

Home hospitalisation platform

A look at the challenges, technology and lessons learned

19 Nov 2019 – Daniel Knoppel (HC@Home)

What is home hospitalisation technology?

- **Sensors that measure various parameters**
Weight, Blood pressure, Activity, Posture, Heart rate, Respiratory rate, Oxygen saturation
- **Systems that enable user interaction**
Smartphone / app, Computer / portal, sensor displays
- **Supporting algorithms**
Combining & filtering data, visualization, automated interaction
- **Supporting infrastructure**
Mobile communication bridges, servers

NWE-Chance devices



— Sensors — User interaction — Support

Technological challenges

- **Uniform user experience**
Make systems from different vendors appear as one integrated system
- **Highly secure interlinking**
Data from trusted sources, linked to verified patient identity; prevent mistakes or malice
- **Plug-in architecture**
A platform that is easy to (further) extend, rather than “one-off” integration

Uniform user experience: single main interaction point

- **Patient: smartphone app as central (trusted) agent**
 - + Rich user-interface: allows for participation, control, feedback
 - + Already highly personalized
 - + Location independence, “always-on”
 - + Advanced communication options (e.g. Bluetooth, camera, microphone, mobile data)
 - ! Platform designed around breakage
- **Caregiver: integrated portal**
 - + Data dashboard
 - + Pluggable into EHR

Interlinking: tight / loose

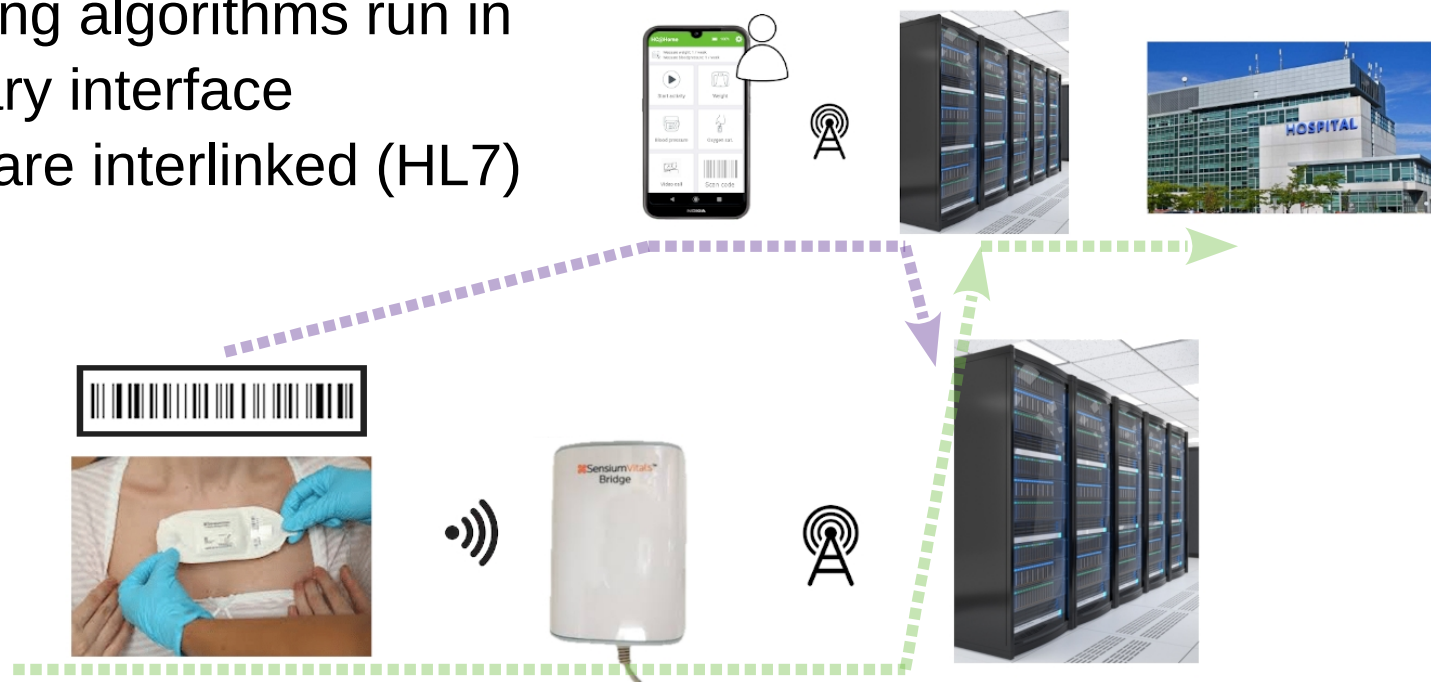
- **Tight integration**
 - App receives data directly from sensor (Bluetooth)
 - Sensor data is relayed by App (mobile internet) to Portal
 - Processing algorithms run in App (simplistic) and/or Portal
 - Immediate control / feedback



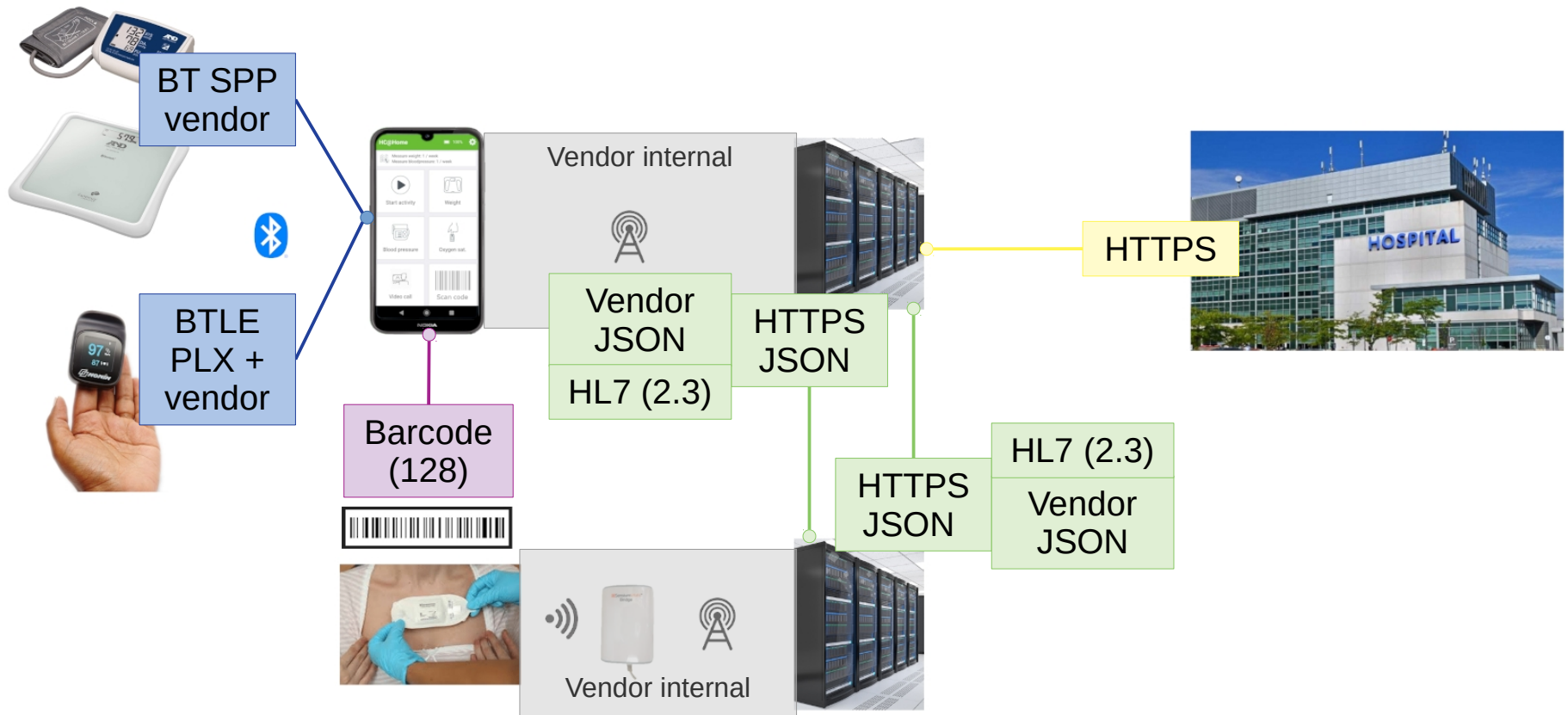
Interlinking: tight / loose

- **Loose integration**

- App links sensor with scan-and-verify (Camera / barcode)
- Sensor data is relayed via proprietary interface
- Processing algorithms run in proprietary interface
- Servers are interlinked (HL7)



Plug-in architecture: standards



Lessons learned (so far)

- Requirements process – options appraisal
 - Relatively large lead time
 - Requirements vs. technical integration role
- Tight vs. loose integration
 - Allows quick integration of existing systems
- Adapters vs. standards
 - Standards often already determined, extensibility through adapters

Interreg



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Thank You!