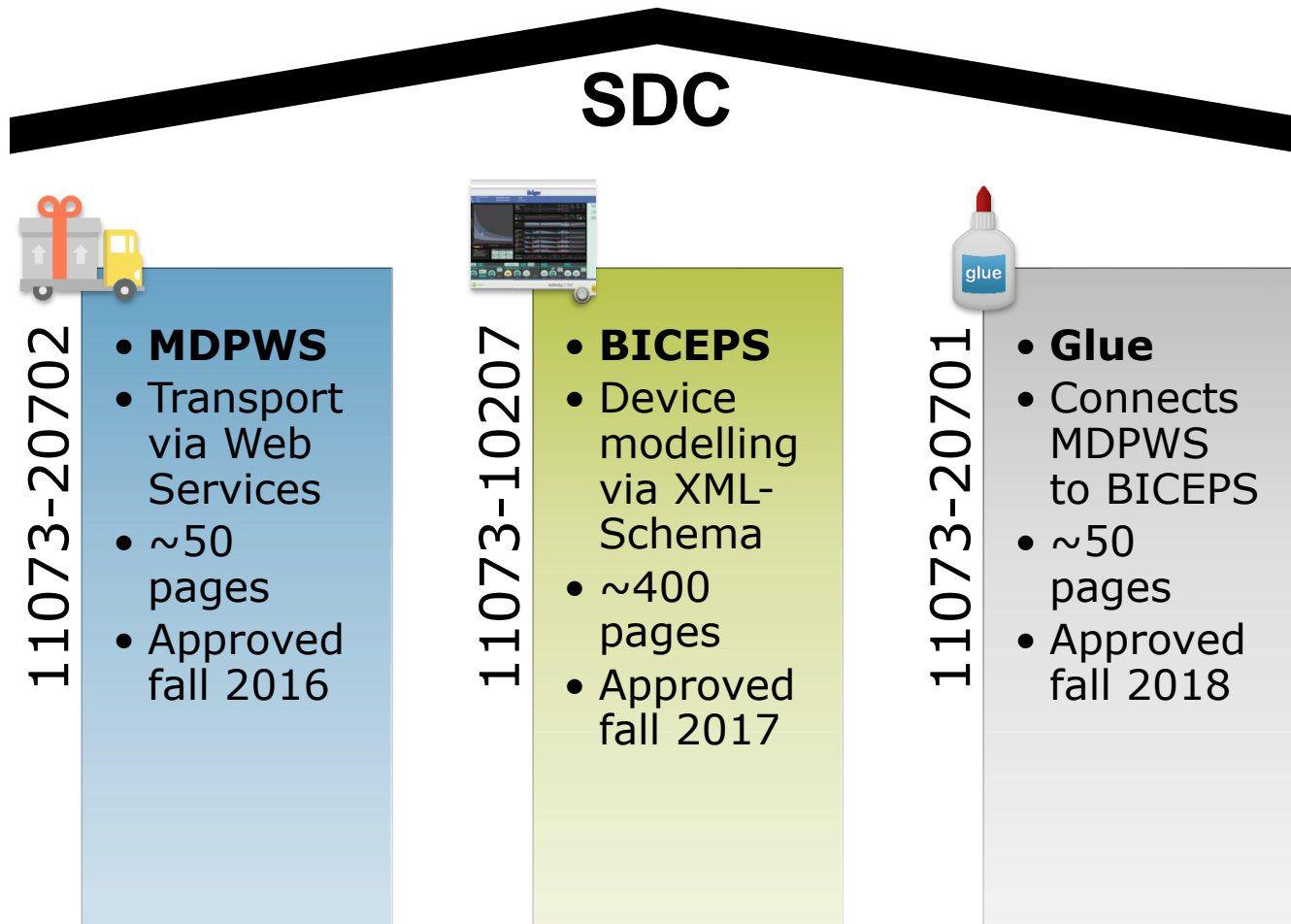
Standardization activities

IEEE 11073



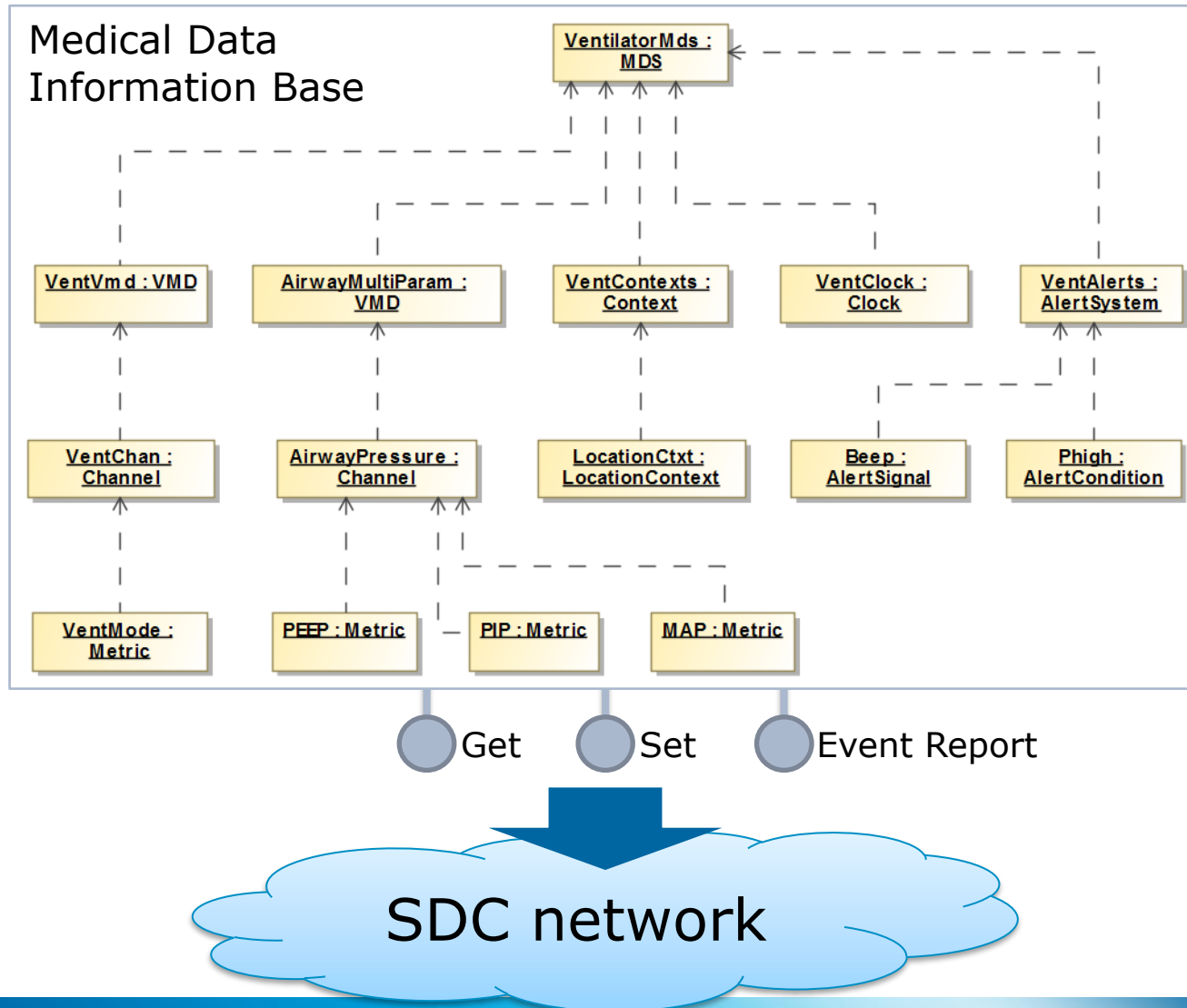
Standardization activities

Standardized SDC protocols



General approach

Medical data on the wire



Thank you for your attention!

Contact information

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General approach

Advanced topics

- DPWS
- Streaming
- Safety

MDPWS



- General approach
- Domain layer
- Message layer

BICEPS



- Numerics,
- Waveforms,
- Enumerations
- Strings

Metrics



- Condition and signals
- Alert signal delegation

Alert Systems



- Patient demographics
- Location information
- Device grouping

Contexts



- MDIB version
- Descriptor version
- State version

Versioning



- Operation types
- Transaction pattern

Remote Control



- Time synchronization
- Battery status

Clock & Battery



- Model binding
- Security & trust
- QoS

SDC Glue

