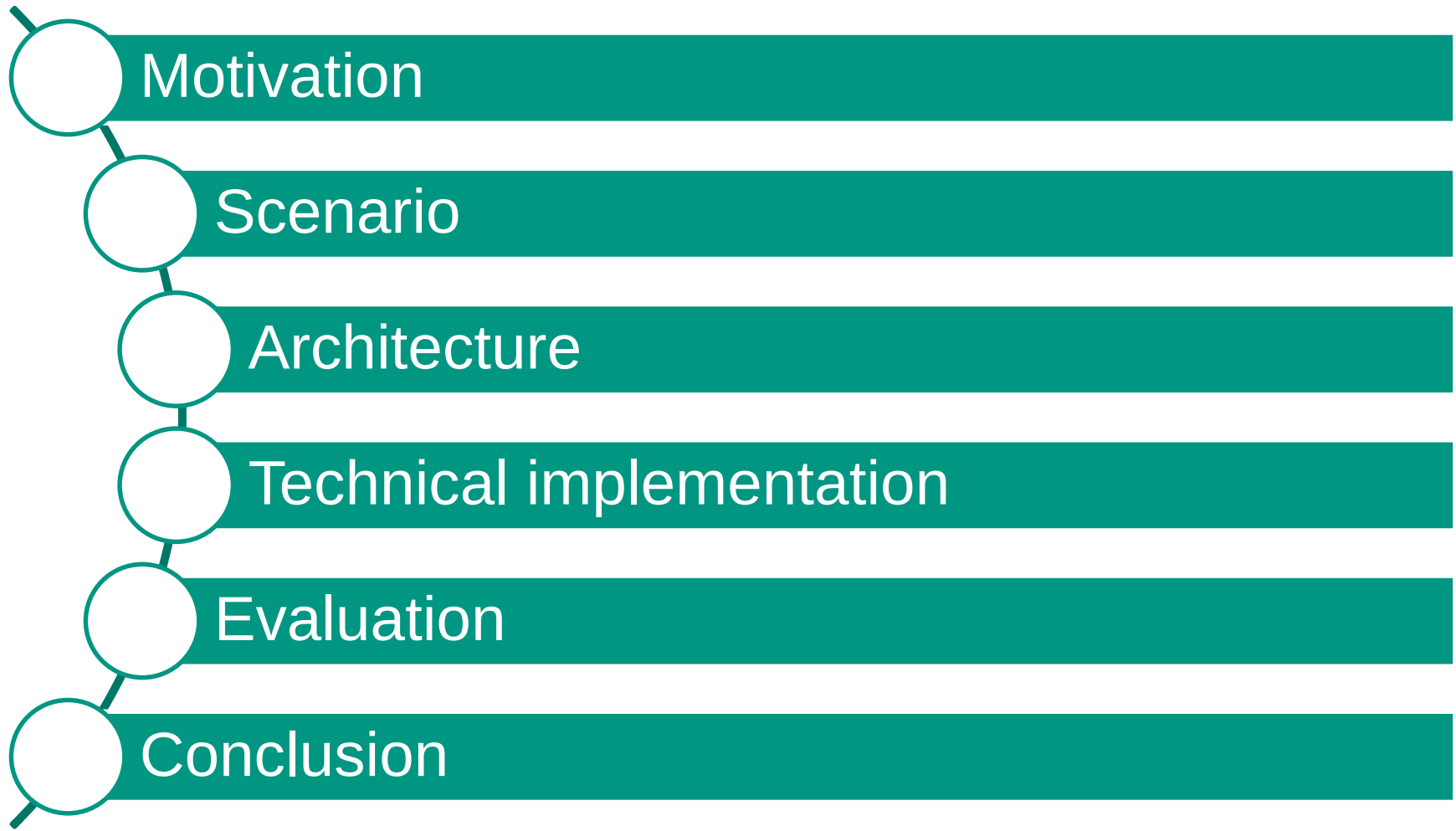


Bachelor thesis
Final presentation

[illegible]

Structure



Profil

Städtisches Klinikum Frauenklinik Karlsruhe

Frauenheilkunde und Geburtshilfe



Moltkestraße 90 (Haus S)
76133 Karlsruhe
Tel. 0721 974-2401

[Kontakt / Rezeptbestellung](#)
[http://www.klinikum-karlsruhe.com/...](http://www.klinikum-karlsruhe.com/)

Praxisärzte

Leistungen

- Geburtshilfe
- Gynäkologie
- Gynäkologische Onkologie
- Brustzentrum
- Spezielle Geburtshilfe und Perinatalmedizin
- Endokrinologie und Reproduktionsmedizin
- Urogynäkologie

Sprachen

[illegible]

Grund des Besuchs *

Dysplasie-Sprechstunde

Hinweis zum Besuchsgrund!

Patient ✱

weitere Familienmitglieder hinzufügen

Beschreibung der Beschwerden

Ihr Text in diesem Feld wird nach strengsten
Datenschutzkriterien verschlüsselt und
gesichert; er ist ausschließlich seitens der
Arztpraxis zu lesen.

E-Mail Erinnerung ☐

Ihr Termin:

Wählen Sie einen Termin im Kalender

Termin buchen

OTMS* are awesome!



asynchronously



location-independent



time-independent

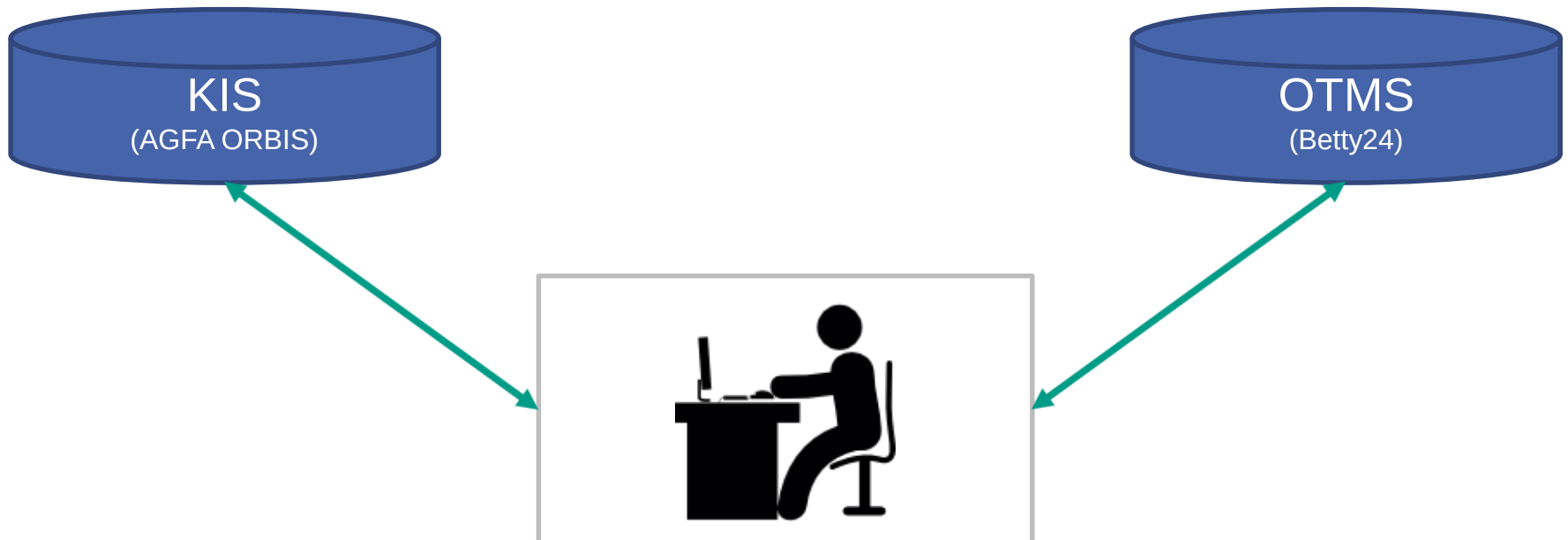


scalable

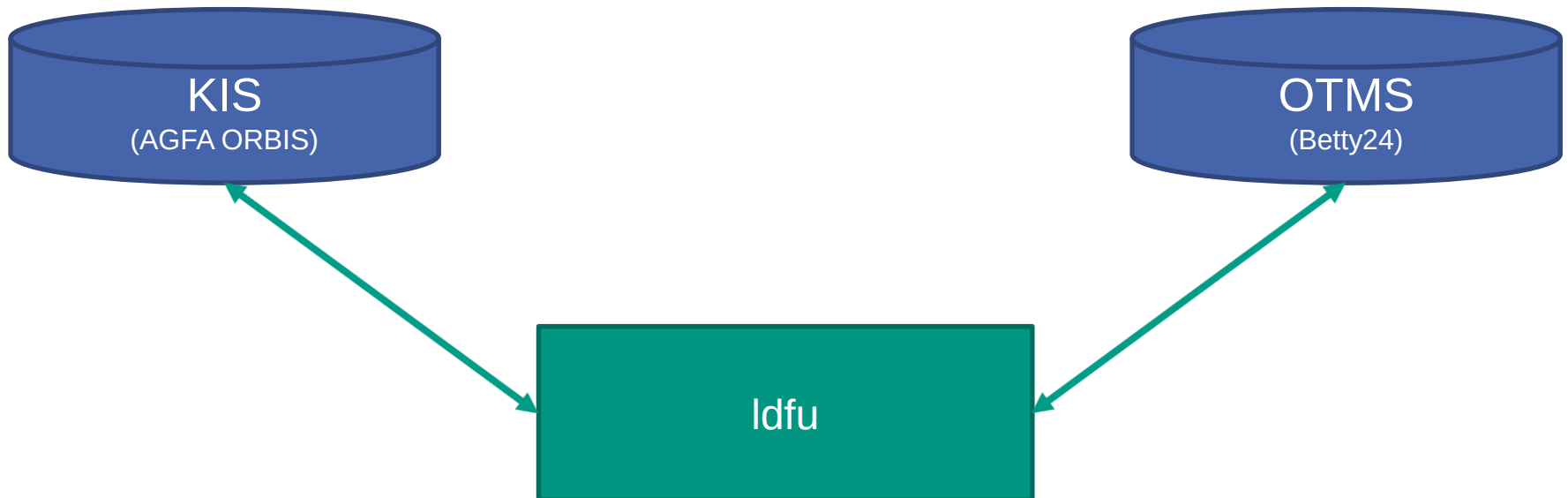
* appointment scheduling management system
„*Online-Terminmanagementsystem*“

see Prinz, 2015

Scenario



Scenario

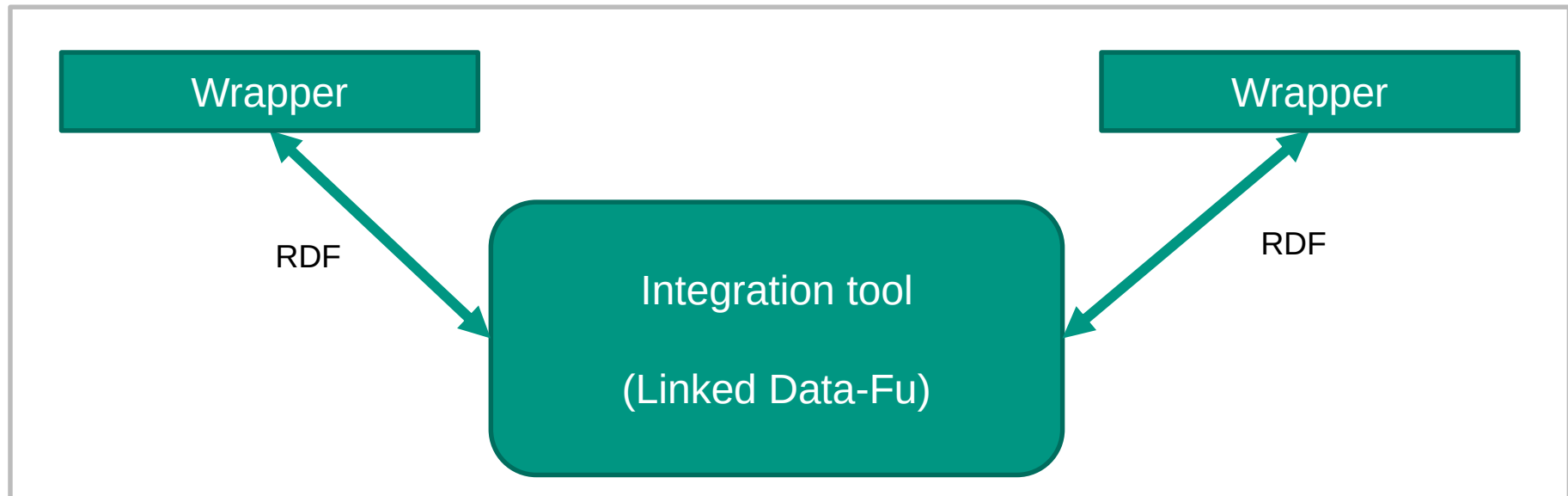


Ldfu – Linked Data-Fu

„end-to-end data processing system for data integration and system interoperability with Linked Data“

<http://linked-data-fu.github.io>

- Calls periodically RESTful APIs of the wrappers
- Processes data based on rule sets
 - Is able to integrate and synchronize data (interacts based on rules)



Scenario - requirements



privacy



expandability

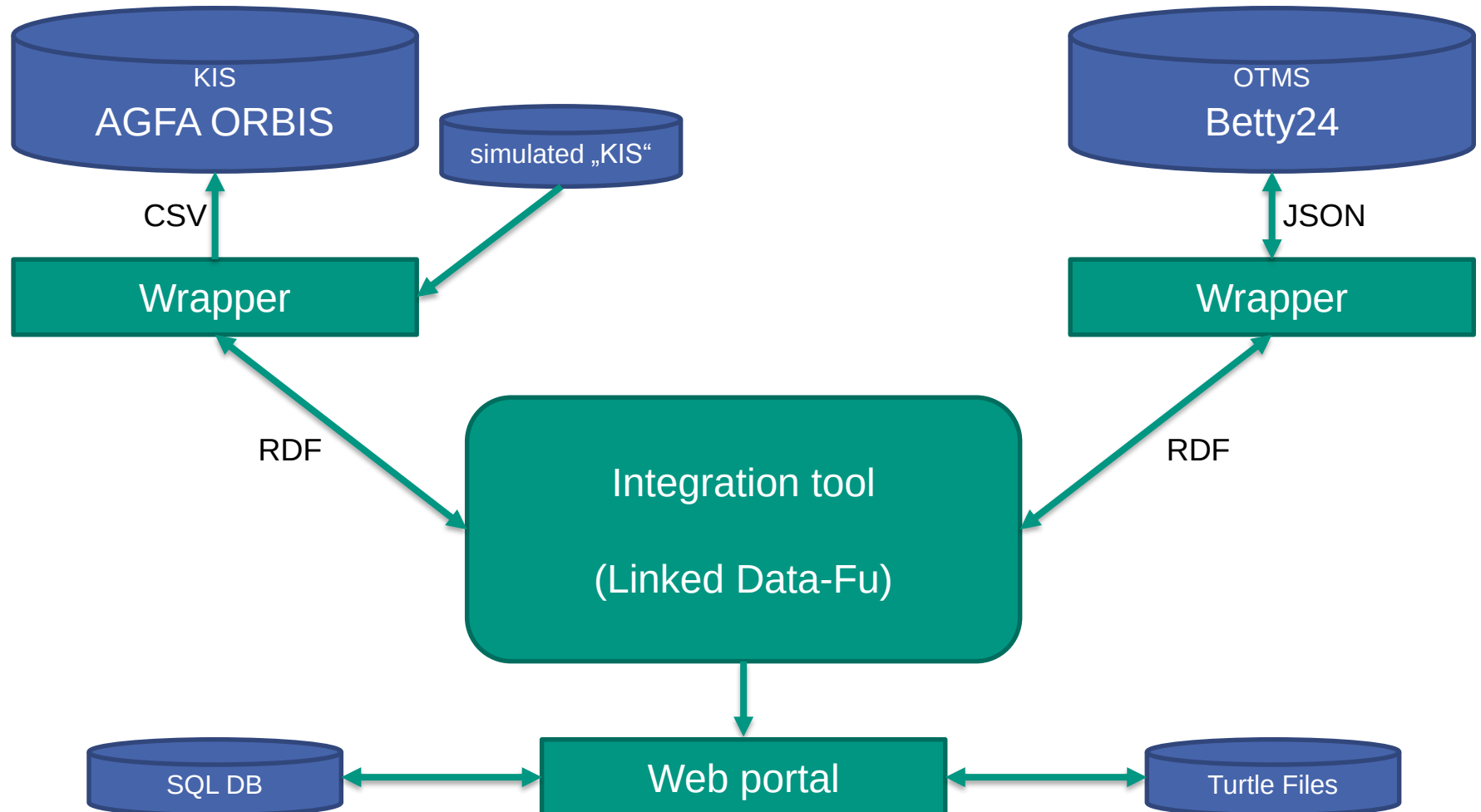
low maintenance costs



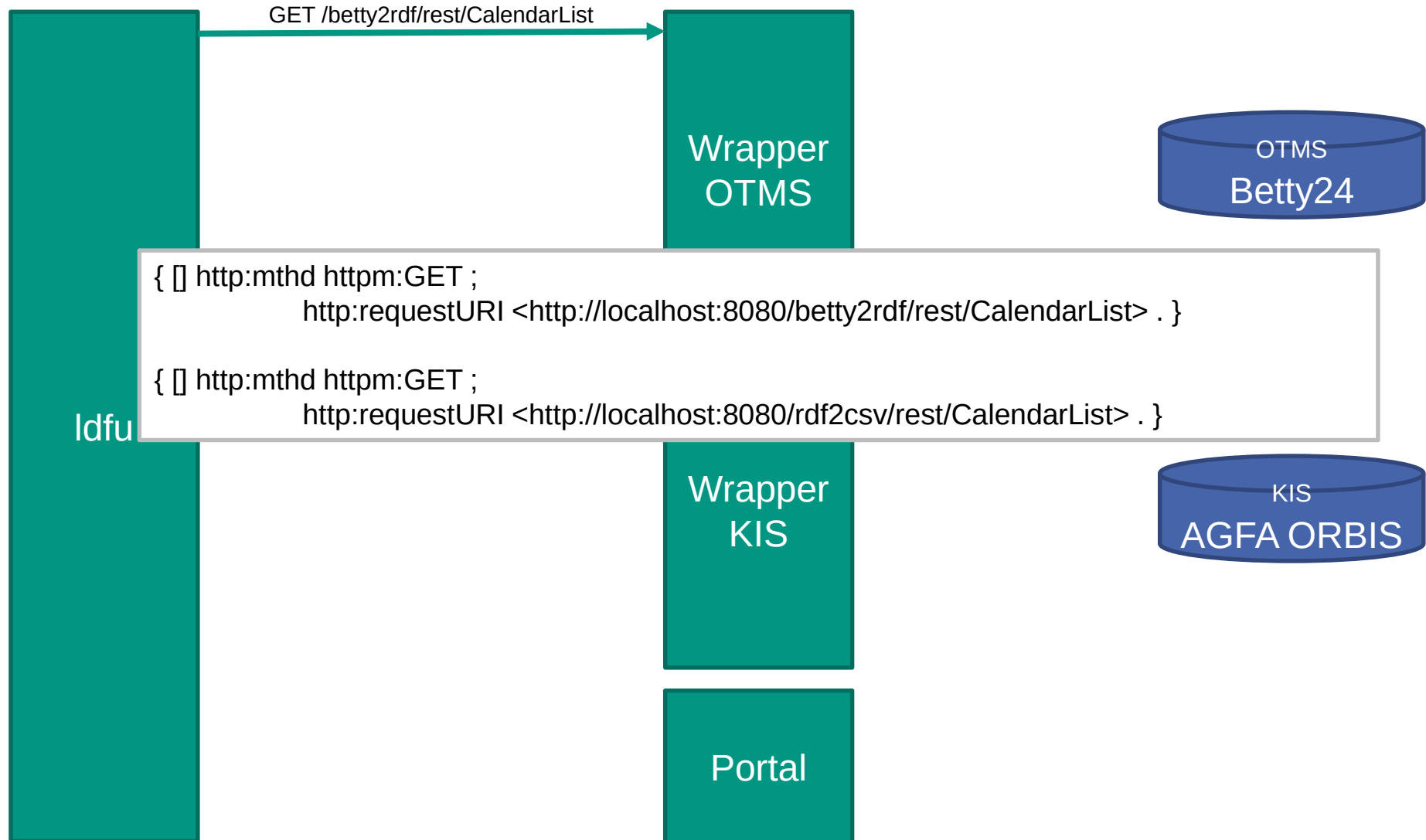
scalability



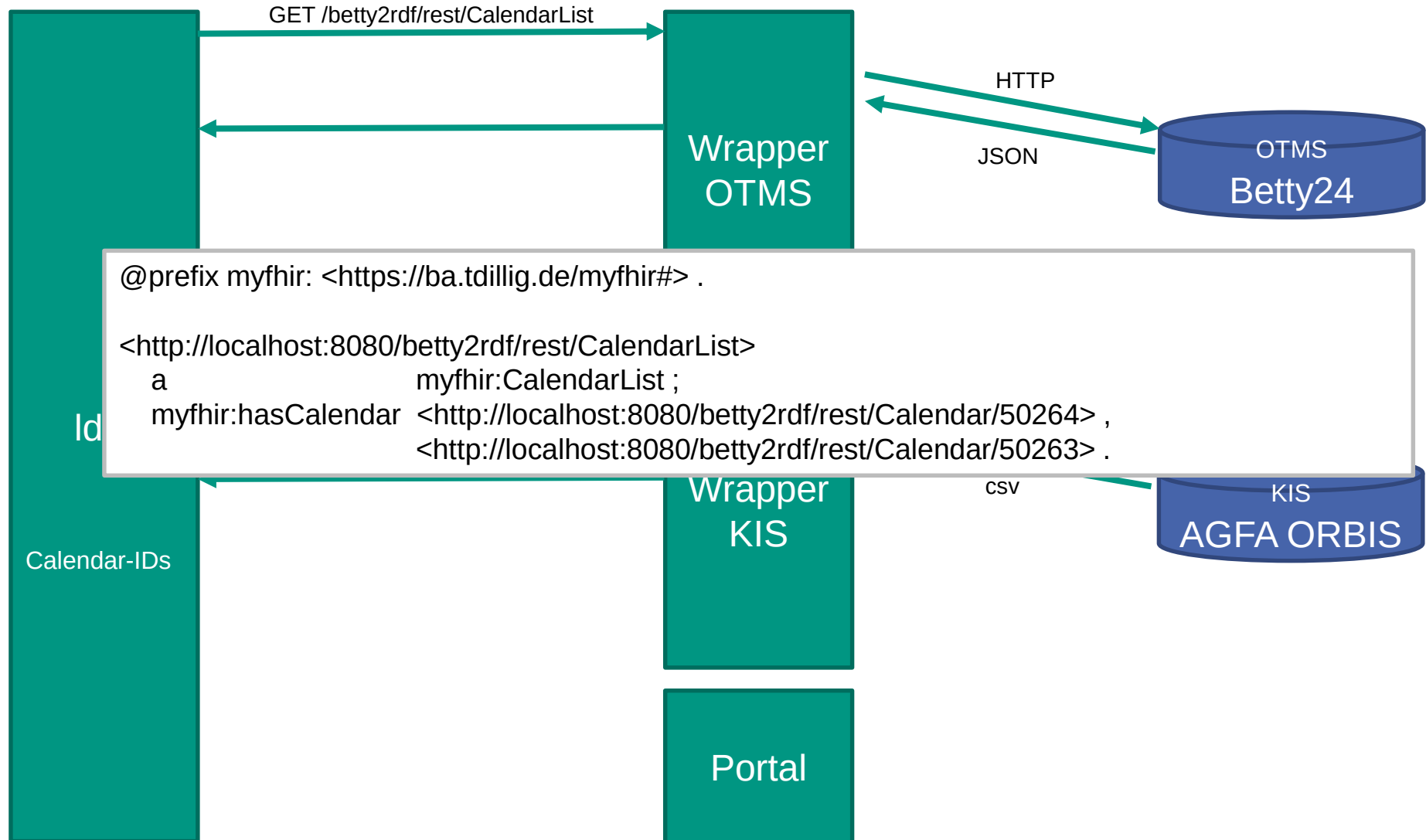
Architecture



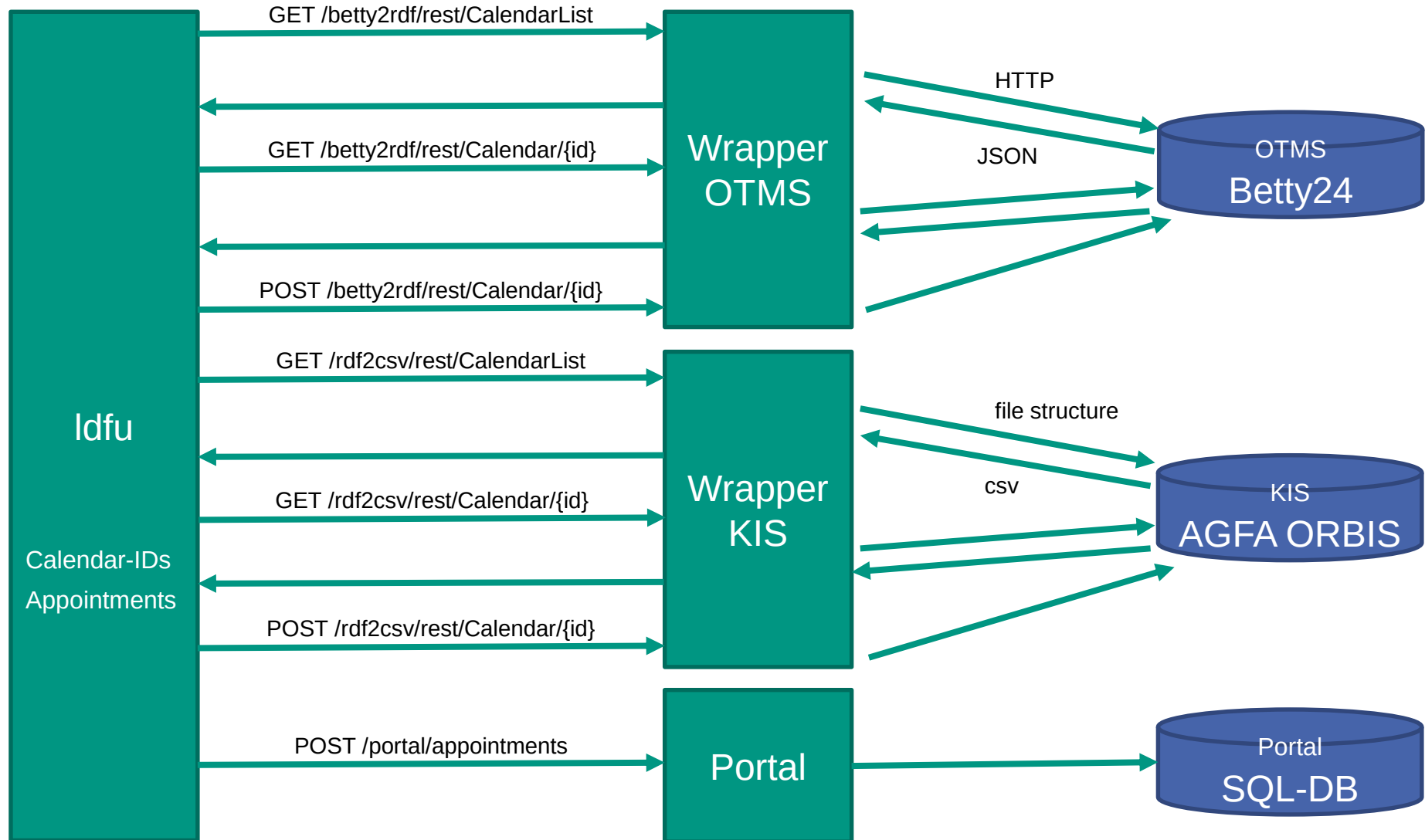
Architecture



Architecture



Architecture



Livedemo

Technical implementation

Wrapper

Apache Tomcat Application

- Jersey as REST-Framework
- Apache Jena as RDF-API
- Unirest as HTTP-Client
- built by Apache Maven

Web portal

PHP Application

- F3 as REST-Framework
- EasyRDF as RDF-API
- Twitter Bootstrap v4
- FullCalendar
- SQL Database and TTL Filestore

Idfu

- via command line interface
- running every 5 min

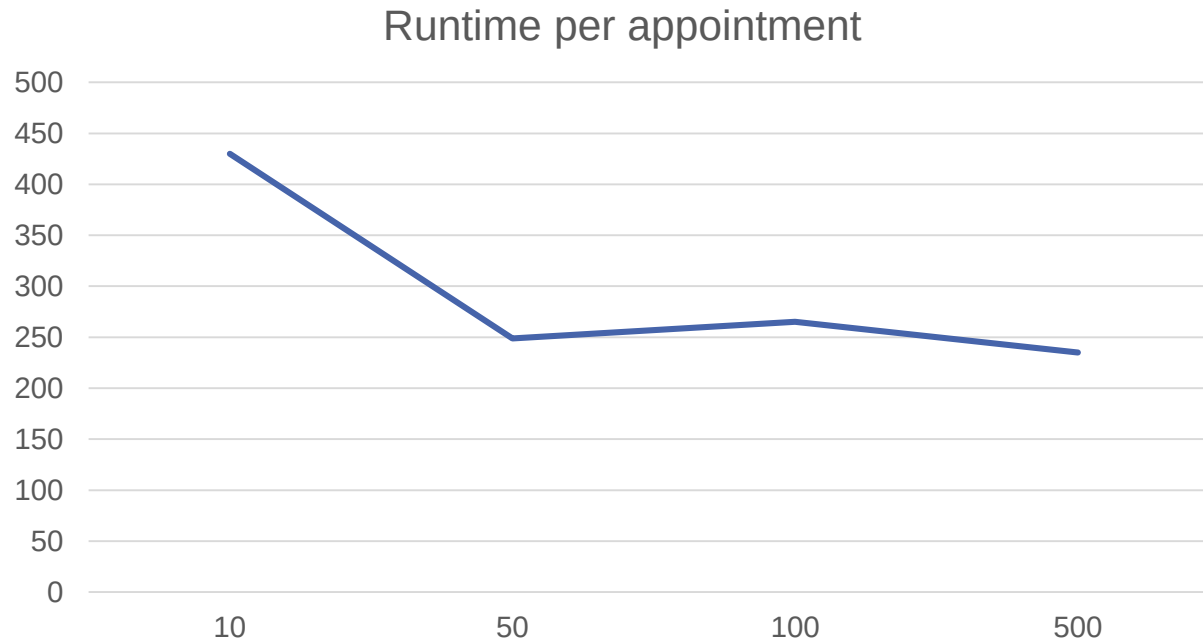
Evaluation

- Server grade hardware
 - KVM virtualized
 - Intel Xeon E3-1245v2 @ 3,4Ghz (4 Threads incl. HT)
 - 6 GB DDR3 RAM
- 30 appointments in OTMS and KIS
 - result: 60 appointments in every system (OTMS, KIS, portal)

# of app.	10	50	100	500
runtime	4,3 s	12,4 s	26,5 s	117,6 s

Evaluation

# of app.	10	50	100	500
runtime	4,3 s	12,4 s	26,5 s	117,6 s



Evaluation – Idfu is fast?

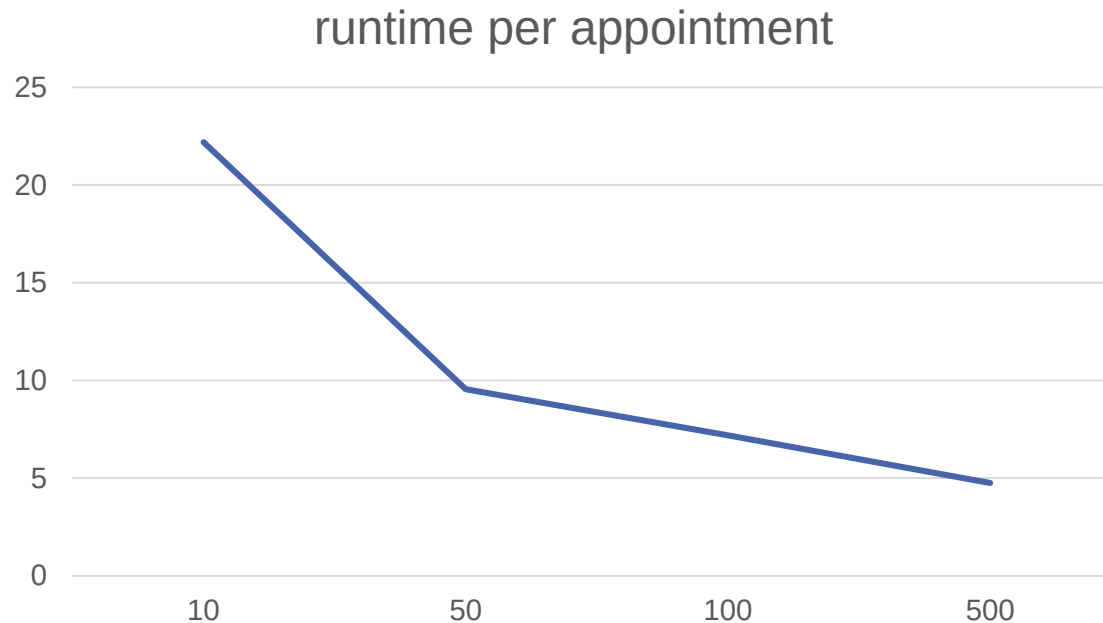
```

<http://localhost:8080/rdf2csv/rest/Calendar/50264/Appointment/4d2a8d674541329395c87ac3d4e008c1
<http://localhost:8080/rdf2csv/rest/Calendar/50264/Appointment/4d2a8d674541329395c87ac3d4e008c1
<http://localhost:8080/rdf2csv/rest/Calendar/50264/Appointment/4d2a8d674541329395c87ac3d4e008c1
[INFO] POST http://localhost:8080/betty2rdf/rest/Calendar/50264: OK, 200 in 202 ms
<http://localhost:8080/rdf2csv/rest/Calendar/50263/Appointment/0a3fe1597abb7c0cc7417df37e428ef3
<http://localhost:8080/rdf2csv/rest/Calendar/50263/Appointment/0a3fe1597abb7c0cc7417df37e428ef3
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<http://localhost:8080/rdf2csv/rest/Calendar/50263/Appointment/0a3fe1597abb7c0cc7417df37e428ef3
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<http://localhost:8080/rdf2csv/rest/Calendar/50263/Appointment/0f300edeb98cf63d02b14a97dc27b865
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<http://localhost:8080/rdf2csv/rest/Calendar/50263/Appointment/0f01c6bf8c784cd9840fb5f1e13eea75
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```

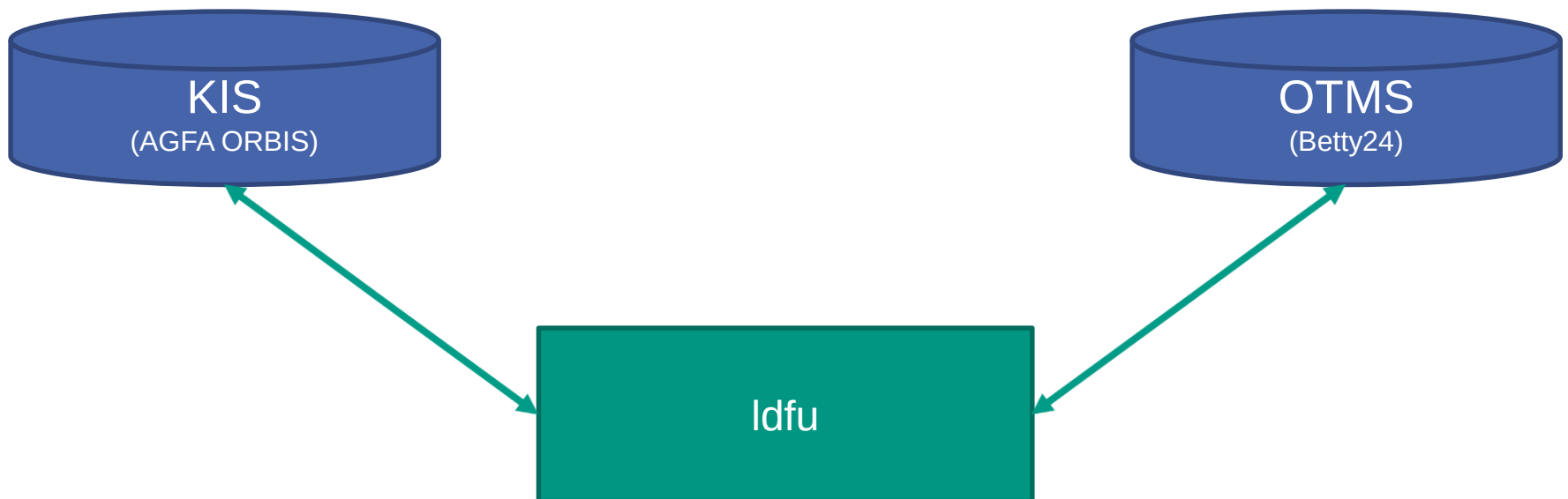
Evaluation - local

# of app.	10	50	100	500
runtime	222	478	720	2380
runtime p. app.	22,2	9,56	7,2	4,76



Conclusion

- Integration and synchronization is almost possible in realtime
- Idfu is the right tool for it



Future Work

- Implement DELETE methods in wrappers & Idfu rules
- Improve stats
- Implement HL7 Wrapper for deeper integration in KIS
- Add algorithm for collision handling
- Add algorithm for predictions based on prior appointments

Thank you for listening.

Questions?

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