# Broadcast Control System (BCS)

## NRK 2023-1264

SSA-T Appendix 3 – Customer technical platform

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# 1 INTRODUCTION

This Appendix contains a description of the Customer's current BCS solution that the proposed BCS solution must interact with.

The Customer assumes that the Contractor will make the necessary enquiries regarding the Customer's existing landscape in order to commit to this Agreement and provide the necessary software and equipment.

The BCS system will be the first main building block for the modernised production platform (MPP). NRK is in parallel running tender processes for new WAN solution, network equipment for the new media network, and initiating other necessary tender processes – meaning that the future landscape is not finally shaped at this stage. The new BCS system is considered to be a key component for the modernised production platform and set premises for the selection of other technical components of the platform.

Please refer to SSA-T Appendix 1 for detailed description of the Customer's needs and requirements related to the BCS solution.

# 2 CURRENT STATE

NRK have since 2017 used VSM as the current BCS system with installations at 14 region offices. The VSM installations support both radio and TV production platforms at NRK region offices.

In Oslo, at NRK HQ, VSM is used in TV production facilities, including MCR. The existing VSM is not used for radio operations management in Oslo and Trondheim. The radio production in Oslo and Trondheim is based on a Mandozzi system. It is also worth mentioning that NRK have an additional free standing VSM system in Oslo, however it is not considered a part of the BCS solution in NRK. The additional VSM system in Oslo was bought for some specific functionality based on Lawo audio equipment some years ago.

All VSM instances works as autonomous systems by themselves. NRK has some integration between the VSM instance in Oslo and VSM instances at all region offices, integration to virtual layers with use of probel swp08. MCR can pick sources from the regions to Oslo with use of the existing contribution network, and make internal routing inside the region offices, video monitoring in front of the guest (return signal from gallery in Oslo) and behind the guest (e.g., camera with beauty shot of the city) at self-serviced guest positions into news shows in Oslo.

The existing BCS is used for traditional routing, tally management, return-handling, parameter control into different devices, and a lot of GPIO logics. All in all, there are many hundred VSM clients in NRK, of which around 100 are in Oslo.


*Figure 1 - Overview of current BCS solution*

# 3 SCOPE OF THE AGREEMENT (CLAUSE 1.1)

Please refer to SSA-T Appendix 1 for detailed description about the scope of the Agreement.

# 4 FUTURE TECHNICAL ENVIRONMENT

## 4.1 Network

As mentioned above, the network design is currently not finalised, since the tendering process for new WAN solution and network equipment is still in progress.

NRK has chosen to use Netbox for IP address management (IPAM) and datacentre infrastructure management (DCIM) single source of truth.

## 4.2 Platform Monitoring and Control System (PMCS)

The scope boundary between the BCS system and the PMCS is described in SSA-T Appendix 1. The system/solution is yet to be decided, but it is likely to be based upon Prometheus and Grafana stack, as that is what NRK is using today and is investing a lot in building up and maintaining. NRK expects the BCS to be integrated into this for monitoring, logs, and metrics.

## 4.3 Virtualization

NRK runs and maintains VMware clusters in our on-prem datacentres, as well as on each of the district offices. NRK also run some small number of virtual machines in Azure and Google cloud,

but mostly rely on higher order PaaS or SaaS functions in these. NRK has also started to use AWS, but the current usage is very limited.

# 5 CLIENTS

Any client software must be able to run on the following workstations, provided by NRK:

Operating system:

- Microsoft Windows 10 or 11 - 64-bit (regularly updated based on the General Availability Channel) or MacOS Monterey.
- All workstations are members of an Active Directory domain, which is mandatory.
- All workstations run the latest version of Microsoft Defender for Endpoints (or descendants, siblings) and are patched up to date, and all systems accept new patches regularly.

All installed client programs are programmed in accordance with modern Windows application development principles:

- Users do not need administrative privileges to run the application.
- Applications are programmed to run under any language version of Windows.

Browser based software should be able to run in the current version of Edge (Extended Stable Channel) or Chrome (Stable channel).

All client software should be able to run on virtualized workstations. Any exceptions or special requirements (like hardware graphics cards) should be noted.

## 5.1 Datacentre

Hardware and equipment related to the modernized production platform is expected to be installed in external datacentres.

# 6 INTERACTION WITH EQUIPMENT AND OTHER SOFTWARE (CLAUSE 2.3.2)

If the Contractor is responsible for the integration of software with other software, the Customer shall state so here.

The Customer must describe the systems such that the Contractor has enough information to submit a quote for the integration work. The Customer must describe data formats and other factors that may be relevant for the formulation of the integration solution.