# **Healthcare System Architecture**

Comprehensive microservices-based telemedicine platform

System Architecture Data Flow Infrastructure

## **Client Layer**

	Patient Mobile App iOS & Android
Book	Appointments Video Consultations Health Records Payments Notifications
	Doctor Mobile App iOS & Android
Sched	dule Management Patient Records Video Consultations Prescriptions Analytics
	Web Dashboard Admin & Clinic Portal
User Management Analytics Reports Billing Configuration	

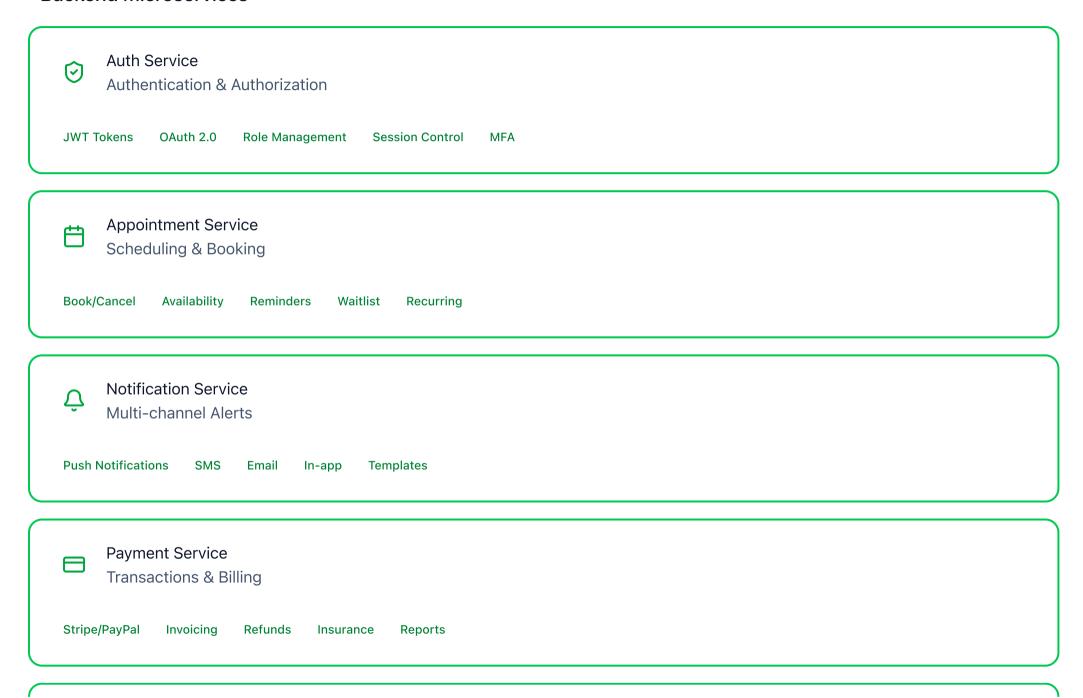


### API Gateway / BFF (Backend-for-Frontend)

Request routing, authentication, rate limiting, load balancing



#### **Backend Microservices**





**Doctor Service** 

**Provider Management** 

Profiles Specializations Availability Ratings Documents



**Patient Service** 

Patient Management

Profiles Medical History Prescriptions Documents Family

### AI/ML Microservices



**Prediction Service** 

ML-based Forecasting

**Disease Prediction** 

**Treatment Outcomes** 

**Resource Planning** 

No-show Prediction



**Triage Service** 

**Symptom Assessment** 

Symptom Checker

**Priority Scoring** 

**Specialty Routing** 

**Urgency Detection** 



Risk Assessment

Health Risk Analysis

**Risk Scoring** 

**Complication Detection** 

**Early Warnings** 

**Population Health** 



### Data Layer



#### PostgreSQL Database

Primary relational database

Users & Auth

**Appointments** 

**Medical Records** 

**Payments** 

**Doctors & Patients** 

**Audit Logs** 



#### **Additional Data Stores**

Specialized storage solutions

Redis (Cache & Sessions)

S3 (Medical Documents)

Elasticsearch (Search)

TimescaleDB (Metrics)

MongoDB (Logs)

RabbitMQ (Message Queue)

## Legend

Client Applications Backend Services

AI/ML Services Data Layer