

Exercise 2

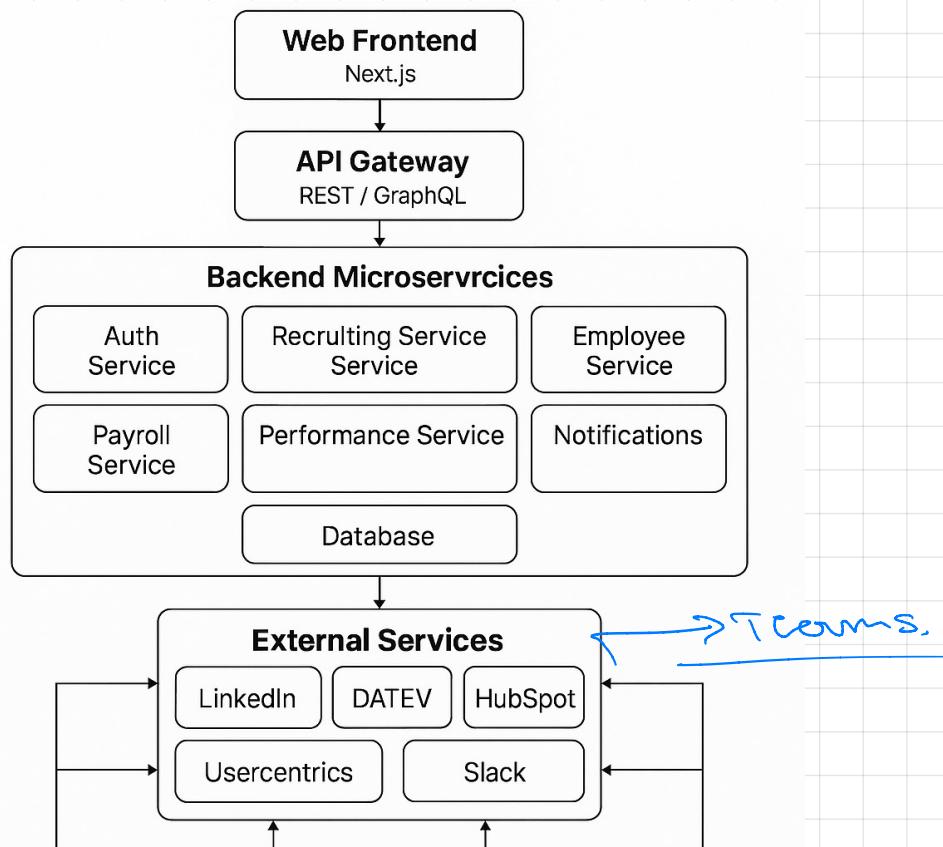
Please prepare a written documentation for each task *before* the exercise date. Repeated failure to prepare the worksheet may result in not being admitted to the exam. You may also be asked to present your solution in class.

1. Research the SaaS company personio.com. What functionality does its software offer to its clients? Please draw an structural architecture that models this HR software. Think about proper components and interfaces to existing 3rd party services. Describe your architecture and categorise your work within existing architectural styles.
2. Read the paper *Yahyavi.pdf* pages 1-20 (see CampUAS). Describe this architectural style and compare it to the styles mentioned in the lecture.
3. Develop illustrations of the 4 architectural views for the system design of a ticket machine used by passengers at a railway station.
4. Suggest an architectural pattern for the following software systems. Why would you recommend this pattern here?
 - a) A whistleblowing system on the internet.
 - b) A video conferencing system
 - c) A GPS tracker for cats

Ex L SaaS → Software as a Service

1. Management: Applicant tracking, job posting, candidate management
2. Employee Management: Onboarding, employee profiles, document management
3. Time Tracking: Time tracking, vacation management, absence flows.
4. Performance Management: Goal setting, performance reviews, feedback collection
5. Payroll Processing: Payroll calculation, salary management, tax compliance
6. HR reporting and analytics: customizable reporting, dashboard

Concept	Explanation
Microservices	Each part (like Recruiting, Payroll) is a separate small program.
Event-driven	One service can send events to others (e.g., "New hire" triggers payroll setup).
API-first	Everything is connected via APIs from the beginning.
Multi-Tenant	Many companies use the same system safely.
Cloud-native	It runs in the cloud and uses fast networks (CDNs).
Composable SaaS	It uses many external services instead of building everything itself.



Ex 2.

Peer to Peer : (P2P)

Talks about games with several players so called MMOGs

Goals of those games are

- Scalability

- consistency

- security

- fast responding time

best
Feedback.

Diff. Architecture

- Client Server System - controlled by server

Cloud Strategy.

Drawback • support a limited number of users

- Multi servers

- Shards

- Separated in regions.

• P2P • the computer is a server and a client

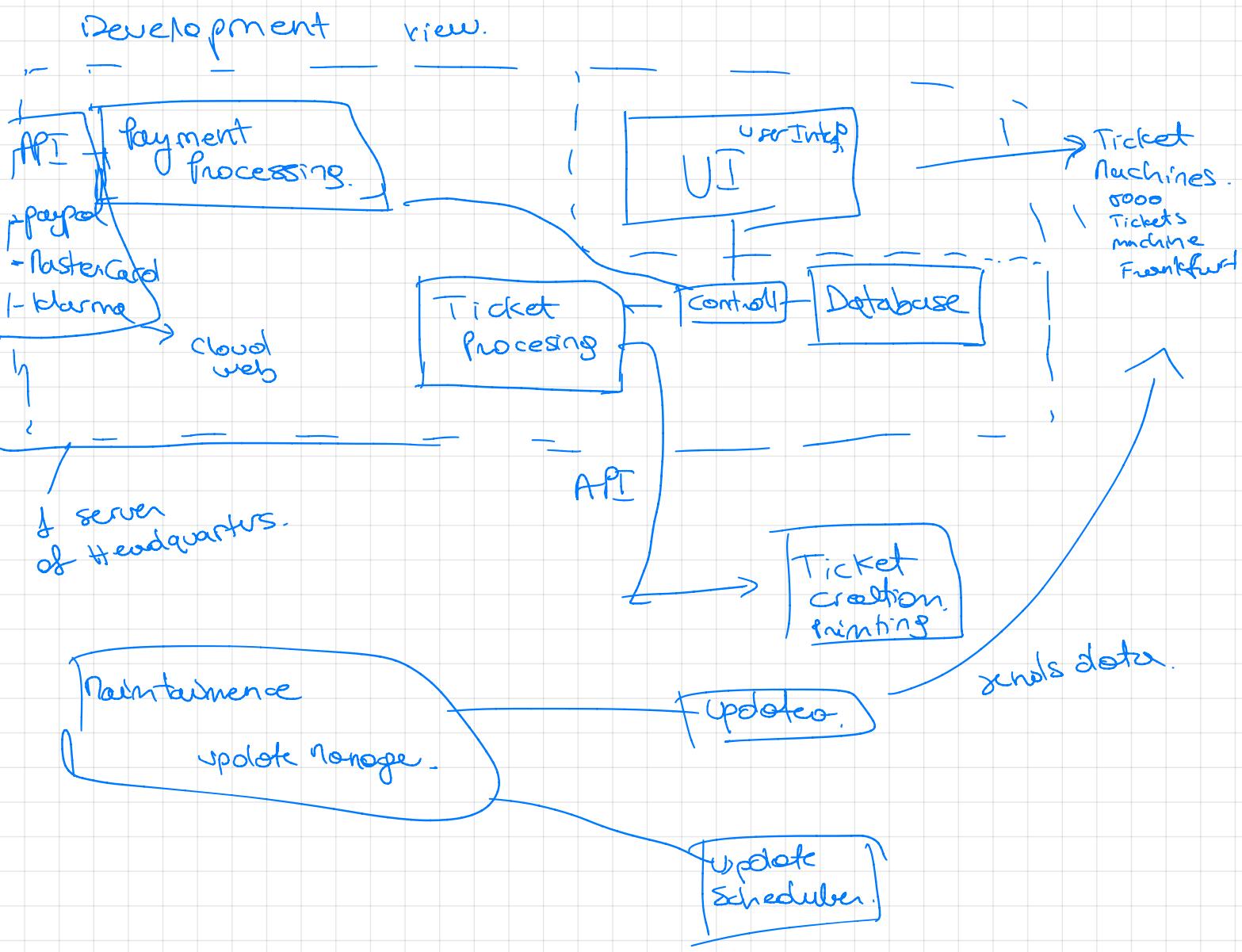
- more scalability

- lost cost

- good performance.

- decentralised

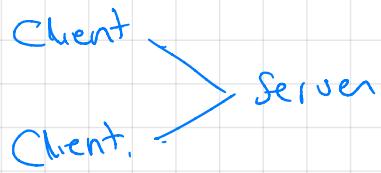
- hard to implement.



Ex 4

a) Whistleblowing \Rightarrow Platform um etwas zu melden , freimlich und sicher .

\Rightarrow Eine Stelle muss die meldungen erhalten



Client - Server berührung.

\Rightarrow Blockboard.

b) Videokonferenz System \Rightarrow several user
some can come and go
realtime system (voice, tom)

\Downarrow
Peer to Peer // Pub/Sub
Microsoft teams.
Zoom.

b) Gps tracker for cats \Rightarrow pub/subscription