



APPENDIX A

OPERATIONS BRIDGE (BIFROST)
AND SERVICE DESK (2300)

Contents

1	Operations bridge and Service desk overview.....	2
2	Services and customers.....	2
2.1	Operations bridge (Bifrost)	2
2.2	Service desk (2300)	3
2.3	2 nd line support – Subject matter experts.....	5
2.3.1	Operation Bridge (Bifrost).....	5
2.3.2	Service desk (2300)	6
3	Strategy	7
4	Projects	8
4.1	Pre-project for replacement of Service Manager	8
4.2	System for self-help	8
5	Service Levels	9
6	Spending and budget	10
7	Employees.....	10
7.1	Internal employees	10
7.2	External consultants.....	10
8	Necessary hardware, software and facilities	11
8.1	Service Desk	11
8.2	The Operations Bridge	11
9	Glossary.....	13

1 OPERATIONS BRIDGE AND SERVICE DESK OVERVIEW

Operations Bridge (Bifrost)

Bifrost is the monitoring unit in NRK IT. It monitors and performs 1st line support on IT infrastructure, production-systems and online broadcasting-equipment. The main task of the operations bridge is to monitor the status of the critical services¹, correct errors and notify other subject matter expert groups when needed. The operations bridge employs four people, its opening hours are 7:00 - 23:00, every day of the year. The Operations bridge is contacted when errors that are critical to production occur.

Service Desk (2300)

Service desk is SPOC (single point of contact) for all IT inquiries/orders internally in NRK, including the district offices. The service desk usually goes by the name of the telephone number it is reached on: "2300". It performs first line support on PC, Mac, mobile devices, printers, software, applications and cloud services. The service desk employs 12 people, where three employees operate the phone, and the remaining nine handle incoming inquiries. The opening hours are from 08:00 to 16:00 (Monday - Friday). After 16:00, incoming calls are forwarded to the operations bridge. The operations bridge is not an extended service desk - it only handles production critical inquiries.

2 SERVICES AND CUSTOMERS

2.1 Operations bridge (Bifrost)

Service	Customer	Description
1 st and 2 nd line support	All operating environments	Monitors and performs 1 st and 2 nd line support on IT infrastructure, production-systems and online broadcasting-equipment.
Monitoring of majority of servers and services	All operating environments	Monitoring the infrastructure.
Monitoring of («klippløsning»)/OnDemand/streaming	Web services	Monitoring the services
Contact point for broadcast-critical errors	All operating environments	
Notification/alert in case of errors	All operating environment	Notifying/alerting subject experts or on call resources in case of errors

¹ Services that are critical for production or broadcasting

Contact point for the audience support (in Norwegian: "publikumsservice")		When audience support cannot answer the inquiries, they contact the operations bridge
Major error management	All operating environment	<ul style="list-style-type: none"> Acting as information center Coordination across domains and departments in NRK
Contact point for x number of external parties		CDNs, Microsoft, etc.
#bifrost Slack-channel		User-support in the slack channel #bifrost
DHCP-reservations	IT	
DNS-records	IT	
Unlock user accounts and computers	IT	In the evening (when service desk is closed) Bitlocker is used to unlock computers
Program check for TV and radio		
Create inquiries at the CDNs	External vendors	Geo-block, remove live buffers, error codes
Send 1987-error messages (SMS)	Everyone	When major error situations occur
Log errors	All operating environments	Log critical error situations that have affected the operation status
Adjust traffic distribution in Cedexis		Allocate traffic between the CDNs
Notify audience support when errors affect the audience		

Table 1 - Services performed by Bifrost

2.2 Service desk (2300)

Service	Description
1 st line support	1 st line support for all employees in NRK. Unsolved cases/enquiries are routed to 16 different 2 nd line support groups at various business areas in NRK. In addition, the service desk has full responsibility for support within the following areas: <ul style="list-style-type: none"> User access VPN Service Manager portalen.nrk.no (see 4.2) Skype Office 365
PC/Mac	Responsible for the procurement, installation, rental, error correction for all PCs/Macs
Smart phones	Configuration and user support on smart phones
Software distribution	Distribution of software to employees' machines.
Print	Print support (1 st and 2 nd line)

Return of computer hardware	Handling the return of outdated/discarded equipment to a third-party handler
Production assistance	Setup and preparation of computers for internal TV productions (mainly when the computers are rented from the service desk)
User access	Active Directory Users and Groups, including unlocking and re-activating user accounts
Documentation (Confluence)	Maintenance of documentation in Confluence.
Service Manager	Application maintenance and operation, user training.
Passord.nrk.no	Self-service for password reset. Communication with external vendor.
Slack channel #servicetorget2300	User support in various Slack channels
NanoLearning	Office 365 user training to employees. Currently e-learning, however Service desk will start conducting classroom learning in Q2 2018
IT-contact for various business areas	“Local support” and administration for NRK Strategy, NRK Super, NRK Marked, NRK Sporten, NRK Design

Table 2 - Services performed by Service desk (2300)

2.3 2nd line support – Subject matter experts

The Operations bridge and Service desk utilize subject matter experts from about 16 business areas/groups across NRK. Table 3 and Table 4 describe these expert-groups and their dependencies to the Operations bridge and Service desk.

2.3.1 Operation Bridge (Bifrost)

Subject expert group	Task/service	Description
Web services	Incidents	Operates many of the servers / services the Operations bridge monitors
Network	Incidents and requests	Lan, WiFi, Vpn, Firewall, DMZ
Audience support («Publikums-service»)		Information exchange to improve the user experience
NEP	Incidents/ Change/ Requests	For streaming questions, technical and non-technical. New Origin. Hosting streaming coders.
Akamai	Incidents/ Change/ Requests	Geoblocks Updates / Questions, as well as CDN and Preliminary Streaming Origin (Old Streaming Solution)
Qbrick	Incidents/ Change/ Requests	Geoblocks Updates / Questions, as well as CDN for Streaming
Telenor	Incidents/ Change/ Requests	GeoBlocks Updates / Questions, as well as CDN for Streaming. Also a provider of Icecast radio streams
2300/servicetorget	Incidents/ Requests	Information exchange. Operation Bridge acts as the 2nd line of questions about NRK's online services and some manufacturing environments, and we rely on them to know about things happening on infrastructure systems
On-call guard for Programbank	Incidents/ Change/ Requests	Information exchange primarily. Works as 3rd multi-layer systems related to production (Potion, G3, Omnibus, Transcoding, Mediagrid, Storage)
Media development	Incidents/ Change/ Requests	Operation Bridge is the 1 st line for almost all services provided by Media Development. Sometimes 2 nd line. They act as our 3 rd line in the event of errors, cooperation on changes, etc.
Infrastructure (section in IT)	Incidents/ Change/ Requests	Server and Storage, DNS, AD, DHCP, SCOM
Digas/ On duty guard for radio	Incidents/ Requests	Point of contact for failure of playback radio, on demand radio, Digas and all other systems related to radio production. Radio Archives.

	Incidents/ Requests	Assists us with editing questions, Quantel, Premiere
On duty guard for Sound In Norwegian: ("Lydvakta")	Incidents/ Requests	Play out sound in NRK, typically DAB and other studio systems in relation to sound
FR	Incidents/ Requests	Some overlap with On duty guard for Sound («lydvakta»), also studio support for radio production
On-call guard for video		Studio support and support when streaming-errors
dbWatch	Incidents/ Requests	Oracle databases, external contact
On-call guard for the editing system	Incidents/ Requests	Premiere Pro support. Only a call list, we are the first point of contact but dependent on individuals. Always critical
Telephony	Incidents	External guard in the event of a malfunction of the switchboard, non-skype telephone systems

Table 3: List of expert-groups utilized by The Operations bridge

2.3.2 Service desk (2300)

Subject expert group	Task/service	Description
Network	Incidents and requests	Maintenance and development solutions for Lan, WiFi, VPN, firewall, DMZ, load balancing etc.
Infrastructure - Server and storage	Incidents and requests, and refers to Skype group	Maintenance and development on file servers, video servers, backup, VMWare
Back Office - Client management	Incidents and requests	Updates and maintenance on OS, Microsoft Device Management, licenses, WDS RIS server, LANrev software distribution, LAPS and Direct Access
Web services - Linux	Incidents and requests	Maintenance and development on nrk.no and underlying services, such as Polopoly, Returia SMS system, Bitbucket, Confluence, teletext, Wordpress, radio archive, databases
Web services - Windows	Incidents and requests	Maintenance and development on Podcasts, FTP, streaming, IIS DMZ and IIS
File based production ("Filbasert")	Incidents and requests. On duty phone if high priority	Solves production related issues on editing tools, such as Premiere Pro video editing, Mac OS, Final Cut Pro video editing, and the distribution tools Deploy Studio and FileWave

PROD-reception	Incidents	Errors related to equipment used in production, such as microphones, cameras, and rigs in studio or on location.
Programbank	Incidents and on duty telephone if high priority	Works as 2 nd and 3 rd line. Multi-layer systems related to production (Potion, G3, Omnibus, Transcoding, Mediagrid, Storage)
Infrastructure AD operations	Incidents and requests, and refers to Slack channel	Operating AD, ADFS and DMZ user architecture, and 3 rd line for Office 365 and Azure
Infrastructure system operation	Incidents and requests	2 nd line for systems like Skype/VOIP, Visitor system, CCTV
Back Office - User administration	Incidents and requests	Direct changes to user accounts and user groups that are not covered using the automated user account service.
Back Office – Administrative systems	Incidents and requests	Handle Incidents and requests according to internal systems for employee information, timesheet and economy, such as Maconomy, Formula, X98, Mediapulse, PIFXplorer, Oracle
Back Office - Print	Incidents and requests	Issues related to the print-service hardware or changes to the print service.
Telephony system	Incidents and requests	Contacts external vendor
Digas	Refers to email and on duty telephone	System for radio production, DMA (Digital Music Archive)
ENPS	Refers to email and on duty telephone	System for planning of editorial content. Closely related to automation, graphics and video servers
Polopoly	Refers to email	Online publication for nrk.no
Quantel	Refers to email and on duty telephone	TV news editing and production
Crayon Cloud support	Sends email on behalf of the user	External Office 365 support
FR		Technical audio equipment for programs
IT contacts	Bidirectional contact	'Technical resource people' both at Marienlyst and regional offices

Table 4: List of expert-groups utilized by The Service desk

3 STRATEGY

The Operations bridge and Service desk's objective is to deliver "quick and effective support to IT-users".

In order to reach their objective, the Operations bridge and Service desk strive to deliver its services by focusing on the following pillars:

- Implement self-service, where possible
- Focus on the users/customers
- Be consulting and proactive
- Document known solutions
- Be active in chat-rooms (e.g. Slack, Intercom and Workplace)

4 PROJECTS

Project	Timeline	Description
Pre-project for replacement of ITSM tool	RFI is out	Process for replacing HP Service Manager
System for self-help	In production	In production. Continuous maintenance and development.

Table 5 – Projects

4.1 Pre-project for replacement of Service Manager

The Operations bridge and Service desk are currently using HP’s Service Manager software as their ITSM tool. This software does not meet all of NRKs needs (it is perceived as outdated and inconvenient), and a pre-project for the procurement of a new ITSM tool has been initiated. The RFI is already out.

4.2 System for self-help

The service is already implemented and in production. The service is a WordPress-site called “Portalen.nrk.no”, and offers the employees guidance and help on various topics, such as employee benefits, the location of meeting-rooms at the headquarter, user manuals for web publishing, how to order food for meetings, how and where to create inquiries, etc.

5 SERVICE LEVELS

When Service desk and Operations bridge get high priority issues, they have a routine saying that one must make a phone call to the appropriate group to ensure that the escalated case has been received and put into operation. The following deadlines apply for the different priorities:

Priority	Deadline task start	Deadline task closed
1 - Critical for broadcast	10 minutes	2 hours
2 - Production	30 minutes	4 hours
3 - Support system	4 hours	10 hours
4 - Not critical	1 day	5 days

Table 6 - Deadlines

Selected statistics from the service desk follow below:

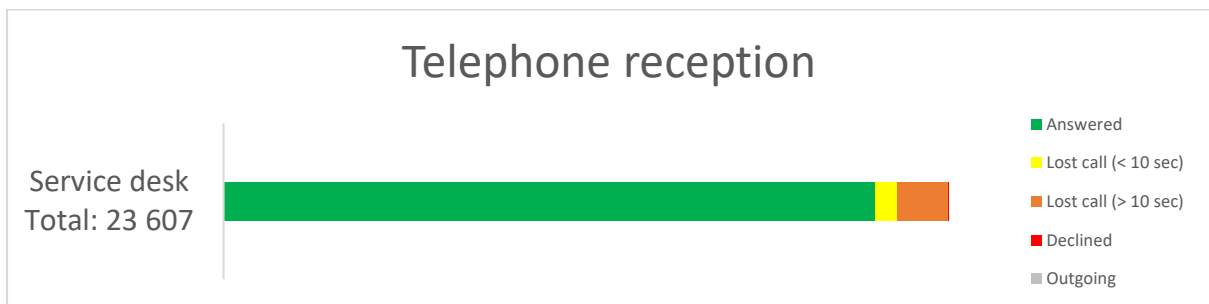


Figure 1 - Service desk's telephone reception, 2017 total

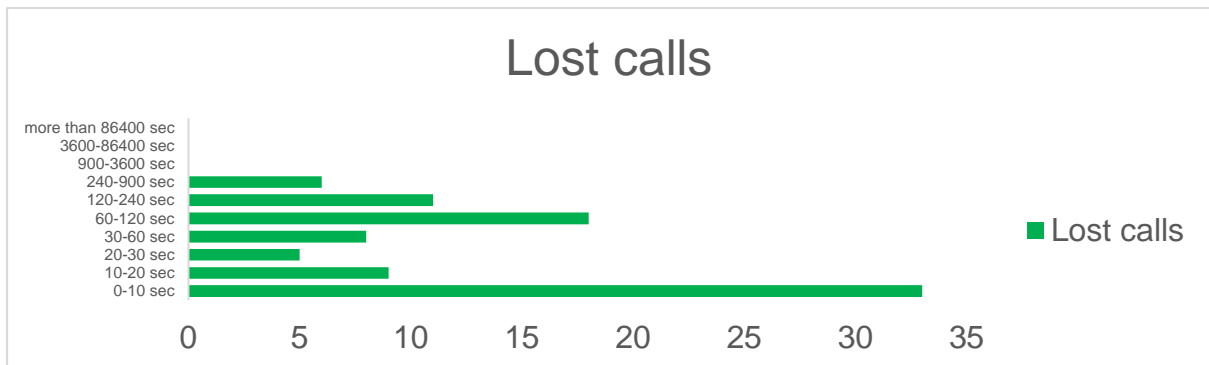


Figure 2 - Service desk's lost calls



Figure 3 - Service desk's waiting time for answered calls

6 SPENDING AND BUDGET

This information will be disclosed at a later stage in the process.

7 EMPLOYEES

7.1 Internal employees

15 employees in total, distributed between Service desk and Operations bridge.

Function	Employment
Telephone	Full-time
Telephone	Full-time
Incident solver ("Saksløser")	Full-time
Incident solver	Full-time
Incident solver	Full-time
Incident solver	Part-time 50%
Incident solver	Part-time 50%
Incident solver	Full-time
Incident solver	Full-time
Incident solver	Full-time
Incident solver	Full-time
Incident solver	Full-time
Bifrost	Full-time
Bifrost	Full-time
Bifrost	Full-time
Section leader	Full-time

Table 7 - Employee overview

7.2 External consultants

Two external consultants and one on call substitute ("tilkallingsvikar").

8 NECESSARY HARDWARE, SOFTWARE AND FACILITIES

The Operations bridge and Service desk sit in open office space close to both the users and the subject matter experts. This is important in terms of availability and knowledge transfer. In order to support all the business areas in NRK, the Service desk and Operations bridge need access to both PCs and Macs.

Many end-users show up at the service desk in person to hand in and pick up equipment, receive help, etc. For this activity not to interrupt business as usual, the service desk has a manned reception that handles incoming inquiries.

8.1 and 8.2 represent a selection of the applications and tools that the Service desk and Operations bridge utilizes in order to perform their services.

8.1 Service Desk

- Fast Pass password manager Self -Service
- Intercom Live Chat
- HP Service Manager
- Trio IP-telephony
- Office 365
- Slack
- LANRev
- Atlassian Confluence (documentation)
- Wordpress (“NRK-portalen”)
- Workchat
- Service catalogue
- Workplace
- AD
- LAPS
- Skype
- Mobile with VPN and internal NRK-services
- IP-telephony
- WDS / Remote Installation Server
- BitLocker-tool
- F5-website log for troubleshooting
- Password-lock log
- Canon Remote – printer display
- Filewave

8.2 The Operations Bridge

- Nagios
- SCOM

- NNM
- dbWatch
- Bridgetech
- Skype
- Service catalogue
- Slack
- Workplace
- IP-telephony
- Atlassian Confluence (documentation)
- Office 365
- HP Service Manager
- Gira

9 GLOSSARY

Term/concept	Description
Servicetorget	
Polopoly	Primary publishing tool for NRK.no
ODA	ODA is a system that receives meta data from multiple production systems and stores it in a database that is accessible for the media player. ODA's input is synchronized from the PI-base. ODA's distribution engines transfer video- and audio-files to Akamai and NEP, both for publication of footage/clips and for web-TV/Radio.
Oddjob	
Foss	The service that handles booking and administration of live streams.
Vimond	A system to extract video-clips from live streams
"Programbank"	Video storage and media asset management (MAM)
HK	Playout "Hovedkontrollen"
FR	Broadcast chain ("sendekjede") for Radio
MCR	Master control room
Potion	Tool that simplifies the process of retrieving clips for use in Quantel, and delivering them to destinations outside of Qauntel. User interface for finding, retrieving and publishing content. Middleware for the "Programbank" (transcoding).
Kurator	System for publishing the front page of nrk.no (API, web and mobile).

Table 8 - Glossary