

Improving health care outcomes using the power of AI and Open Standard

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NORTH CAROLINA *Chapter*

Agenda

- Problem statement
- What end users need
- How to build an “Insight as Service” API
- What was developed: minimum viable product (MVP)
- Lessons learned
- Q &A



Problem statement

- Frequently, pre-surgery education is too generic, not personalized sufficiently for patients to understand-- and follow
- Information format is old fashioned
 - Brochure
 - Computer Disk
 - Video Tapes
- There is insufficient information to obtain predictive insight for risk and outcomes based on traditional data elements
 - Age
 - Weight
 - Height
 - Gender
 - Race
- Most health information systems are not capable of collecting real-time feedback from-and-to patients as they prepare for their scheduled surgery



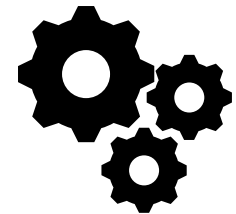
What patients say they want- and need- *before* surgery

- Pre-surgery education personalized to their profile, such as
 - Age
 - Weight
 - Height
 - Gender
 - Race
- Risk and outcome predictions based upon their current health situation
 - Length of stay
 - Revision risk
 - Complication
 - Post operation recovery
- Personalized suggestions to improve their surgical outcomes
- The ability to stay in constant contact with their healthcare provider



Insight as Service API – Cognitive Model

- Built a 40,000 patients cohort with data from IBM Explorys
- Used cohort data for building the model
- Ultimately creating a new Risk Assessment
 - Length of stay
 - Revision within 18 months
 - Complications
 - Post operation recovery



Insight as Service API - Data Exchange and Delivery

- Selected Fast Healthcare Interoperability Resources (FHIR) for data exchange
- Primarily used FHIR resources



Patient



Questionnaire



Observation

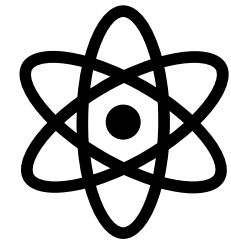


Risk Assessment

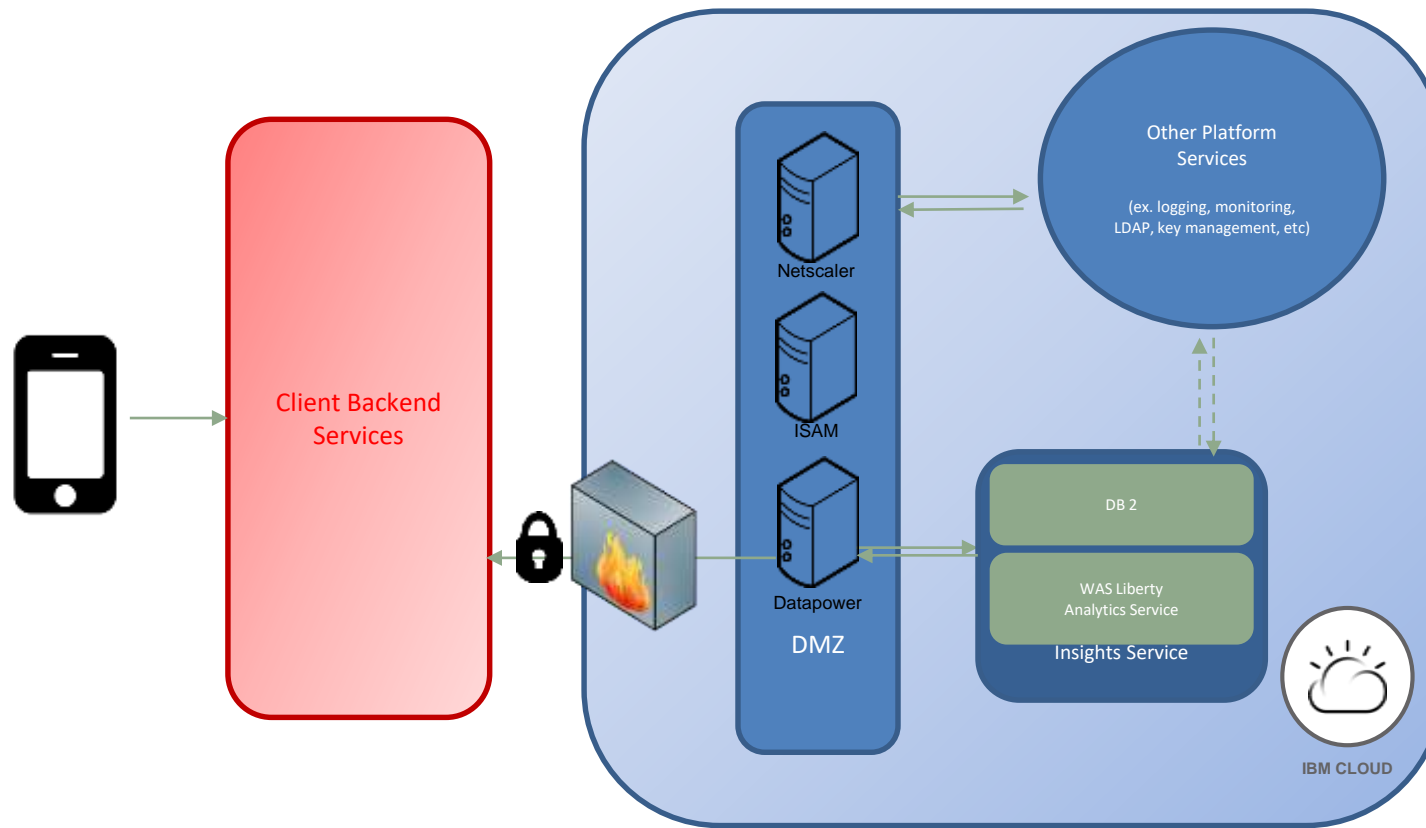


Insight as Service API -Connecting the dots

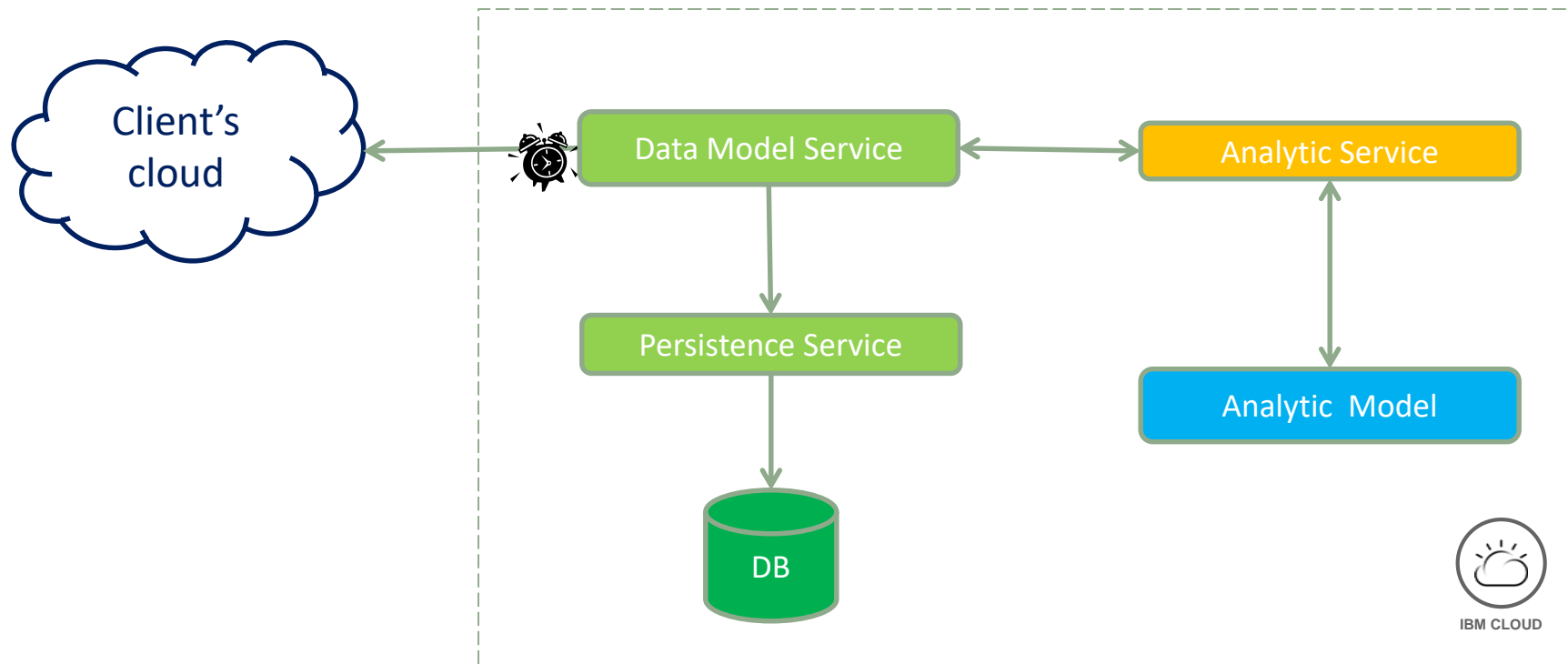
- Representational State Transfer (REST) based API
- Pull approach/ Timer Service for data collection
- Data transformation
- Data Persistence
- API to deliver the Risk Assessment back to the calling system.



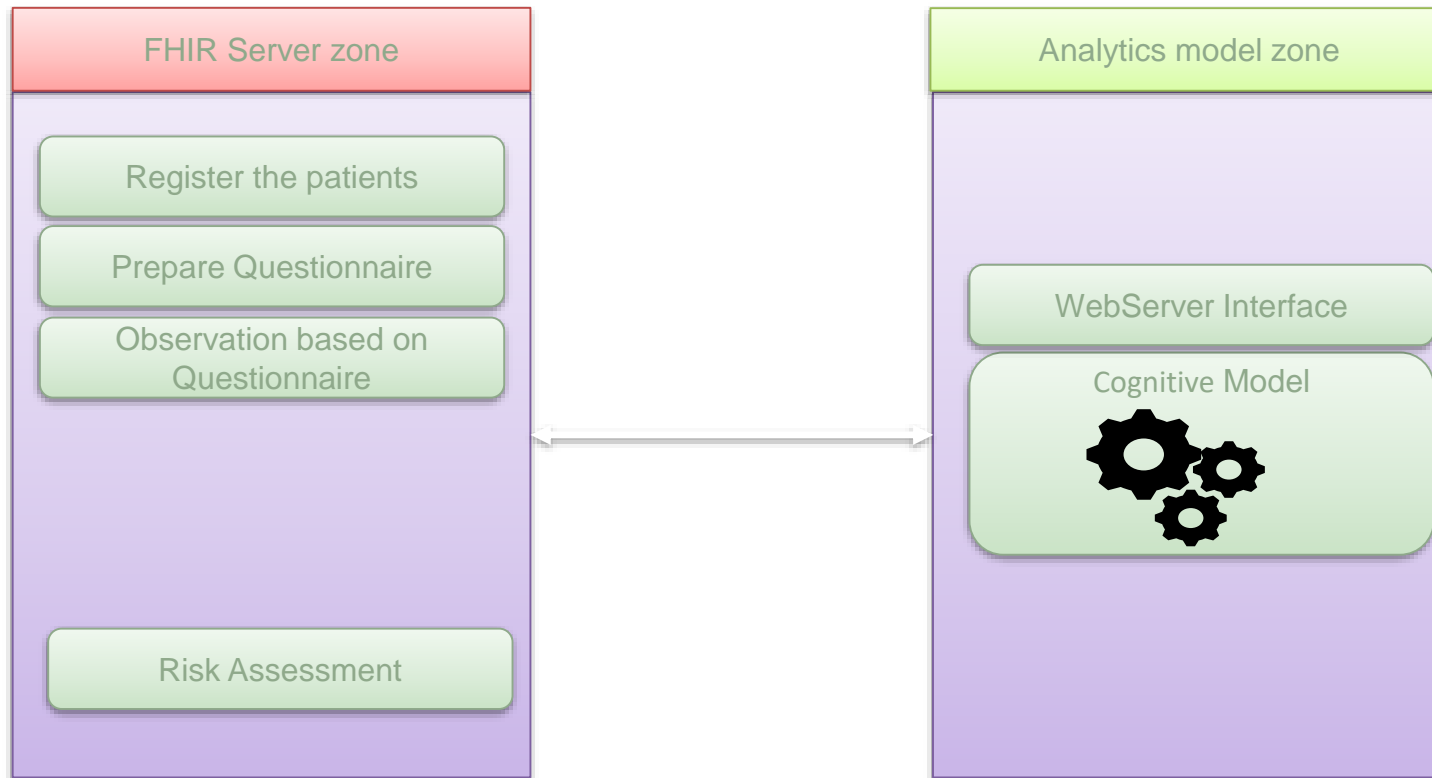
System Architecture (MVP)



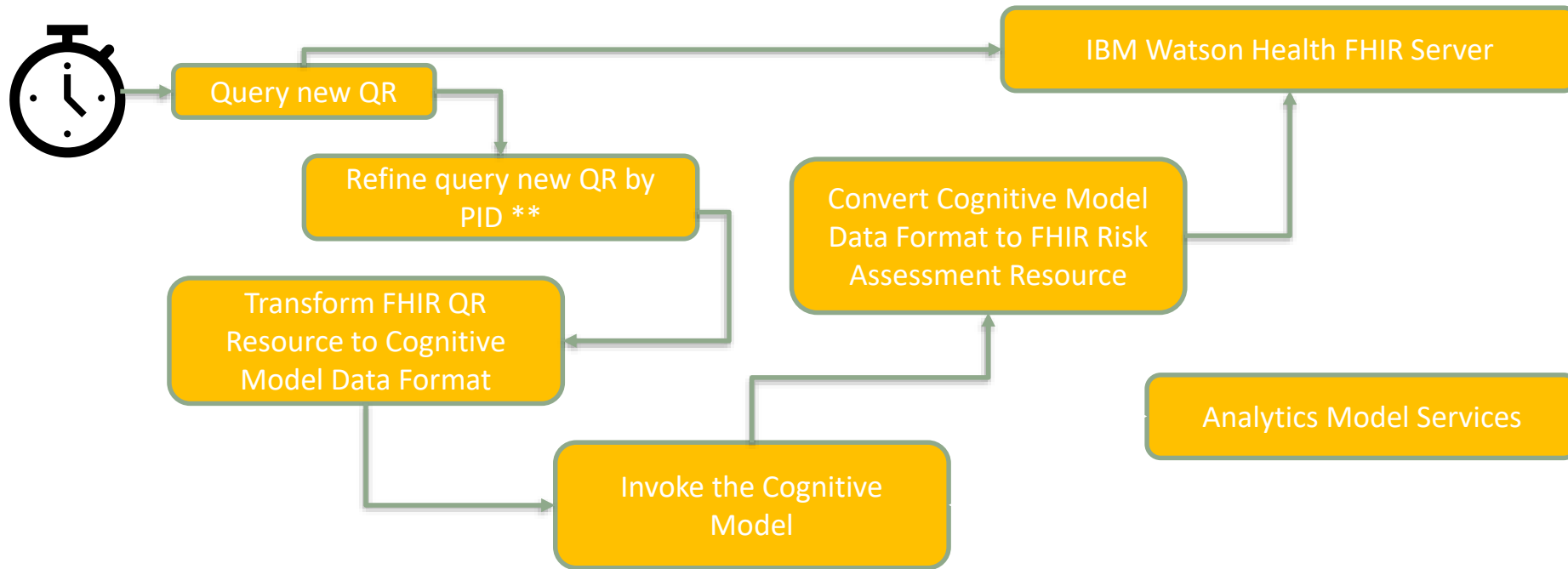
Data flow- Insight as Service Solution



Data flow – FHIR and Analytics Model



Data flow – Insight Services



*Questionnaire Response = QR

* *Patient Unique ID = PID

Lessons Learned

- Understand end user point of view.
- Real world data is the key.
- Fail fast and learn quick should be the mantra.

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