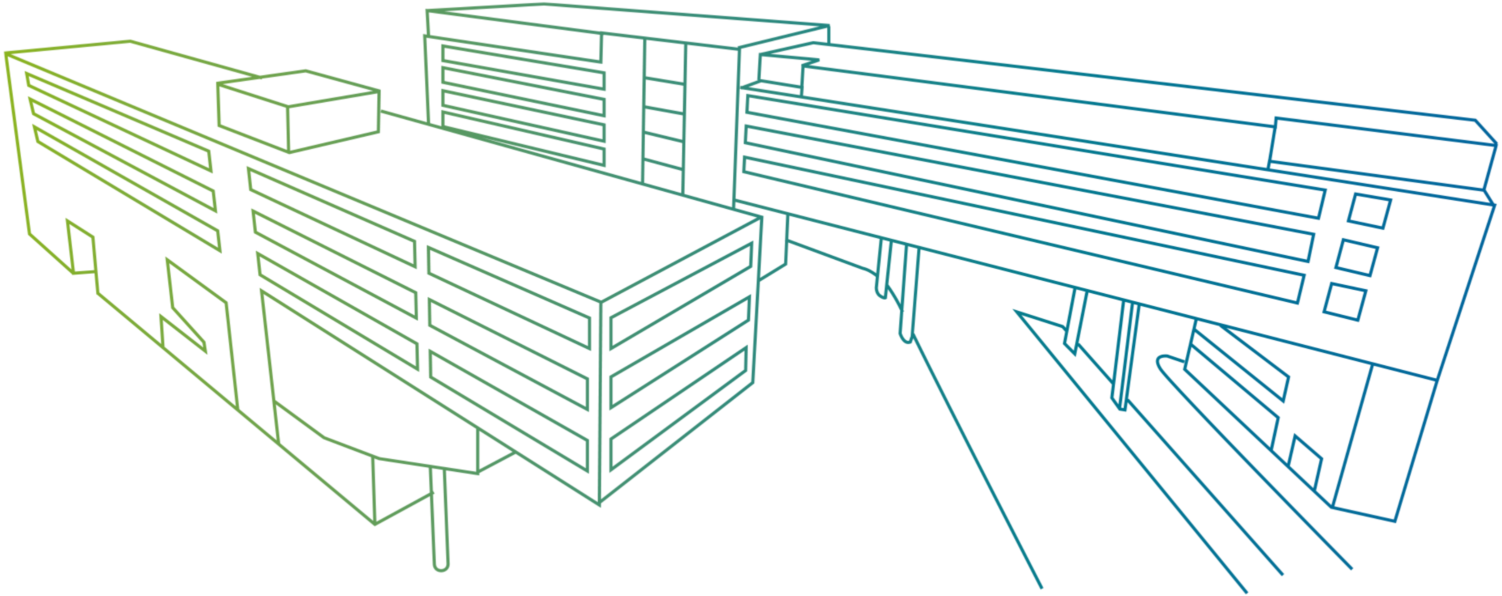

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Solutions, Decisions and Risks

Software Architecture

Solution Strategy

Goal/Requirements	Architectural Approach
Architecture	Microservices
Scaling	With several users uploading several images, logic must be clearly separated to scale them independently.
Modularity and Flexibility	Services can be developed, deployed, and updated independently of one another. This makes it easier to add new features or update existing ones without affecting the entire application.
Optimization of Images	Improve bandwidth, latency and download times through Image transformations.

Help: https://docs.arc42.org/section-4/ & https://biking.michael-simons.eu/docs/index.html#section-solution-strategy

Architecture Decisions

Problem	Considered Alternatives	Decision
Right architecture style	Monolithic Architecture, Microservices Architecture	Microservices Architecture need for: • independent deployment • fault isolation • ability to use different technology stacks for different services
Database for large volumes of data	SQL (e.g., MySQL), NoSQL (e.g., MongoDB)	NoSQL (MongoDB) Provides: • flexibility • can handle large volumes of data • providing fast read/write operations
Cloud provider for hosting the app and storing images	AWS, Google Cloud, Azure	AWS • mature services • biggest provider • familiarity • extensive documentation • wide range of tools to scale the application as needed

Risks and Technical Debt

Risk/Technical Debt	Description
Complexity of Orchestration	Managing a large number of microservices can introduce complexity in terms of orchestration, monitoring, and debugging.
Inter-service Communication Challenges	Effective communication between microservices is crucial for the system to work cohesively. If not properly implemented, this can introduce latency and potential points of failure.
Security challenge	Since each service may have its own data store and communication protocol, there is a risk of data leakage, tampering, or interception by malicious actors.

Help: https://docs.arc42.org/section-11/ & https://docs.arc42.org/examples/risk-htmlsc-1/