Working with calendars in Community Solid Server

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You can schedule meeting with someone via multiple methods

Send a chat message

Send an email

Give a call

But what when scheduling a meeting with multiple people?

You schedule meeting with multiple people via different methods

Check shared calendar

→ Not always up to date or complete

Send out a Doodle

→ People fill it in too late or not at all

Problem: how to make it easier to schedule a meeting with multiple people?

Solution: create busy calendar using Community Solid Server

Overview

Example

Extensibility of Community Solid Server

Different representations of calendars

Server configuration

Build on top of this work

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Example: work and personal calendar → busy calendar

Work calendar:

      Work-related events

      Details can be shared with colleagues

Personal calendar:

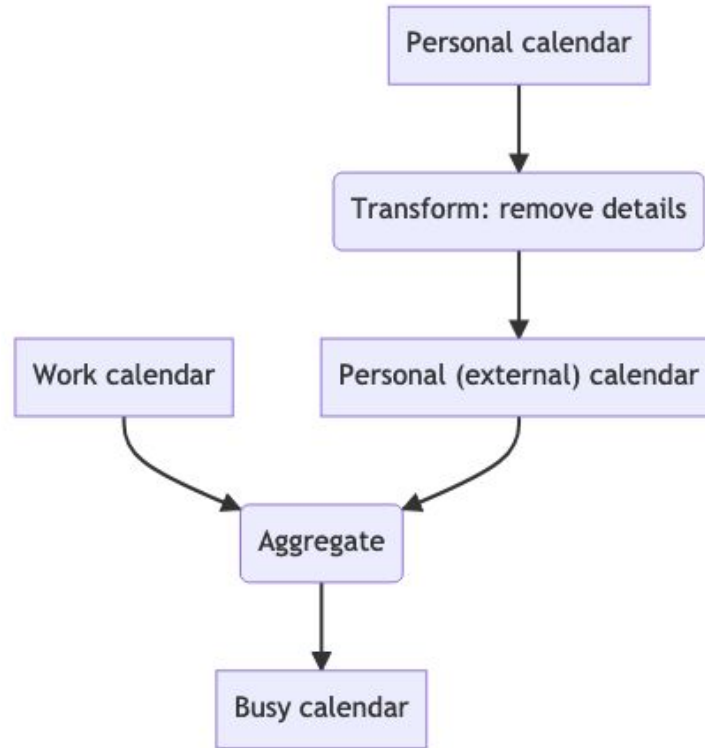   Personal events

      Details cannot be shared with colleagues

Busy calendar:

      Aggregation of work and personal calendars

      Details can be shared with colleagues

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Example: work and personal calendar → busy calendar

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Extensibility of Community Solid Server

Support new types of data

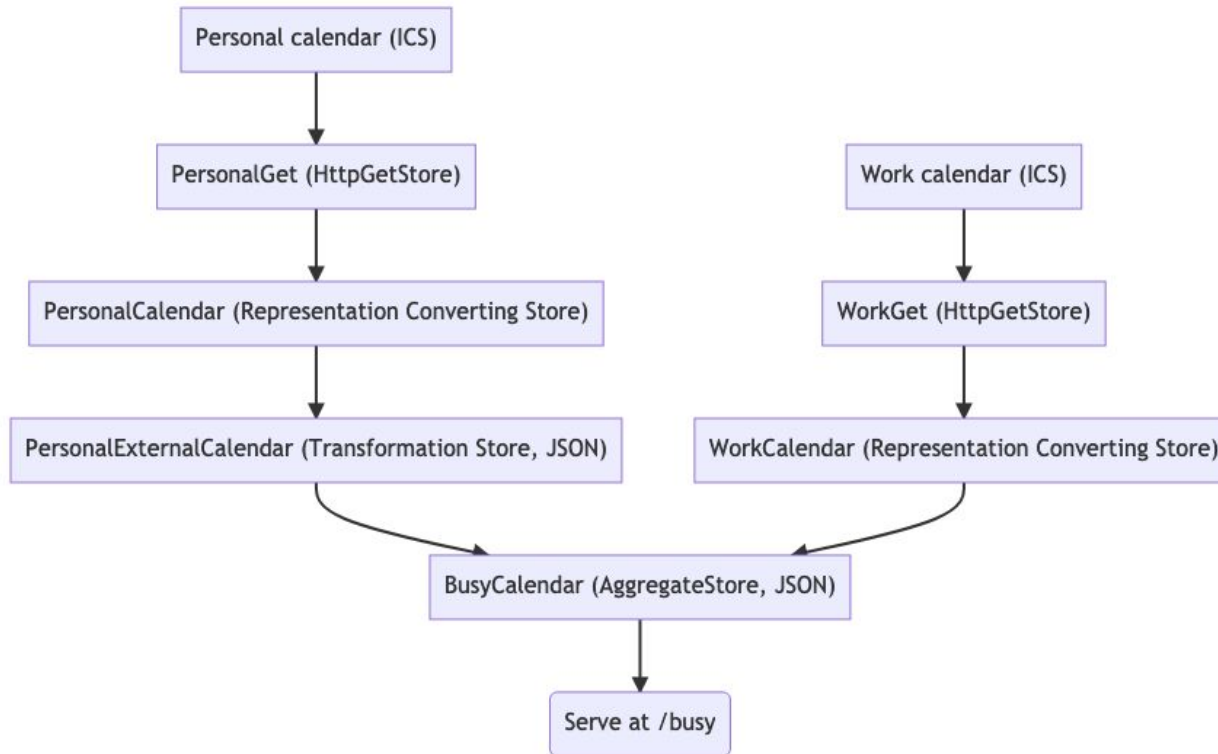Support new functionality

→ Custom stores
       Represent collections of resources
       Allow manipulating these resources
       Read: plugins (JavaScript)

In example: calendars are resources

Custom stores for work, personal, and busy calendars

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Get busy calendar at http://localhost:3000/busy

Internal JSON representation

```
{
  "name":"Aggregated calendar of Personal example and Work example",
  "events":[
    {
      "title":"[Personal example] Busy",
      "startDate":"2021-04-08T15:00:00.000Z",
      "endDate":"2021-04-08T17:00:00.000Z",
      "hash":"c585549052f444427a1528a430c001b5",
      "location":""
    },

    // The remainder of the events are excluded for brevity.
  ]
}
```

Get busy calendar at http://localhost:3000/busy

ICS representation

```
BEGIN:VCALENDAR
VERSION:2.0
PRODID:-//sebbo.net//ical-generator//EN
NAME:Aggregated calendar of Free Time example and Work example
X-WR-CALNAME:Aggregated calendar of Free Time example and Work example
BEGIN:VEVENT
UID:7abb9807-4d85-47db-81da-10ccca0a7672
SEQUENCE:0
DTSTAMP:20210817T122516Z
DTSTART:20210408T150000Z
DTEND:20210408T170000Z
SUMMARY:[Free Time example] Busy
END:VEVENT
BEGIN:VEVENT
UID:dd379c3c-b653-4a49-91e0-78b00cdabe23
SEQUENCE:0
DTSTAMP:20210817T122516Z
DTSTART:20210330T060000Z
DTEND:20210330T160000Z

# The remainder of the events are excluded for brevity.
```

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Get RDF representation of busy calendar

Instance of Solid RML Store specific for internal JSON representation of calendar

```
@prefix schema: <http://schema.org/> .
@prefix calendar: <http://example.com/calendar/> .
@prefix event: <http://example.com/event/> .

calendar:Aggregated%20calendar%20of%20Personal%20Time%20example%20and%20Work%20example
    schema:event event:09ec6f847b05ebc845da09f9777bca98,
        event:500fa723b22615892e91b64405b5a32c, event:98dd5445ee418eb6a0aeeb1da537a9a4,
        event:b22e5eed1e7599d6ea64d9e1b1150bfb, event:c585549052f444427a1528a430c001b5;
    schema:name "Aggregated calendar of Personal example and Work example" .

event:09ec6f847b05ebc845da09f9777bca98 a schema:Event;
    schema:description "";
    schema:endDate "2021-08-03T18:00:00.000Z";
    schema:location "";
    schema:name "[Work example] Meeting";
    schema:startDate "2021-08-03T16:15:00.000Z" .

# The remainder of the events are excluded for brevity.
```

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No code needed, instead update server configuration

Library (plugin) "Solid Calendar Store" (JavaScript) defines custom stores

Add instances different stores to server configuration
- HTTP Get Store
- Transformation Store
- Aggregate Store

Configure instances
- URLs of original calendars
- How to transform calendars
- What calendars to aggregate

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You can build on top of these stores

Define your own calendars

Use output of our stores as input for **your** custom stores
    Use JSON representation
    Use RDF representation
    Use transformation
    Use aggregation

Solid Calendar Store is open source → adapt to your needs

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Find out more

Community Solid Server: github.com/solid/community-server

Solid Calendar Store: github.com/KNowledgeOnWebScale/solid-calendar-store

Solid RML Store: github.com/RMLio/solid-rml-store

Blog post: knows.idlab.ugent.be/blog/solid-calendar-store

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