# A Solid-based Architecture for Decentralised Interoperable Location Data

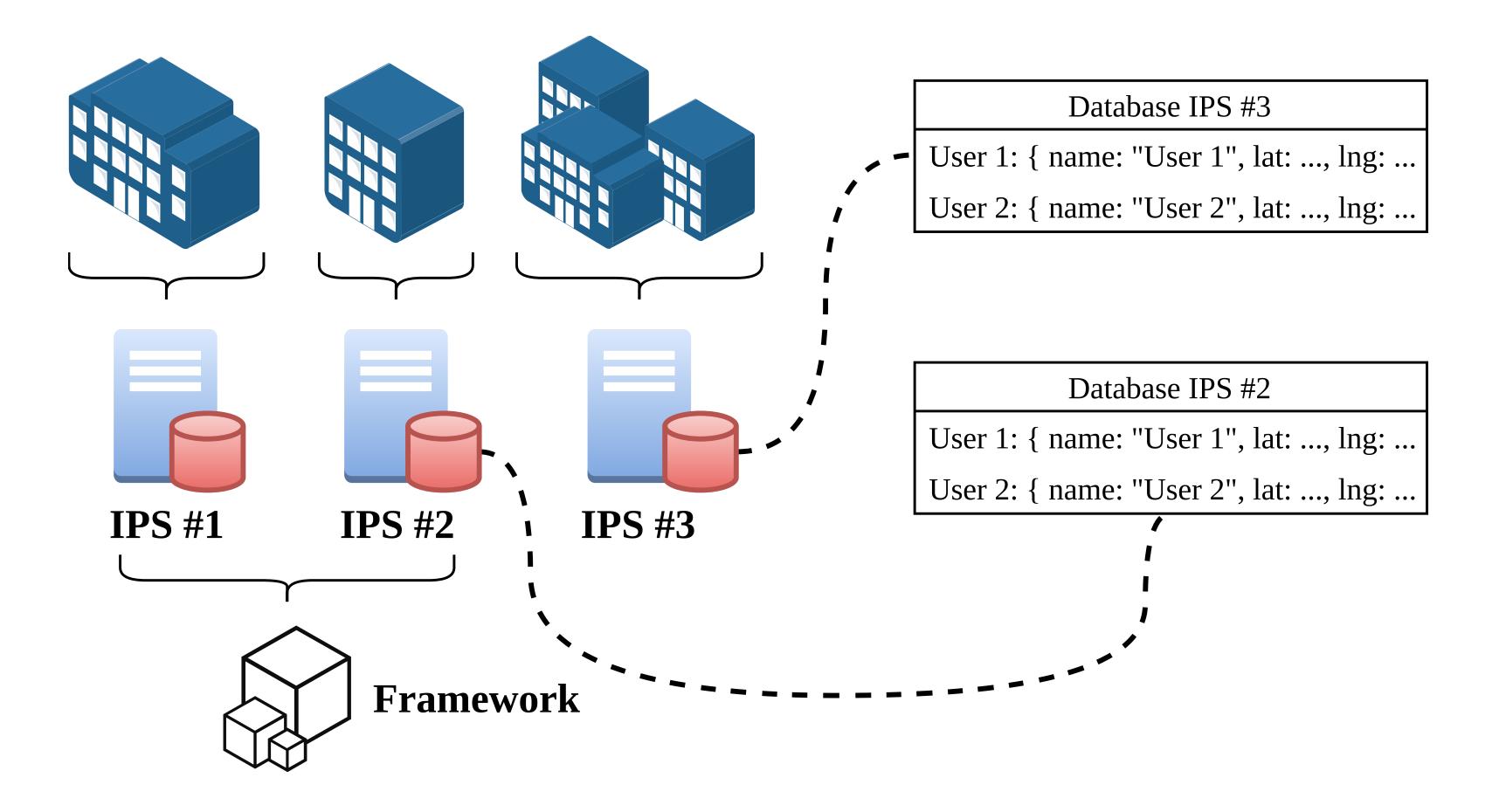
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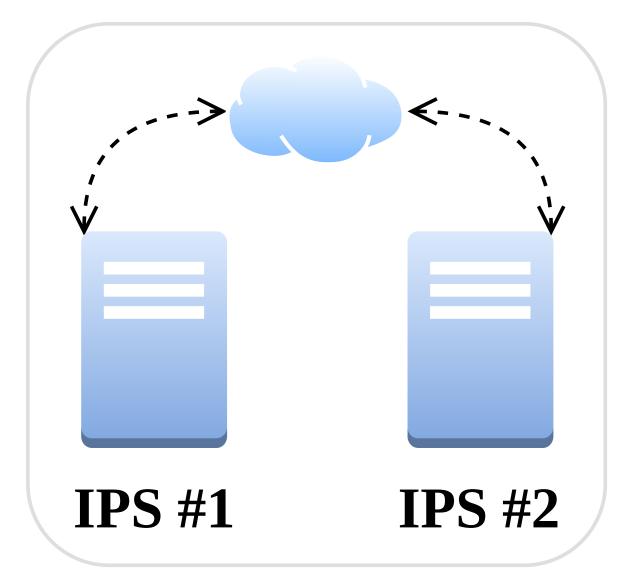


## **Current indoor positioning systems (IPS)**



### **Problems with current IPS'**

- 1. Users not in **control** of their **data**
- 2. No interoperability between positioning systems
- 3. No interoperability between (navigation) applications



Accessibility



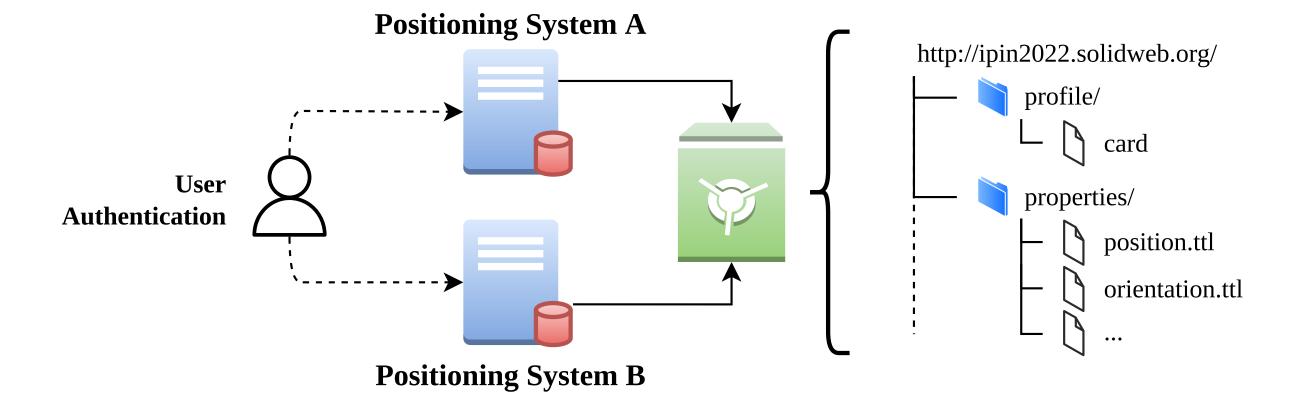
Readability



Understandability

## What is Solid?

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```
position.ttl

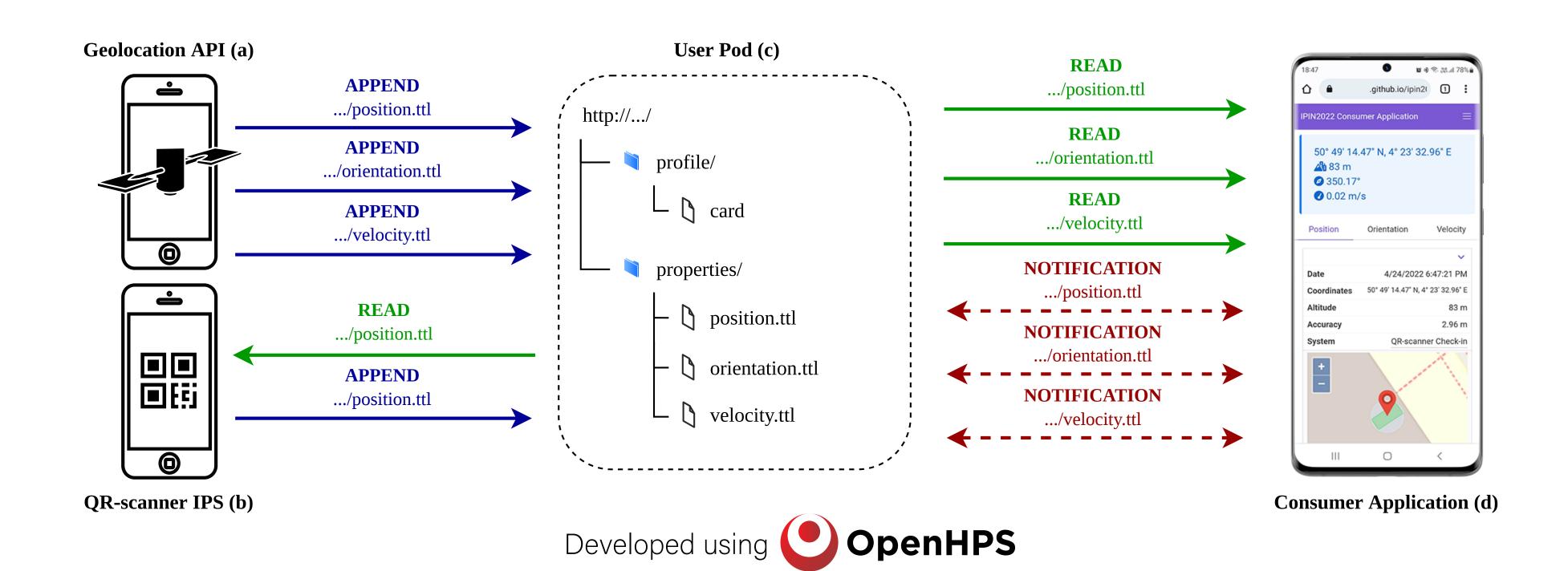
    a sosa:ObservableProperty;
    rdfs:label "My Position"@en .

:1648831850 a sosa:Observation;
    sosa:observedProperty <> ;
    sosa:resultTime "...";
    sosa:hasResult: [ ... ] .

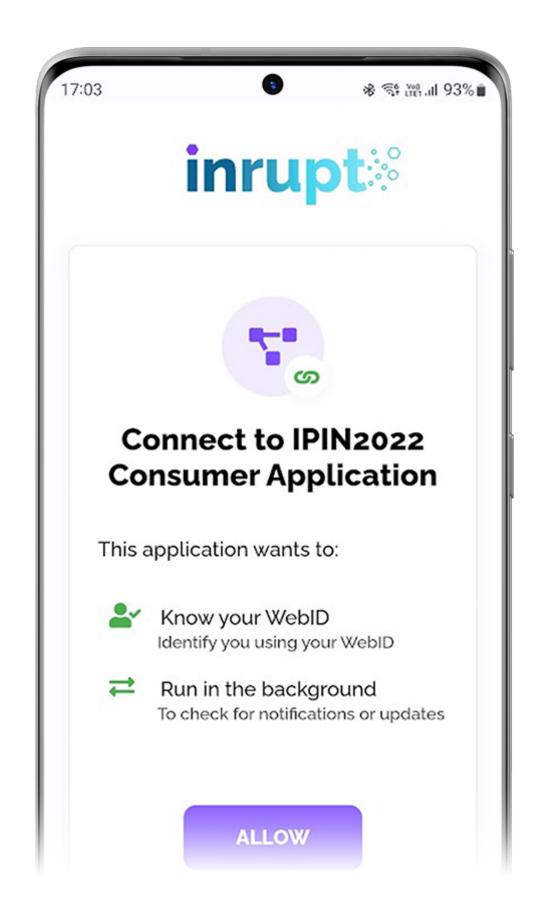
:1648831900 a sosa:Observation;
    sosa:observedProperty <> ;
```

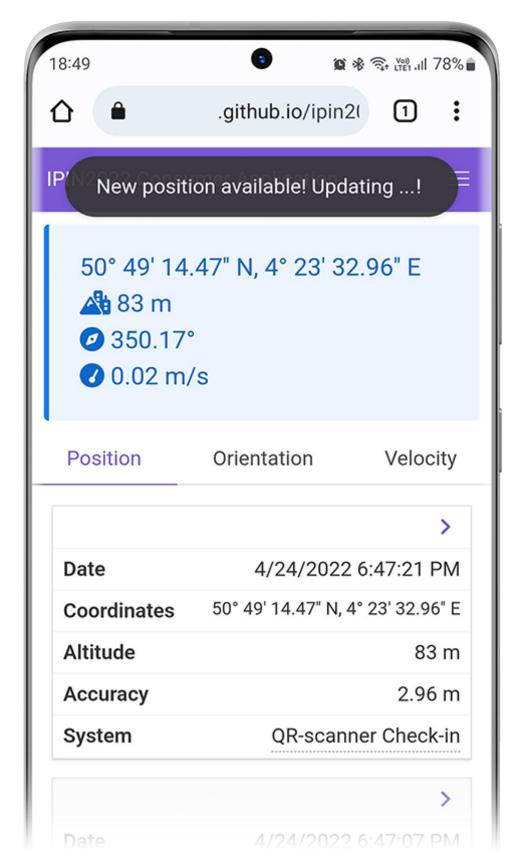
## RDF: Properties and Observations

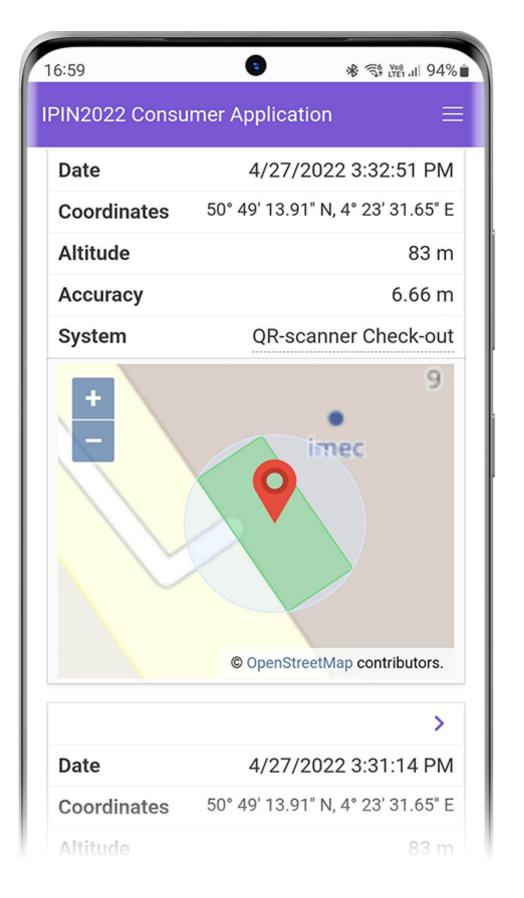
#### **PoC Demonstrator**



### PoC Demonstrator ...







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```
SELECT ?posGeoJSON ?datetime ?accuracy {
    ?profile a sosa:FeatureOfInterest ;
           ssn:hasProperty ?property .
    ?observation sosa:hasResult ?result ;
                sosa:observedProperty ?property ;
                sosa:resultTime ?datetime .
    ?result geosparql:hasSpatialAccuracy ?spatialAccuracy ;
            geosparql:asWKT ?posWKT .
   BIND(geof:asGeoJSON(?posWKT) AS ?posGeoJSON)
    ?spatialAccuracy qudt:numericValue ?value ;
                    qudt:unit ?unit .
   OPTIONAL { ?unit qudt:conversionMultiplier ?multiplier }
   OPTIONAL { ?unit qudt:conversionOffset ?offset }
    BIND(COALESCE(?multiplier, 1) as ?multiplier) # Default 1
    BIND(COALESCE(?offset, 0) as ?offset) # Default 0
    BIND(((?value * ?multiplier) + ?offset) AS ?accuracy)
} ORDER BY DESC(?datetime) LIMIT 20
```