# DC4400 Project Report

Processing of schedule updates/changes

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# 1 Executive Summary

## 2    Introduction

The BBC is now over 100 years old (BBC, 2022) and is well known for it's TV channels and radio stations that are broadcast over the airwaves (Pilnick, Baer, 1973, p.3) to peoples homes across the UK. However this old way of broadcasting, sending out airwaves on a certain frequency to an antenna, is becoming less popular in the modern age of the internet. A study done by Ofcom showed that people *'watched on average about 16% less broadcast TV between 2019 ... and 2022'*, with viewing *'decreasing by 47%'* (Ofcom, 2023, p.7) between ages 16-24. In addition another study carried out by media analyst firm Ampere found that in 2021 37% of people claimed to watch no linear TV, this increased to 45% by 2023 (Ampere Analysis, 2023).

This fall correlates with the significant rise in internet enabled TVs in the home, with statista finding that *'In 2014 just 11 percent of households in the UK owned a Smart TV, whereas, in 2023, nearly 74 percent of households reported owning a Smart TV.'* (Statista, 2023).
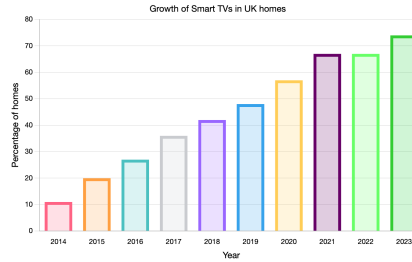


Figure 1: Bar chart showing growth of smart TVs in UK homes (Statista, 2023) *Created with Line Graph Maker* (Line Graph Maker, 2023)

Some of these devices still support OTA broadcasts, however devices like the Amazon Fire TV stick and Googles Chromecast, are purely internet based; However they do offer a *'guide/epg'* section with Amazon having a development guide (Amazon, 2021) on how to integrate with it. Director general of the BBC, Tim Davie, in 2022 stated:

> *'The vision is simple: from today we are going to move decisively to a digital-first BBC'* (Davie, 2022)

This statement highlights the goal to put more organisational focus on these new forms of media and internet enabled devices.

This report will discuss an upgrade carried out to the BBCs *'off-product'* schedules system, responsible for delivering up to date schedules to partners such as Freeview, Amazon and more. First I will give some background on the project, where I will discuss topics including database management in parallel/multi-threaded systems, cloud computing and the power of microservices and strategies to protect live code systems in a CI/CD environment. I will also give some

background on the starting architecture of the system and how the changes align with the BBCs and teams OKRs (Sparks, 2024).

Following that, I will discuss the work that was done. This will be broken down into 5 sections that align with our teams ways of working flow.

1. Requirements and epic creation

2. Investigation and Spike

3. Slicing and task/ticket creation

4. Development of software

5. Releasing of software

I will then talk about the outputs of the project. Theses will include burn-up charts for the projects, dashboards created, documentation of the final architecture and a description of the final product.

Finally I will discuss potential improvements for future iterations. This will range between small code changes to a complete re-architecture of the system.

# 3 Background

In this section I will discuss the background work and research done for this project. I will start by disusing my teams place in the organisation and our OKRs, explaining how this project helps us hit these objectives. I will then outline the current architecture and the initial design for the project. Finally I will discuss some areas of interest around project, these include cloud computing, database parallelisation strategies and CI/CD challenges.

## 3.1 Organisation

The BBC is broken into multiple layers with different responsibilities and goals. I am in a team called *SpaceChimps* which is partner of the partnerships group, which itself is in the product group.
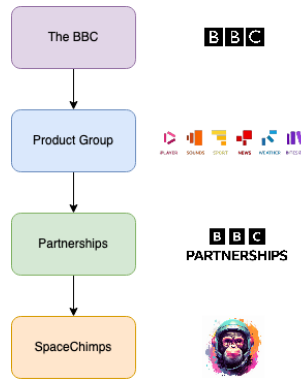


Figure 2: Image showing SpaceChimps place in the BBC (Bowker, 2023).

Our main aim as a team is to provide data to partners that they can use on their devices to promote BBC content. The project described in this report does just that by providing schedules for live content to partners. This aim fits directly into Partnerships objectives:

- It helps drive growth as we are able to get content out to more people on more devices, increasing exposure to the BBC.

- It helps us improve our partner experience by working with them on integrating the data into their feeds.

- This project reduces the total time processing data, which therefore reduces our costs and makes us more sustainable.

All objectives can can be seen in **Appendix A** (BBC Partnerships, 2023).
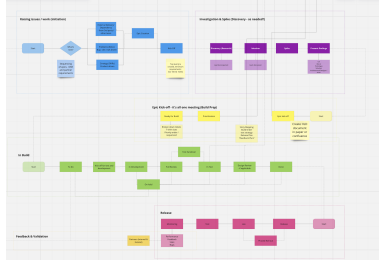
## 3.2   Current Architecture

### 3.2.1   Initial design

## 3.3   Research

## 3.4   Cloud computing and microservices

## 3.5   Database Parallelism

## 3.6   CI/CD and it's challenges

# 4 Work Done



## 4.1 Investigation and Spike

## 4.2 Slicing and ticket creation

## 4.3 Build software

## 4.4 Release

# 5   Outputs

# 6   Future Work

# 7 Conclusion

# 8 References

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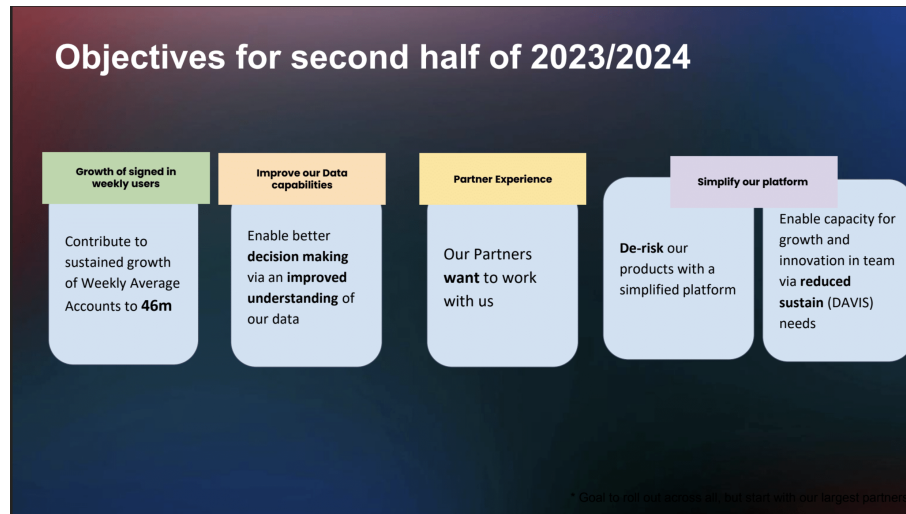
# 9 Appendix

## 9.1 Appendix A



Figure 3: Image taken from a presentation given at a partnerships context setting event (BBC Partnerships, 2023).