



Planner
Design Description Document
Version 1.1

Plunner	Version: 1.2
Design Description Document	Date: 18/01/2016

Revision History

Date	Version	Description	Author
04/11/2015	0.1	Initial Draft	Joan Josep Crespi Villalonga
04/11/2015	0.2	Introduction	Joan Josep Crespi
12/11/2015	0.3	Background, Architecture, Back-End, User Interface, Futures extensions	Jean Barré
13/11/2015	1.0	Cleaning of the document. Added technology part.	Giorgio Pea
18/01/2016	1.1	Final checking and revision	Giorgio Pea

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1. Introduction

1.1 Purpose of this document

This document aims to show and formalize the design, the architecture and the implementation choices made for the project Planner.

1.2 Intended audience

The intended audience for this document is:

- The team behind the project: this document represents a sort of guide or summary that the team behind the project must use in order to create a functional and goal consistent application
- The supervisors of the project: the information contained in this document can be used by the supervisors to understand the structure and the implementation of the entire application
- The customer: the architectural choices made for the project by the team have an impact for the customer both in economical and non economical terms, this document describes these choices and lets the customer judge if they are sustainable or not

1.5 Definitions and acronyms

1.5.1 Definitions

Keyword	Definition
Registered Organization / Organization	An organization that has registered to Planner
Member	A member of a registered organization. This member has been registered into Planner by its organization
Planner of a team T	A particular Member that can manage the planning of meetings for team T(one planner per team)
Team	A set of Members of a registered organization. This set can have no counterpart in the real life, it's just a schema Planner imposes to simplify things
Schedule of a Member	A set of time slots relative to a given period(a month for example) in which the Member is busy
Meeting to be planned	A meeting that has been created by a Planner but whose starting time has not been decided yet by the Service
Planned Meeting	A meeting that has been created by a Planner and whose starting time has been decided by the Service

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1.5.2 Acronyms and abbreviations

Acronym or abbreviation	Definition
CalDAV	Calendaring Extensions to WebDAV, an Internet standard allowing a client to access scheduling information on a remote server.
WebDAV	Web Distributed Authoring and Versioning, an extension of the Hypertext Transfer Protocol (HTTP) that allows clients to perform remote Web content authoring operations
MVC	Model, View, Controller
RDD	Plunner's Requirements Definition Document

1.6 Support documentation

- Requirements Definition Document

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2. Background and Objectives

2.1 Background

In businesses and organizations meetings are essential for producing value and guaranteeing the quality and correctness of a product or a service. Organizing these meetings can be tedious and time consuming since different needs have to be harmonized in order to find a suitable date and time. In addition to that, the tools usually used to organize meetings are not enough powerful or intuitive for the needs of modern businesses or organizations.

2.2 Project Goals

Plunner is a web application which aims to solve the problems underlined above, by providing a flexible and intuitive way to plan and organize meetings for businesses and organizations. Plunner has optimization and simplicity in mind, so that:

- Meetings can be planned by importing schedules from external calendaring services using CalDAV or by composing in-app schedules.
- Meetings' times and dates are determined automatically by optimizing (maximizing) the number of participants.
- All the functionalities of the application can be accessed using a simple, intuitive and responsive web interface.

2.3 Customer and Target

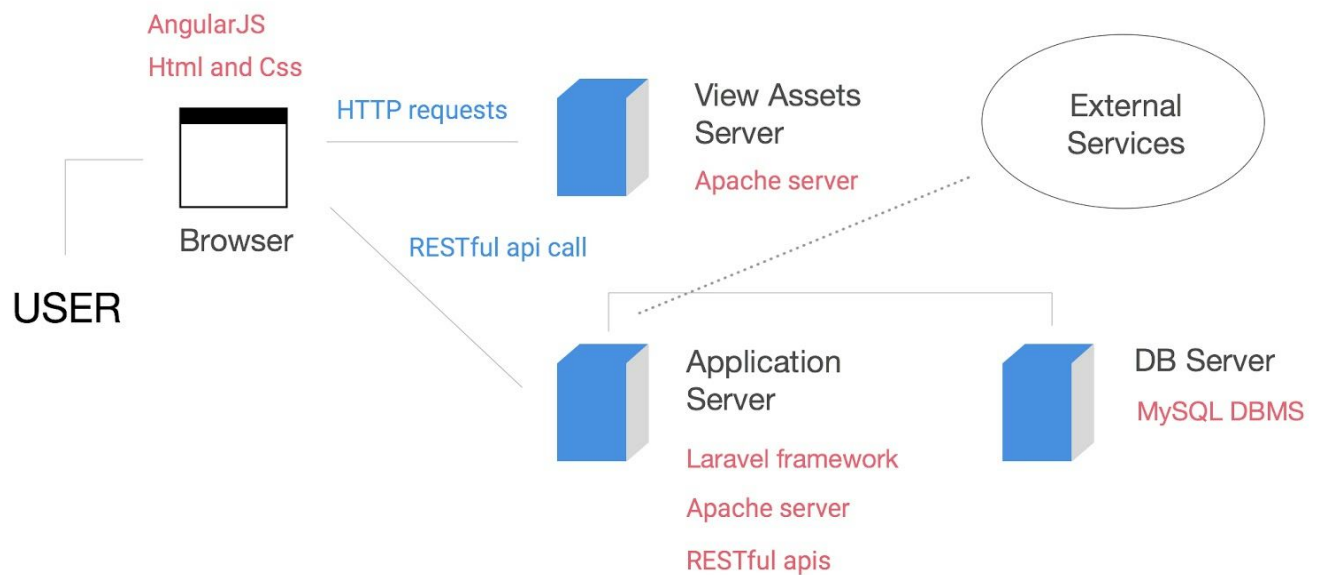
The customer of the project is Mr. Michael Young, Associate Professor at the University of Oregon, United States. The project's team has kept and will continue to keep contact with him using emails in order to get suggestions about the project and also to perform a validation process.

Plunner's targets consist in small and medium businesses and organization with the chance, in the future, to expand to large businesses and corporations. This choice impacts on the design and the functionalities of the whole application.

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4. Architecture and Design

4.1 Architectural model



As visible from the picture above, Plunner adopts a 3 tier* client server architecture, the main reasons behind this choice are the following ones:

- **Scalability:** the nodes composing the application server and db server can be increased in number without the need of redesigning the whole system
- **Reliability:** since the chosen architecture is distributed, failures can be easily isolated and database replications can be implemented without impacting too much on the design of the whole system
- **Adaptability:** the chosen architecture can be easily enriched with a load balancer that distributes and activates nodes in relation to the number of incoming requests.
- **Security:** since the chosen architecture strictly divides business logic and data and since the application server and the db server can be easily isolated from the web using firewalls, malicious attacks can be prevented and high level of security granted

**The web assets server is not considered in the account of tiers since its only purpose is to deliver via the web the code that after being executed by a browser implements the frontend part of Plunner*

4.2 Tiers

- **Application Server:** a tier that manages and implements the business logic of the entire application, it process and answers to requests from client's browsers
- **DB Server:** a tier that manages the persistent data of the application
- **Browser:** a tier that represents the layer of interaction between the client and the application

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4.3 MVC

Both for the frontend and backend the team has decided to adopt a design pattern known as MVC (Model View Controller). This choice has been made since the pattern is one of the most used and tested in the industry and it lets the team split the work better and in a more systematic way.

4.4 Client Server Communication

The communication between the client and server is implemented via a remote set of APIs that the server makes available to the client. This communication method has been chosen for reasons of flexibility, security and because it is easier to implement.

4.5 External services

Since Planner is a calendar based application, an integration with external calendaring services has been designed; the purpose of such integration is to give to the client the chance to easily import schedules and facilitate the meeting planning. The team has thought about using a standard and well diffused/supported protocol for integrating external calendaring services and so during the implementation phase this has been taken in consideration.

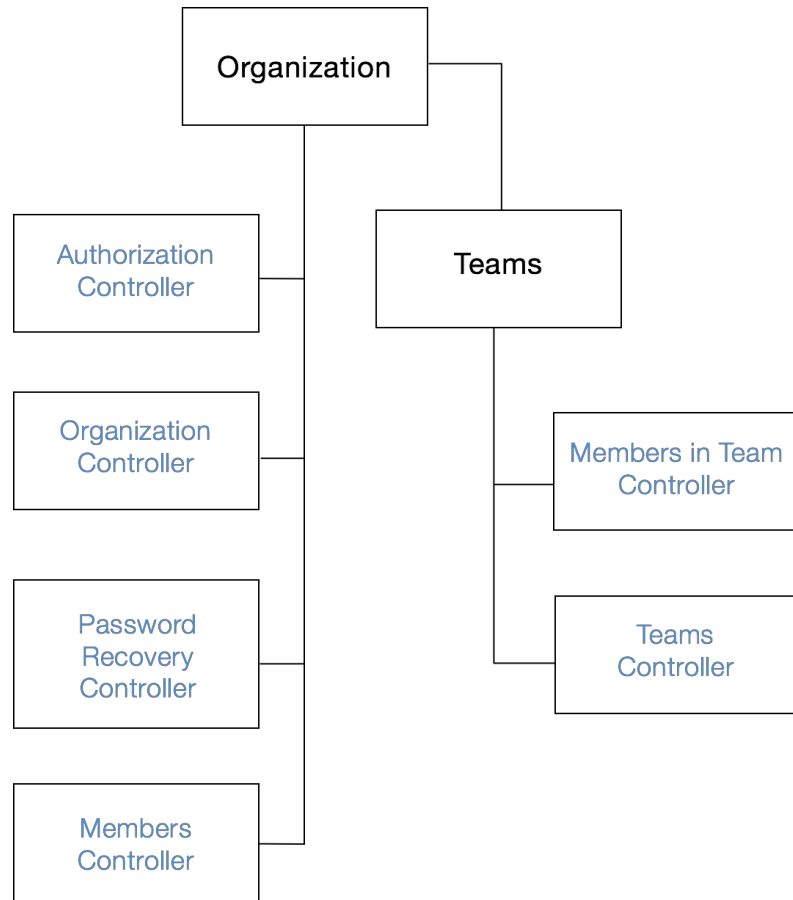
5 Components

5.1 Backend Components

Here follows an high level view of the main software components that make the backend of Planner

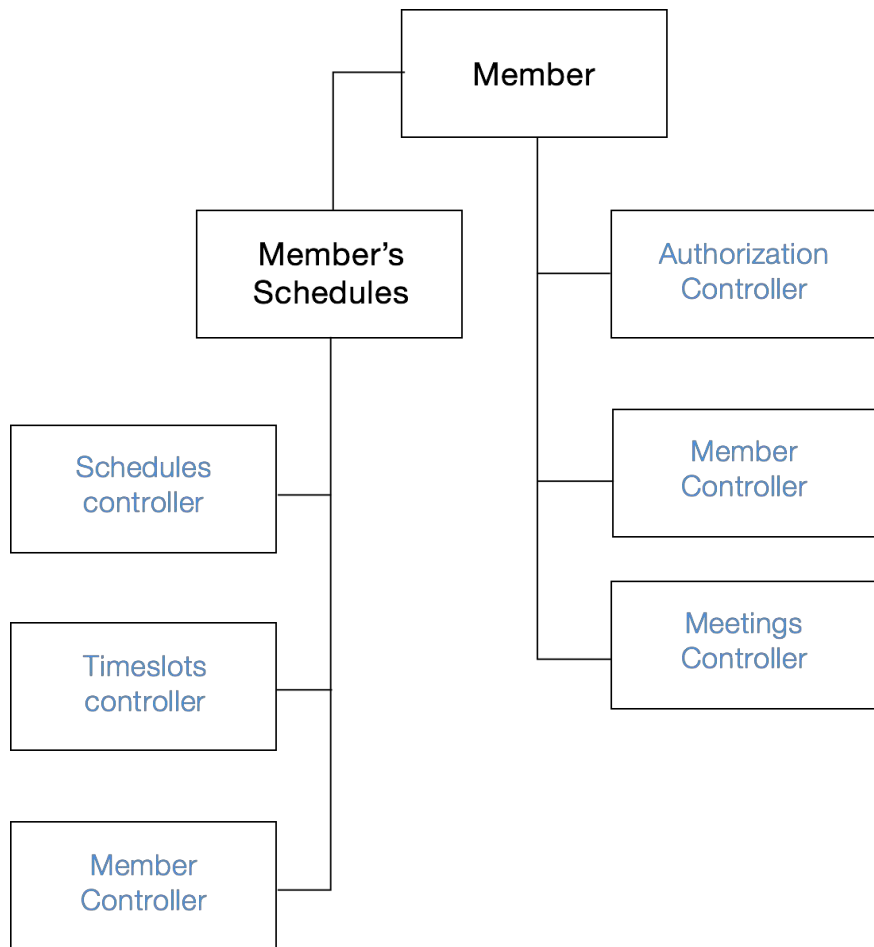
5.1.1 Organization

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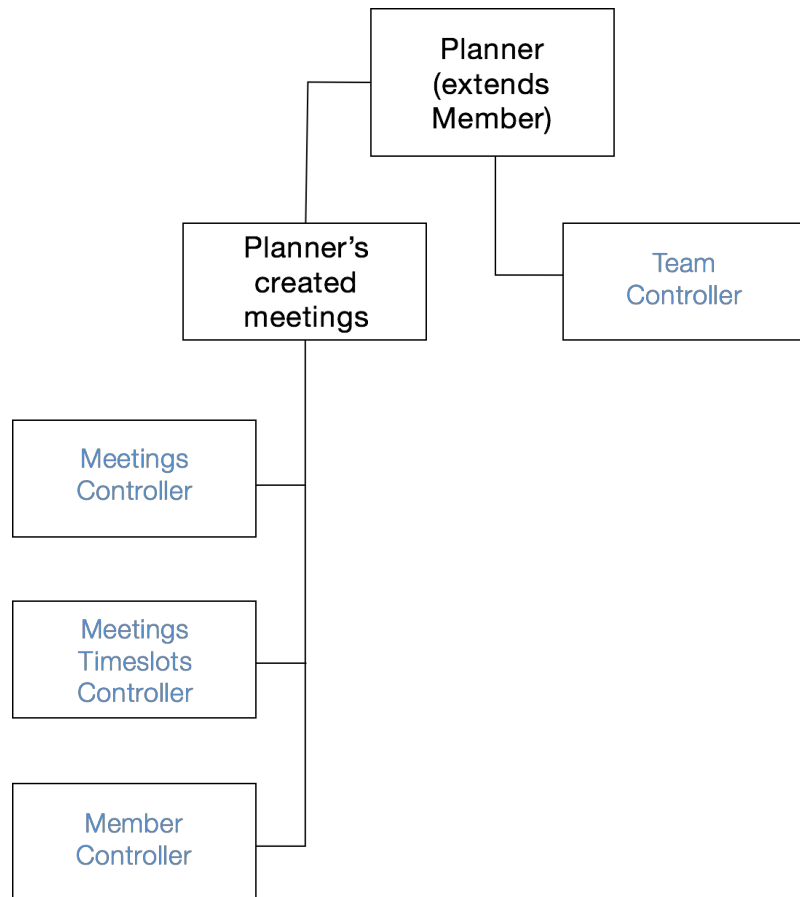
5.1.2 Member

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5.1.3 Planner

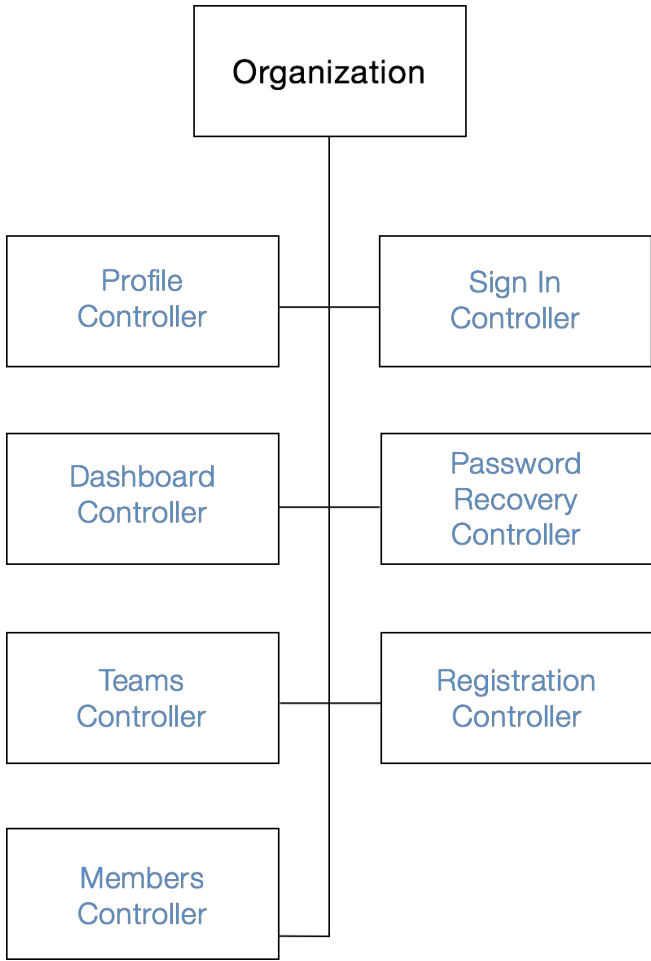


5.2 Frontend Components

Here follows an high level view of the main software components that make the backend of Planner

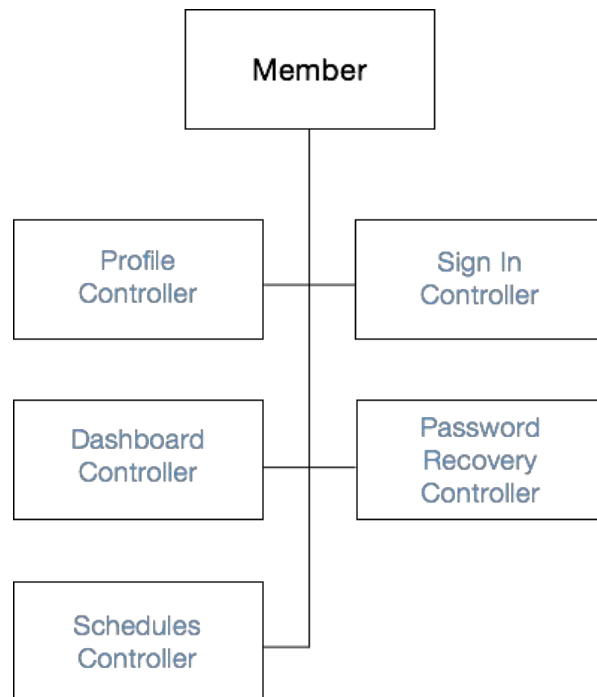
5.2.1 Organization

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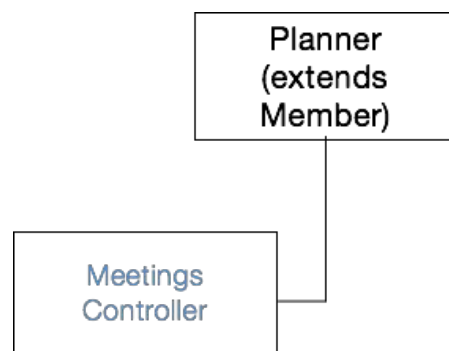


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5.2.2 Member



5.2.3 Planner

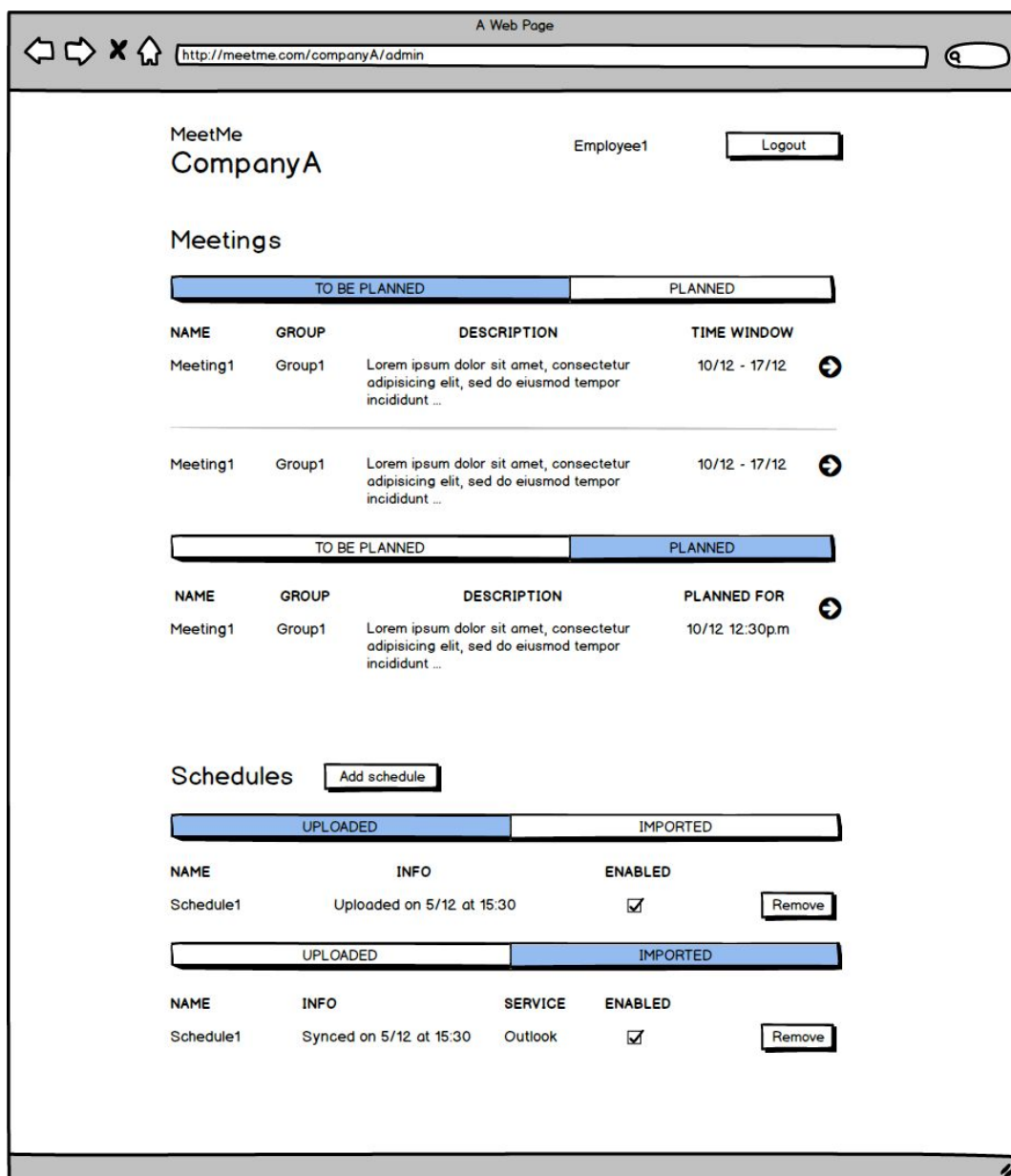


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5.3 User Interface

Here follows some mockups of the main views of the frontend of Planner. Note that these mockups have been made supposing that all the requirements of the project will be satisfied (see RDD for more information) and using an old terminology: “employees” → “members”, “group” → team, “meetMe” → “Planner”, “Company” → “Organizaton”

5.3.1 Member View



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5.3.2 Create Meeting View

MeetMe
CompanyA
Employee1

Meeting 1

Title

Brief description

lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Meeting place

Export the planned meeting date to your imported schedules

Temporal window

NOVEMBER 2015						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Meeting repetition

Planning deadline

Participants

NAME	EMAIL	REQUIRED	
User1	User1@companyA.com	<input checked="" type="checkbox"/>	<input type="button" value="Remove"/>

Your schedules for the meeting

NAME	INFO	
Schedule1	Uploaded on 5/12 at 15:30	<input type="button" value="Don't use"/>

Your free time slots for the meeting

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5.3.3 Organization View

