

# **Smart Home Media Server**

## **Project Plan Presentation (PPP)**

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# 1. Problems

- Multiple paid cloud and streaming services
- Data spread across platforms and devices
- Privacy concerns

## Why?

- Lower cost over time
- More control
- Private + secure
- Hands-on systems learning

## 2. Project Focus (Team / Topic)

### **Software-focused project**

Using home server hardware to build:

- Self-hosted applications
- Personal cloud storage
- Media streaming and storage
- Secure remote access
- Monitoring & automation

### **3. Two Learning Topics (with AI)**

#### **Software Topic**

##### **Docker & Linux Server Administration**

- containers
- networking
- reverse proxy configuration

# **Hardware Topic**

## **Server Monitoring & IoT Integration**

- sensors (temps/health)
- ESP32 → server communication
- system monitoring

AI assists learning & troubleshooting

# 4. Time Usage Plan

## Iteration 1 → Learn

- Ubuntu Server basics
- Docker fundamentals
- networking & proxy concepts
- security practices

## Iteration 2 → Build

- Deploy Nextcloud and Jellyfin
- Configure remote access
- Add monitoring tools
- Organize media services

# 5. Features

## Minimum Prototype Requirements

- Ubuntu Server
- Docker services
- Nextcloud / Jellyfin
- Cloudflare secure access

## Future

- monitoring dashboards
- logging & alerts
- media ingestion
- IoT sensors

# 6. Architecture

User Devices



Cloudflare Proxy



Ubuntu Server



Docker Containers

(Nextcloud, Jellyfin, Reverse Proxy)

# **7. Schedule & Milestones**

## **Sprint 1**

Server setup + Docker

## **Sprint 2**

Core services + networking

## **Sprint 3**

Monitoring + security

## **Sprint 4**

Media features + polish

## 8. Metrics (Progress Tracking)

Each week I measure:

- Features completed
- Requirements completed
- Lines of Code
- Tests added
- Issues/blockers

## 9. Final Goal

By end of semester:

- Working home server prototype
- Secure remote access
- Monitoring enabled
- Demonstration ready
- Open for future development

# Questions?