

Continua WAN (Genome)

**Overview for oneM2M's TP#9 Mobile, Alabama,
February 19th, 2014**



Continua™
HEALTH ALLIANCE

High Level

- **Relationship** - Continua membership includes a diverse blend of app developers, specialized Health device providers, Telecom SP and vendor stakeholders
- **Process** - Continua uses a Use Case, Requirement driven process to define Certifiable Device Classes, e.g., Observation Upload, Questionnaire, etc. These are “end-to-end” constructs that drive development of Design Guidelines across all appropriate Continua Interfaces
- **Timing** - Continua has an overlapping release process, e.g., Endorphin, Genome, Iris, ... Endorphin is set, Genome in being balloted, and Iris is starting Use Cases and Requirements now.
- **Apps** - Continua does *not* define apps - it creates CCDCs for its interfaces to facilitate device interoperability – verifying interface conformance and interoperability are part of Continua’s certification testing scope
- **Standards** - Continua heavily leverages Health segment specific application level data and messaging Standards from IEEE 11073 on the sensor Device side, and IHE, HL7 on the WAN side

Continua WAN Roadmap

1. Prior to Genome, Continua Guidelines DG 2014, WAN IF used HL7v2.6 / IHE PCD-01 SOAP based messaging for Observation Upload. HL7 v2.6 more compact and was better fit for 11073 than newer HL7 XML based messaging
2. With Genome, WAN IF is adding RESTful approach for all CDCs
 - Common Security approach for RESTful exchanges (OAuth based)
 - Authenticated Persistent Session (APS) CDC
 - hData based Capability Exchange via Root.xml file
 - APS REST/HTTP establishment (create resources,)
 - MQTT based payload exchange
 - Shoulder Tap (SMS Triggering)
3. After Genome we are starting Iris work, DG 2015, where we're adding to the WAN IF additional IEEE 11073 centric Device control/configuration capability



Continua Architecture

Personal Device

Thermometer



Pulse Oximeter



Pulse / Blood Pressure



Weight Scale



Glucose Meter



Cardio / Strength



Independent Living Activity



Peak Flow



Medication Adherence



Physical Activity



Electrocardiogram



Insulin Pump



Aggregation Manager



Personal Area Network (PAN) Interface



Telehealth Service Center



WiFi, 2G, 3G & 4G



Wide Area Network (WAN) Interface



Health Record Network (HRN) Interface

Health Records/ Networks



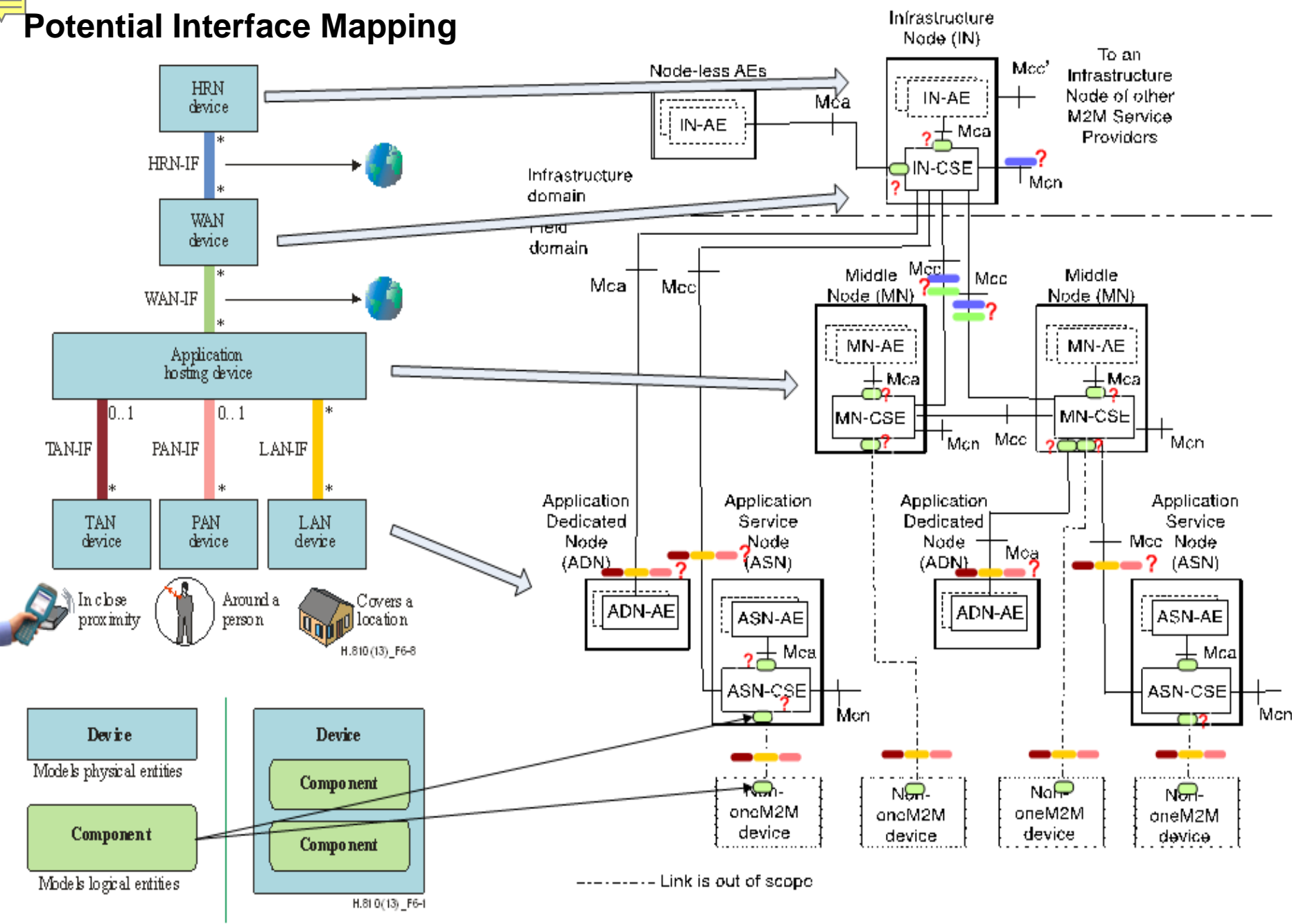
PHR

EHR

NHIN

HIE

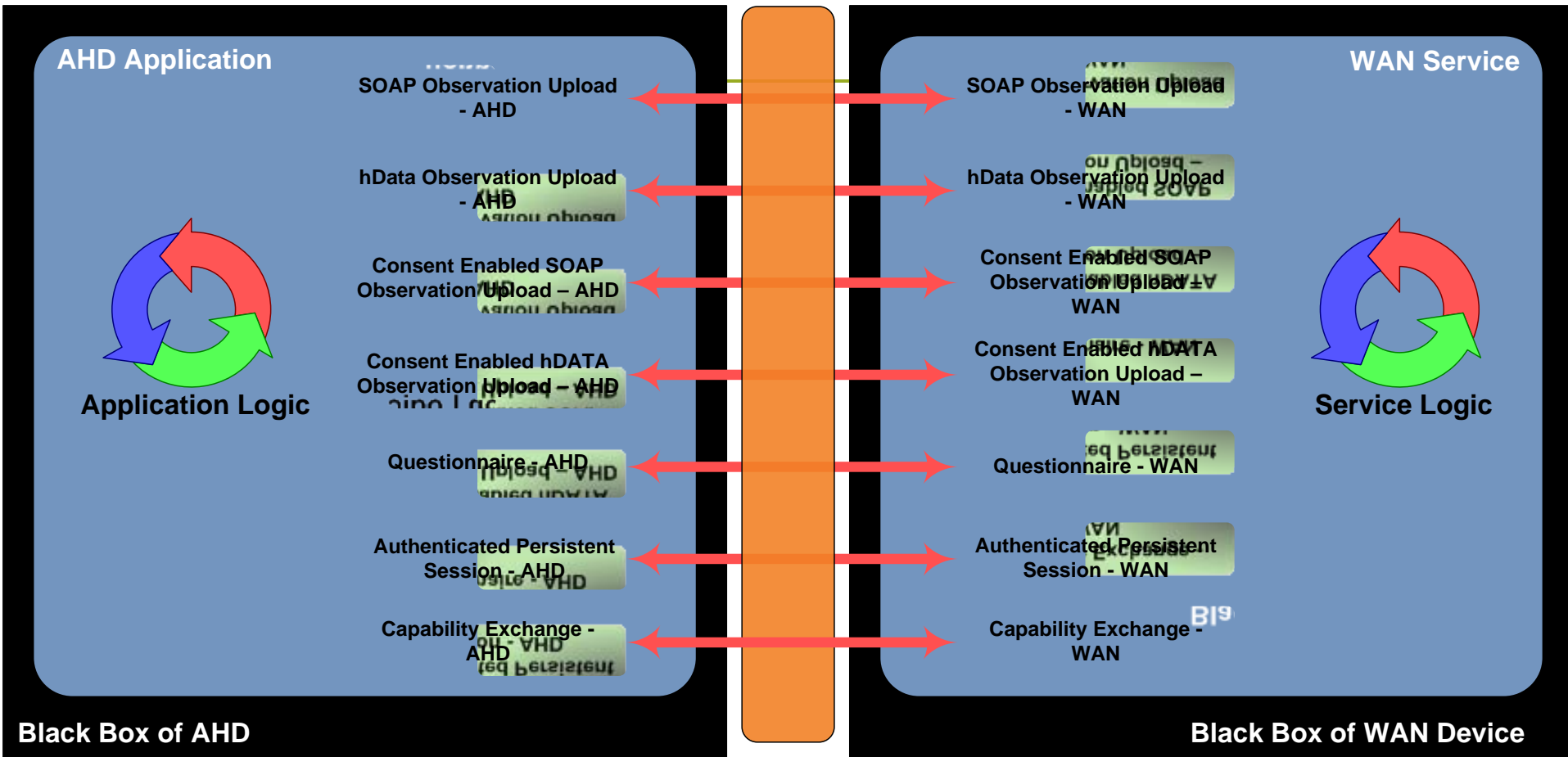
Potential Interface Mapping



H.810(13)_F6-8

H.810(13)_F6-1

Genome Certified Device Classes



Genome add significantly more CCDCs.

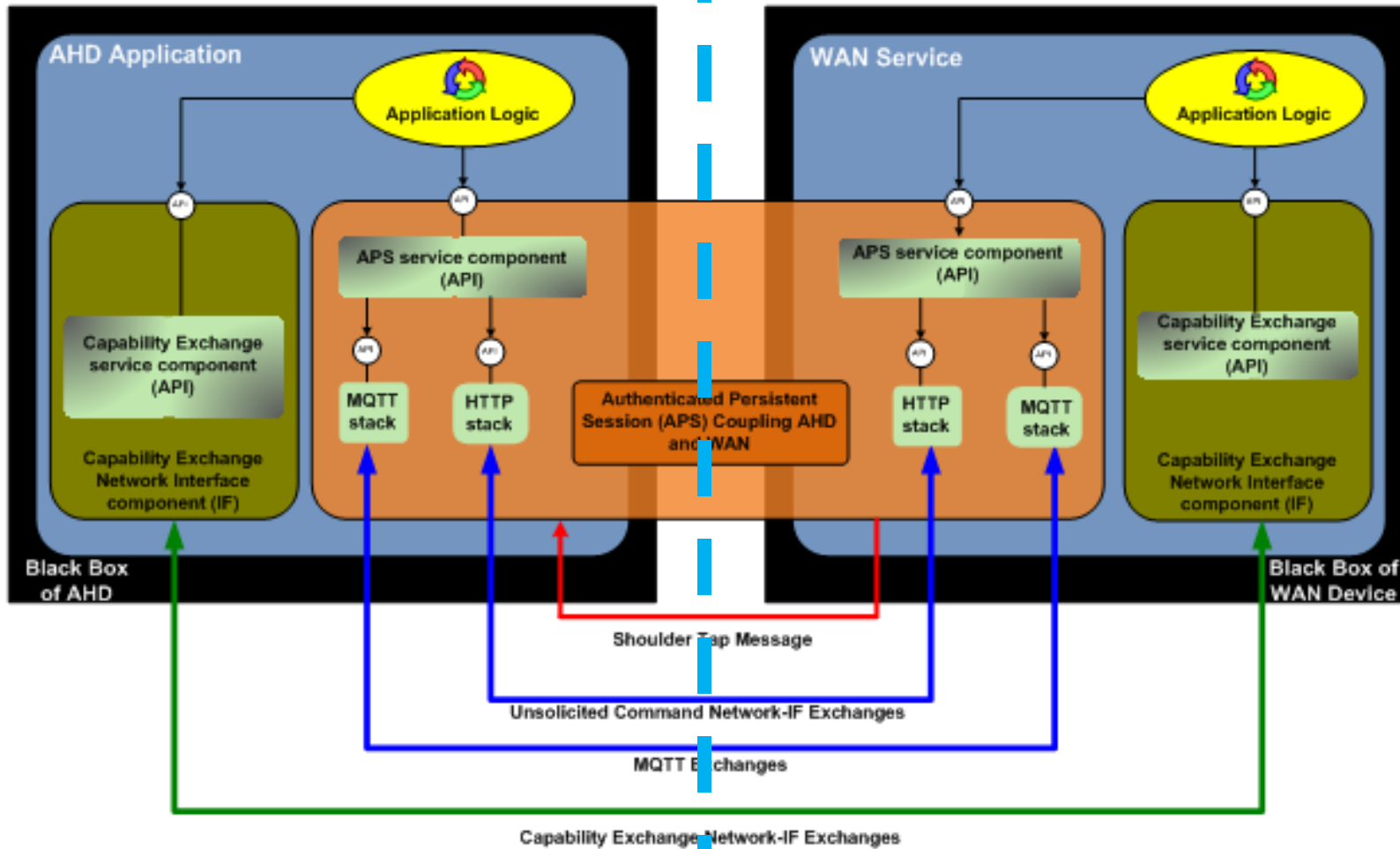
Authenticated Persistent Session (APS)

- Use-case
- APS Payload
- MQTT
- SMS Shoulder Tap

Genome Functional Architecture

Field Domain

Infrastructure Domain

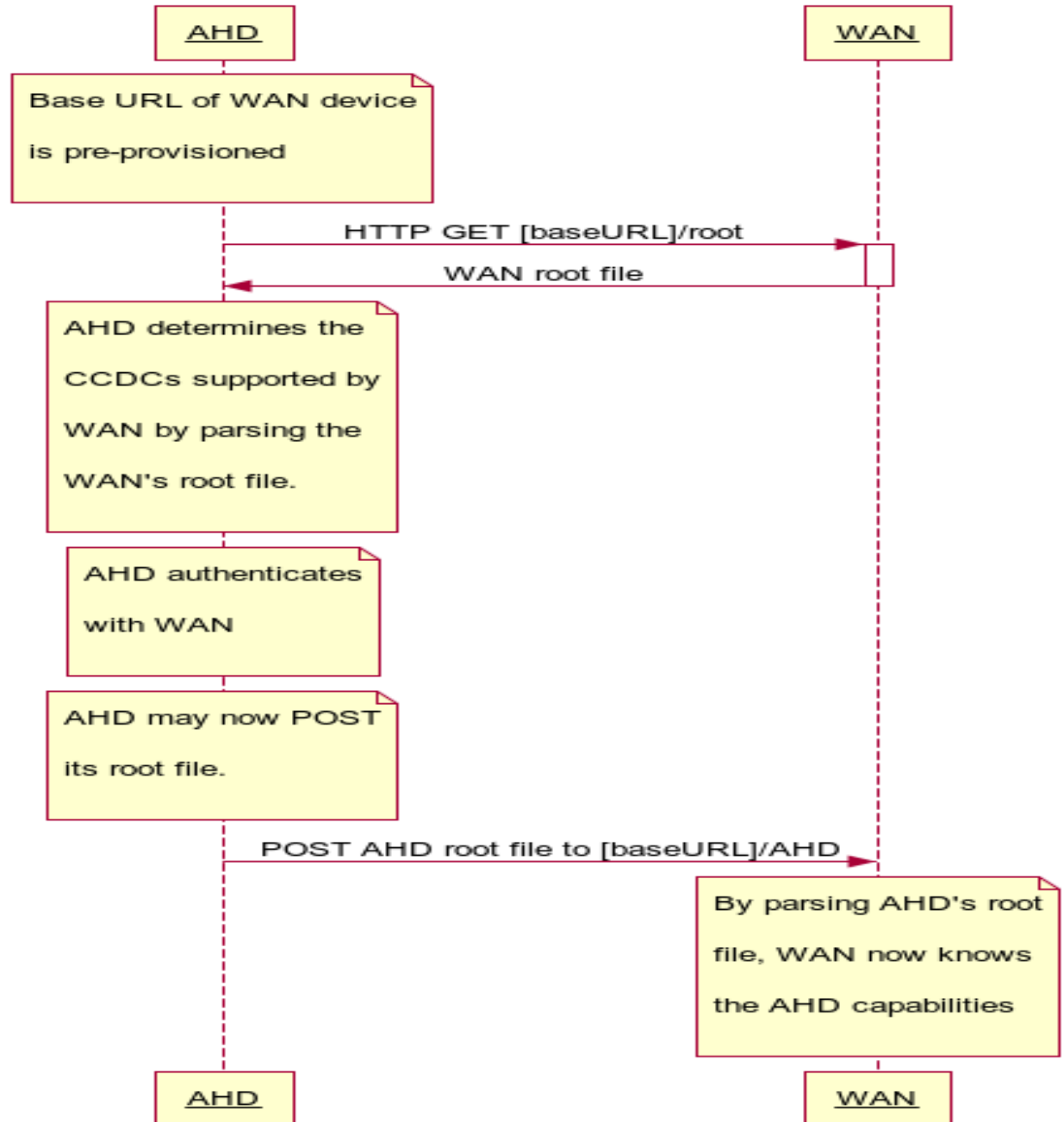


Structure of other Provider

Capability Exchange Network-IF Exchanges

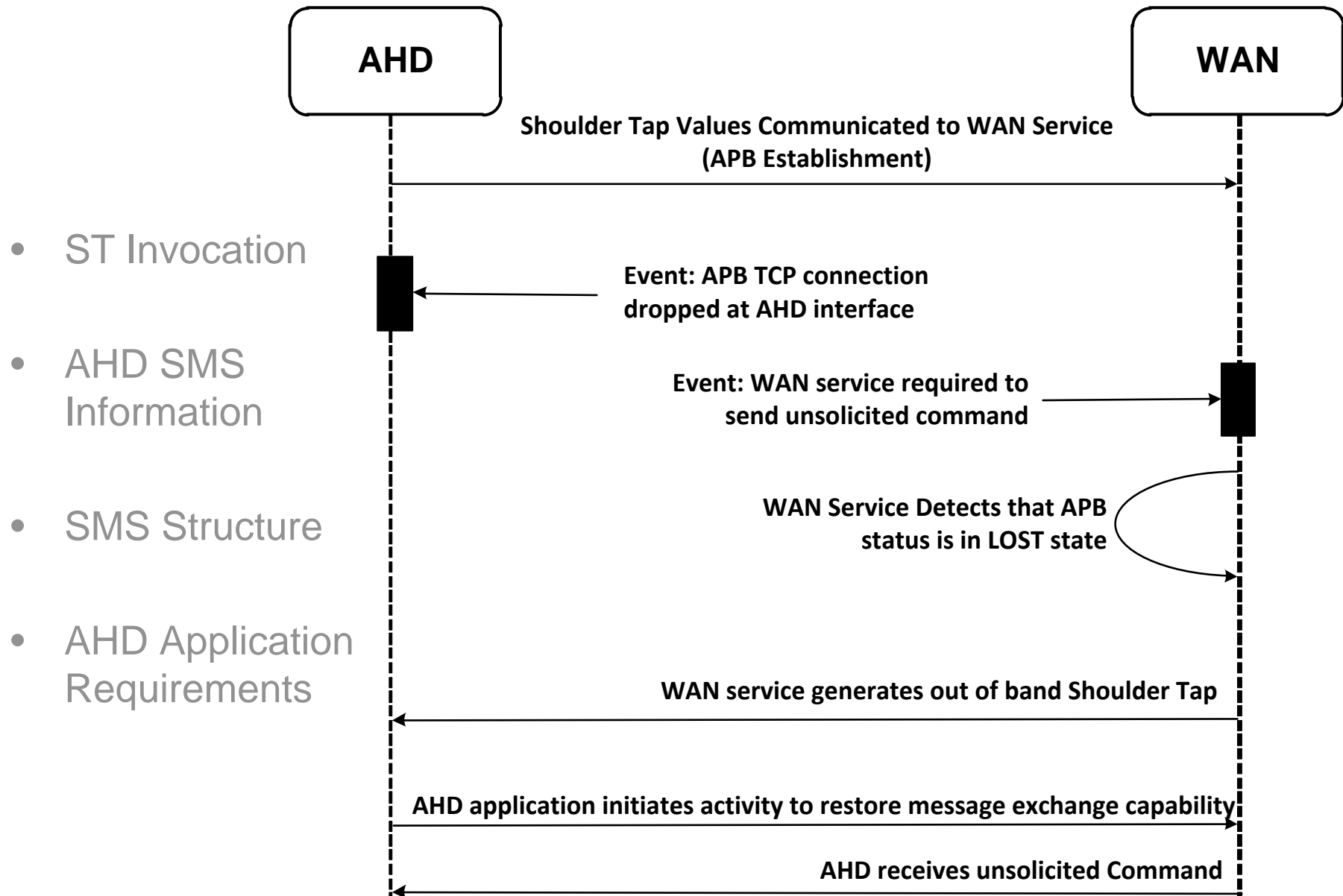
- Use-Case and Overview
- Root File Exchange
- Contents of the Root File
- JSON Version of Root File

Capability Exchange





Shoulder Tap



Development and Testing Tools

All Software is Free!

http://members.continuaalliance.org/members/td_library/



PC based , transport hardware, sold separately

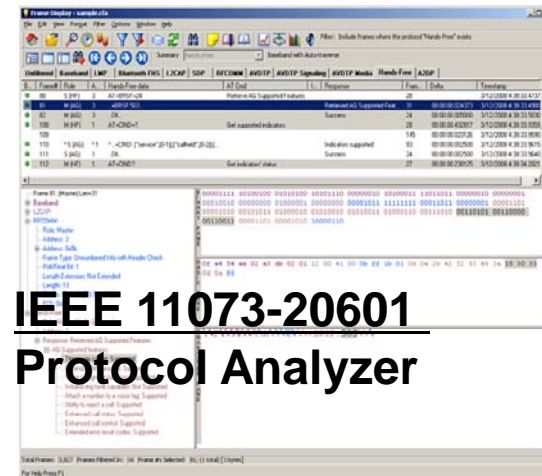
http://members.continuaalliance.org/members/rc_library/



CESL

PC based , transport hardware, sold separately

www.fte.com/products



**IEEE 11073-20601
Protocol Analyzer**

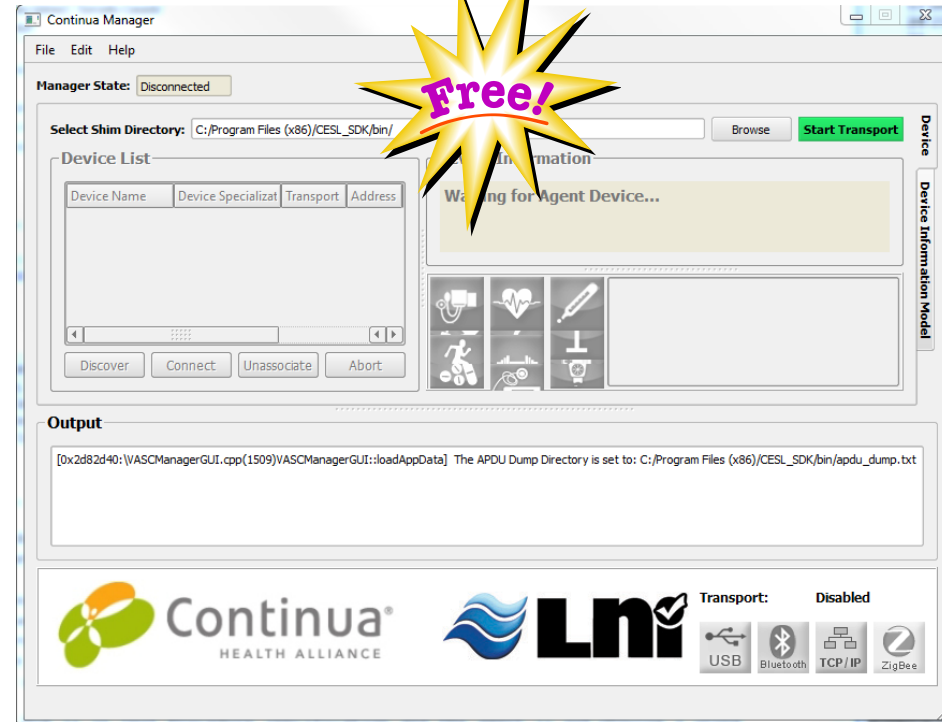
PC based analyzer, No hardware interface required



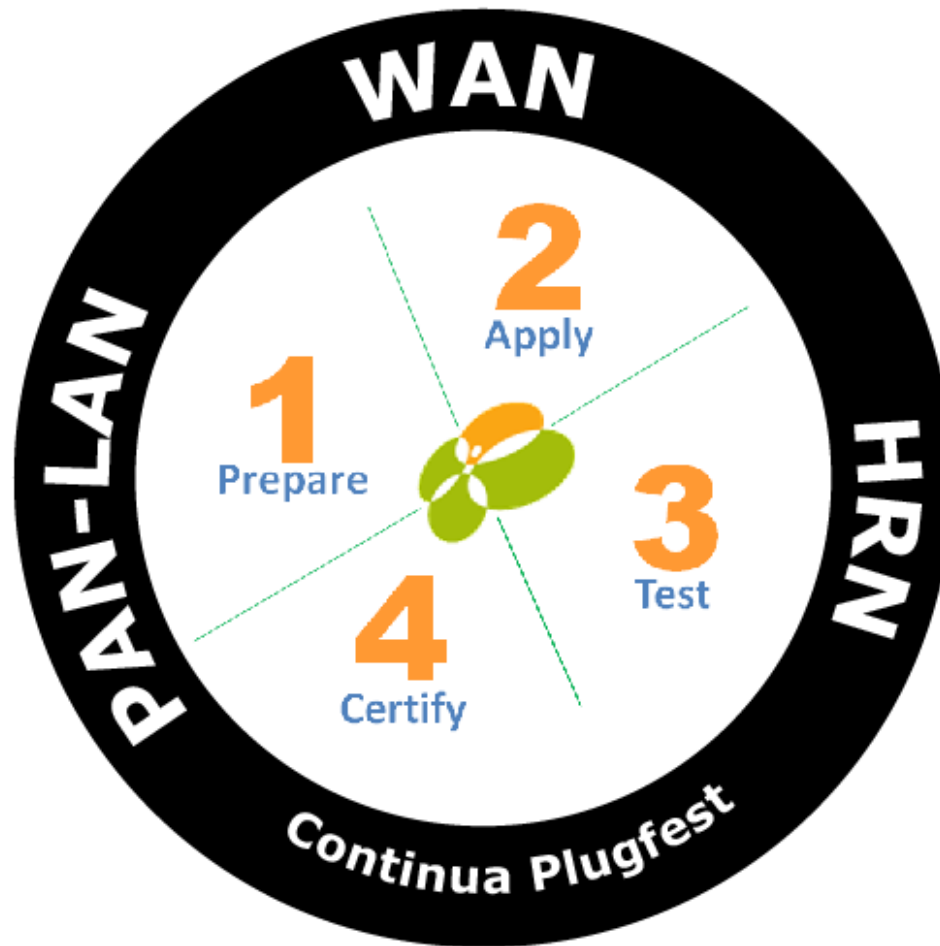
Android 4.0 based (HDP) application plus code
Phone sold separately

CESL: Plug in to Development

- Enhances development speed, cost-effectiveness
- Covers all Continua device specializations & transports
- \$1M+ of Code, free to members
 - Create reference implementation
 - Test against real devices
 - Run demos
- CESL Package
 - Device Agent & Mgr. Simulators
 - Reference source code
 - Software Development Kit (SDK)



Continua Plugfests



Future Work/Discussion

Opportunities for near term collaboration/alignment

– Near Term

- Time representation
- Triggering (e.g., SMS UDH)
- MQTT use

– Longer Term

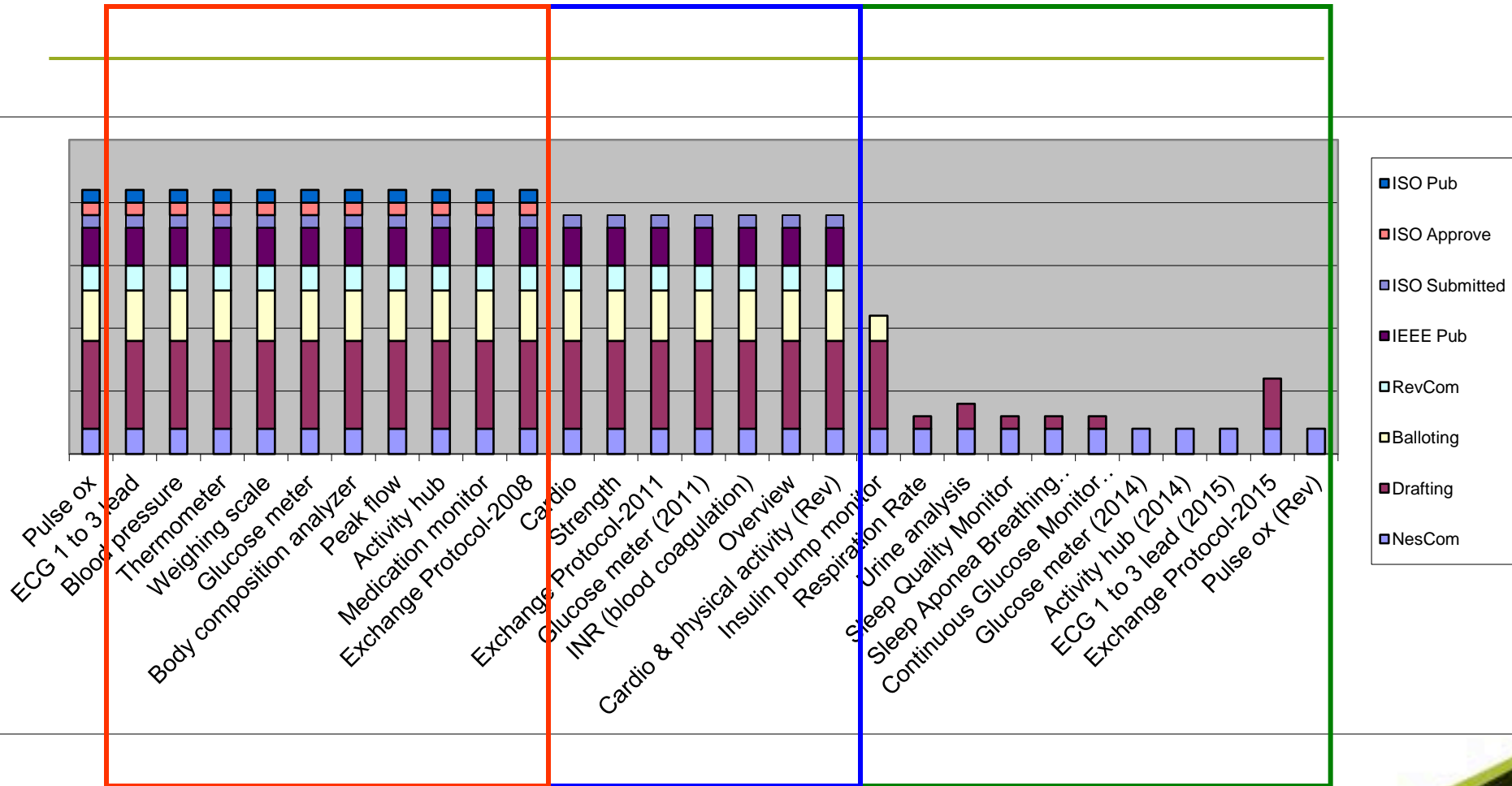
- WAN Capability Exchange
- Interworking with 11073 PAN/TAN/LAN devices



Background: Supported Domains

- Three domains
 - Disease Management (10400-10439)
 - Agent Examples: Pulse oximeter, Heart rate monitor, Blood pressure monitor, Thermometer, Weighing scale, Glucose meter, ECG 1 – 3 lead, INR, Insulin pump, Body composition analyzer, Peak flow, Sleep Quality Monitor, Sleep Aponea Breathing Therapy Equipment, Continuous Glucose Meter
 - Health and Fitness (10440-10469)
 - Agent Examples: Heart rate monitor, Weighing scale, Thermometer, Cardiovascular fitness and activity monitor, Strength fitness equipment, Physical activity monitor
 - Independent Living (Aging Independently) (10470-10499)
 - Agent Examples: Disease management devices plus Independent living activity hub, Medication monitor

Progress of each standard

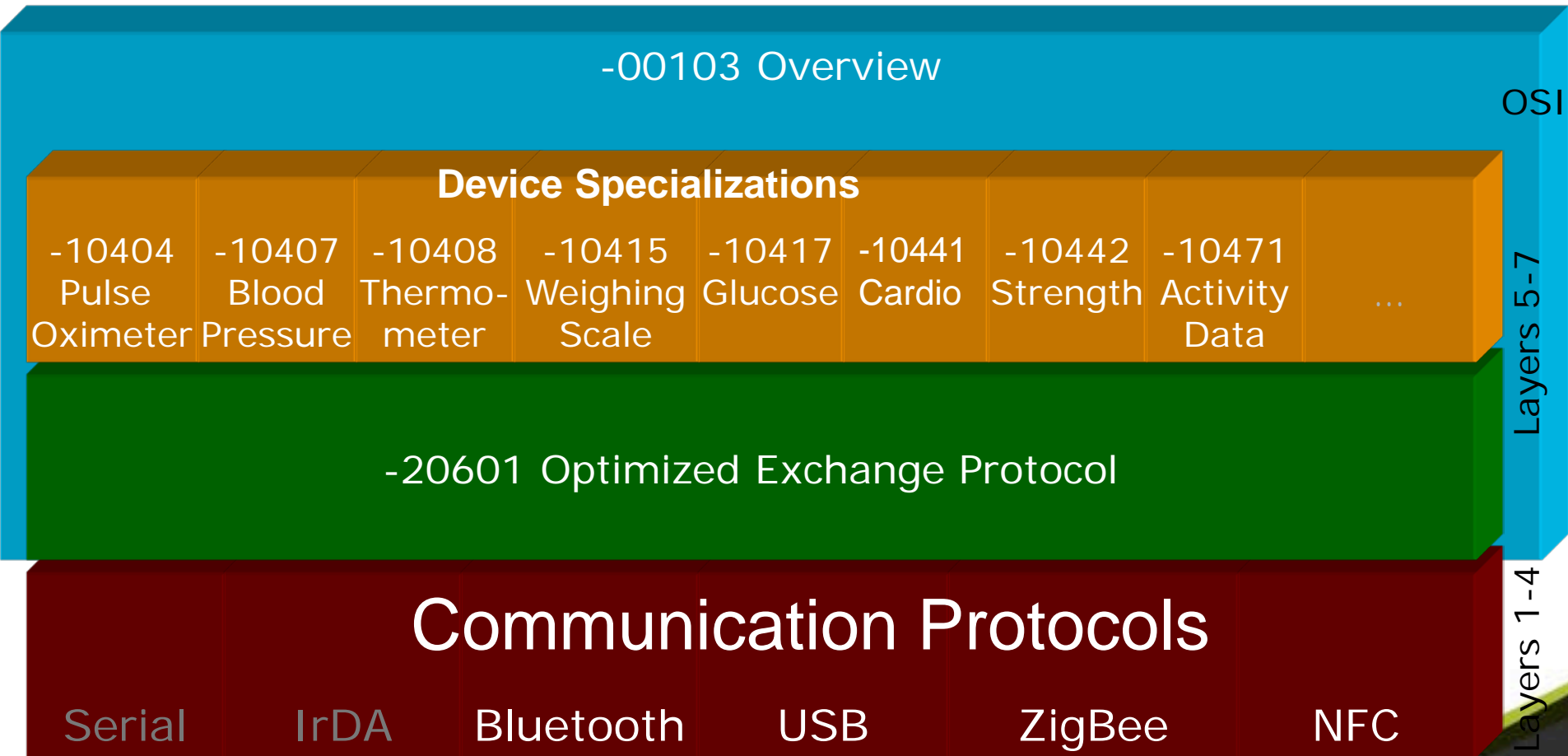


Drafts underway

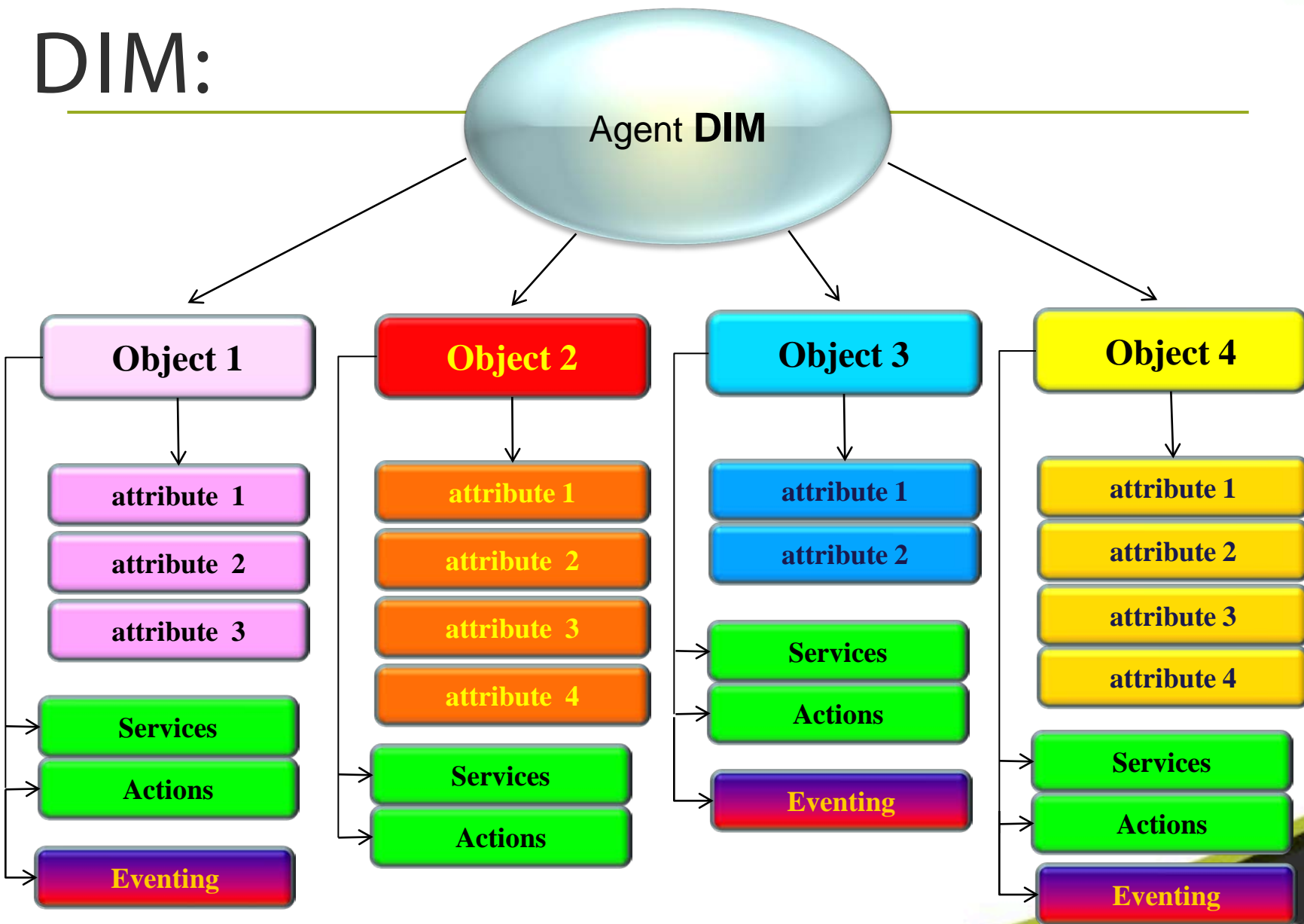
Approved and published IEEE stds

Approved and published international standards

Background: Personal Health Device Standards Overview



DIM:



Pulse Ox Agent DIMs

MDS Object

SpO₂ Numeric

Pulse Rate
Numeric

MDS Object

SpO₂
Numeric

Pulse Rate
Numeric

PlethWav
eRT-SA

Periodic Scanner: SpO₂
Pulse Rate PlethWave

Pulsatile
Occurrence Enum

PM-Store 1

PM-Store 2

SpO₂
Segment

Pulse Rate
Segment

Pulsatile
Segment