Intro to Continua and FHIR Demo

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Outline

Quick intro to Continua/PCHA

FHIR Demo
What is the Personal Connected Health Alliance (PCHA)?

- PCHA is a first-of-its-kind collaboration between Continua, mHealth Summit and HIMSS, focused on engaging consumers with their health.

- Mission - Making health and wellness a convenient part of daily life through personal connected health technologies.
Security, data protection and privacy are core values of Continua which are tested as part of Continua certification. Continua Design Guidelines were developed recognizing HIPAA, EU Directives 95/46, etc.
FHIR Demo Objective

• Demonstrate use of FHIR for reporting unsolicited observations across Continua Services Interface: Interface between Continua Personal Health Gateway (PHG) to a Health & Fitness Service

• Test efficiency of FHIR across different IFs in the Continua architecture
Why

• Many developers find it difficult to work with PCD-01.
• They feel at ease with web technologies such as JSON and HTTP REST.
• FHIR provides a good framework for building an ecosystem of innovative applications.
• Opportunity to influence draft FHIR spec based on Continua requirements.
• Demonstrate to the outside world (business developers, healthcare providers, product managers, engineers) that Continua is incorporating new standards such as FHIR in order to enable new applications in the healthcare continuum.
hRF consist of capabilities and URLs to the specific resources.

IF implementation
- PCD-01 with SOAP
- PCD-01 with hData
- FHIR + hData

Lamprey Networks - LNI
University Health Network - UHN
Norwegian Government
Additional Information
What is the Continua Health Alliance?

“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 WAN-IF Communication Stack

**Messaging**

- **HL7 V2.6** constrained by IHE DEC PCD-01
- **IEEE 11073-20601 and 104xx terms**
- **IEEE 11073-10101 terms and –10201 info model**

**Semantics**

- **IEEE 11073**

**Message Transport**

- **Web Services WS-I BP**
- **IHE IT Infrastructure TF Vol 2 Appendix V Rev 6.0**
- **WS-I BP over SOAP 1.2**
- Plus **WSI-BSP, TLS and IHE ATNA**
Continua WAN-IF Communication Stack

**Messaging**

**HL7 V2.6** constrained by
IHE DEC PCD-01

**Semantics**

IEEE 11073-20601 and
104xx terms

IEEE 11073-10101 terms
and –10201 info model

**Message Transport**

SOAP

RESTful HTTP
(also called hData)
Continua HRN-IF Communication Stack

**Messaging**

- HL7 Implementation Guide for CDA R2: Personal Healthcare Monitoring Report, Release 1
- HL7 Clinical Document Architecture CDA R2 – Continuity of Care Document (CCD)
- SNOMED, LOINC, UCUM and IEEE 11073 as required

**Semantics**

**Transport: Document Exchange**

- **IHE XDR**
  - IHE Cross-Enterprise Document Reliable Interchange
  - MTOM, SOAP 1.2 / HTTP
  - (direct communication)

- **IHE XDM**
  - IHE Cross-Enterprise Document Media Interchange
  - ZIP format / S-MIME or media
  - (email, media)
Security Standards used across Continua Interfaces

- TLS v1.0  confidentiality + integrity
- IHE ATNA  confidentiality + integrity
- IHE XDM → S-MIME  confidentiality + integrity of emails
- IG for HL7 CDA R2 Consent Directive  Consent management
- IHE Document Encryption Profile  Consent enforcement
- IHE Document Digital Signature (DSG)  Non-repudiation of origin
- IHE PIX, PDQ, Identity Feed  Identity management
- IHE XUA, XUA++ (SAMLv2.0)  Entity Authentication
- WS-I BSP (TLS v1.0)  Confidentiality + integrity
- WS-I BSP (WS-Security + SAML 2.0), OAuth 2.0  Entity authentication
- HL7 CDA R2 Consent Directive  Consent management
- IHE ATNA  auditing
- Zigbee security  authentication + confidentiality
- Bluetooth security
Continua Certification Program

Certification Goal
Assurance that a device has been designed to meet the requirements of the Continua Interoperability Design Guidelines.
Devices with Continua Certified Interfaces
CESL – Reference Code


- Speed the adoption of reference source code
- Testing Prototypes
- Basis for Continua Test Tool
- Construction of reference devices for IOP

Free
mCESL – Example AHD for Android

Continua Reference Device Code (Mobile)

PAN - Reference Manager Application
WAN - developed in C++ and JAVA.

Available as an SDK and Reference Application developed for the Android Nexus platform

Worldwide Continua/PCHA Adoption

- = Adopting Continua
- = Local Work Group
- = Continua Test Labs and Certification Experts (CCEs)
EU Nordic Countries

Denmark was the 1st country to adopt Continua and make the Continua framework a fundamental part of the national reference architecture. Reference architecture officially released in June 2013. Downloaded in more than 50 countries.

Norway is working toward mandating Continua compliance by 2018

Sweden recently held a large event involving industry and government. Sweden made the decision to move from pending to actively working toward Continua adoption.

Finland is working on similar top-down approach as Norway with regards to Continua adoption
2012:
- In 2012, the World Telecommunication Standardization Assembly adopted Resolution 78 – “Information and communication technology applications and standards for improved access to e-health.”
- That same week, the Global Standards Symposium expressed the need for ITU to take a leading role in the e-health field by building on its collaboration with the World Health Organization (WHO) to create a global, open environment for the development and promotion of e-health standards.

2013:
- In December 2013, the International Telecommunication Union (ITU), the United Nations’ specialized agency for information and communication technologies (ICTs), announced the adoption of Continua’s Design Guidelines for interoperability under Recommendation ITU-T H.810.
- International standards avoid costly market battles over preferred technologies, and for companies operating in emerging markets, create a level playing field with regard to market access. Through economies of scale, global ICT standards can reduce costs for manufacturers, operators and consumers, and are also an essential aid to developing countries building their infrastructures and promoting economic dev.

2014:
- Continua contributes entire test suite to the ITU. Test suites were consented in July.
- H.810 converted in to 6 different languages.

2015:
- Continua working toward further contributions with ITU moving forward (DG 2015 and other materials, etc.).

Source: Building the Case: Developing the Global Ecosystem for Personal Connected Health
Domain: Manage Chronic Conditions

860 million individuals with chronic conditions worldwide

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.
Domain: Living Independently Longer

600 million elderly individuals world wide

Continua member companies help the elderly live independently longer, with dignity and security, through the efficient exchange of personal health and safety information that connects them to their family and care team.
One billion adults overweight worldwide

Continua member companies help individuals live healthier, more active lives by connecting them to their wellness team through a more efficient exchange of personal fitness information.