Requirements Document for Co-opMeeting

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Glossary

3G is the third generation of mobile telecommunications technology. 3G telecommunication networks support services that provide an information transfer rate of at least 200 kbit/s up to several Mbit/s to smartphones and mobile modems in laptop computers. 16

Account describes the privileges for registred users. 9–11, 17

Admin User administartes and maintains the system. 11

Alias is the displayed user name in a session. 9, 18

Anonymous User is someone who is not registred to the system and therefore has no user account. 9

API (application programming interface) specifies how some software components should interact with each other. 18

Blacklist is a list or register of entities who, for one reason or another, are being denied a particular privilege, service, or access. 11

Cache is a mechanism for temporary storage of web documents to increase performance. 16

Caching is a mechanism for temporary storage of web documents to increase performance. 17

Codec a codec is a way to en-/decode datastreams for better performance, wider support or higher security. 16

CSS (Cascading Style Sheets) is a style sheet language used for describing the presentation semantics (the look and formatting) of a document written in a markup language. Its most common application is to style web pages written in HTML. 17

GPL The GNU General Public License (GNU GPL or GPL) is the most widely used free software license, which guarantees end users (individuals, organizations, companies) the freedoms to use, study, share (copy), and modify

the software. Software that ensures that these rights are retained is called free software. 18

HTML (HyperText Markup Language) is the main markup language for creating web pages and other information that can be displayed in a web browser. 17

Installed Plugins are plugins which are approved by an admin user and installed on the server, so that every regular user can use them. 9–11

Invitations are used to ask regular users to join a session. 10

JavaScript (JS) is an interpreted computer programming language. As part of web browsers, implementations allow client-side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. 17

Keys are used to invite anonymous users to a session. 10

Man-in-the-middle attacks in computer security are a form of active eavesdropping in which the attacker makes independent connections with the victims and relays messages between them, making them believe that they are talking directly to each other over a private connection, when in fact the entire conversation is controlled by the attacker.. 17

Michael's smartphone is an old outdated smartphone that is only capable of running Android 2.2. 16

Moderator is a regular user. Moderators can restrict the privileges of reular users. 10, 11

Plugins are software components that add a specific feature to an existing software. 10, 11, 16, 18

Ports are application-specific or process-specific software constructs serving as communications endpoints in a computer's host operating system. 15

Registration is the process of craeting a new user account. 9

Regular User is someone who is registred and has an account. 9–11

Session can be a text based chat, telephone or video conference. 9, 10, 16, 17

Tunneling is the process of encapsulating one network protocol within another network protocoll to circumvent the problems of incompatible delivery-networks and creating secure Connection. 15

UTF-8 allows the representation of every existent character. 16

Contents

Part I

User Requirements

UR001

Statement *An Anonymous User may be invited to any Session by a key from Regular Users.*

Priority *A*

UR002

Statement *An Anonymous User shall be able to use Installed Plugins for the Session he is invited to.*

Priority *A*

UR003

Statement *An Anonymous User shall be able to register at the server, if Registration is possible.*

Priority *A*

UR004

Statement *A Regular User must register with a valid email address.*

Priority *A*

UR005

Statement *A Regular User shall be able to login with his email address and password.*

Priority *A*

UR006

Statement *A Regular User shall be able to change his password and/or Alias.*

Priority *A*

UR007

Statement *A Regular User shall be able to delete his own Account.*

Priority *A*

UR008

Statement *A Regular User shall be able to open Sessions.*

Priority *A*

UR009

Statement *A Regular User shall be able to join any Session he is invited to.*

Priority *A*

UR010

Statement *A Regular User shall be able to close Sessions he has the rights to.*

Priority *A*

UR011

Statement *A Regular User shall be able to create and distribute Keys and send Invitations to every Session he has the rights to.*

Priority *A*

UR012

Statement *A Regular User may activate or deactivate Installed Plugins.*

Priority *A*

UR013

Statement *A Regular User shall be able to request installation of new Plugins.*

Priority *A*

UR014

Statement *A Moderator shall be able to restrict privileges of Regular Users, if a Regular User misbehaves like insulting others, uploading inappropriate content or harming the system.*

Priority *A*

UR015

Statement *A Moderator shall be able to restore privileges of Regular Users.*

Priority *A*

UR016

Statement *A Moderator shall be able to suspend Accounts of Regular Users for a certain amount of time.*

Priority *A*

UR017

Statement *An Admin User shall be able to reset passwords for every Account, if a Regular User, a Moderator or an Admin User forgot the password.*

Priority *A*

UR018

Statement *An Admin User shall be able to test Plugins requested by a Regular User.*

Priority *A*

UR019

Statement *An Admin User shall be able to install tested Plugins.*

Priority *A*

UR020

Statement *An Admin User shall be able to remove previously Installed Plugins.*

Priority *A*

UR021

Statement *An Admin User shall be able to add Plugins to a Blacklist, if they may harm the system.*

Priority *A*

UR022

Statement *An Admin User shall be able to remove Plugins from a Blacklist, if they were accidentally added.*

Priority *A*

Part II

System Requirements

Chapter 1

Non-Functional Requirements

1.1 Product Requirements

1.1.1 Usability Requirements

1.1.1.0.1 NFR001

Statement *The website should be usable with touchscreen devices.*

Priority *A*

1.1.1.0.2 NFR002

Statement *The website should support the most popular browsers such as Mozilla Firefox, Safari, Opera, Google Chrome and Internet Explorer.*

Priority *A*

1.1.1.0.3 NFR003

Statement *The service should prevent epileptic fits.*

Priority *A*

1.1.1.0.4 NFR004

Statement *The service should use Tunneling to provide its service when certain Ports are unavailable.*

Priority *A*

1.1.1.0.5   NFR005

Statement *The characters should be encoded using UTF-8*

Priority *A*

1.1.2   Efficiency Requirements

1.1.2.1   Performance Requirements

1.1.2.1.1   NFR006

Statement *The website should work on Michael's smartphone.*

Priority *A*

1.1.2.1.2   NFR007

Statement *Sessions should work with limited internet bandwidth (minimum of 3G) on mobile devices.*

Priority *A*

1.1.2.1.3   NFR008

Statement *The service should provide automatic scaling of the video size/quality based on internet bandwidth.*

Priority *A*

1.1.2.2   Space Requirements

1.1.2.2.1   NFR009

Statement *The Service should use lossless Codecs to reduce filesize.*

Priority *A*

1.1.2.2.2   NFR010

Statement *The Service must not exceed 20Mb of Cache on mobile devices.*

Priority *A*

1.1.3   Dependability Requirements

1.1.3.0.3   NFR011

Statement *The Login data and available Plugins should be redundant on multiple servers.*

Priority *A*

1.1.3.0.4   NFR012

Statement *The client should use Caching to minimize bandwith consumption.*

Priority *A*

1.1.4   Security Requirements

1.1.4.0.5   NFR013

Statement *The service must always use encryption to transmit credetials to the server.*

Priority *A*

1.1.4.0.6   NFR014

Statement *The service must save the password as a salted hash on the server.*

Priority *A*

1.1.4.0.7   NFR015

Statement *The service must provide encryption for transmission of Session data to ensure privacy and to prevent Man-in-the-middle attacks.*

Priority *A*

1.2   Organziational Requirements

1.2.1   Environmental Requirements

1.2.1.0.8   NFR016

Statement *User Accounts are verified through the user's email address and password.*

Priority A

1.2.2   Operational Requirements

1.2.3   Development Requirements

1.2.3.0.9   NFR017

Statement *To maintain compatibility with web browsers, the service must use standards like HTML, CSS and JavaScript.*

Priority A

1.3 External Requirements

1.3.1 Regulatory Requirements

1.3.1.0.10 NFR018

Statement *The source code should be open to a developer community.*

Priority A

1.3.1.0.11 NFR019

Statement *The API for Plugins must be documented to help developers to create new Plugins.*

Priority A

1.3.2 Ethical Requirements

1.3.2.0.12 NFR020

Statement *The service must not gather user data. Data like the Alias are voluntary.*

Priority A

1.3.3 Legislative Requirements

1.3.3.1 Software License Requirements

1.3.3.1.1 NFR021

Statement *The service should only use libraries that have been published under the terms of GPL.*

Priority *A*

1.3.3.1.2 NFR022

Statement *The service must be published under the terms of GPL.*

Priority *A*

1.3.3.2 Safety / Security Requirements

Chapter 2

Functional Requirements

2.0.3.2.1   FR001

Statement *On the last working day of each month, a summary of the drugs prescribed, their cost, and the prescribing clinics shall be generated. (see user requirement UR001)*

Priority *A*

2.0.3.2.2   FR002

Statement *The system shall automatically generate the report for printing after 17.30 on the last working day of the month. (see user requirement UR001)*

Prioriy *A*

2.0.3.2.3   FR003

Statement *A report shall be created for each clinic and shall list the individual drug names, the total number of prescriptions, the number of doses prescribed, and the total cost of the prescribed drugs. (see user requirement UR001)*

Priority *A*

2.0.3.2.4   FR004

Statement *If drugs are available in different dose units (e.g., 10 mg, 20 mg) separate reports shall be created for each dose unit. (see user requirement UR001)*

Priority *A*

2.0.3.2.5   FR005

Statement *Access to all cost reports shall be restricted to authorized users listed on a management access control list. (see user requirement UR001)*

Priority *A*

Chapter 3

Scenarios

3.1 Scenario for a general video conference

INITIAL ASSUMPTION: *Max, a member of an international research group, is responsible for the organization and conduct of internal group meetings. All research group members are already regular users and registered in Max's contact list. He created a contact group that contains all group members. All participants know about the appointed date for the meeting. Unless otherwise stated, this assumptions hold for all following scenarios as well as the consequences that are discussed below.*

NORMAL: *Before the given meeting date, Max creates a new video conference session and adjusts all necessary (was ist ntig an Einstellungen?) and optionally some advanced general session settings. He manipulates the list of participants by selecting the participating group members one by one out of his contact list or by selecting the whole contact group and deselecting some afterwards, where required. As the moderator of the new session, he may decide to elevate the privileges of members of the list of participants up to the moderator level. Now he may save the session for later use or start it immediately.*
When the session starts, all participants that are already online within the tool get a popup window that asks whether they want to join. Those that are not online receive an email that tells them about the invitation. If a user accepts an invitation, he is immediately part of the video conference and will be able to communicate with the others.

WHAT CAN GO WRONG: *Some members of the research group are not already regular users and therefore Max cannot invite them regularly. After making notice of that, Max invites the missing users by sending them an one-way session key via email. This can be used once to join the session without regular invitation. As an alternative, he asks them to register to the server and then he invites them regularly.*

Some members of the research group are regular users but not members of Max's group of contacts, so they will not get invited if only the contact group is selected for invitation. Max can invite them via his contact list while the session is running.
Some participants lose their internet connection temporarily. When they are connected again, they should rejoin the session automatically.

OTHER ACTIVITIES:
Some invited users may be part of another session at the time of invitation. As long as no element of their current session prohibits multiple sessions, they can join the new session regularly. Otherwise, they will be asked to drop the old session in favor of the new one.

SYSTEM STATE ON COMPLETION: *The video conference session is running and all participants can communicate with each other.*

3.2   Scenario for a meeting planned via doodle plugin

INITIAL ASSUMPTION: *All group members have the doodle plugin installed.*

NORMAL: *To reach an agreement on a group meeting date ... doodle plugin usage ...*
Max activates the reminder function with a set time distance to the planned session date. At the set notification time, all participants of the doodle poll (and optionally additional users) get a notification email and, if they have the application open at that time, also a notification popup window within the tool.

WHAT CAN GO WRONG: *Some group members did not install the doodle plugin and be part of the poll within the tool. They can install the plugin and join the poll with the tool or join the poll without the tool. In the latter case they will not receive any notification, except if Max added them manually to the notification list.*

OTHER ACTIVITIES:

SYSTEM STATE ON COMPLETION: *All relevant users got notified by a popup window and/or email.*

3.3   Scenario for a research presentation and discussion

INITIAL ASSUMPTION: *Max wants to present his recent research results and discuss it with the whole group. This should by supported by the usage*

of document sharing and placement and modification of graphics on the whiteboard.

NORMAL: *Max creates the desired session and selects some of his local files containing data to be shared within the session. All session participants can download this files after the upload is completed. Max opens a new whiteboard, which is now visible to all participants. He selects some supported graphics files to be displayed on the whiteboard. Then he starts to draw on top of the graphics to help the others to understand his explanations. As the moderator of the session, he may also allow others to use the whiteboard.*

WHAT CAN GO WRONG: *Placing the uploaded files on the whiteboard is not possible, because the file format is not supported for that purpose. Max gets an error message, which explains the problem and states which files are supported. If possible, he converts them and is able to present them on the whiteboard.*

OTHER ACTIVITIES: *Because modifications of the whiteboard by different users may happen concurrently, it is advisable to agree on who is modifying the whiteboard at a time. This can be enforced by the moderator.*

SYSTEM STATE ON COMPLETION: *Session participants are able to download shared files and the content of a graphics file is visible on the whiteboard together with modifications by hand.*

3.4   Scenario for recording a session

INITIAL ASSUMPTION: *Max has created a new plugin for the tool and wants to record an example session to show how it can be used.*

NORMAL:

WHAT CAN GO WRONG:

OTHER ACTIVITIES:

SYSTEM STATE ON COMPLETION: