Article

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Med.me — empowering InterSystems's HIE tools by resource availability exchange

In this article, we'd like to describe [Med.me](#)'s incubation experience and takeaways, the cross-organizational booking problem, and our approach to solving it.

This exciting story started during one of the regular medtech meetups, where I met [@ Evgeny Shvarov](#), senior InterSystems chief of the Developer Community. Following the good old startup rule "pitch wherever you can", I briefly explained to Evgeny Med.me concept – EHR exchange and appointment scheduling platform to automate and simplify communication between clinics, pharma on one hand and insurance companies, doctors, and patients on the other.

Evgeny listened carefully and replied that InterSystems provides plenty of products to solve the interoperability problems amongst the vast variety of EMRs and kindly advised me to hurry up to apply to the FHIR incubator Caelestinus powered by InterSystems.

That led to a start of an amazing 9-months long road where we were able to ramp up our understanding of interoperability, participate at the InterSystems Global Summit, find new customers and partners, and where the new concept of Resource Availability Exchange was born.

Glossary:

HIE — Health Information Exchange system

EHR — Electronic health records

EMR — Electronic medical records management system

FHIR — Fast Healthcare Interoperability Resources (the standard that defines how healthcare information can be exchanged between different information systems regardless of the internal data representation)

InterSystems Global Summit

This is a huge conference for InterSystems customers and partners, current and future. There were a lot of technical sessions and panels, a huge networking of development teams, medical organizations, and medtech companies. But our main goal was to validate hypotheses discovered during the incubation, to find the first market proofs. And we were lucky enough — almost every potential customer said that cross-organization booking is still an unaddressed problem. Anatoly Postilnik, the Head of Healthcare at First Line Software, one of the major InterSystems Solution Partners, proposed to define the solution as the real-time resource availability exchange that extends the InterSystems' HealthShare Health Information Exchange ecosystem.

Cross organization booking problem

Imagine yourself booking a hotel by phone or buying an airline ticket by cash in a travel agency. Sounds weird, isn't it? The problem was solved many years ago by GDS – global distribution systems. Amadeus empowers hundreds if not thousands of websites and apps to search, compare and book flights and hotels. Working behind the scenes, it seamlessly integrates all the travel industry players into one digital circuit.

But why do patients still often set medical appointments by phone or send a guarantee letter by fax? Well, it seems that such Amadeus for the medical industry shall be invented. But 2 reasons are making it difficult: the strict regulations on medical and personal data and the vast variety of EMR on the other hand do not allow easy integrations to consolidate the data into one centralized DB.

InterSystems perfectly covers all the aspects regarding the interoperability, different standards and integrations issues for EHR, while Med.me fills the gap by adding the final piece of the puzzle – the cross-organizational availability and booking engine.
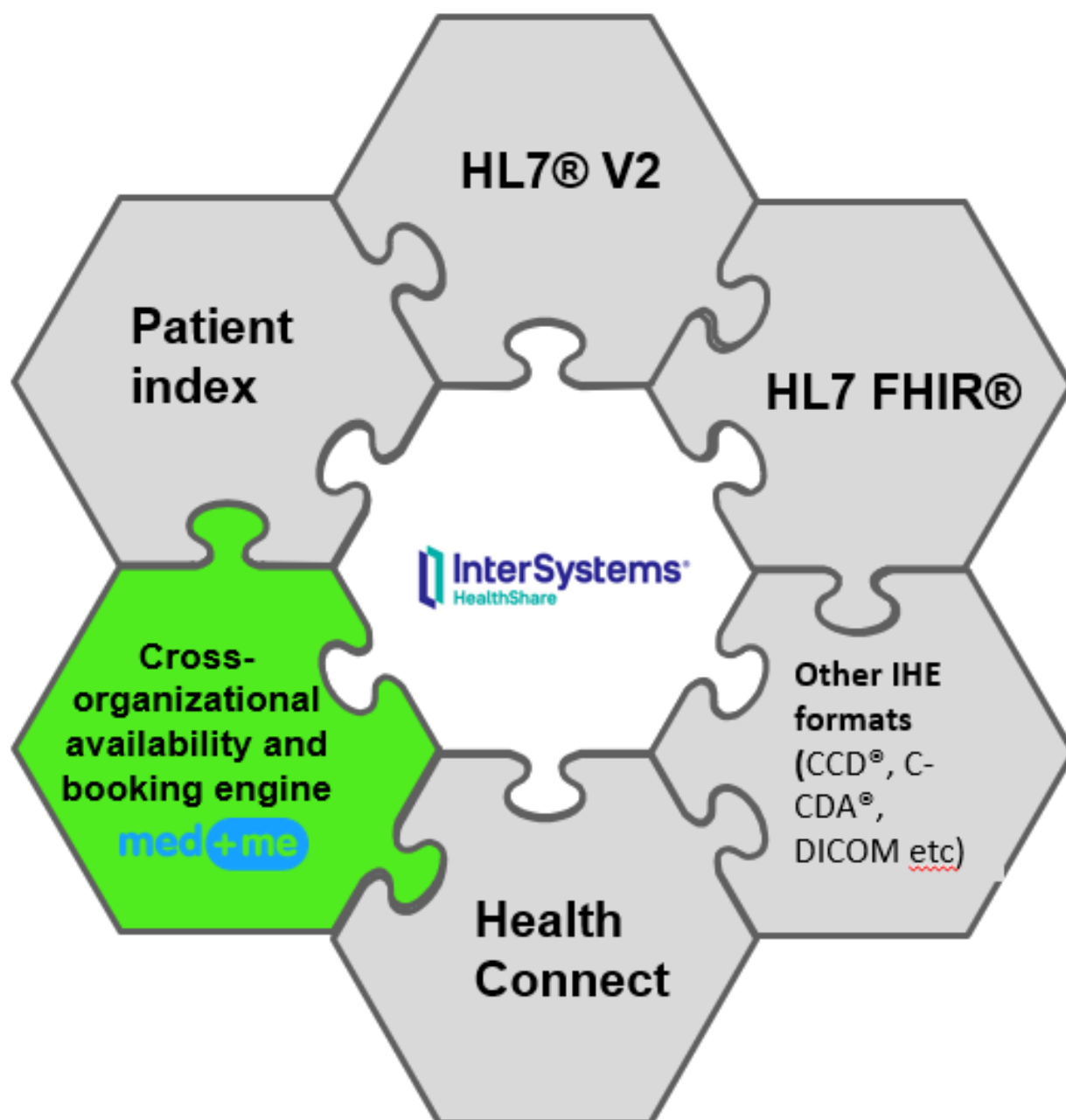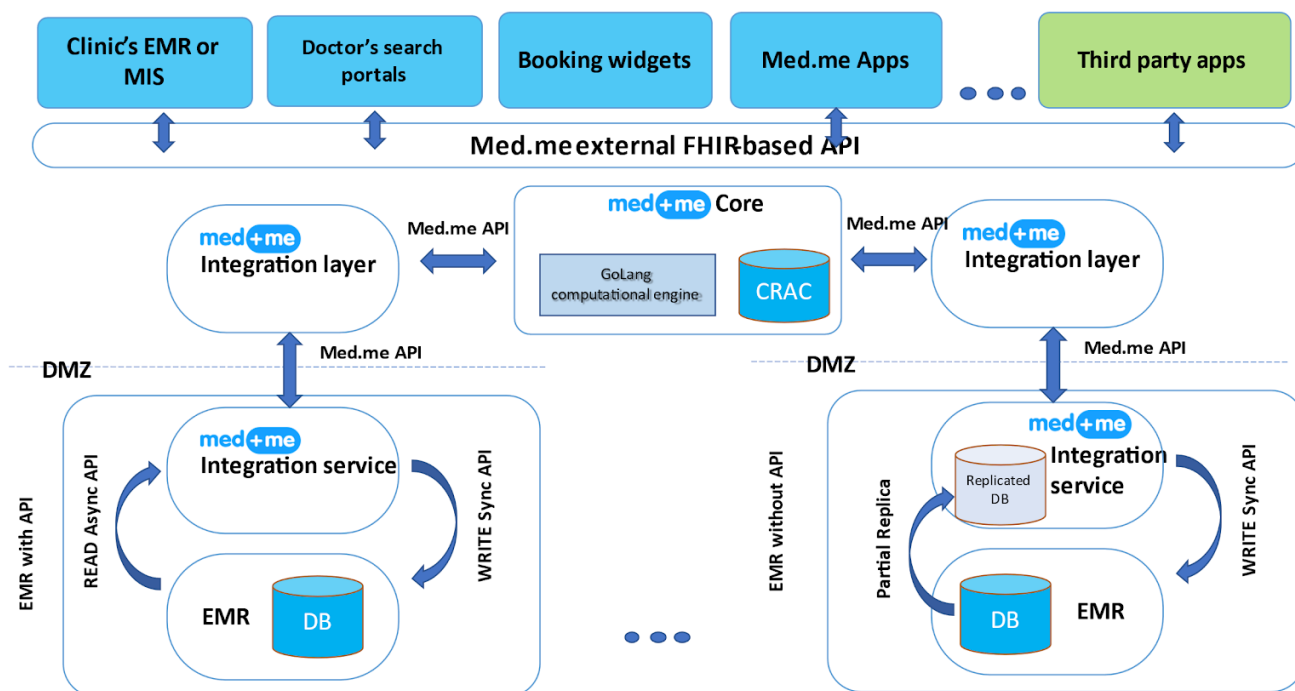
Resource availability exchange concept by Med.me

Finally, we at Med.me decided to adopt InterSystems Iris for Health™ and Healthshare ® for EMR interoperability and exchange, empowered by Med.me proprietary booking engine technologies.

The vast majority of existing booking integration engines work in a standard way where they just retrieve availability data (say, doctors, cabinets, and other resources like MRIs) once upon a time, say every 15 minutes. That allows to get more or less actual schedule of one stand-alone clinic but doesn't allow real-time booking (can't ensure that all the slots aren't taken yet) and, most important, doesn't allow to combine different schedules of different clinics for cross-organization booking (say, find all gynecologists+ultrasound available at certain region covered by the insurance plan).

However, says Fadi Karkaby, the CTO of Med.me, CRAC® (calculated results of appointments

collections) – one of the key modules, does the job in a more elegant way. Instead of polling all the booking data, it gets only the changed chunks of it in real-time (think of Dropbox). Therefore, it totally reduces the useless requests to local EMR when trying to find a time slot for a doctor, because it already has real-time data, structured and optimized for further processing.

Med.me Resource Availability Exchange High concept

Let's consider the most complicated case, where EMR doesn't provide a read API that implements efficient enough methods of resource availability exchange. In this case, Med.me specialists will set up a special replication mechanism of all the essential tables and only them (or documents in a case of non-SQL documentary DB), thus reaching the to get only changed chunks of data in a real-time and not the whole database once upon a time (the right part of the diagram above). Then the "internal leg" of Med.me integration service communicates with Med.me core to build the CRAC® matrix and to allow real-time resource availability exchange.

Market potential

The global Health Information Exchange (HIE) market size is projected to reach USD 22.5B by 2027, from USD 1.1B in 2020, at a CAGR of 10.9% during 2021-2027.

Cross-organizational booking impact:

- Allows to target large medical organizations, HMOs, marketplaces (like ZocDoc) and insurance companies
- Creates a competitive edge by being the most comprehensive solution (HIE + Resource Availability Exchange + Booking)
- Allows new products launch: PRM, telemedicine and others
- Increases market potential by hundreds of percent due to new geographic and customer segments

Customer examples:

Regional public health and HMOs

- Need to organize nation-wide/region-wide doctors booking
- Need to work under complex rules of booking restrictions and availability

Large medical organizations and chains

- Use various EMRs and need to allow cross-organizational-booking

Marketplaces

- Need simple PRM for small medical offices and integration with EMR with larger organizations

Insurance companies

- Need to find "best available" service or doctor by availability, price and geographic location within partner clinic chains

Afterword

Some criticize accelerators and incubators for choosing only startups that in any case have more chances to succeed, a kind of self-fulfilling prophecy. Notwithstanding the above, it's a great opportunity for startup teams to verify business and technological hypotheses, find first pilots and customers, build the network, and attract investors. It definitely worked for us, though the incubation process is of course time-consuming and requires a lot of resources.

Participation in the Caelestinus FHIR incubator gave us a much better understanding of the modern approach to treat the interoperability problem, an ability to attract first pilots and customer leads in US and Italy, and to secure the first tranche from the strategic investor. What could be better?

About Med.me

Med.me is the Electronic Health Records (EHR) exchange and medical appointment scheduling system to connect clinics, HMOs and insurance companies, patients, doctors, and pharma companies. Med.me allows any medical organization to connect to any number of partners, totally avoiding the need to develop and manually support hundreds of integrations.
Launched in East Europe and Israel with customers like Astra Zeneca, Allianz, Sheba Hospital, EMMS Nazareth Hospital, and other large clinics chains, insurance, and pharma companies, accelerated by 500 Startups and backed by top international seed funds and investors from Israel, US and Singapore, Med.me integrates with various EMR systems, creates the interconnected space and offers on top of that:

1. PRM for clinics to manage patients' appointments and flow and to optimize clinics resources (services, time schedule, cabinets and much more)
2. Mobile app for patients that offer online appointment scheduling, integrated EMR and built-in telemedicine solution (online and video-chat with doctors and clinics)
3. Communication automation module for clinics and insurance companies to replace manual work by the automation of reconciliation acts and expenses reimbursement

4. Telemedicine module that seamlessly integrates with EMR and allows flawless communication between patient, doctor and hospital.
5. E-prescription (alpha version) solution to connect clinics and pharmacies.
6. RWD module (alpha version) to connect pharmaceutical companies to the instant flow of real-world data (RWD) from partner clinics, structured and normalized.

Please reach out to us, we'd love to get connected!

#FHIR #Startup #InterSystems IRIS for Health