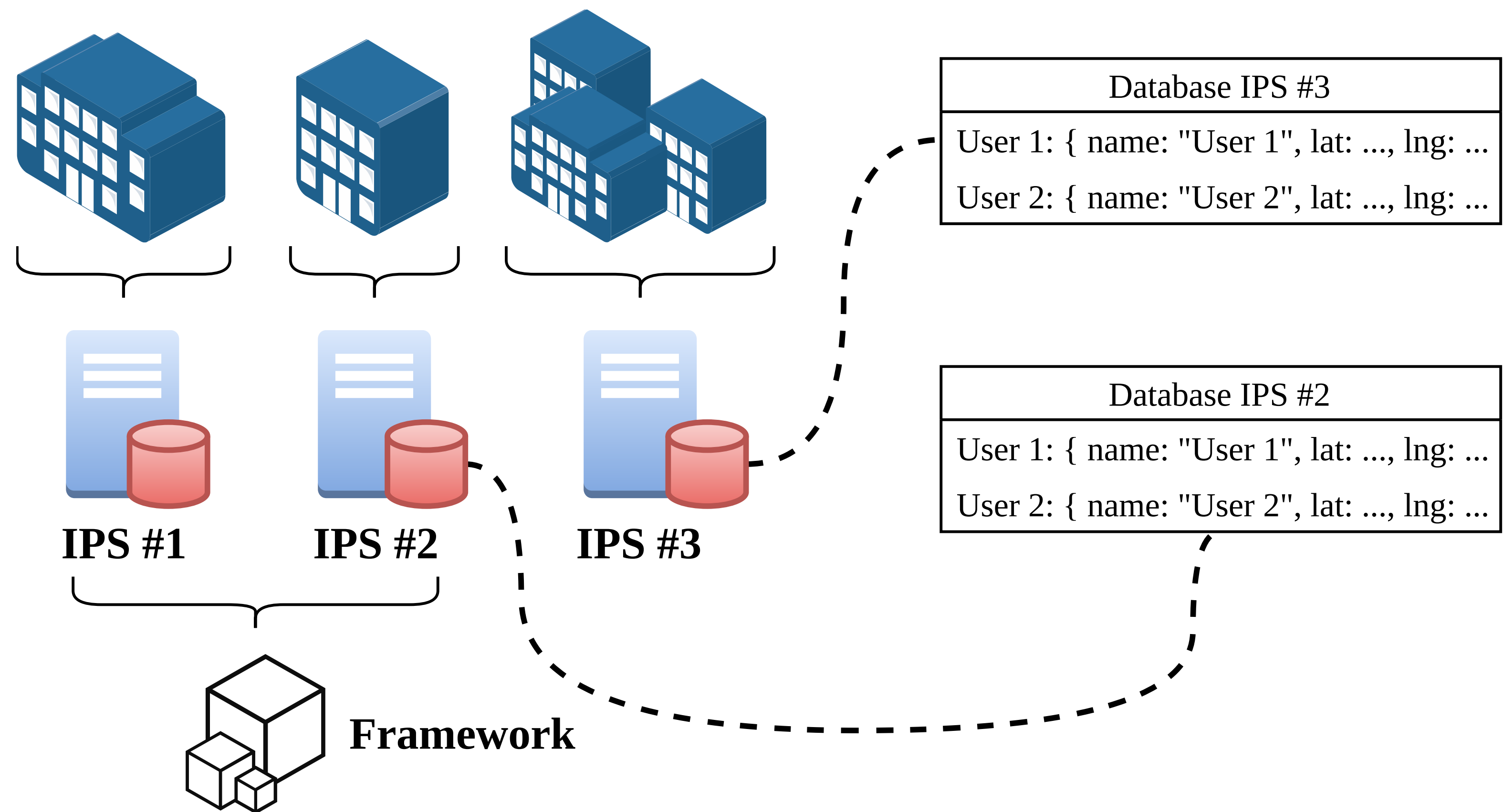


A Solid-based Architecture for Decentralised Interoperable Location Data

Maxim Van de Wynckel, Beat Signer

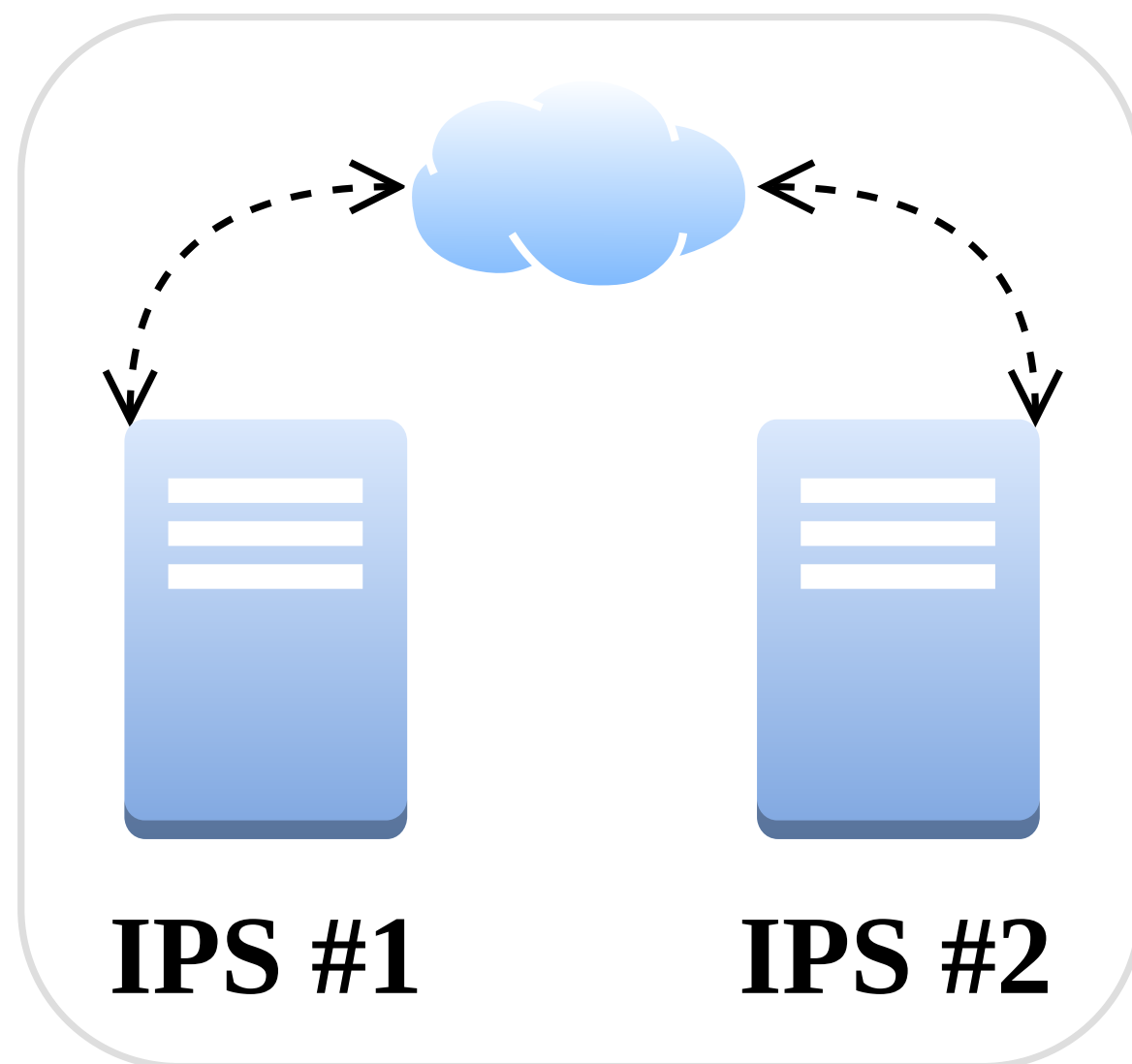
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Vrije Universiteit Brussel*

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



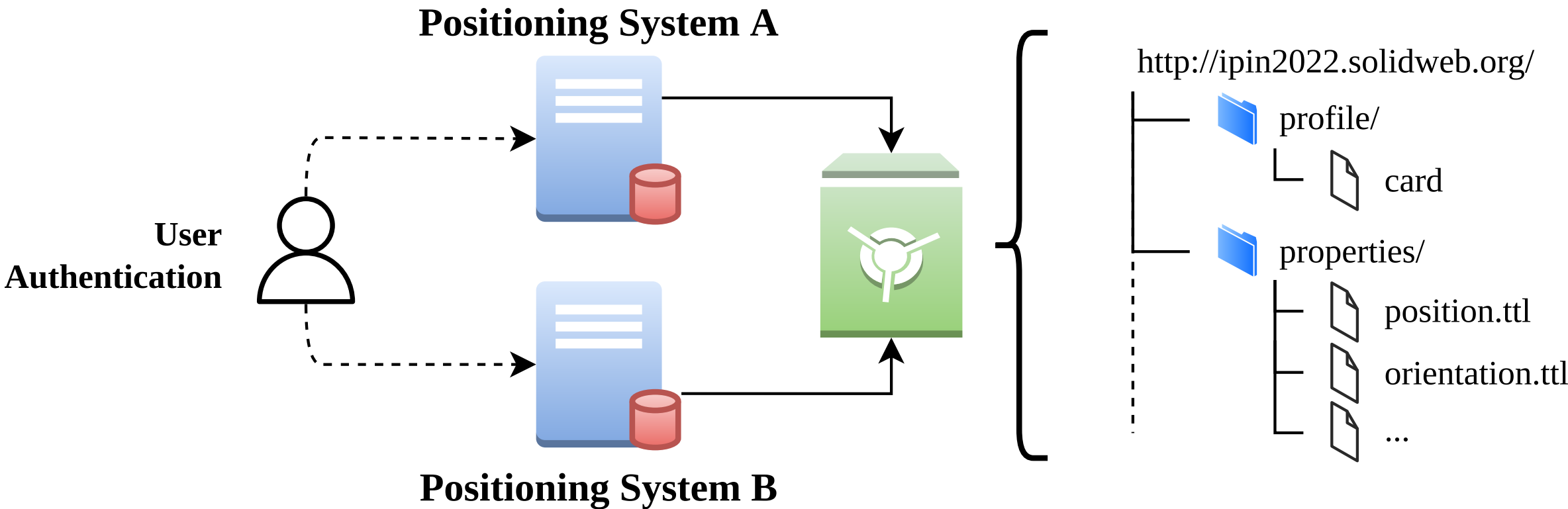
Readability



Understandability

What is Solid?

What is Solid?



```
position.ttl
<> a sosa:ObservableProperty ;
  rdfs:label "My Position"@en .

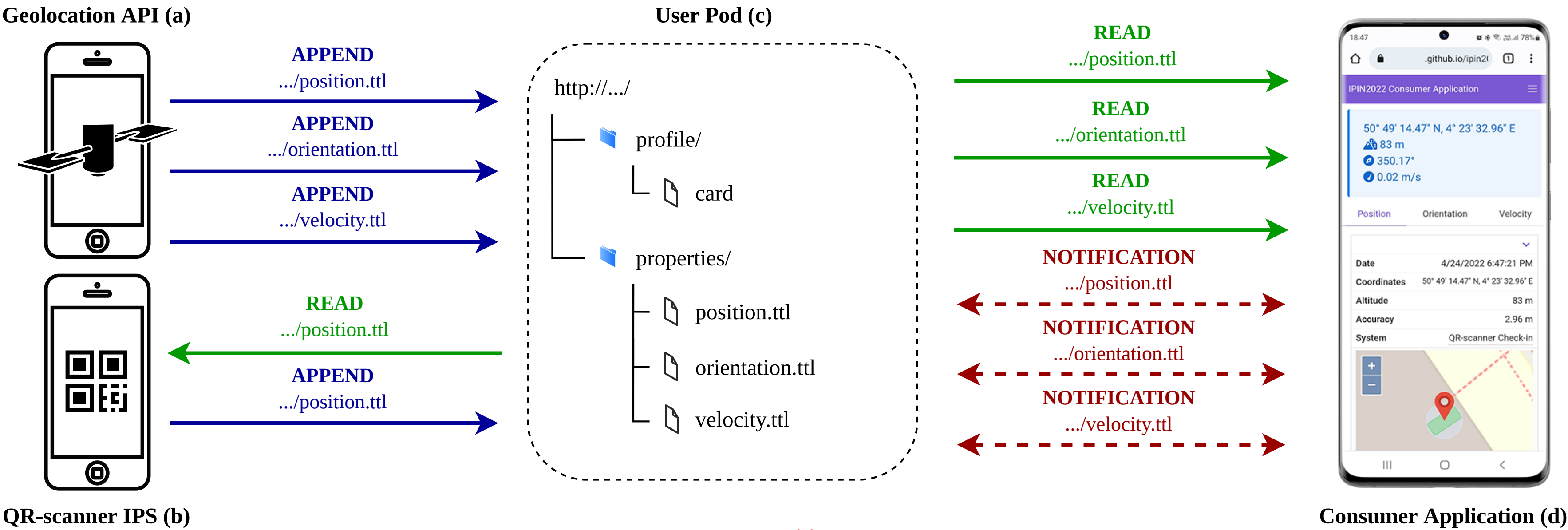
:1648831850 a sosa:Observation ;
  sosa:observedProperty <> ;
  sosa:resultTime "...";
  sosa:hasResult: [ ... ] .

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

RDF: Properties and Observations

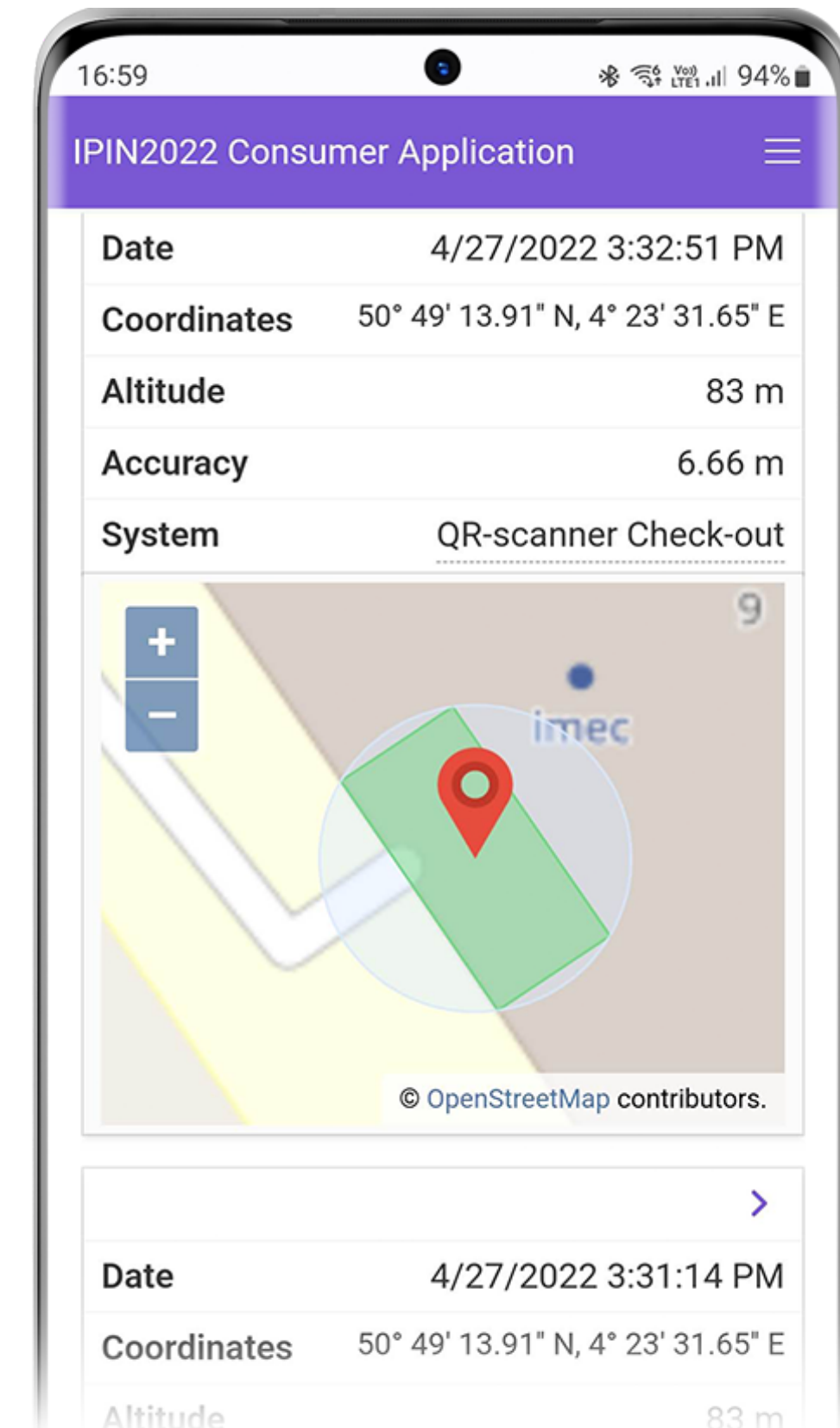
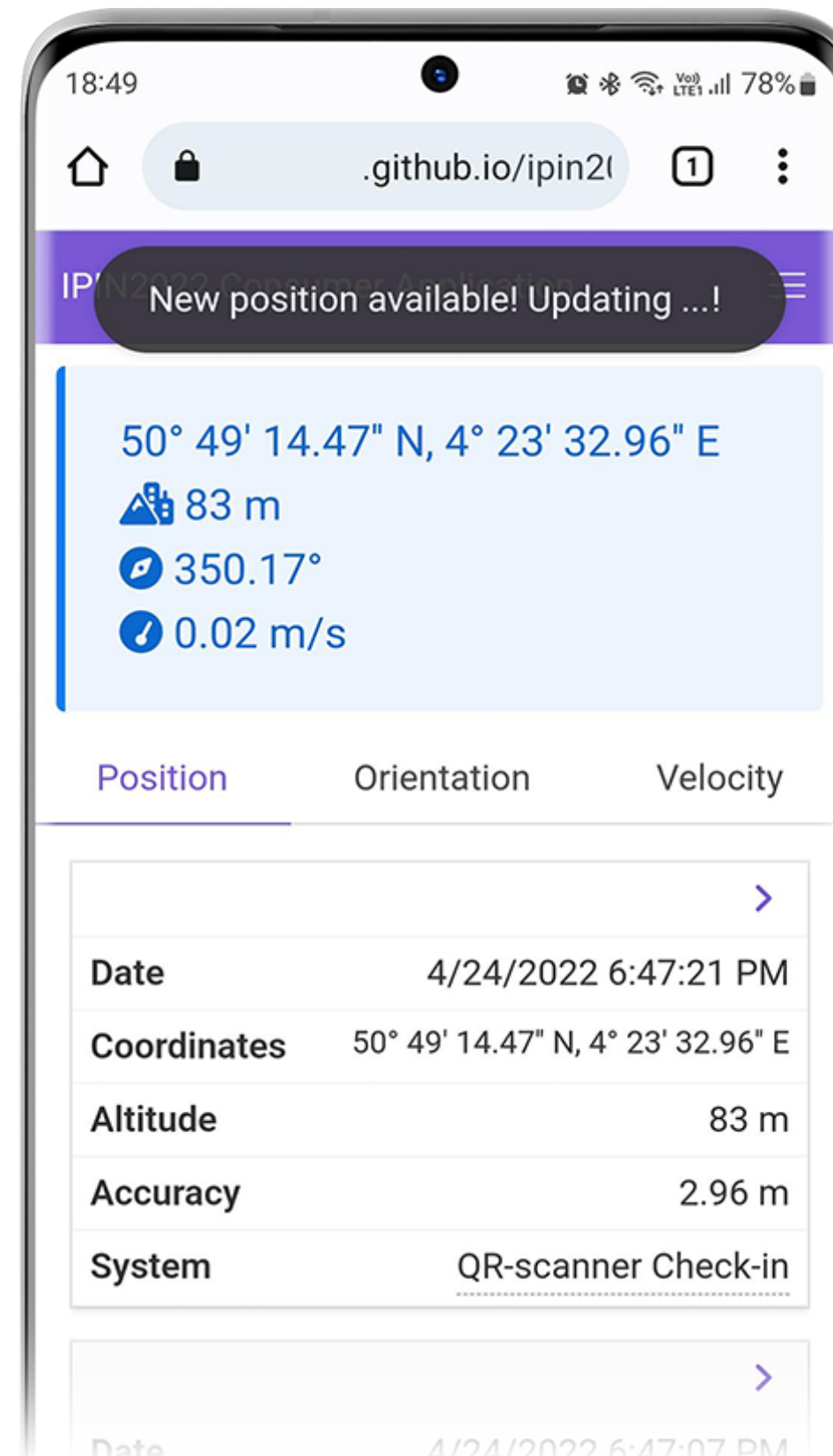
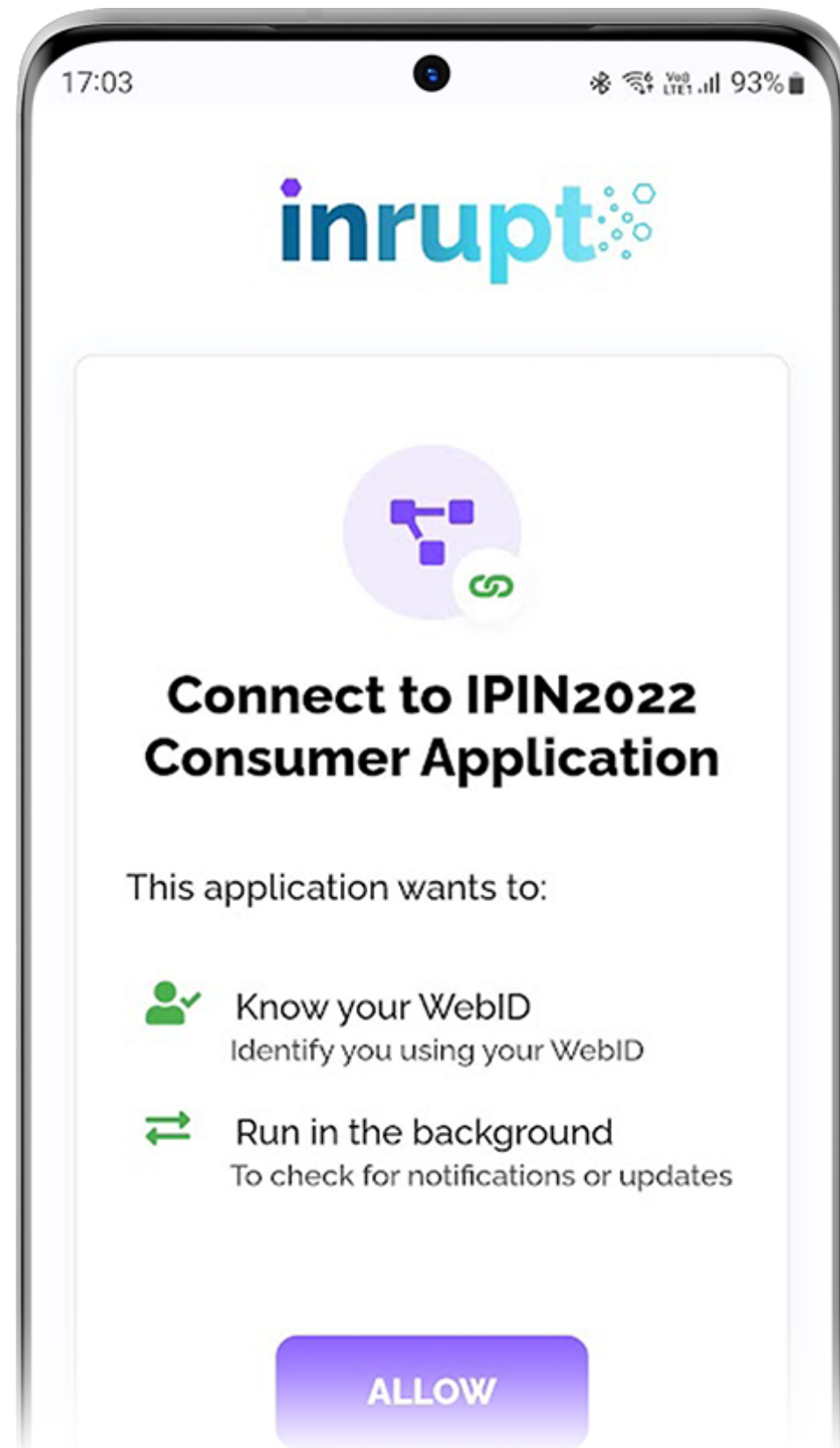


PoC Demonstrator



Developed using  **OpenHPS**

PoC Demonstrator ...



PoC Demonstrator ...

```
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
```