



*We help ideas  
meet the real  
world*

## **Continua Health Alliance in Denmark**

*Reference architecture and use*

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# Agenda



- \* *Agenda*
  - *Continua Health Alliance*
  - *Reference Architecture*
  - *Usage of Continua*
  - *Some Challenges*

# Continua Health Alliance - Mission



**“Our Mission is to establish an ecosystem of interoperable personal connected health systems that empower individuals and organizations to better manage their health and wellness”**



# Continua - Domains

To organize its work, Continua segmented the market in three Domains

Living Independently  
Longer

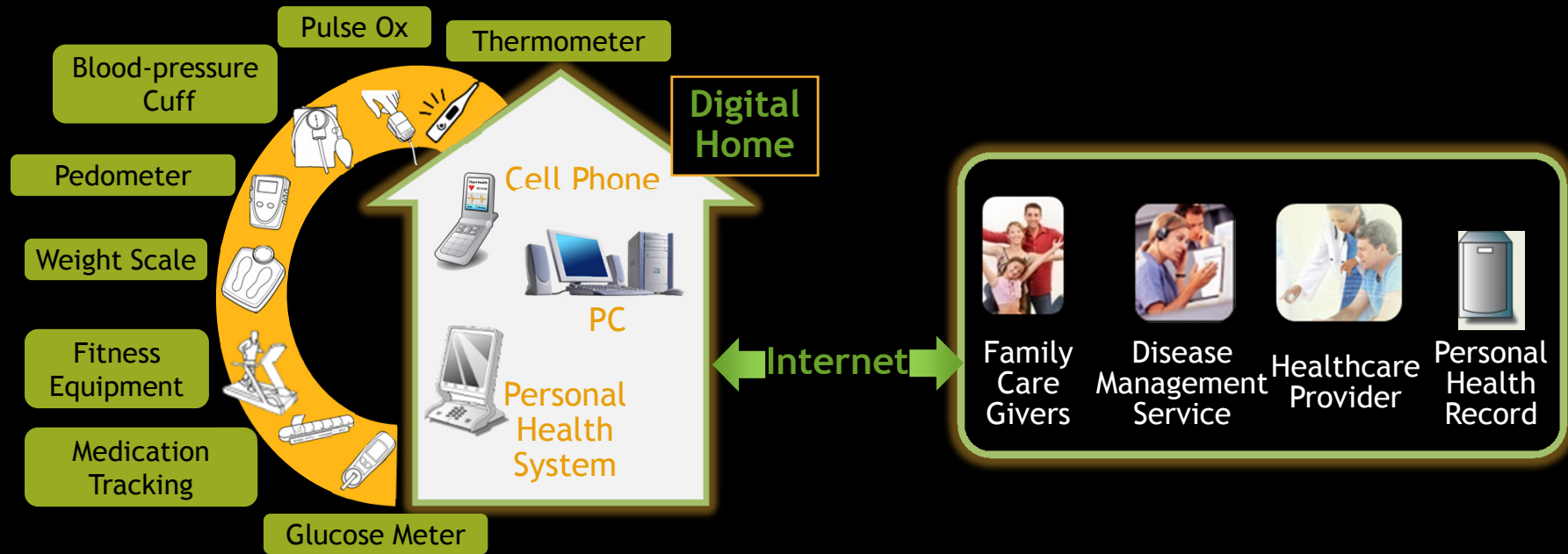


Wellness

Manage Chronic Conditions

***People are at the center of everything we do***

# Managing Chronic Conditions



**Continua** member companies help individuals with chronic conditions live healthier lives by connecting them to their care team through a more efficient exchange of personal health information.

# Continua High level architecture



## Personal Device

- Thermometer 
- Pulse Oximeter 
- Pulse / Blood Pressure 
- Weight Scale 
- Glucose Meter 
- Cardio / Strength 
- Independent Living Activity 
- Peak Flow 
- Medication Adherence 
- Physical Activity 

Continua BT Profiles

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Device Connectivity

## Aggregation Manager

## Telehealth Service Center

Wide Area Network (WAN) Interface

Health Record Network Interface

## Health Records

CCD  
PCD 01

EHR  
HIE  
PHR  
NHIN

# Continua Health Alliance



- *Develops guidelines for use and implementation of standards in order to achieve interoperability*
  - *IEEE 11073*
  - *HL7*
  - *IHE*
- *Provides Sample code for easier implementation*
- *Provides test tools for pre test*
- *Provides Certification*

# Continua usage in Denmark



- \* *The reference architecture provides:*
  - *Framework for standardization in one area of telemedicine (collection of health data at the citizen)*
  - *Common reference point for the development of solutions aimed for collecting health data at the citizen*



# Reference Architecture



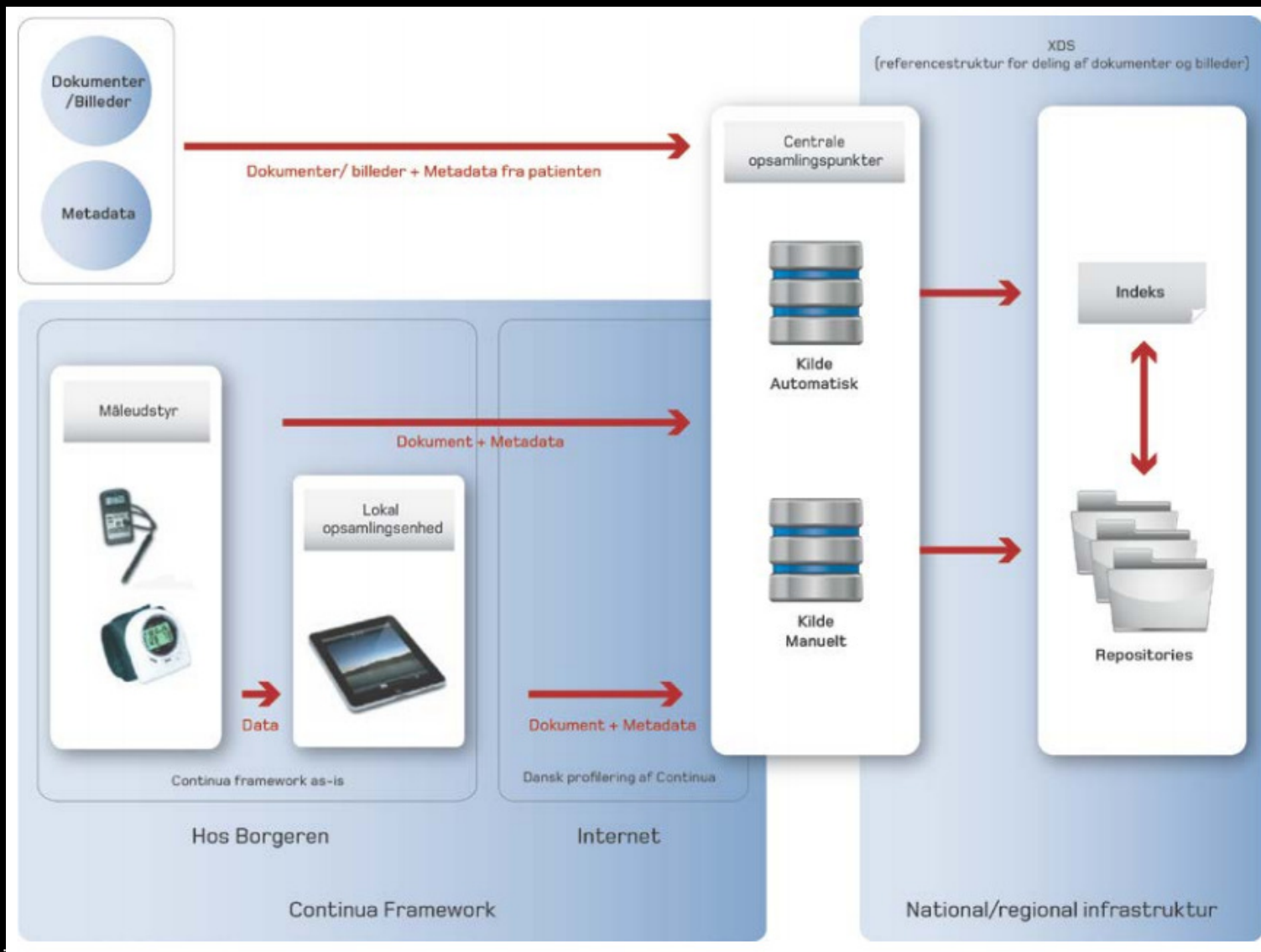
- *Part of the governmental action plan for dissemination of telemedicine*
- *Prepared by a working group with representatives from*
  - *NSI (National eHealth Authority) - Lead*
  - *Municipalities*
  - *Regions (five in Demark)*
  - *MedCom (standardization body)*
  - *Vendors (Representatives and DI-ITEK)*
  - *DELTA - Continua Health Alliance (DK)*
  - *Consumer Council*
- *Working group meetings and workshops*

# Reference Architecture



- \* *Recomends the use of International standards*
  - *HL7 (PHMR)*
  - *IHE (XDS)*
  - *The use of Continua certified measurement quipment*
- \* *Allows Danish profiles of same, where necessary*
- \* *Aligned with reference architectrue for sharing documents and images (IHE- XDS).*

# Logical system-technical target image



# Implementation



- *“Reference” implementations – large projects*
  - *Open Tele*
    - *“Clinical Integrated Home Monitoring (CIH)*
    - *Telecare North (Telecare Nord)*
  - *End2End Demonstrator - Net4Care*
  
- *Continua implementation*
  - *No clear picture,*
  - *However, it is consulted on the water pipes that many of the companies developing telemedicine solutions has implemented or is in the process of implementing.*

# Implementation



- *“Danmark som telemedicinsk foregangsland” – Telemed.nu*
- *Building enablers for dissemination*
  - *Building blocks for implementation of the reference architecture*
    - *Development platform*
    - *Training material*
    - *Dokumentation*
    - *Implementation guidelines*
    - *Business models*
    - *Regulatory advice*
  - *For others to build applications!*
- *Based on Net4Care and Open Tele*
  - *Open source*

# Regulations overview



**MDD (Medical)  
R&TTE ( Radio)  
ROHS/ WEEE**

**MDD(Medical)  
R&TTE(Radio)  
GDP(Dataprotection)  
ROHS/WEEE**

**GDP(Dataprotection)  
MDD (Medical)  
National legislation  
...**

**MDD  
GDP  
CBD  
...**

- Thermometer 
- Pulse Oximeter 
- Pulse / Blood Pressure 
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CCD

PCD 01



EHR



HIE

PHR

NHIN

↑  
**Device  
Connectivity**

↑  
**Wide  
Area  
Network  
(WAN)  
Interface**

↑  
**Health  
Record  
Network  
Interface**



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