FHIRframe

Concept Definition

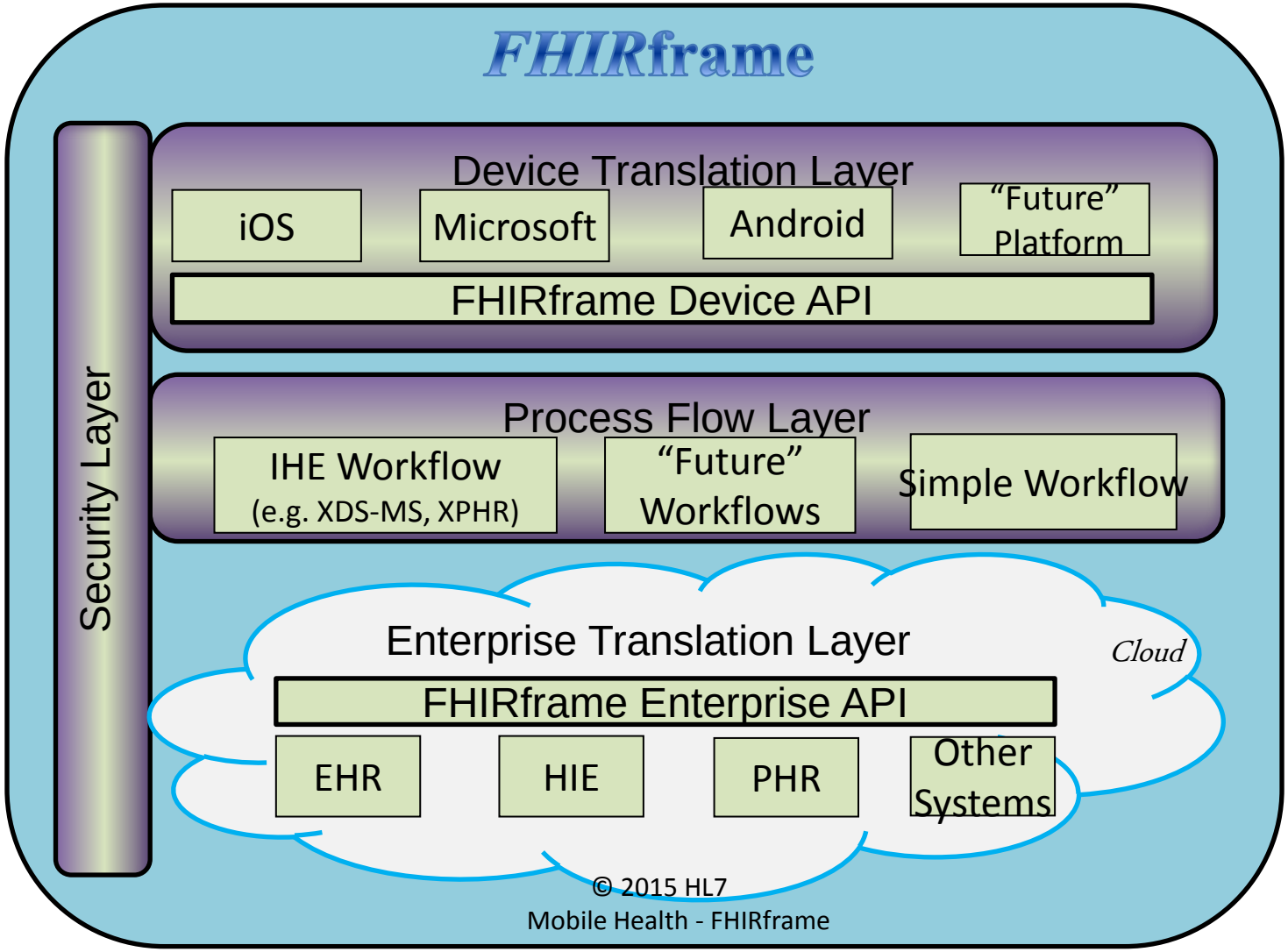
v.08

Note: This is a preliminary discussion

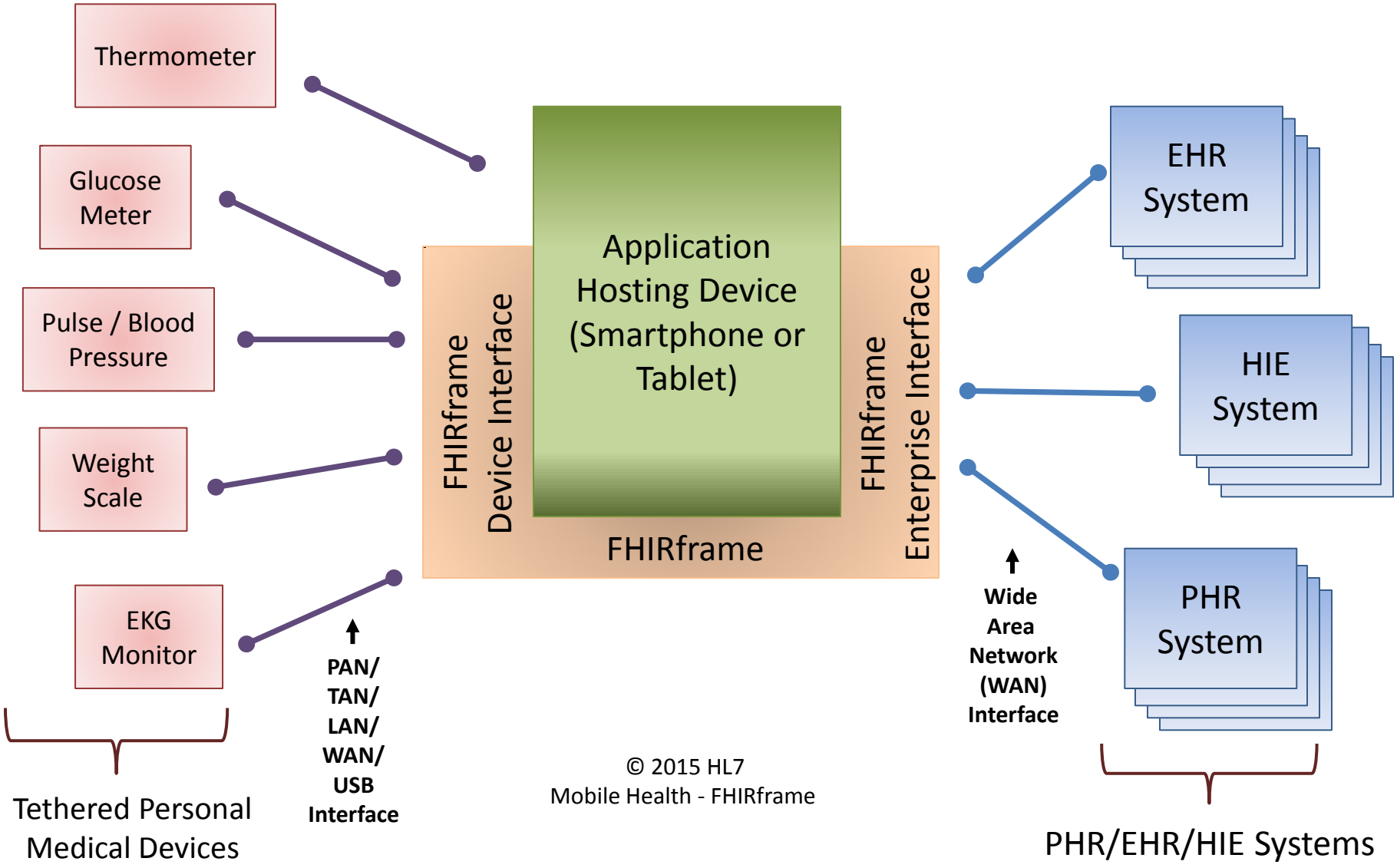
Introduction

- Purpose
  - Provide common interface to mobile app developers for translating health data into consumable FHIR resources
  - Provide platform agnostic interface to mobile app developers
  - API definitions to accomplish secure exchange of PHI (Personal Health Information)
  - Common open API with translations at edge to different paradigms
- Intended Use - Mobile health applications to transport health data:
    - Electronic health record system
    - Personal health record system
    - Health information exchanges
    - Others (e.g. public health systems)

Architecture

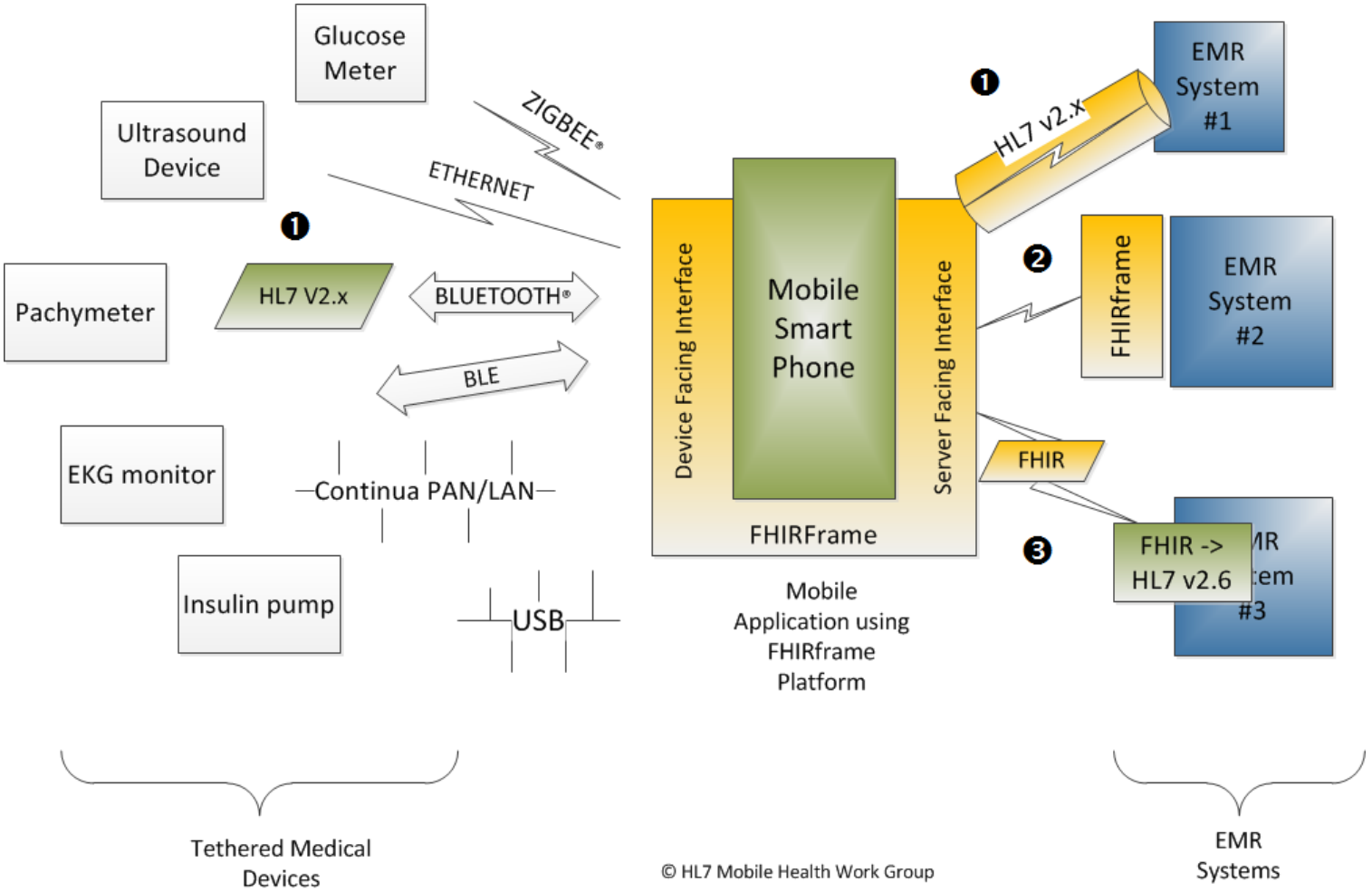


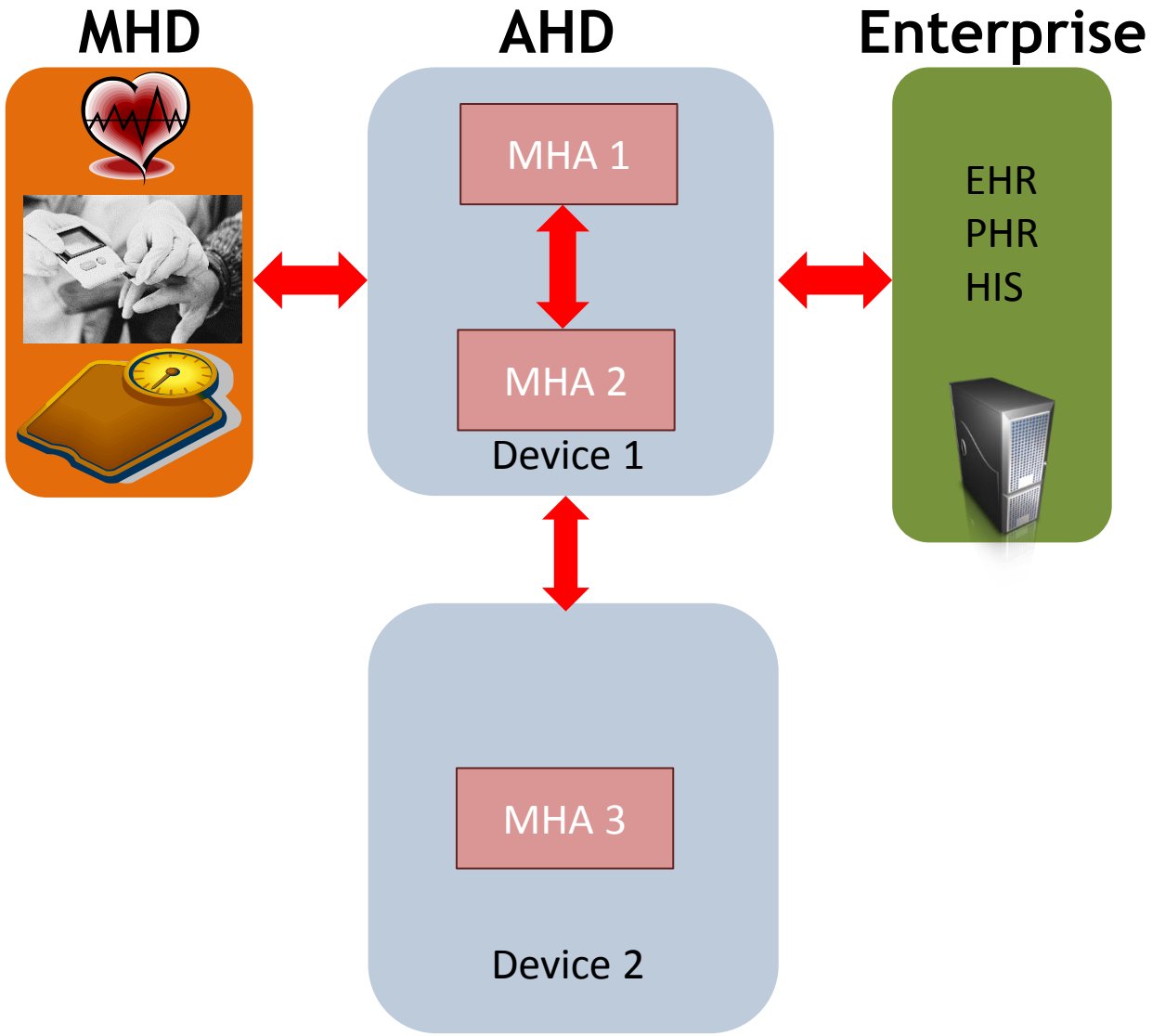
Operational Context



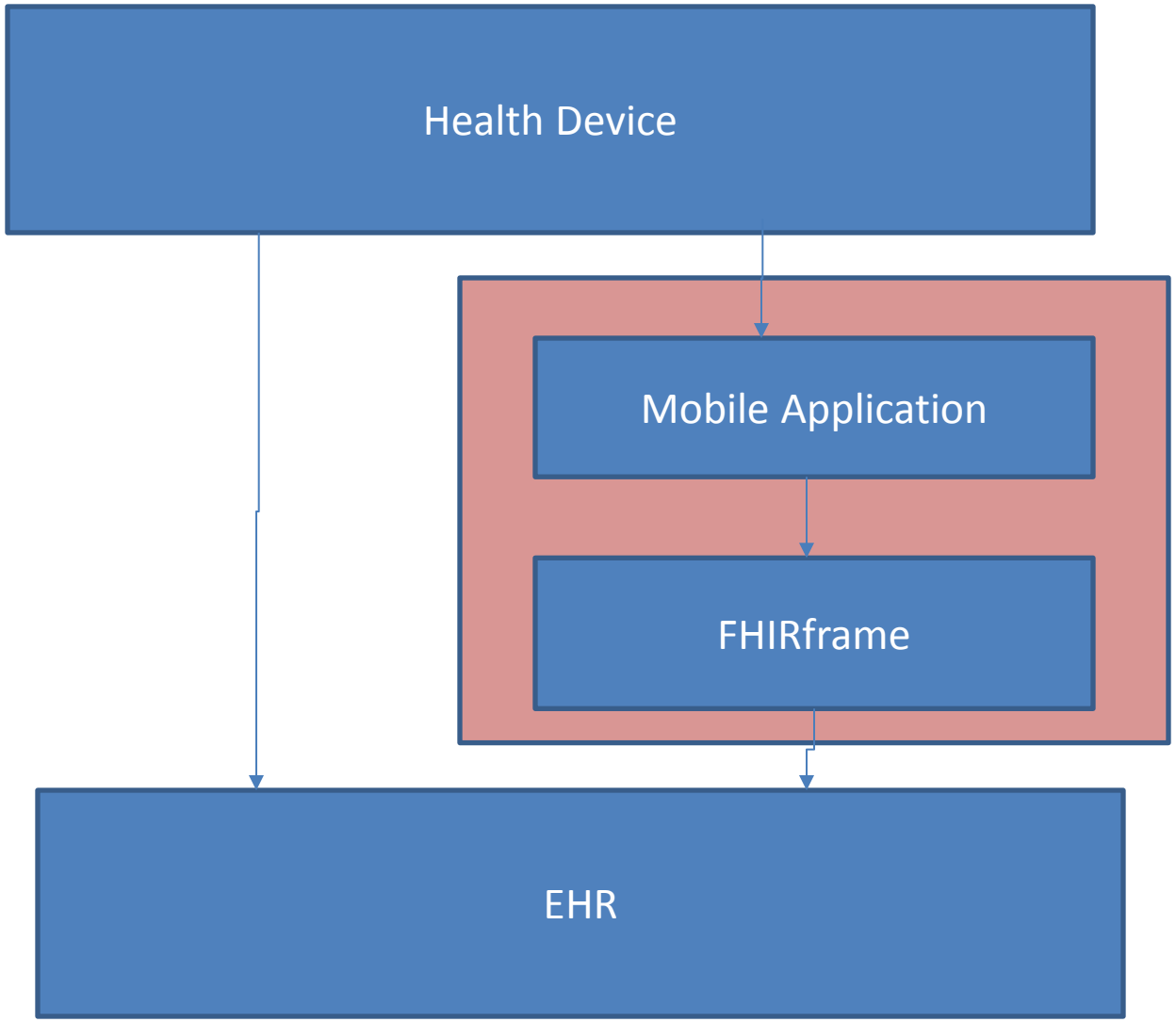
Mobile Health - FHIRframe

Operational Context

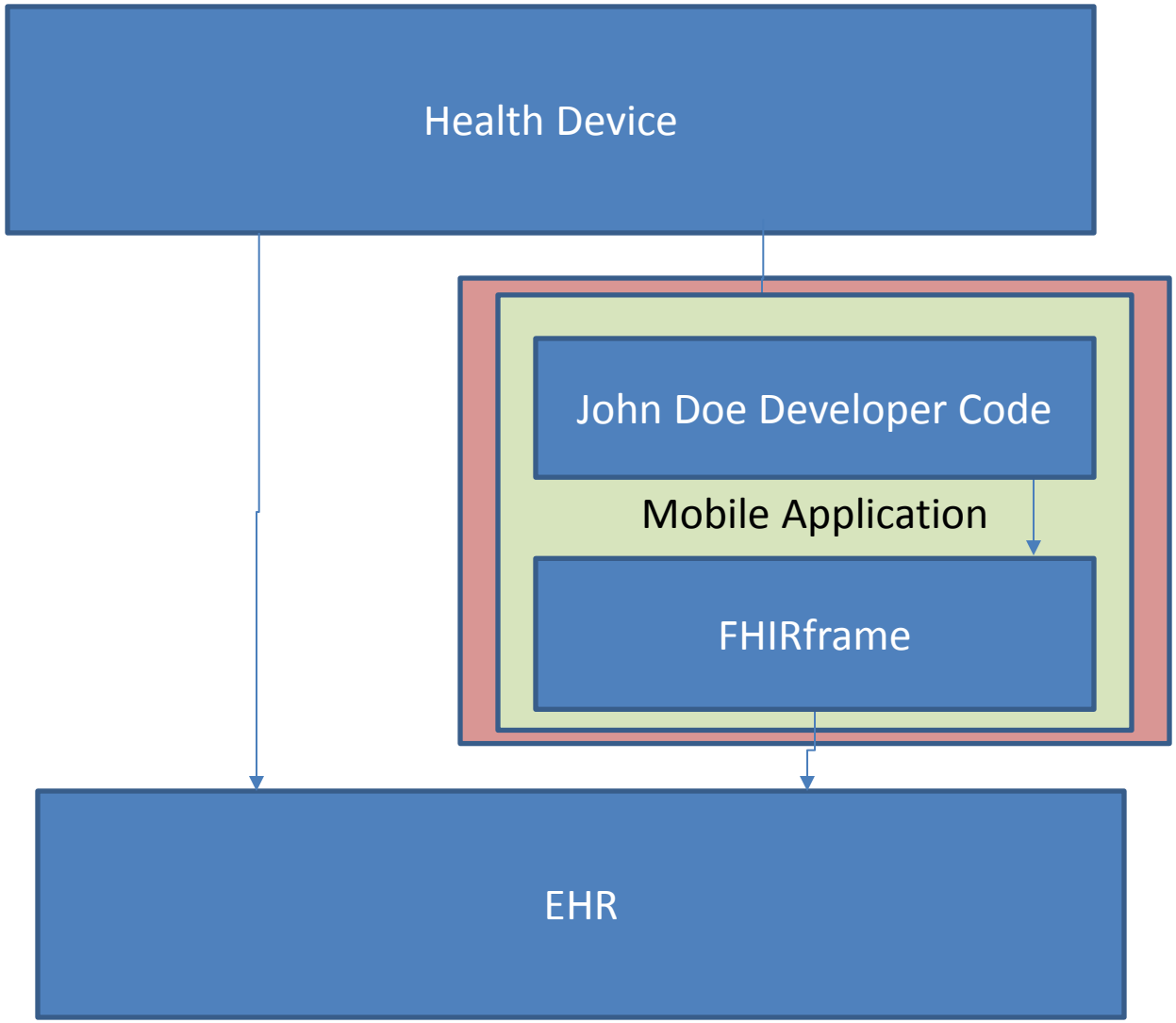




Device Interfaces

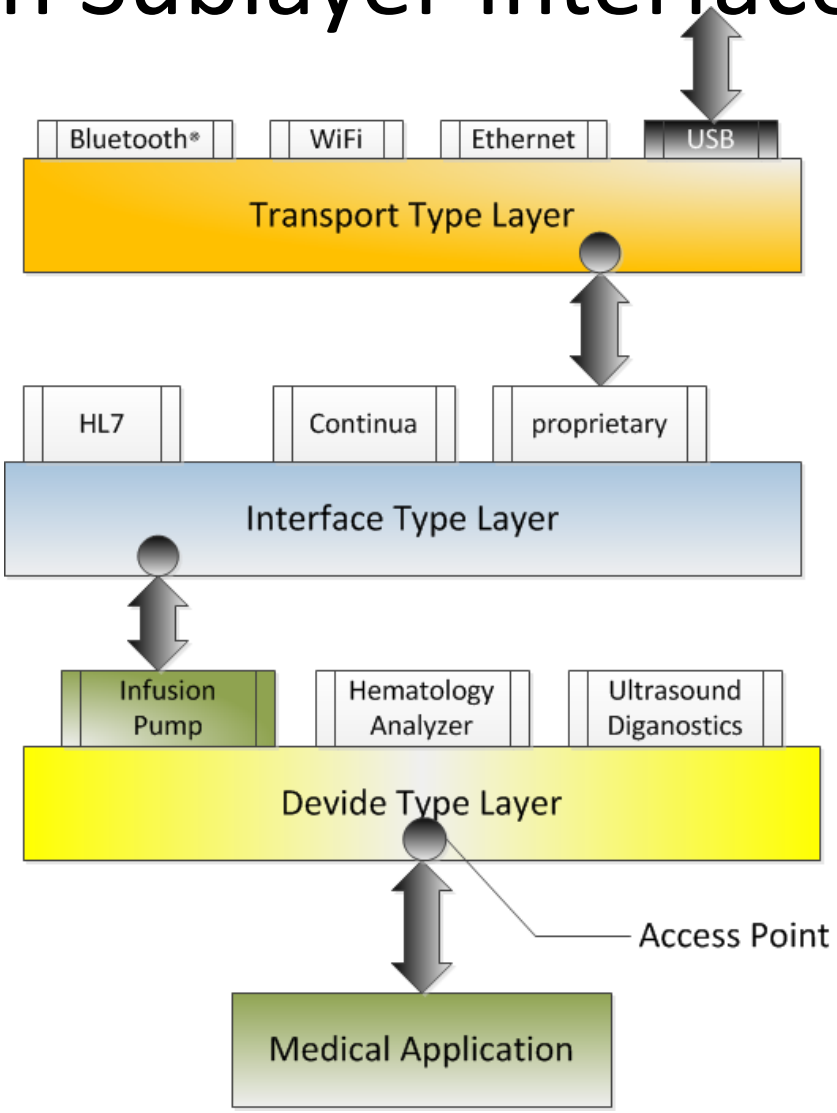


Device Interfaces

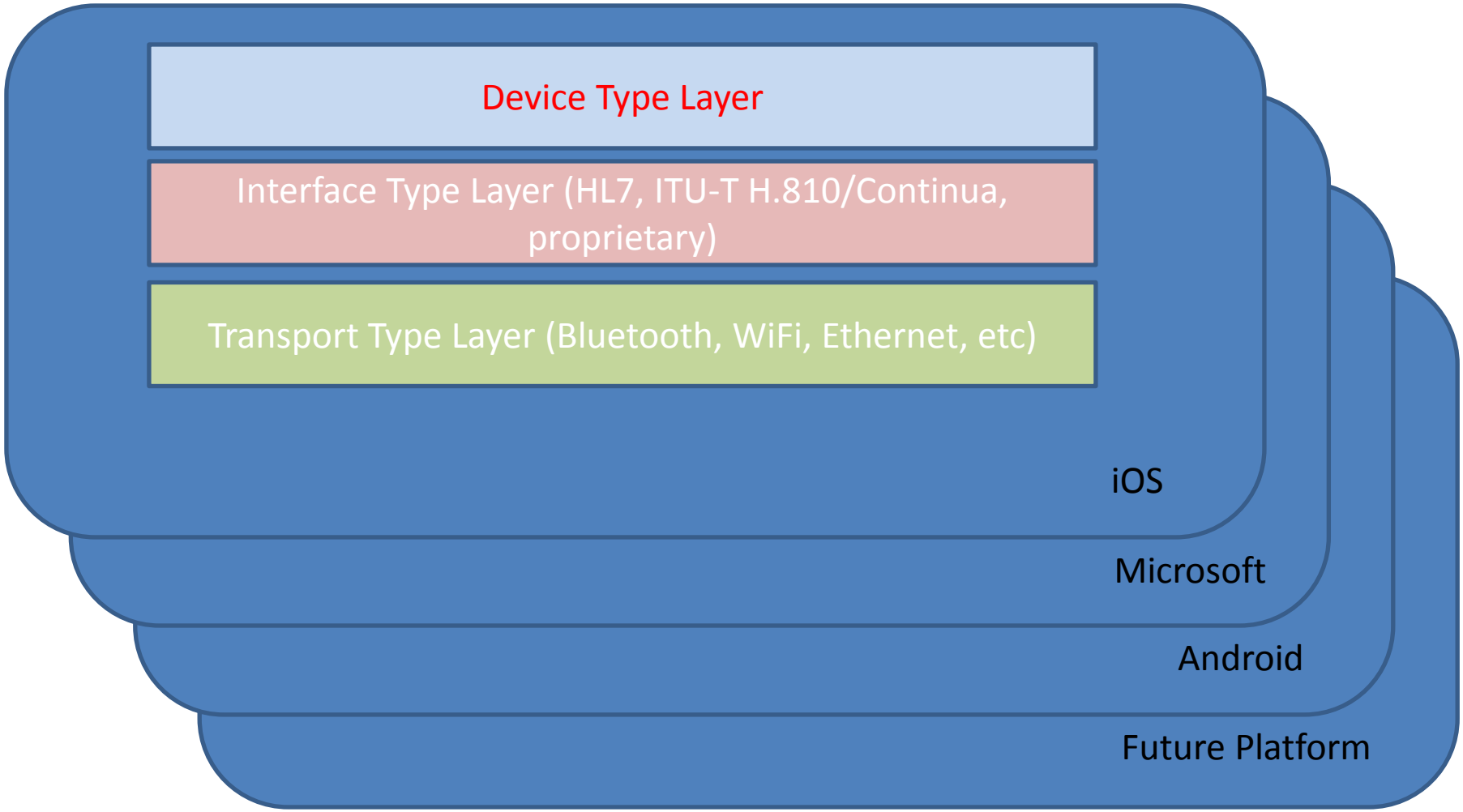


Device Translation Sublayer Interfaces

Illustrating a *Medical Infusion Pump application* interfacing over a *proprietary* interface connected to a Medical Infusion Pump machine over a *USB* connection.



Device Translation Across Platforms



Security Considerations

API Considerations

- User Identification and Authentication
- Confidentiality
- Non-repudiation
- Privacy
- Secure Logging
- Accountability
- Intrusion Detection and Response
- Secure storage and retrieval in addition to data storage “at rest”
- Secure link establishment and maintenance
- Information hiding
- Strength of cryptographic support

Phase II

May include a threat assessment,

- security policy and
- countermeasures definition

The documents can be used as templates for developers using the FHIRframe

Use Cases

- Health Application
- Medical Device
- Wearable Device
- Server Side Medical Data Repository

API Concepts

- Functional Calls
  - API calls
  - Call back functions
  - Transactions
- Layered Architecture
  - Each layer carries out operations in a specific paradigm
  - Layer may have a *sublayer* of limited functionality

Functional Description of Interfaces

- Device Layer
  - Device Type Translation sublayer
  - Device Interface type sublayer
  - Device Transport sublayer
- Core FHIRframe Layer
  - Workflow Layer
  - Enterprise Interface Sublayer

Note: preliminary

Conclusion

- FHIRframe is a valuable component for mobile healthcare application development ecosystem
- Interfaces to devices and servers should be standardized for the application, with changes, updates and modifications at the translation layer
- Security solution is drafted for developers

ACKNOWLEDGMENTS/CONTRIBUTORS

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