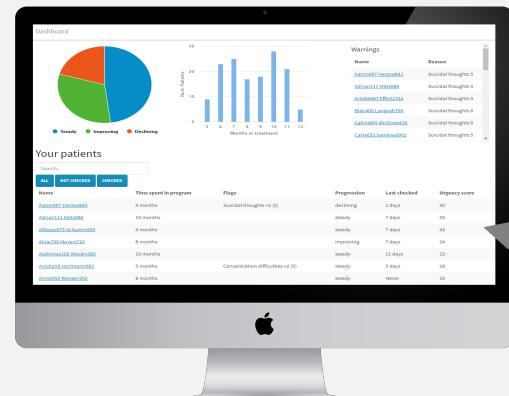


An architecture for creating self-reporting e-health systems

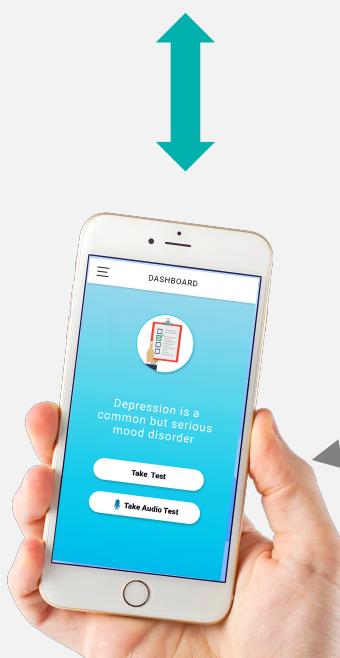
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Web Client

- Therapists' dashboard to visualize patient's information and monitor their progress
- Interface to create Internet Delivered Therapies like Cognitive Based Therapy.



Mobile Client

- Collects biological markers using sensors
- Provides CBT interface
- Conversational Agents interface
- Sensor devices connects to mobile-client using standard Bluetooth protocol.



Problem Domain

Increase in mental health problems creates socio-economic challenges for patients, society, and relatives [1]. We address:

- Heterogeneity of information across various healthcare service providers
- Lack of Internet Delivered treatment available and accessible to patients and healthcare providers
- Lack of adaptiveness in patient-centered care
- This project mainly focuses on Depression, ADHD, Social Anxiety Disorder, Bipolar Disorder and Psycho-social support for women recovering from gynecological cancer

Architecture Presented

We envision building an adaptive system:

- Based on SOA principles the INTROMAT Core architecture for self-assessment and evaluation of mental or neurological disorder
- HL7 FHIR [2] standard to support interoperability for Health Information Exchange; it incorporates standard terminologies such as SNOMED-CT, LOINC, ICD-10 etc.

Why?

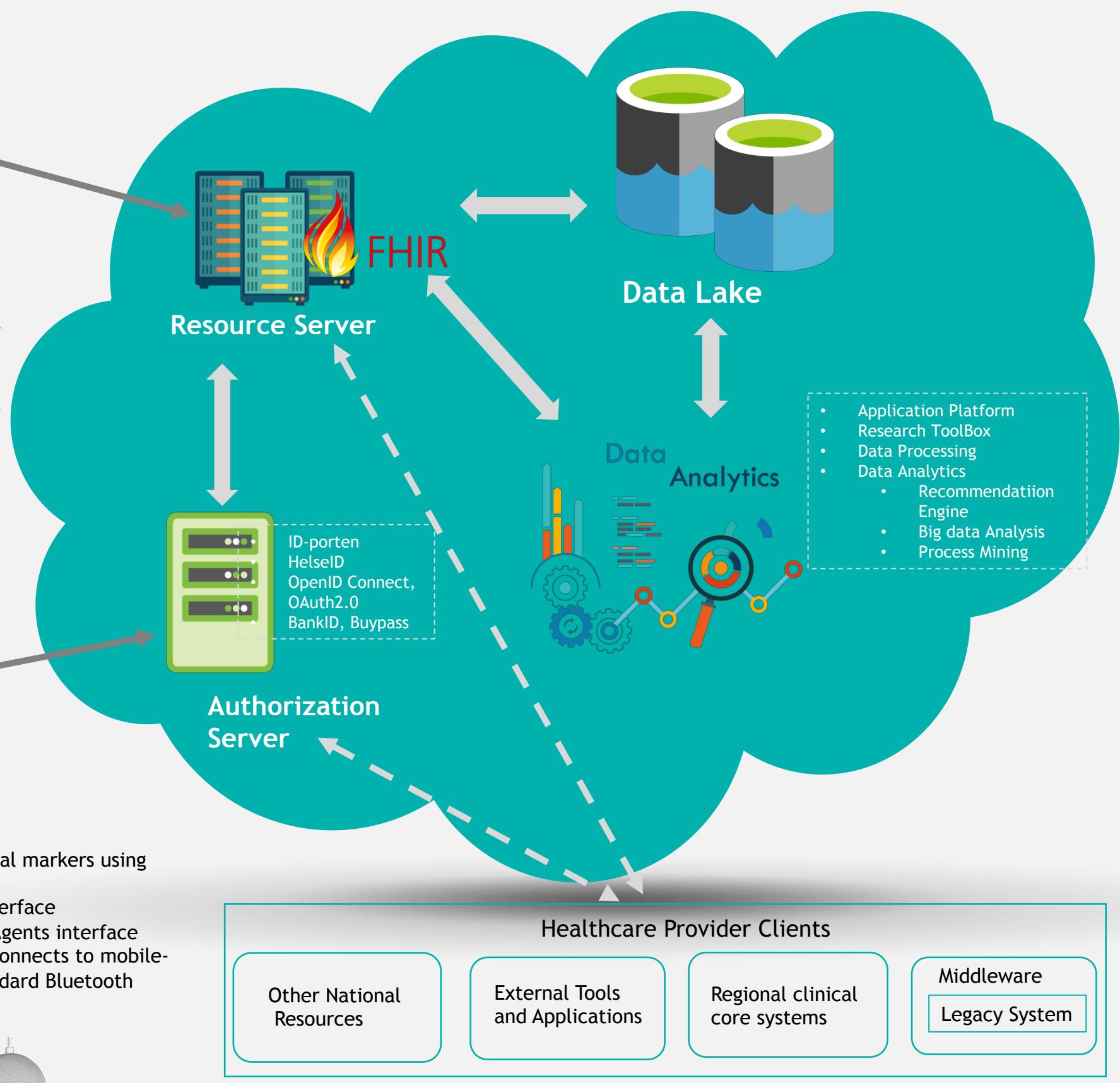
Why modular architecture?

The presentation provides a high level overview of the project. To support an iterative development of the platform, we focus on developing solution components that are modular and composable. This allows the restructuring of the solution without the need for extensive rework. This architecture principle permits us to adapt the solution as we move on.

Results and Discussion

The solution will be used by several stakeholders including:

- Patients: Self-reporting mobile apps to manage their mental health
- Therapist: Web-based backend for visualization and management of therapies and patients information
- Researchers: Aggregated patient data useful for research and for further analysis
- Industrial Partners: The proposed prototype with APIs can be extended to create healthcare services for mental health patients



References

- Suresh Kumar Mukhiya, Fazole Rabbi, K. I. P. Y. L. An architectural design for self-reporting e-health systems. In ICSE 2019 Proceedings in the IEEE Digital Library (2018)
- HL7 FHIR SMART app launch, Retrieved December 28, <http://hl7.org/fhir/smart-app-launch/>.