

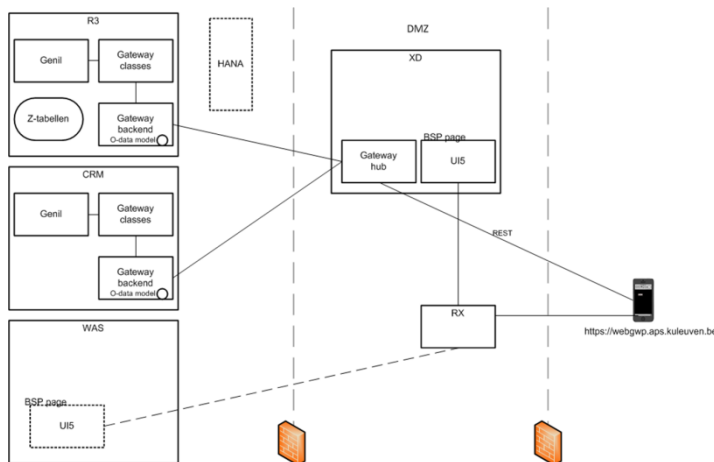
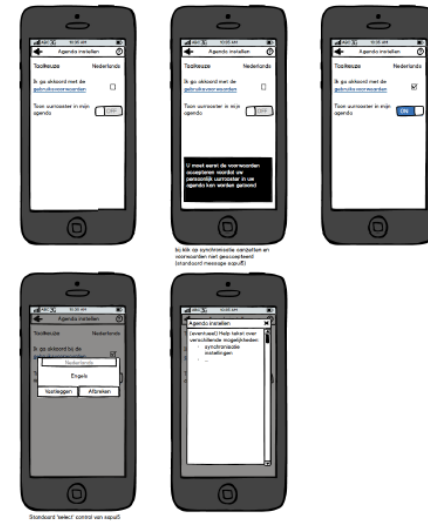


MOBILE TIMETABLES

Our first SAP UI 5 implementation

HERUG 2014
Montevideo

Outline of the presentation





Requirements & functional design

Design

Functional requirements

Real time



Course timetable



Agenda sync



Personalised



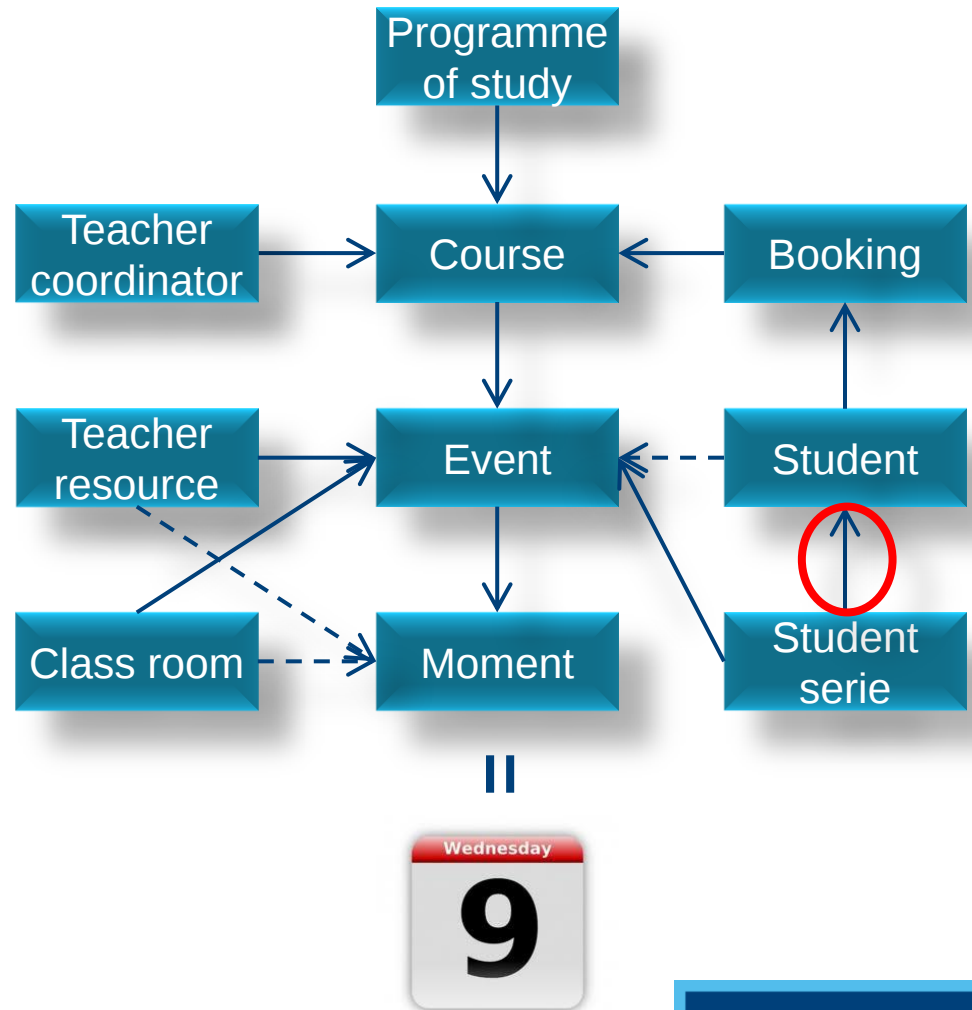
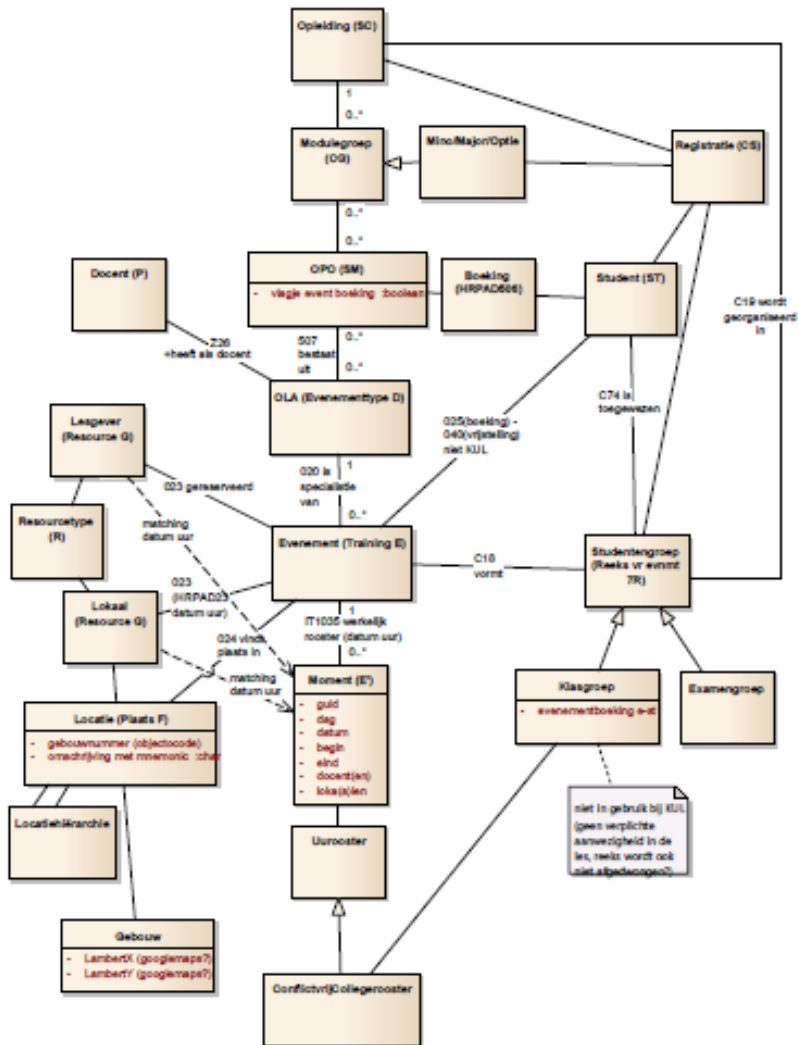
Alerting

Mobile



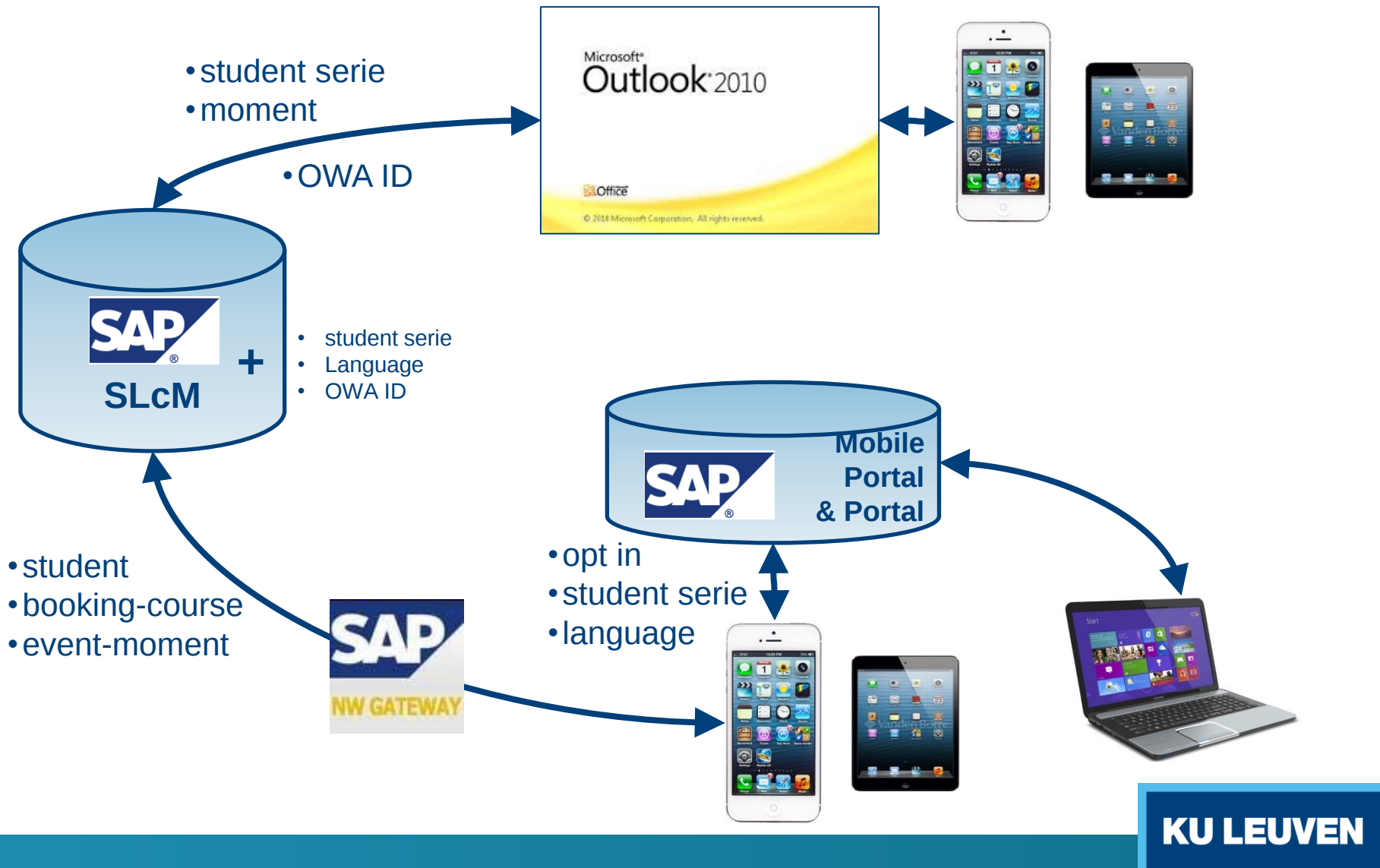
Design

Domain model (objects)



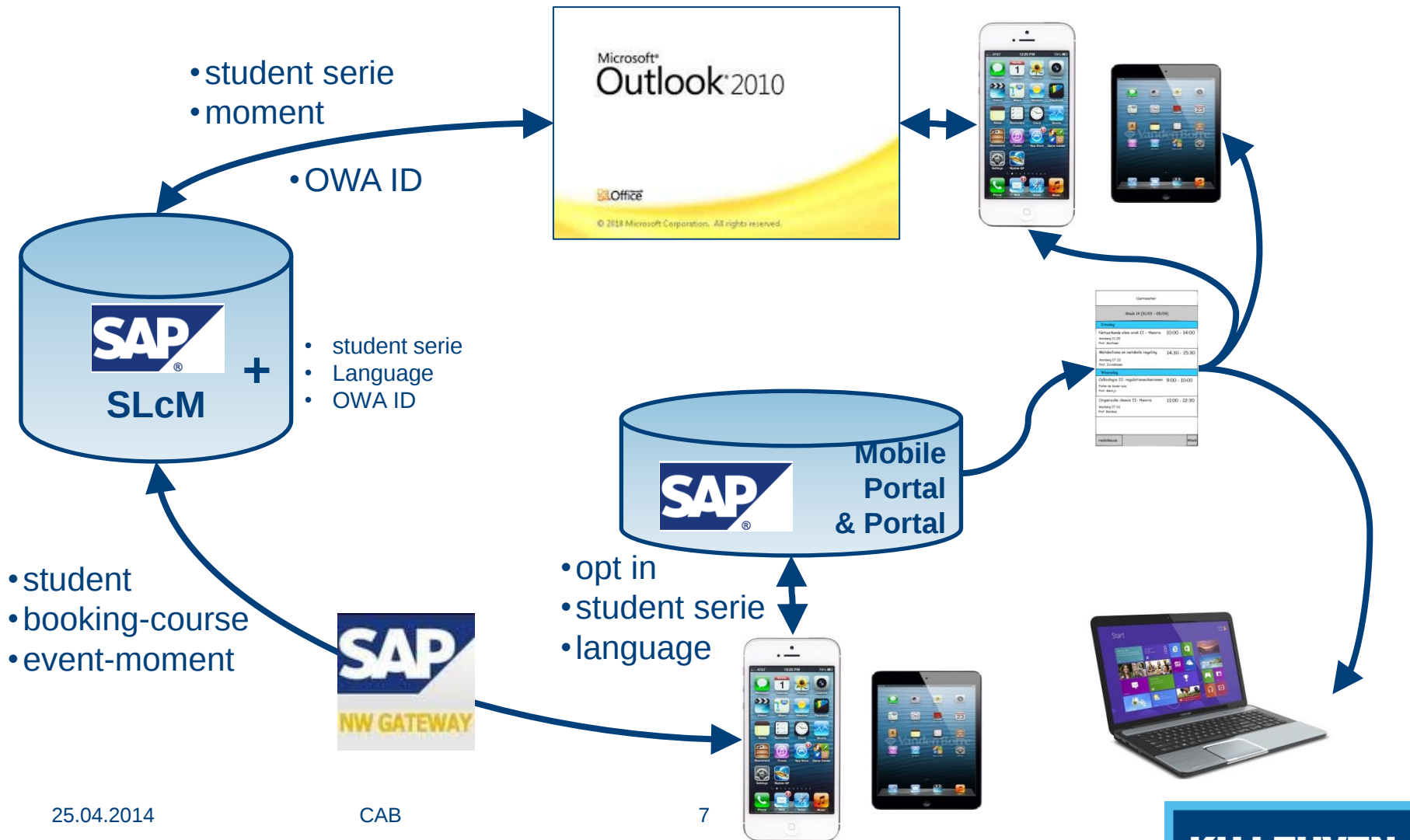
Design

Dataflow phase 1



Design

Dataflow phase 2-3



25.04.2014

CAB

7

KU LEUVEN



User experience

The application through SAP UI5
user screens

User screens

Central login

Geen simkaart 15:17 75%

idp.kuleuven.be

Centrale Login hosted by Associatie KU Leuven

! De KU Leuven zal je nooit via e-mail vragen om je wachtwoord ergens in te vullen, om welke reden dan ook. Gelieve niet in te gaan op zulke "phishing"-e-mails.
Meer info (<https://admin.kuleuven.be/icts/informatiebeveiliging/phishing>)

nederlands | english

Intranet userid:
@kuleuven.be

Wachtwoord:

☐ Intranet userid onthouden

LOGIN

HOSTED BY **ASSOCIATIE KU LEUVEN** Centrale login

PROXIMUS 17:06 82%

idp.kuleuven.be

nederlands | english

Intranet userid:

Wachtwoord:

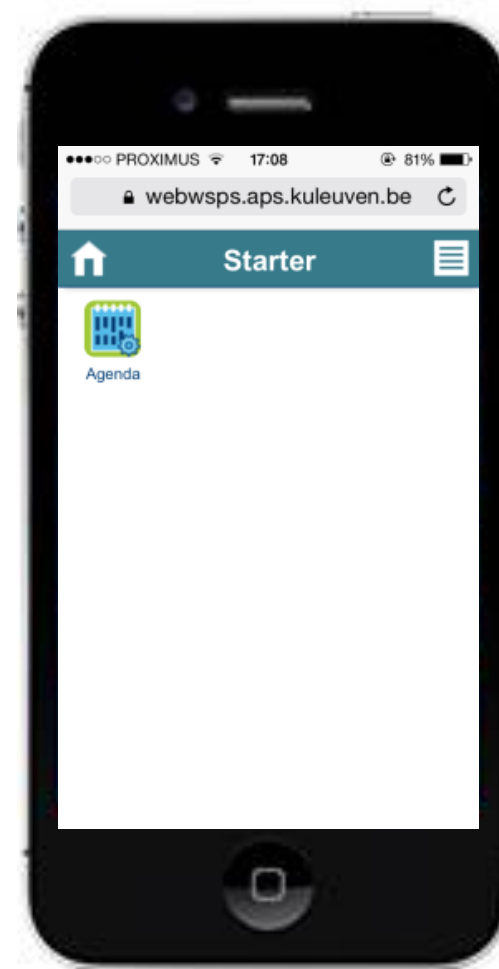
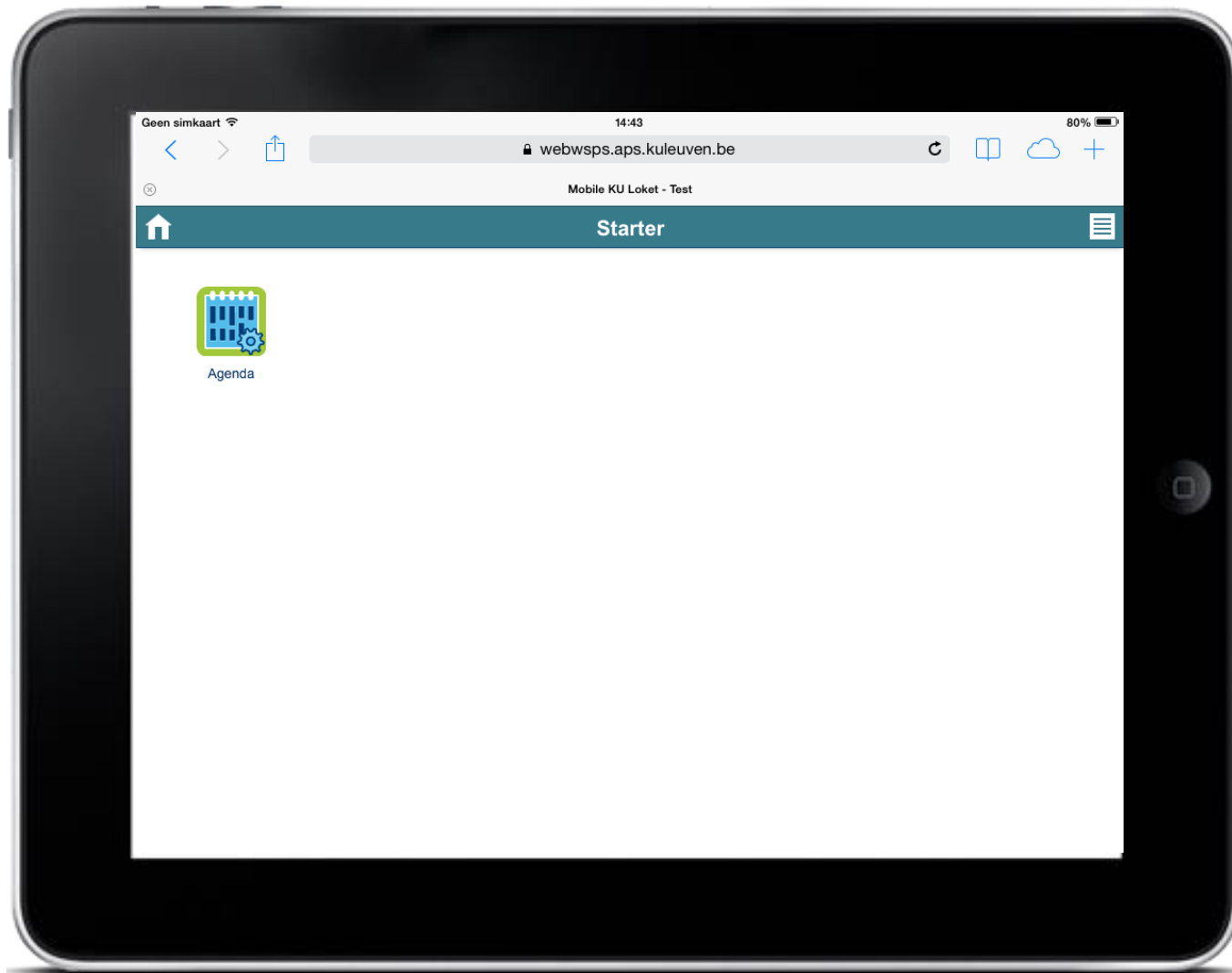
☐ Intranet userid onthouden

LOGIN

ASSOCIATIE KU LEUVEN Centrale login

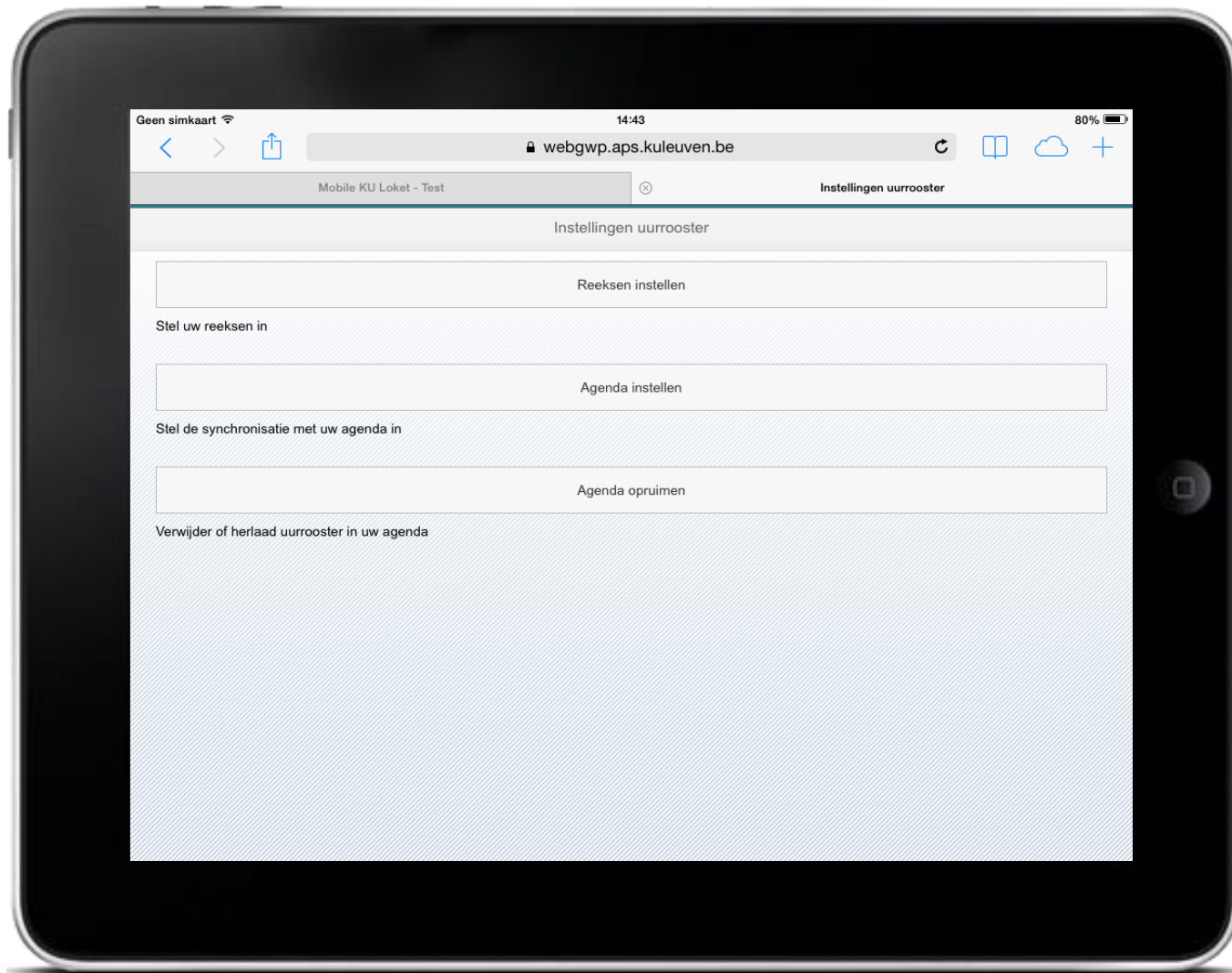
User screens

Mobile SAP portal



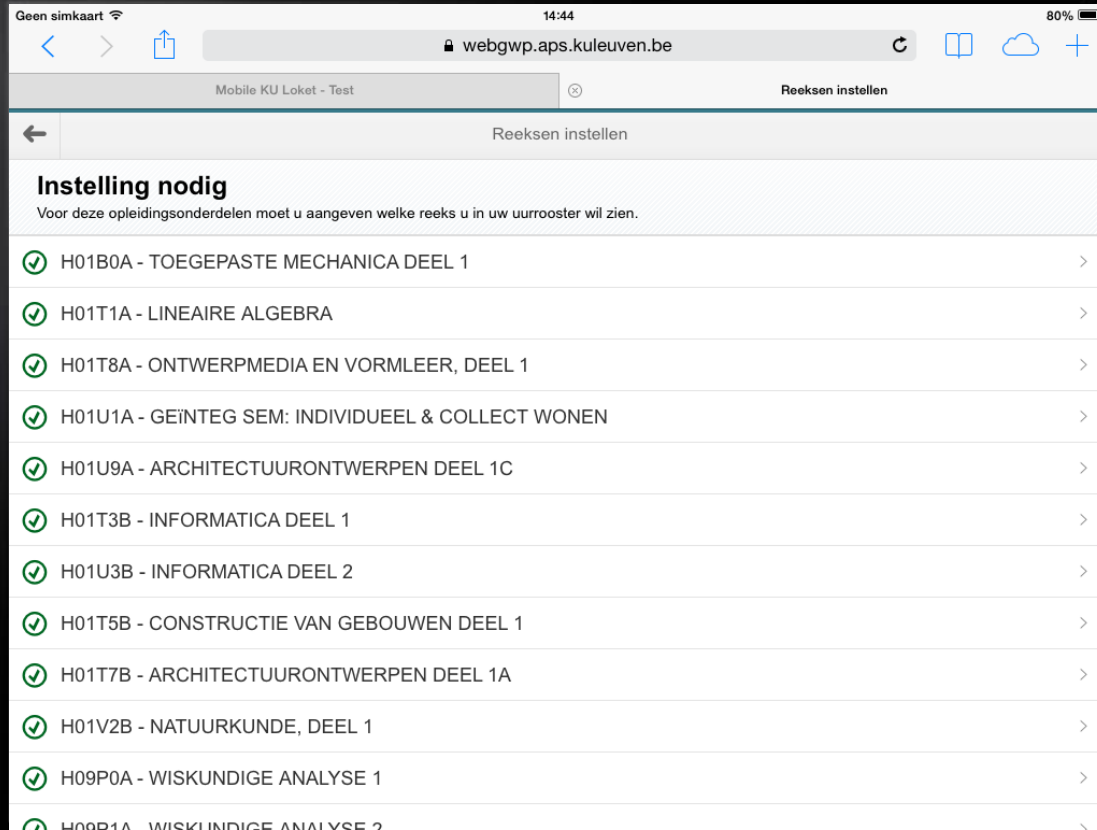
User screens

Main menu



User screens

Student course list



User screens

Student serie configuration

Geen simkaart 14:44 80%
webgwp.aps.kuleuven.be
Mobile KU Loket - Test Reeksen instellen

← Reeksen instellen

H01T1A - LINEAIRE ALGEBRA

H01T1a - Lineaire algebra: hoorcollege

H01T1a - 1bira ☒

H01T1a-groep - facultatief groepsmonitaat algebra ☒

H01T2a - Lineaire algebra: oefeningen

H01T2a-S12 - 1bira, studio 1 + studio 2 ☐

H01T2a-S34 - 1bira, studio 3 + studio 4 (op 3 aprilien laptop met Maple me... ☐

H01T2a-S56 - 1bira, studio 5 + studio 6 (op 3 aprilien laptop met Maple me... ☒

H01T2a-S+(1) - studieruimte+ algebra-analyse-natuurkunde ☒

H01T2a-S+(2) - studieruimte+ in P&O-lokaal ☒

H01T2a-test - facultatieve test, groep A (achternaamA-L) in lokaal 200K.00.... ☒

Reeksen opslaan

PROXIMUS 17:10 81%
webgwp.aps.kuleuven.be

← Reeksen instellen

H01T1A - LINEAIRE ALGEBRA

H01T1a - Lineaire algebra: hoorcollege

H01T1a - 1bira ☒

H01T1a-groep - fac... ☒

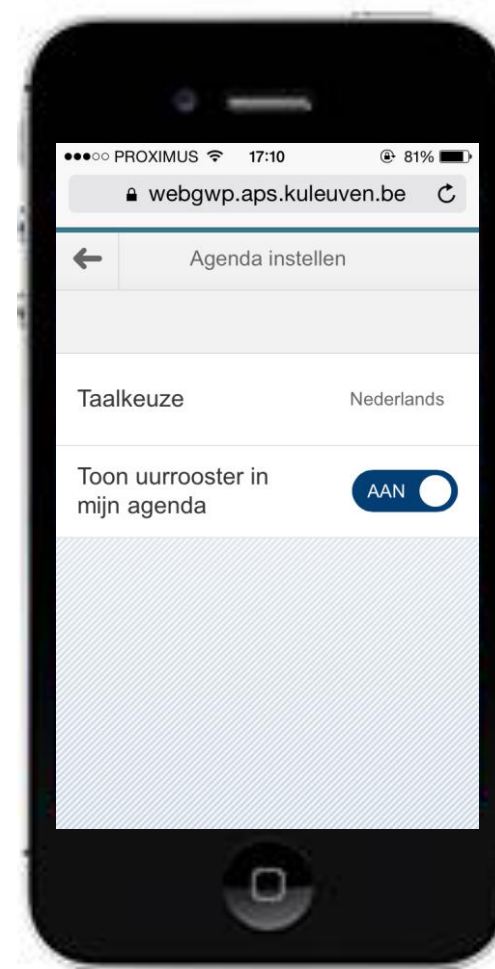
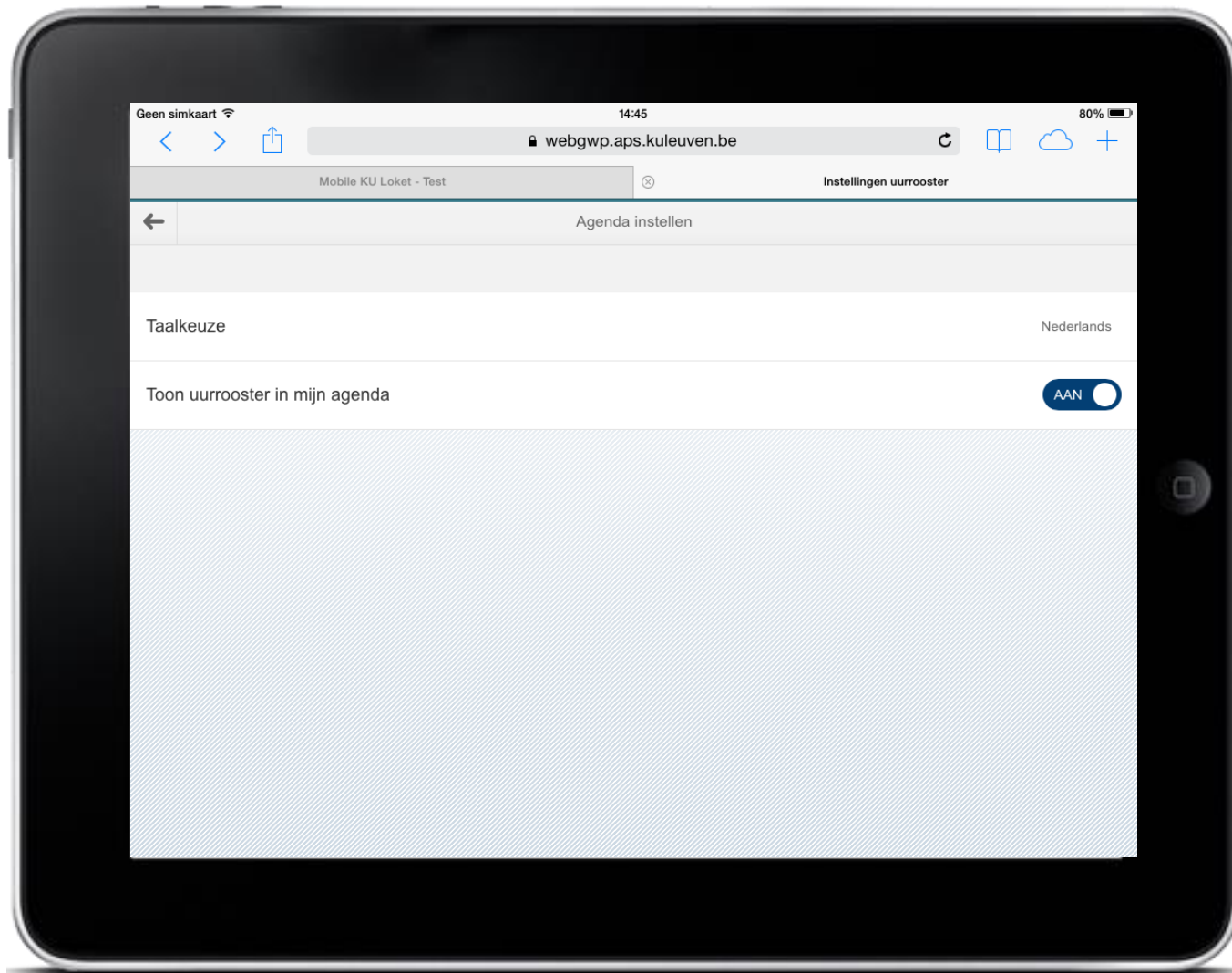
H01T2a - Lineaire algebra: oefeningen

H01T2a-S12 - 1bira... ☐

H01T2a-S34 - 1bira... ☐

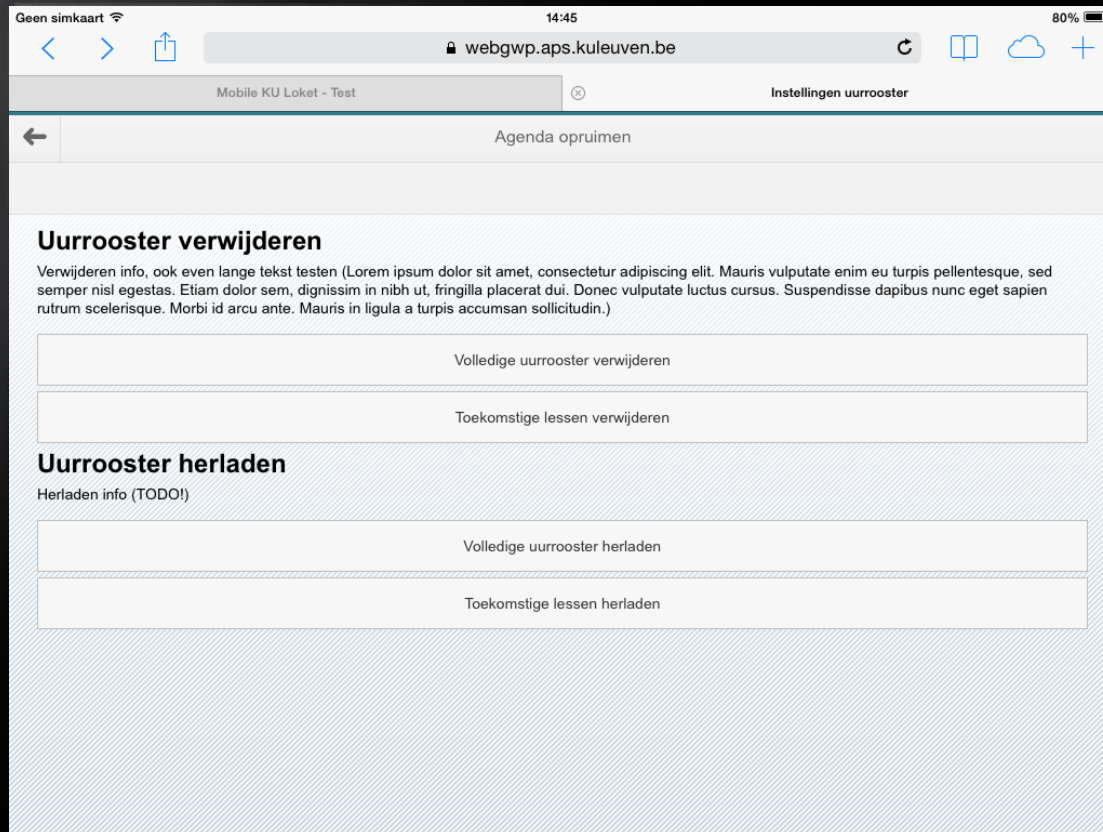
User screens

Agenda configuration



User screens

Update & delete timetable in outlook agenda



Upload in Outlook agenda (Windows PC)

https://owa.student.kuleuven.be/owa/#

Symboloo | Je persoonlijke ... | Indra Scheerlinck - Outlo...

masteringphysics Fysica va... | Suggested Sites | Suggested Sites | Web Slice Gallery | Web Slice Gallery | Web Slice Gallery

Outlook Web App

afmelden

Agenda > april 2014 - mei 2014

Iemand zoeken | Opties

< april 2014 >

Nieuw | Verwijderen | Ga naar vandaag | Delen | Weergave

28 maandag | 29 dinsdag | 30 woensdag | 1 donderdag | 2 vrijdag

6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00

Mijn agenda's

Agenda

E-mail

Agenda

Contactpersonen

https://owa.student.kuleuven.be/owa/#

104%

NL | 15:13 | 23/04/2014

Events:

- H09P1a Wiskundige analyse, deel 2: hoorcollege (200K-00.06)
- H01V3a Natuurkunde, deel 1: oefeningen 1bira, studio 3 + studio 4 (200C-01.08 (01H))
- H01T5a Constructie van gebouwen, deel 1: hoorcollege (200K-00.06)
- H01V2a Natuurkunde, deel 1: hoorcollege 1Bira (200C-01.06 (AUD. D))
- H01U9a Architectuurontwerpen, deel 1c atelier (KAST-02.01 (TEKENZAAL 02.01))
- H01U9a Architectuurontwerpen, deel 1c atelier (KAST-02.01 (TEKENZAAL 02.01))
- H01T2a Lineaire algebra: oefeningen studieruimte + algebra-analyse-natuurkunde (200N-00.04)
- H09P3a Wiskundige analyse, deel 2: oefeningen Partiele evaluatie, K.00.06: groep A + studenten met functiebeperking, G.00.06: groep B (200G-00.06; 200K-00.06)
- H01V3a Natuurkunde, deel 1: oefeningen 1bira, studio 5 + studio 6 (200C-01.09 (01J))

Synchronisation with Ipad agenda

Geen simkaart
15:03
78%

mei 2014

Dag

Week

Maand

Jaar

Q

+

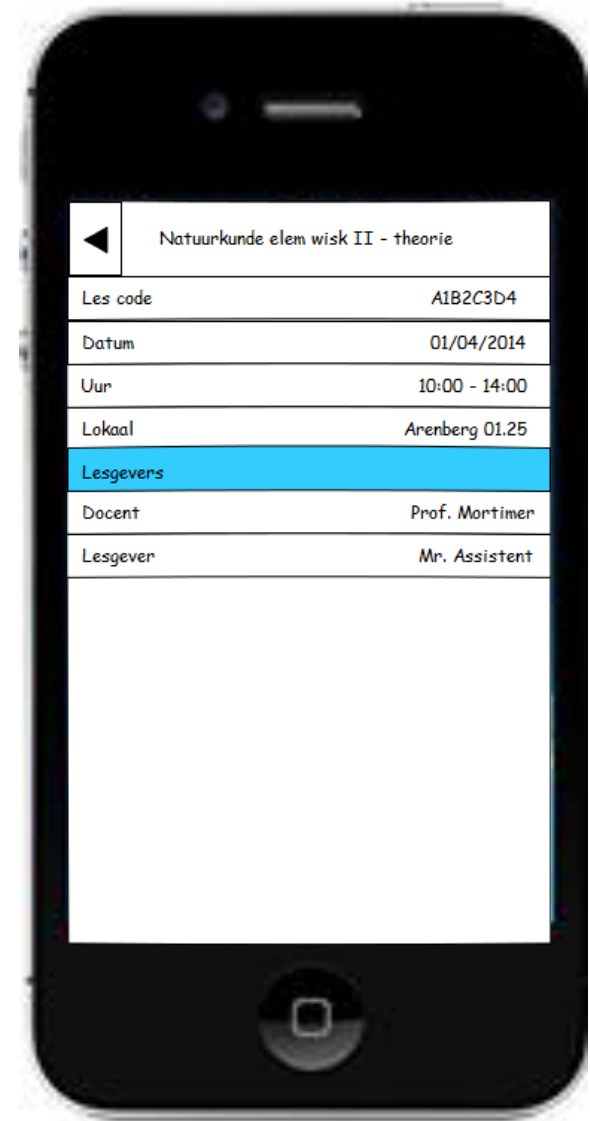
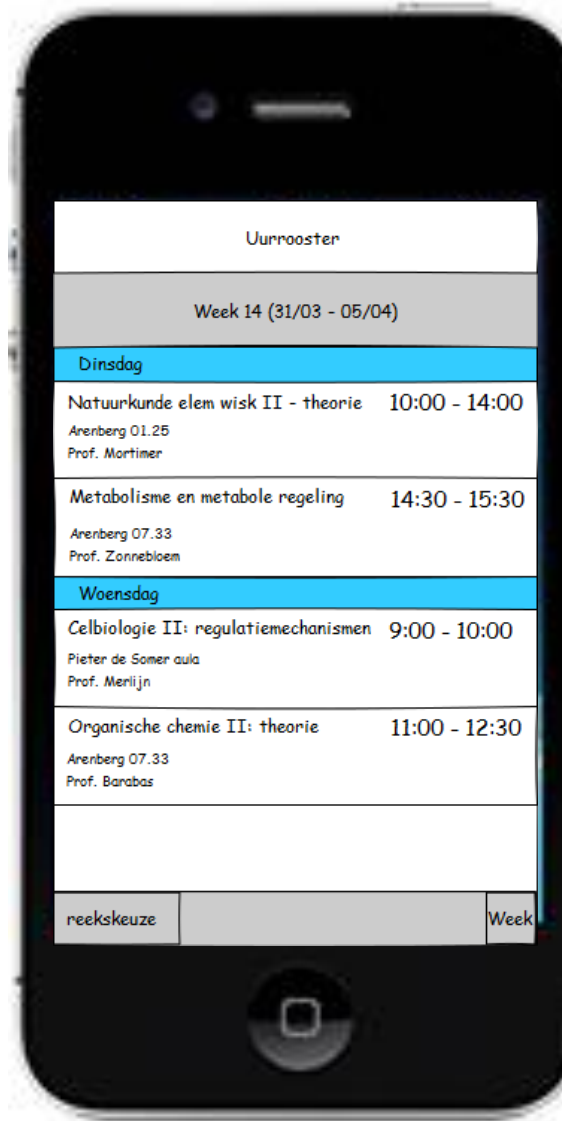
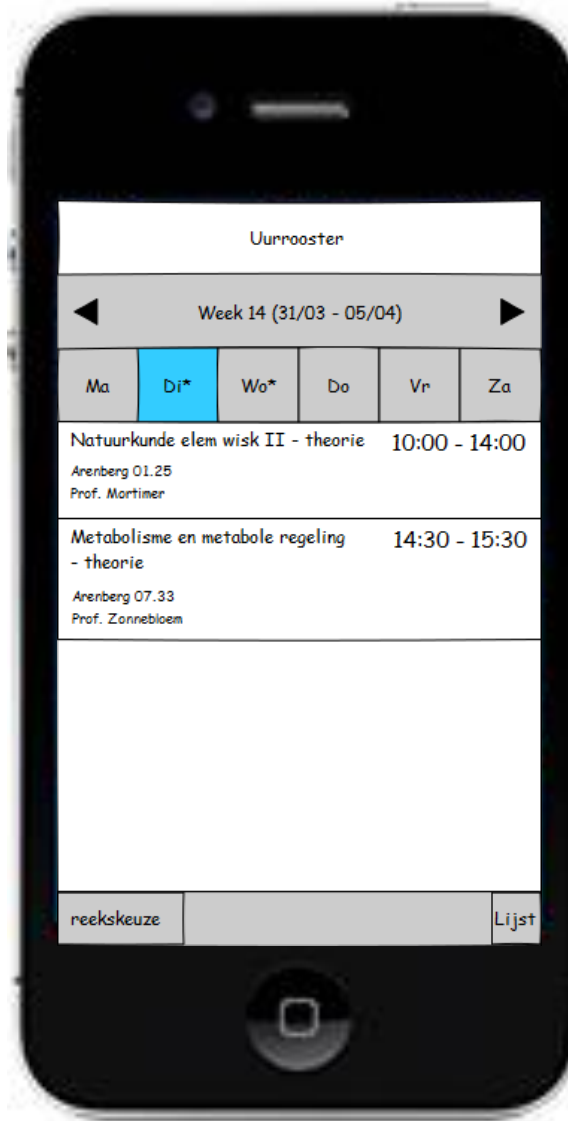
ma 28	di 29	wo 30	do 1	vr 2	za 3	zo 4
08:00 H09P1a Wiskundige analyse, deel 2: hoorcollege 200K-00.06	H01V3a Natuurkunde, deel 1: oefeningen 1bira, studio 3 + studio 4 200C-01.08 (01H)			H09P3a Wiskundige analyse, deel 2: oefeningen Partiele evaluatie, K.00.06: groep A +studenten met functiebeperking, G.00.06:groep B 200G-00.06;200K-00.06		
09:00						
10:00						
11:00 H01T5a Constructie van gebouwen, deel 1: hoorcollege 200K-00.06	H01V2a Natuurkunde, deel 1: hoorcollege 1Bira 200C-01.06 (AUD, D)					
12:00						
13:00						
14:00 H01U9a Architectuurontwerpen , deel 1c atelier KAST-02.01 (TEKENZAAL 02.01)	H01U9a Architectuurontwerpen , deel 1c atelier KAST-02.01 (TEKENZAAL 02.01)	H01T2a Lineaire algebra: oefeningen studieruimte+ algebra-analyse-natuurkunde 200N-00.04				
15:00						
16:00				H01V3a Natuurkunde, deel 1: oefeningen 1bira, studio 5 + studio 6 200C-01.09 (01J)		
17:00						

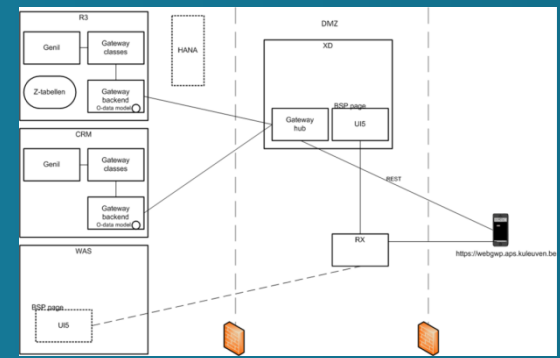
Vandaag

Agenda's

Inkomend (3)

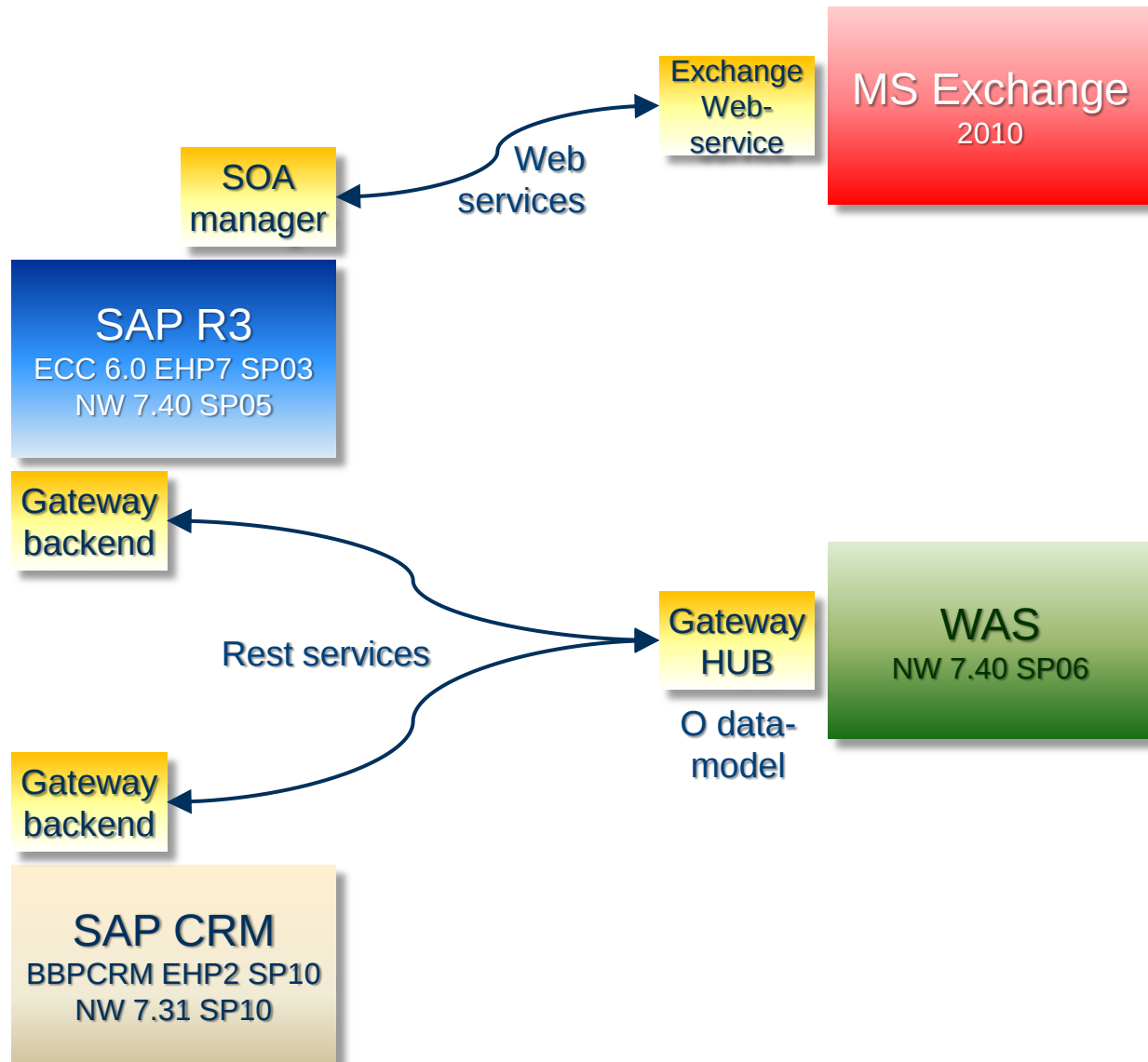
Webapp timetable (mock ups)



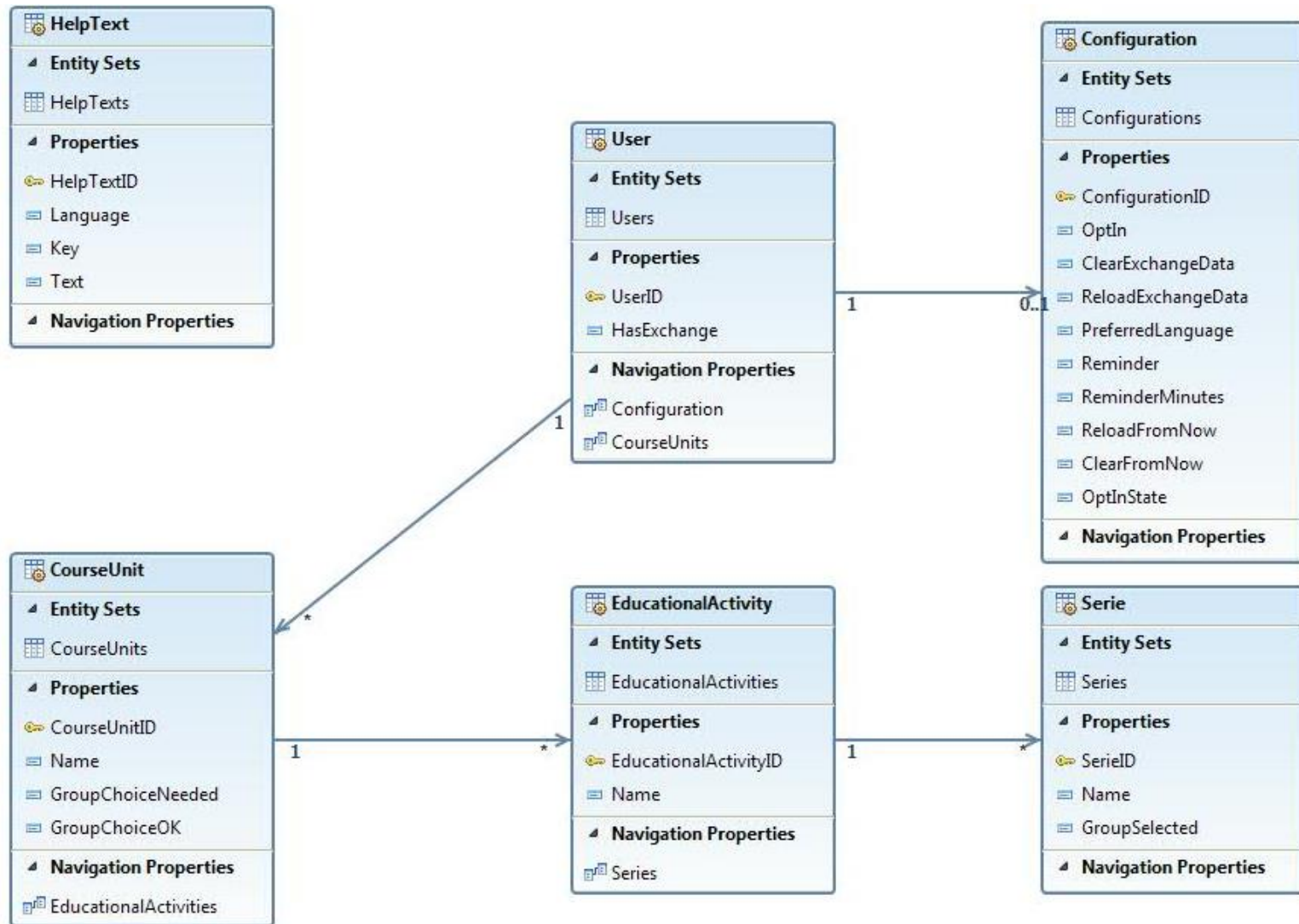


Technical architecture & open data

Infrastructure components

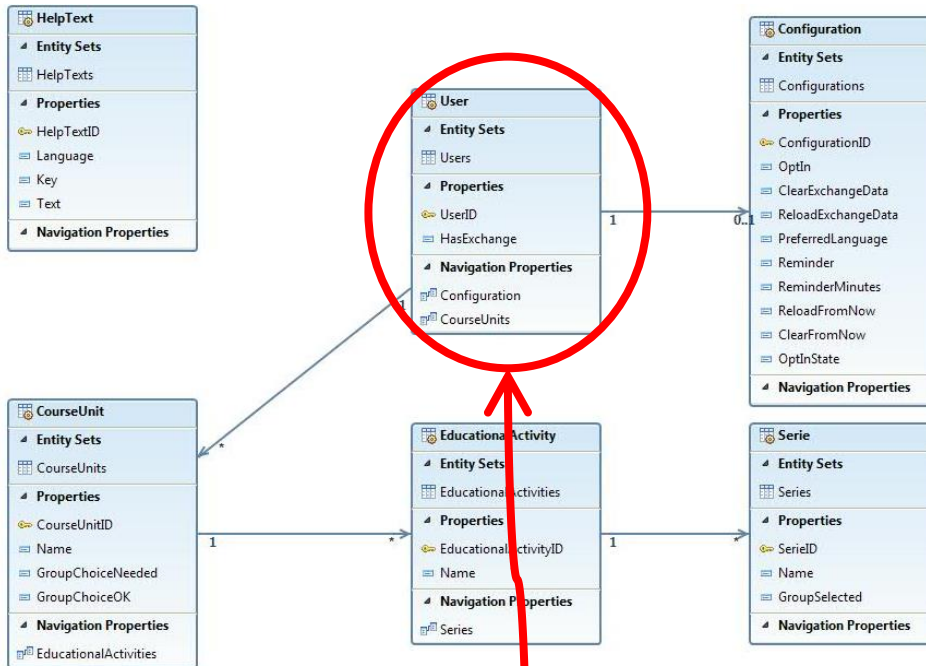


O-Datamodel in the gateway HUB



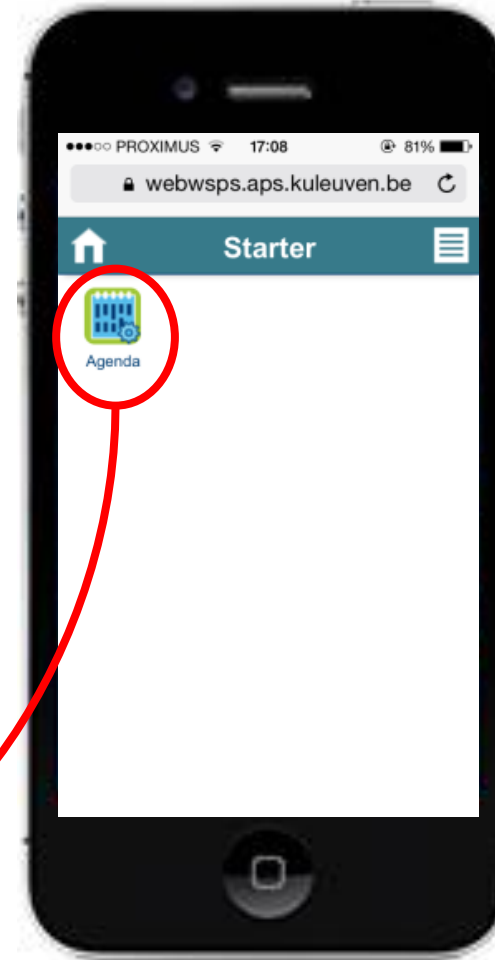
Rest service URL

Navigation and data retrieval



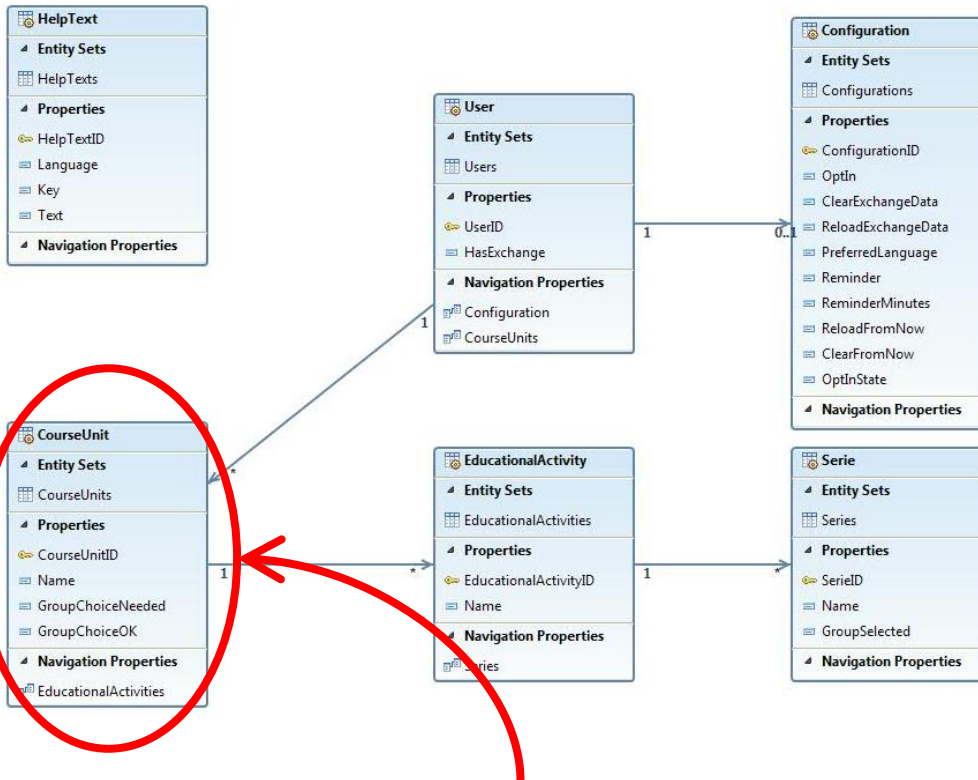
users node:

http://webgwd.aps.kuleuven.be/sap/opu/odata/sap/zz_uurrooster_srv/Users



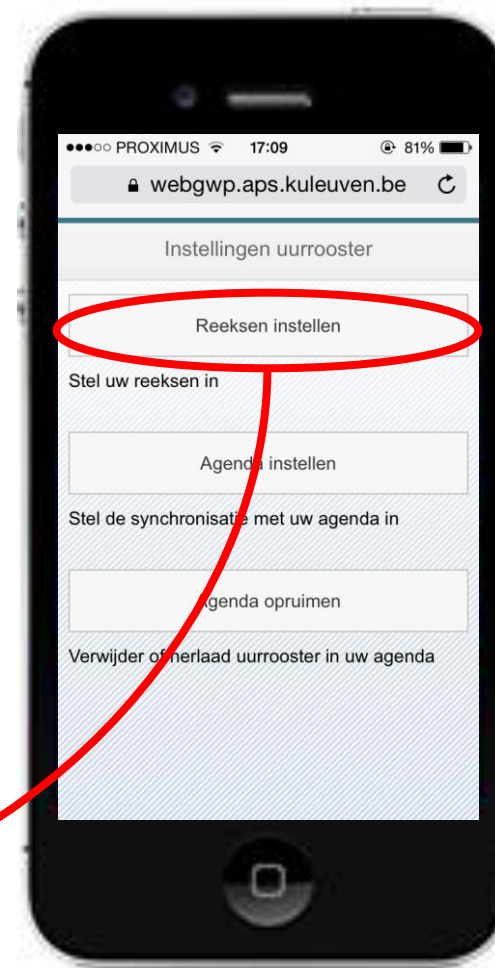
Rest service URL

Navigation and data retrieval (ctd')



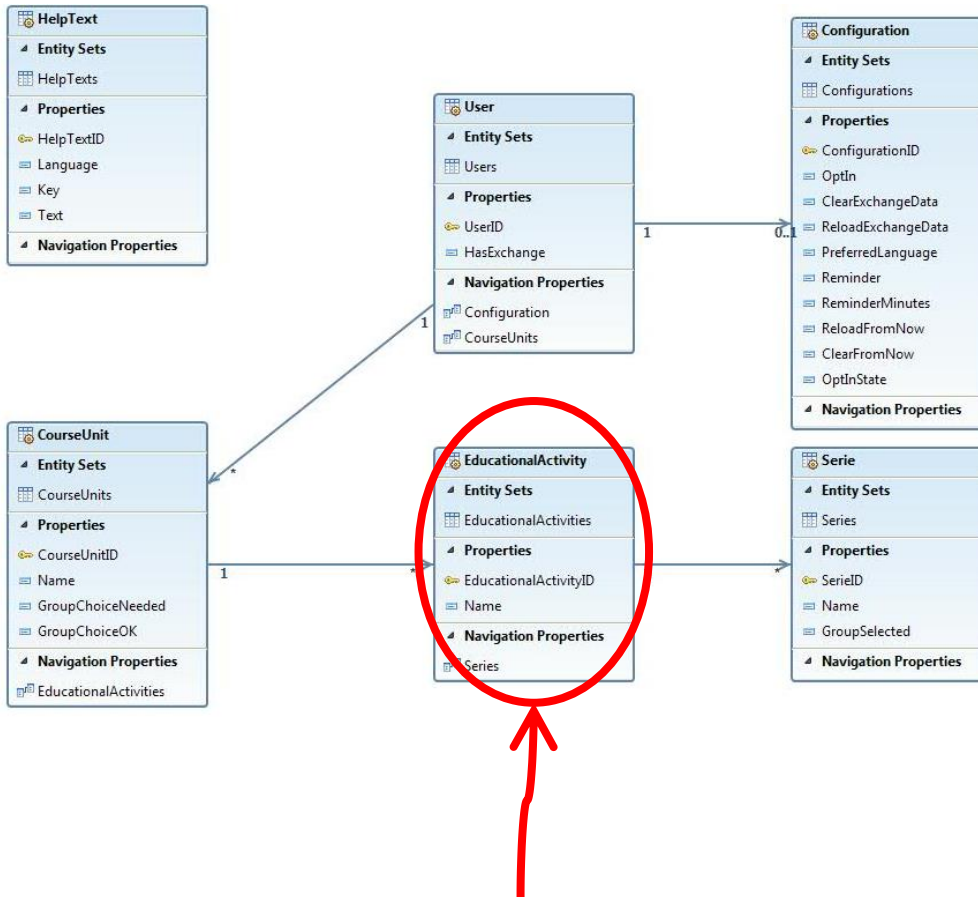
Class events subnode :

[http://webgwd.aps.kuleuven.be/sap/opu/odata/sap/zz_uurrooster_srv/Users\('u0077789'\)/ClassEvents](http://webgwd.aps.kuleuven.be/sap/opu/odata/sap/zz_uurrooster_srv/Users('u0077789')/ClassEvents)



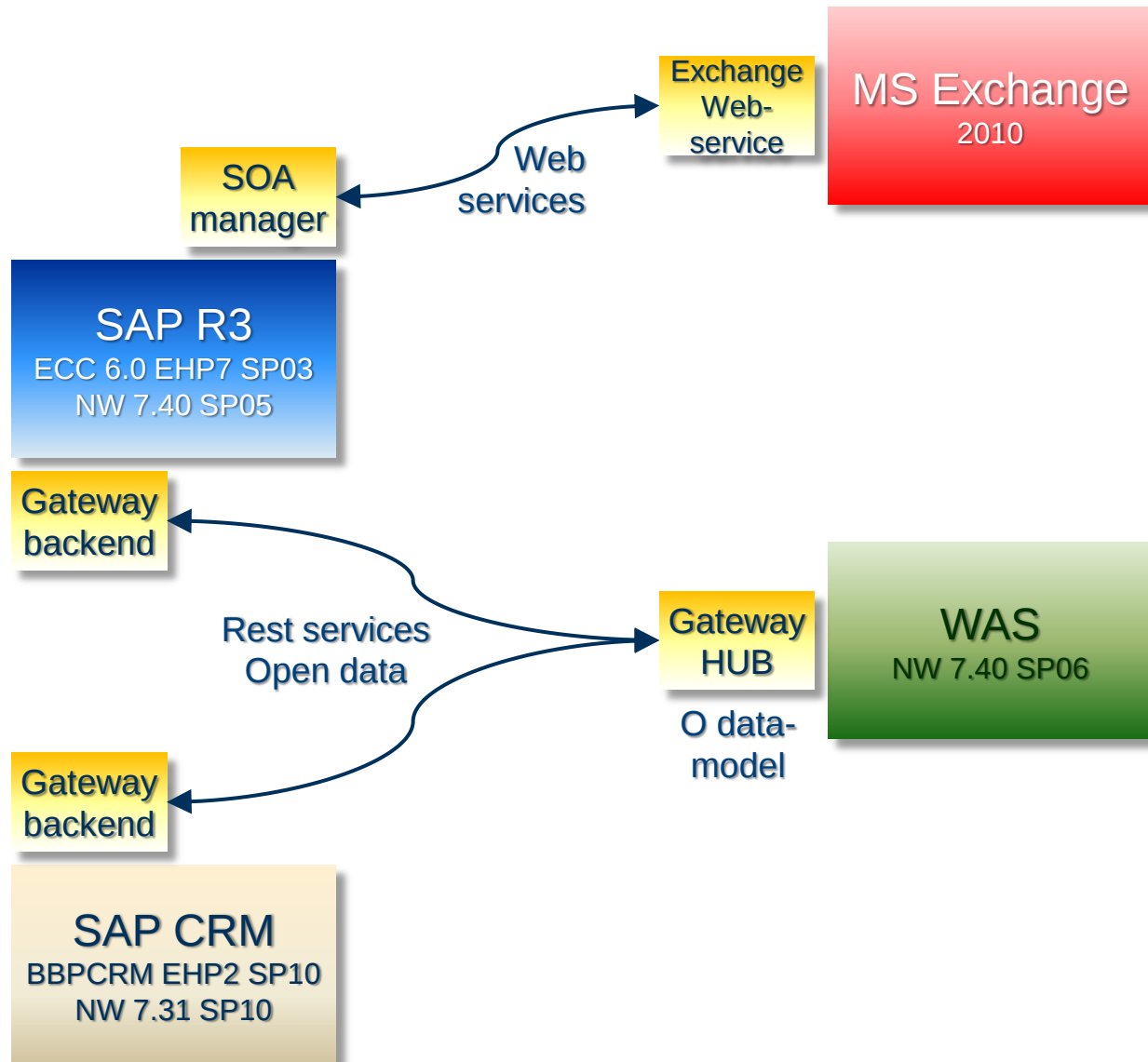
Rest service URL

Navigation and data retrieval (ctd')

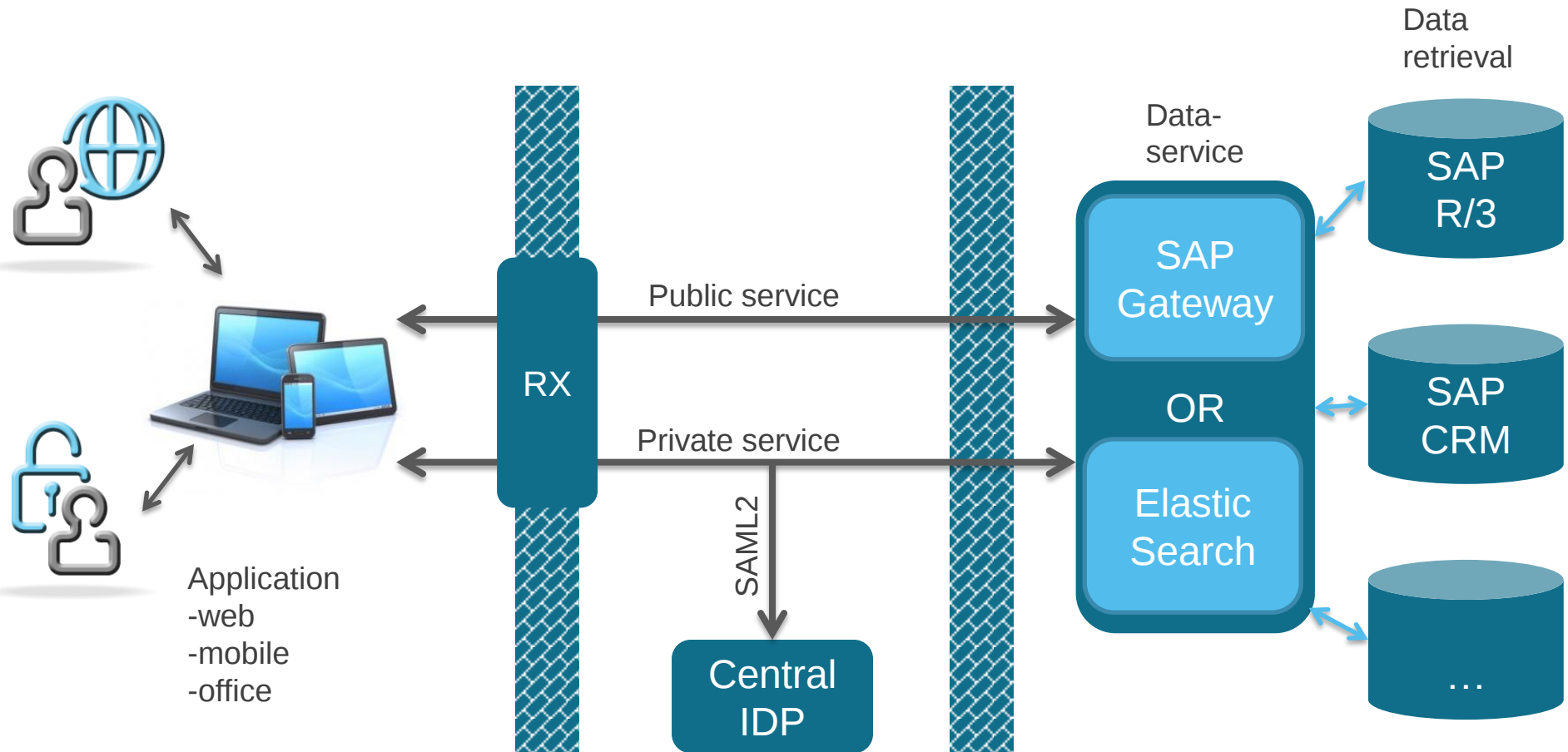


Educational activity subnode :
<http://.....>

Rest services available as open data services



Principle open data-service



3 types of open data

What	Which type?	Example	User experience
No authentication	Public services	<i>organigram, academic offer</i>	No login needed
With OAUTH-token	Selection of public data voor a specific user	<i>Individual timetable</i>	User asks a one-time token voor a specific application and saves this token
SAML Single Sign On	Private data	<i>privacy sensitive data</i>	User logs in via central login-page of KU Leuven



Main challenges

we encountered during the
project

Main challenges

Performance

- Number of users > 100.000
 - Initial load up to 15.000.000 records
 - Hundreds of changes per day
10 thousands of records
- Z-tables for student-moment combinations
- Initial load and delta loads → performance tuning
- Webservice processing
 - Parallelisation of web service processing between SAP and Exchange
 - Number of application servers is variable depending on the load



Main challenges

Setup of new technology

- SAP NW 7.40 required for integrated gateway
 - in SAP NW 7.31 SP 4 extra plug ins were necessary
- SOA manager blocked on the KU Leuven proxy server
- Versioning SOA and WSDL
 - Changes in WSDL requires changes at the SAP side
 - SOA manager can only deal with one version at the time
- Method get list (for one ID) gave ABAP mapping issues



Main challenges

New development environment

- SAP UI 5
 - Screen design according to the 1-1-3 principle
→ fast and easy development of user screens
 - (Re)-invent internal programming standards
 - Developers with knowledge of JavaScript, HTML5, CSS
 - Fast adoption through multi-peer programming MPP
- Rest services
 - Fast adoption
 - Open data standard requires good documentation



Main challenges

Microsoft product



- Problems with recurring appointments
 - SAP events consists of a set of recurring appointments (moments)
 - Upload in Exchange as a recurring appointment didn't allow reliable updates after the initial load
 - Break up SAP event into individual appointments
- ID student-moment combination
 - Exchange cannot guarantee the preservation of the unique key after an MS Exchange upgrade
 - Definition of an extra subfield with a custom generated GUID
 - Performance of the WSDL processing dropped from 8 WS/sec to 4 WS/sec

Questions?

