Contexts

Authentication

Generic domain
Upstream from user (conformism)
Every user needs to authenticate, this is done by SSO and is provided by the university. Users receive a JWT token from the authentication service which they can use to authenticate themselves to other microservices.

User

Core domain
Includes: Regular, Sysadmin, Faculty admin
There are three separate types of user: Employees, Faculty Admins and System Admin. Every type of user needs to interact with the system in some way, and this context facilitates that interaction. All of them also require a netID and a password.

Waiting List

Core domain

There will be multiple pending requests that need to be approved or denied in the system. This is done by the faculty account through the waiting list context. The waiting list also handles request creation; after a user requests something it gets placed in the waiting list.

Resource Node Management

Core domain

The system administrator needs to have access to all resource nodes at any point in time. This is handled through this bounded context, along with faculty resource distribution.

Schedule

Core domain

The schedule holds all approved requests per day and also deals with allocating released resources.

Microservices

User

Bounded context(s): User

The user microservice holds all external APIs. There will be an API for creating a request, one for retrieving the waiting list and approving requests, and one for system admins that will be able to modify almost everything in the system. The User microservice basically serves as a gateway microservice.

Authentication

Bounded context(s): Authentication

The authentication microservice provides JWT tokens for a user's provided login information. This JWT token can then be used to authenticate the user in all other microservices.

Schedule

Bounded context(s): Schedule

The schedule holds the list of approved requests, along with the date of each requests' execution. It also handles scheduling the released/open resources, and releasing/opening resources.

Waiting List

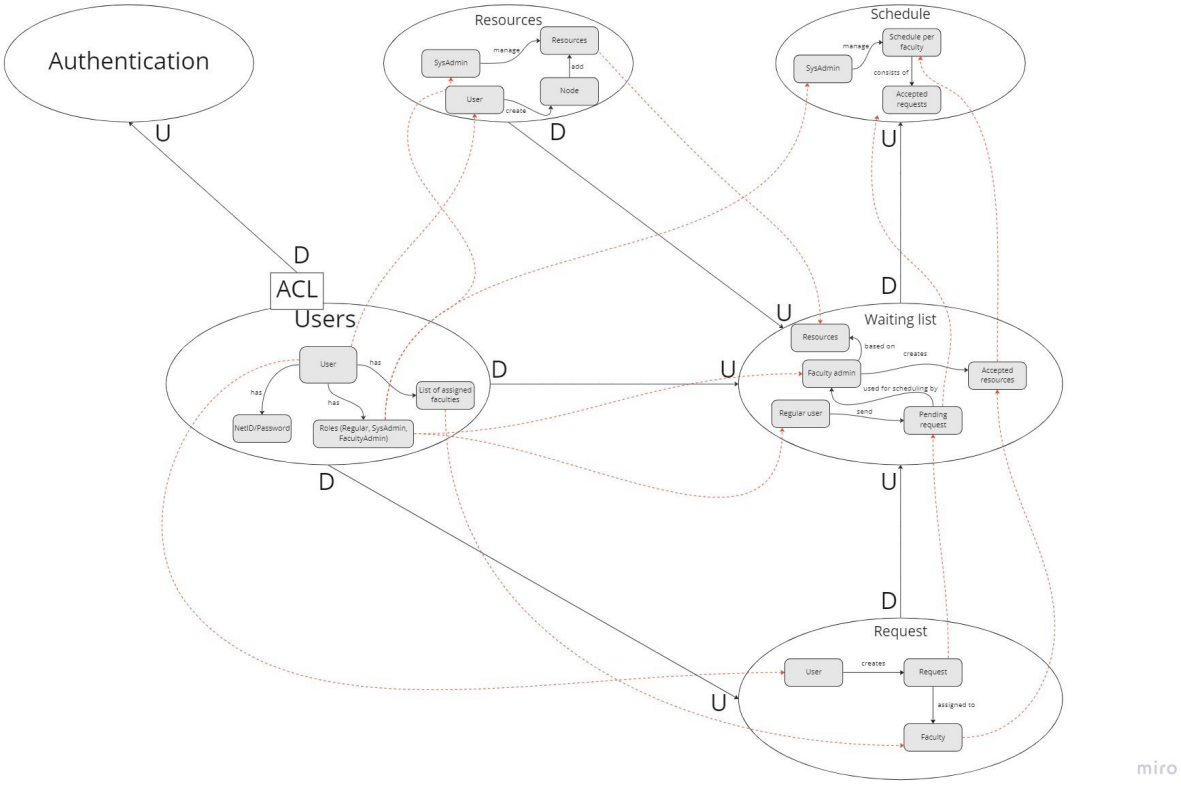
Bounded context(s): Waiting List

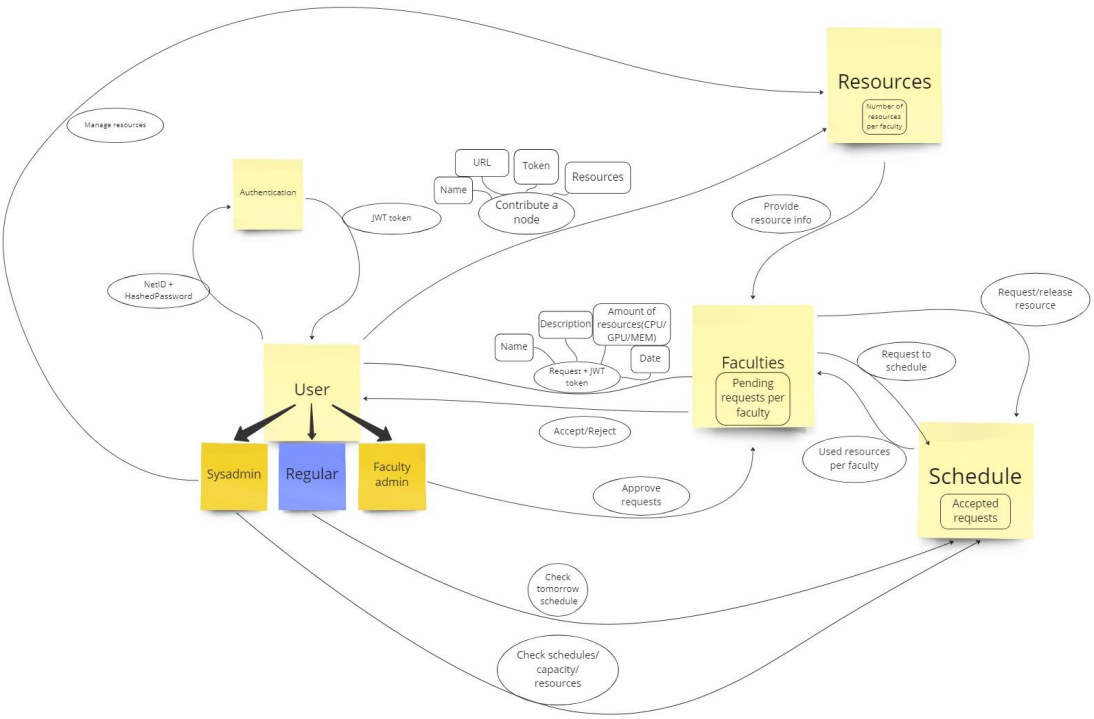
This microservice holds all pending requests indexed by faculty. It allows a faculty account to deny requests or approve them for a specific day and forwards approved requests to the schedule. It also checks if all faculty resources are used up, and if so asks the schedule to use released resources instead, if they are available. All created requests are added directly to the waiting list. 6 Hours before every day it forwards all unused resources to the schedule as released resources and every request whose deadline is that day to be processed according to the free resources.

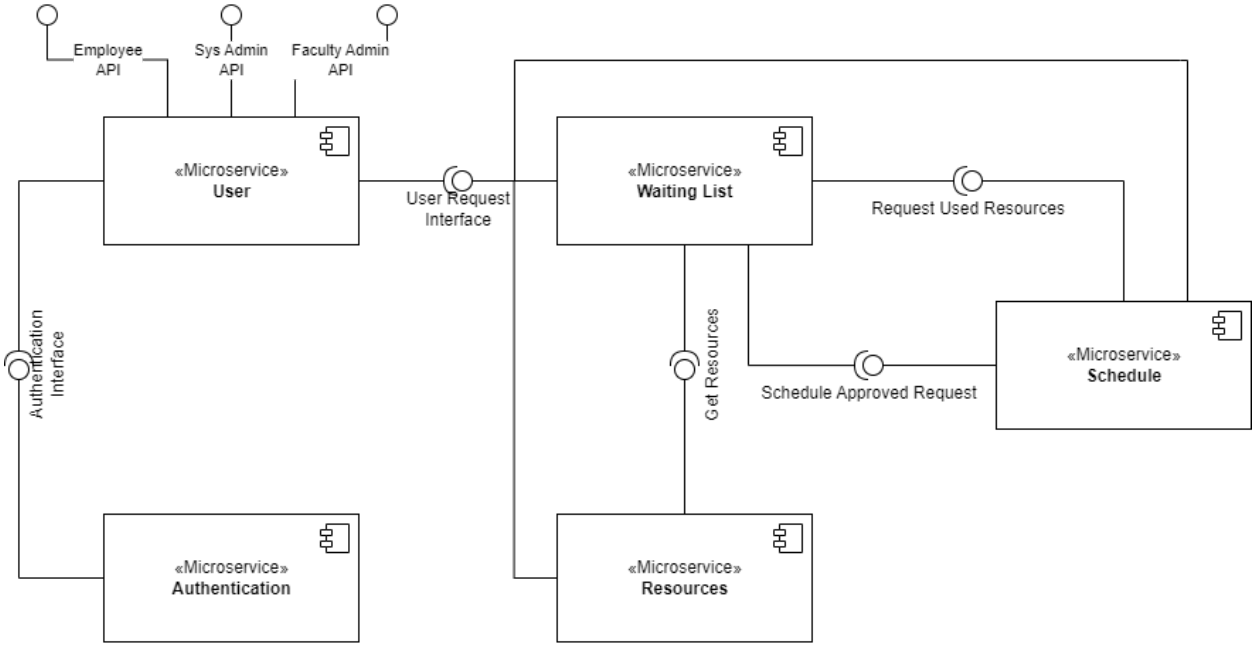
Resources

Bounded context(s): Resource Node Management

This microservice allows system admins to redistribute resources between faculties and to see the capacity of the cluster by node. It also provides this information to other microservices.


Authentication
Resources
SysAdmin
manage
Resources
add
Node
User
create
Schedule
SysAdmin
manage
Schedule per faculty
consists of
Accepted requests
U
D
U
D
ACL
Users
User
has
List of assigned faculties
has
NetID/Password
has
Roles (Regular, SysAdmin, FacultyAdmin)
D
U
Waiting list
Resources
based on
creates
Faculty admin
Accepted resources
used for scheduling by
Regular user
send
Pending request
D
U
D
Request
User
creates
Request
assigned to
Faculty
U


Resources
Number of resources per faculty
Manage resources
Authentication
JWT token
URL
Token
Resources
Name
Contribute a node
Provide resource info
NetID + HashedPassword
User
Description
Amount of resources(CPU/ GPU/MEM)
Name
Date
Request + JWT token
Faculties
Pending requests per faculty
Request/release resource
Request to schedule
Accept/Reject
Used resources per faculty
Schedule
Accepted requests
Sysadmin
Regular
Faculty admin
Approve requests
Check tomorrow schedule
Check schedules/ capacity/ resources


Employee API
Sys Admin API
Faculty Admin API
«Microservice» User
User Request Interface
«Microservice» Waiting List
Request Used Resources
Authentication Interface
Get Resources
Schedule Approved Request
«Microservice» Schedule
«Microservice» Authentication
«Microservice» Resources