NRK

NRK-MA3026/17E

New Backup Solution

.

SSA-D Appendix 1
Customer requirements specification

Change log

Version	Date	Change description
1.0	13/11/2017	Publication

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1   Introduction

This appendix contains the Customer's requirements for the service. These specifications include the operation and maintenance of the Customer's backup solution provided as a service, with descriptions of the Customer's Technical platform that the proposed solution must run backups of – described in Appendix 3.

The supplier is required to document compliance with the requirements in Appendix 2 based on the following instructions:

- All requirements must be answered with a Confirmation and a Specification. Answer the column "Requirements Completed: Yes / Partial / No" and specify in the "Specification" column
- Answered - Yes, the claim is accepted as fulfilled. Answered Partially or No, this must be justified and possibly an alternative form of claim fulfilment given.
- Specific answers to the requirements written in this document should be given, and no reference to general descriptions such as brochures, product magazines and the internet content. Any need for supplementary information can be given as an attachment to the answer with clear references.

It is the responsibility of the Contractor to ensure that all requirements are sufficiently addressed. If requirements are left unanswered or uncommented – they are to be considered as fulfilled unless otherwise explicitly stated by the Contractor.

For practical purposes "the Customer" may also be referred to as NRK in these documents.

The new backup solution shall provide NRK with a simplified, robust and future proof solution that can grow flexibly over time, reduce risk as well as cost, and improve backup and restore times.

The following list defines the areas of particular interest:

- **Simplification**. The Customer need easy administration and reduced complexity.
- **Scalability**. The Customer have a rapid growing amount of data. We are looking for solutions that easily can keep up with the growth, in terms of both capacity and performance.
- **Reduction of risk**, backup restore times and cost.
- **Detailed reports and analytics**

NRK aims to begin the deployment of a new backup solution by the summer of 2018.

2   Scope of the agreement

The current backup solution at NRK is mainly configured for administrative IT, and does not cover the Customers active media production data (audio, video, graphics etc.). Only a few critical selected areas of video/audio production storage have been part of the same backup solution as for administrative IT. The Customers goal with this agreement is to establish a backup solution and strategy for all storage. In 2016/2017 the Customer acquired, modernized and migrated most of the Customers old storage systems, standardizing all file based NAS storage on Dell EMC Isilon and ECS (Elastic Cloud Storage). The Customer see this second phase of the Customers storage transformation process as a golden opportunity to improve and modernize the Customers data management and backup strategy.

The television- and radio archive is managed separately with automated archiving and backup routines already in place, and is currently not part of the scope for this agreement.

The new backup solution service will therefore include:
- **Service operations, maintenance and monitoring**
- **End user support for Customer**
- **Any additional extension of the backup solution**
- **Consultancy and consulting services related to the backup solution**

To ensure the necessary level of commitment and transfer of competence, the Customer assumes that the service provider initially should be present at Marienlyst up to one workday per week.

The Customer shall have a one-sided option to increase or decrease the scope of performance if needed during the term of the agreement.

3   High level solution overview

The Contractor shall provide a comprehensive overview of the of the offered services based on the description of the contract purpose and listed requirements. This overview should, in addition to a technical summary, emphasize on highlighting the following subjects:
- **Performance:** How the offered solutions contribute to achieve the objectives of this procurement, Appendix 1 Ch. 1. Please make unambiguous reference(s) to the relevant sections in Appendix 2 that contribute to the achievement of the objectives and specify the Contractor's requirements for Customer involvement.
- **Risks:** How the Contractor will help reduce principal risk in this procurement. Please make unambiguous references to the relevant sections in Appendix 2 where the offered measures provide effect.
- **Additional Value:** What the Contractor can offer that represents additional value to the Customer in addition to the listed requirements. Please make unambiguous references to the relevant sections in Appendix 2 that shows how the offered solution provide added value and better goal achievement for the Customer.

4   General Requirements for the provided service

Below you will find the main general requirements for the provided service. The different categories of data environments are described in Appendix 3.

For the on-premise installations NRK will be responsible host the following facilities:
- Rackspace
- Power
- Cooling
- Network

- Physical security

4.1   Service level requirements for NAS storage

This chapter contains dimensioning information and requirements for the services to be performed. Please observe that RTO will be subject to SLA and compensation, ref Appendix 5.

4.1.1   Category B, C, D

Service Level	Level 1	Level 2	Level 3
RPO	Daily	Daily	Daily
RTO – Tier 1	1 TB per hour	1 TB per hour	1 TB per hour
RTO – Tier 2	-	200 GB per hour	200 GB per hour
Retention Tier 1	28 days	730 days	240 days
Retention Tier 2	-	1800 days	480 days
Initial amount of data			
• Cat. D - Main site	1 PB	1 PB	2 PB
• Cat. C - Regional center	40 TB	-	250 TB
• Cat. B - Regional office	40 TB	-	10 TB
Est. weekly growth			
• Cat. D - Main site	10 TB	10 TB	20 TB
• Cat. C - Regional center	2 TB	-	2 TB
• Cat. B - Regional office	1,5 TB	-	500 GB
Description	News, Graphics, radio, TV, Web	Long term production, drama	Feature, radio, TV, Web
DR	Covered by NRK	No	No
Isilon Snapshot (Already existing!)	1h-25h* / 1d-8d*	1h-25h* / 1d-8d*	1h-25h* / 1d-8d*

* hourly snapshots with 25 hours retention / daily snapshots with 8 days retention.

4.1.2   Category A

Service Level	Level 1	Level 2	Level 3
RPO	Daily	-	Daily
RTO – Tier 1 & 2	200 GB per hour	-	200 GB per hour
Retention Tier 1	28 days	-	240 days
Retention Tier 2	-	-	480 days
Initial amount of data	1 TB	-	5 TB
Est. weekly growth	50 GB	-	200 GB
Description	News, Graphics, radio, TV, Web	-	Feature, radio, TV, Web
DR	Covered by NRK	-	No

Service Level	Level 1	Level 2	Level 3
Isilon Snapshot (Already existing!)	1h-25h* / 1d-8d*	-	1h-25h* / 1d-8d*

* hourly snapshots with 25 hours retention / daily snapshots with 8 days retention.

4.2   Service level requirements for databases and servers

Service Level	Level 1	Level 2	Level 3
RPO physical servers	Daily	Daily	Daily
RPO VMWare servers	Daily	Daily	Daily
RPO databases	3 times daily	Daily	Daily
RTO VMWare servers	0,5t*	0,5t*	0,5t*
RTO physical servers	1 TB per hour	1 TB per hour	1 TB per hour
RTO databases	1 TB per hour	1 TB per hour	1 TB per hour
Retention Tier 1	3 months	5 years	3 months
Retention Tier 2			
Initial amount of data			
• Cat. D - Main site	400TB	600TB	600TB
• Cat. C - Regional center	10TB	30TB	-
• Cat. B - Regional office	5TB	20TB	-
Est. weekly growth			
• Cat. D - Main site	10TB	10TB	10TB
• Cat. C - Regional center	2TB	2TB	-
• Cat. B - Regional office	1TB	1TB	-
Description	OS, Application, Databases, VMs	Administrative data	User data
DR	Covered by NRK	Covered by NRK	Covered by NRK

* This implies the possibility to run the VM directly from the backup storage.

4.3   High level requirements

#	Requirement description	Priority
4.3.1	**According to the description given in Appendix 3 and the SLA requirements in Appendix 1, section 4.1. Describe your solution for backup of NAS data. Your description must follow the structure of the Customers detailed descriptions and highlights.**	H
4.3.2	**According to the description given in Appendix 3 and the SLA requirements in Appendix 1, section 4.2. Describe your solution for backup of servers both physical and virtual. Your description must follow the structure of the Customers detailed descriptions and highlights.**	H
4.3.3	**According to the description given in Appendix 3 and the SLA requirements in Appendix 1, section 4.2. Describe your solution for backup of databases. Your description must follow the structure of the Customers detailed descriptions and highlights.**	H

4.4   Main requirements

#	Requirement description	Priority
4.4.1	**Self-service portal**. A self-service portal must be provided. Please give an overview of the different tasks that can be done via your self-service portal/Web GUI. The self-service portal and reports shall display the transfer speed for all backup and restore jobs.	H
4.4.2	**Isilon snapshot management**. The first line of defence for data loss in the Customers Isilon NAS environments is snapshots. This is a built-in feature in the Isilon OneFS file system. Having a single pane of glass for doing restores from either backup or Isilon snapshots would be very beneficial and would ease restore management substantially. The Customers current standard Isilon snapshot policies are described in the SLA details for NAS storage (Appendix 1, section 5.1). Please describe how your solution can manage restore from Isilon snapshots.	H
4.4.3	**Scalability of capacity and performance.** Please describe how you scale the on-premise capacity and performance and in what increments the solution can scale.	H
4.4.4	**Scheduling.** To be able to ensure proper utilization of the WAN capacity, the Customer need to be able to schedule the different backup policies/jobs. Please describe how your solution handles this.	H
4.4.5	**Bandwidth throttling / QoS – Quality of Service** Please describe how your solution handles QoS for different backup policies/jobs, either using DSCP tagging or similar methods.	H

#	Requirement description	Priority
4.4.6	**Deduplication / single instance backup**. To reduce the backup cost and storage needs, the backup system should support deduplication / single instance backup. E.g. if large amounts of media files are moved from one directory to another within the same NAS, the Customer would like the backup system to avoid duplicating the data in the backup system. Please describe how your solution handles this.	H
4.4.7	**Compression and deduplication in general.** Please describe in general how the backup system uses deduplication and compression.	H
4.4.8	**Exclude paths and/or file types.** Please describe how you can exclude certain directory paths and/or file types, to make sure small cache files etc. don't inhibit or slow down the backup process of important data.	H
4.4.9	**Database backups.** Please describe your best practice for the different supported database solutions. • MySQL • MSSQL • Oracle	H
4.4.10	**Support for all features of vSphere 6.5 backup**	H
4.4.11	**NDMP**. The backup solution must support NDMP to allow backup of "stubbed" files on the Isilon.	H
4.4.12	**GDPR.** As the service will include handling and storage of personal data, the backup system must be compliant with GDPR. Please describe. According to the general agreement section 9.3 the parties shall enter into a separate data processor agreement.	H
4.4.13	**Test regime.** Please describe your test regime for your deliveries in the establishment phase and the recurring service provision, backup and restore test procedures.	H
4.4.14	**Backup of third-party cloud services.** The Customer uses several cloud services e.g. Office 365 etc. Please describe If you support backing up Office 365 and how. Please also list other supported services you are able to backup.	H
4.4.15	**If you charge for restore, please describe in detail why and how.**	H
4.4.16	**API.** Please describe your public API for integration and interaction with the backup system.	M
4.4.17	**Client OS backup.** Please describe the different Client Operating Systems you support performing backups of. Include details about versions for Windows, Mac and Linux.	M

#	Requirement description	Priority
4.4.18	**Rack units and storage density.** Please describe your required amount of rack units, including storage capacity for your on-premise equipment on each location. The Customer have limited rack space in certain locations, hence it will be beneficial with high storage density per rack unit.	M
4.4.19	**Environmental requirements.** Please describe the total power and cooling requirements for each on-premise installation and each unit for every location.	M

5 Operation and preventive maintenance

The Contractor shall take the necessary steps for tuning and optimization in order to meet the Customer's requirements for capacity, performance and functionality as described in the agreement.

The offered solution shall interact with the Customer's technical platform as described in Appendix 3 including compliance with NRK IT requirements.

When specifying requirements for operating processes and functions, the terminology of ITIL v3 (2011)
The requirements for operating performance are compiled under the following ITIL processes and functions:

Service design
- Capacity management
- IT services continuity management (backup and restore, disaster recovery)
- Information security management

Service transition
- Change management
- Service asset and configuration management
- Release and deployment management

Service operation
- Problem management
- Event management (monitoring and logging)
- Access management (remote access)
- IT operations management (function)

In addition, there are requirements for continuous service improvement.
The customer shall have the right to engage a third party to verify the compliance of the operating performance.

5.1   Predefined operating tasks/changes

As part of the operational responsibility, the Contractor is responsible for performing necessary predefined operating tasks, including changes to the solution. Changes to the solution or the operating service must be handled in accordance with the provisions in Appendix 6. All orders must be reported to NRK.

#	Requirement description
5.1.1	**General operational responsibility**. The Contractor assumes responsibility for meeting the Customer's needs related to operating tasks/changes and describing how this is fulfilled, including but not limited to the items below.
5.1.2	**Guidance and support.** The Contractor is responsible for providing guidance and support regarding functionality of the solution.
5.1.3	**For remote management**, SSL VPN is used against a terminal server in the Customer Network. The supplier shall describe proposals for connection for remote operation and monitoring.
5.1.4	**End-user support** The Contractor shall provide support for Customer end-users.
5.1.5	**The Contractor is encouraged to offer and describe other services that are relevant and adds value to the operation of the backup solution.**

5.2   Service and system monitoring

The Contractor shall perform proactive service monitoring of software and hardware components covered by the backup solution. This includes detection of errors and events that affect the service's stability, quality, and performance. These measurements shall also provide the customer with an overview of the use of licenses, etc. The monitoring shall include the availability and performance of the solution on physical and logical elements, performed 24 hours a day, 7 days a week 365 days a year. Alarms and warnings are followed according to agreed SLA within the defined service time, cf. Appendix 5.

#	Requirement description
5.2.1	**Monitoring.** Continuous monitoring of key components of the solution to measure SLA levels (status, amount of data, transfer speed for individual backup/restore jobs etc.). Weekly and Monthly automated reports, with the ability to generate daily reports manually. Please describe.
5.2.2	**Health status.** The Customer will be able to access a general solution health status overview. Please describe.
5.2.3	**Historical statistics and reports.** The solution should provide statistics and reports over time, to be able to predict future growth, see trends, anomalies and deviations from SLA requirements. Please describe.

5.3   Capacity Management

Capacity management is the collection of data from monitoring and statistical tools that provide the basis for capacity planning and generation of trend analyses. Capacity management shall be performed to determine whether all parts of the solution have sufficient capacity to meet the Customer's needs, as well as to balance the need for capacity and performance. Capacity management requires active interaction between Customer and Contractor in all phases of a service life cycle, from strategy and design, through service deployment, continuous improvement and decommissioning.
Existing solutions must always be adaptable to meet changing needs.

#	Requirement description
5.3.1	**Capacity Management.** The Contractor will describe how capacity management will be implemented in the operational service, including how data collection, evaluation and documentation will be performed, and how this will be applied in practice to add value in terms of ensuring the right quality and capacity in the solution.

5.4   Incident management

The Contractor shall monitor the events that occur in the Contractor's delivery to the Customer. Alarms are handled according to the agreed service level in Appendix 5. Repeating errors are detected and handled in the Contractor's Problem Management Process. Warnings and non-critical alarms are logged in the monitoring tool and evaluated under Performance Management and Service Management.

#	Requirement description
5.4.1	**Incidents.** The Contractor shall provide and describe how notification and reporting of incidents according to defined categories are taken care of.

5.5   Patch Management

The provided service includes installation and upgrading of all future SW upgrades / patches from the Supplier's manufacturers during the term of the agreement.
The supplier shall provide recommendations for implementations and updates in the Customer's solution throughout the term of the agreement.

#	Requirement description
5.5.1	**System updates.** The service provider should keep the backup solution up-to-date to ensure compatibility with the latest software updates for the related systems.
5.5.2	Planning and coordination regarding updates of software and hardware is included.

5.6   Backup

The provided service includes backup of the complete software and configuration that is considered as part of the solution. The backup should be able to reconstruct the system configuration. The backup is stored on premise.

#	Requirement description
5.6.1	The Contractor is responsible for the backup / restore of all system configuration included in the solution as well as maintaining the routine for and backing up the backup. Configuration and system data are stored on a customer-designated space in the Customers server environment. Please describe.

5.7   Inventory Management (Asset Management)

#	Requirement description
5.7.1	The Contractor shall maintain an updated overview of the equipment covered by the agreement.

5.8   Service Manager

The Contractor's Service Manager is responsible for compliance with the contract and daily management of this. This implies focus on the Customer's solution across organization and technical platforms and with a particular responsibility for optimization in the operation of the Customer Solution. Typically included work tasks will be:

- Reconcile Customer with new and/or changed needs related to the backup solution
- First escalation point for the Customer
- Establish relevant meeting places with Customer
- Ensure that that SLA is measured, reported and followed up as agreed

- Compile and hand over SLA reports to the customer
- In case of quality change - Initiate improvement activities (Service Improvement Plans) to correct deviations from SLA
- Act as a formal claimant against subcontractors, on defined deliveries that form part of the agreement
- Contact relevant Third-Party Contractors and coordinate all relevant work with these.

#	Requirement description
5.8.1	The Contractor must provide a service manager and describe how the content of the role is met.
5.8.2	**The Contractor is encouraged to offer and describe other services that are relevant and adds value to the operation of the backup solution.**

6   Responsive maintenance – handling unwanted events

This chapter describes services and related requirements in order to perform corrective maintenance. The services are performed in accordance with the service levels specified in Appendix 5.

6.1   Troubleshooting and Correction

The provided service includes work regarding troubleshooting and error-correction on equipment and software governed by this agreement in Appendix 3. The work is done remotely, or on-premise, if required at the service level agreed upon in Appendix 5. Service Level Requirements.
The service includes troubleshooting and recovery of the solution to the last stable operating mode. The service includes errors and emergencies and other unplanned events. The service provision relies on the fact that the Customer gives the Contractor access to the equipment included in service delivery. This applies to both physical access to the premises where the equipment is located and remote access to the equipment. Below is specified how the Supplier will take on its overall responsibility for error management and special focus areas.

#	Requirement description
6.1.1	The Contractor confirms that he assumes responsibility to meet the Customer's need for comprehensive troubleshooting and error correction and describe how this is fulfilled.
6.1.2	Troubleshooting and error-correction remotely and on-premise are covered by the agreement. Please describe how the service will be performed, including a description on the resources doing the respective tasks at all regions of Norway, including spare parts repository.

#	Requirement description
6.1.3	Fault reporting and follow-up related to facilities and connectivity to surrounding infrastructure, equipment and software.

6.2   Hardware replacement

The Contractor is responsible for serving the entire backup solution with necessary spare parts and hardware replacements - according to. Appendix 3, to uphold the agreed service time and availability according to Appendix 5. All equipment shall be covered by this agreement with its defined SLA.

#	Requirement description
6.2.1	The Contractor confirms that the delivery includes ordering of replacement equipment as well as delivery and installation to the backup solution throughout the country.

6.3   Software maintenance

The Contractor shall be responsible for managing and performing all changes to software related to the backup system and with its associated support systems.
All scheduled software updates should be made at a time that minimize the user impact preferably in defined service windows after reviewing the change management and notification procedures (see Appendix 6). The Contractor is also responsible for ensuring that the Customer is properly licensed at any time and has signed the necessary maintenance agreements with the equipment manufacturers.

#	Requirement description
6.3.1	The Contractor shall provide update and upgrade of software / operating system with new patches or revisions to maintain security and stable operation.
6.3.2	The Contractor is responsible for managing Customer Licenses related to Backup Solution, including the correct dimensioning of these, as well as giving advice related to possible optimization.

7   Delivery of documentation upon termination

Upon termination of the agreement, the Contractor shall, as a minimum, deliver fully updated documentation of the solutions and related services to enable the Customer to facilitate a competition for a new agreement and transfer of the agreement to a new Contractor.

8   Standard terms for third-party services

If you rely on another party's capacity to provide these services and they will be provided under the standard terms of this third-party – the Contractor must present them with an explanation of the part they play in your solution and if any – the deviations from the above fulfilment they may represent.

9   Other requirements

ID	Requirement description
1.	The Contender shall answer the requirements listed in chapters 2 – 8 in Appendix 2 When applicable the Contractor must give detailed description on how the requirements are fulfilled when they are required or when it is natural to do so.
2.	Any required changes to the Customer technical platform must be explicitly described in Appendix 2 in order to apply.
3.	Requirements related to project implementation are set out in Appendix 4: Project and progress plan for the establishment phase. The Contractor shall answer the requirements and describe his proposal for project implementation based on his best practices in accordance with the requirements of this Appendix.
4.	Requirements related to Service level with standardized compensations are set out in Appendix 5. The Contractor shall answer the requirements and describe his proposal for fulfilling the requested service level based on his best practice in accordance with the requirements of this Appendix.
5.	Requirements regarding organization, manning and interaction are set out in Appendix 6 - Administrative provisions. The Contractor shall describe his proposal for organizing staff, offered competence and interaction based on his best practices in accordance with the requirements of this Appendix.
6.	Requirements for pricing are set and must be answered by the Contractor in Appendix 7: Total price and pricing provisions and in accordance with the requirements of this appendix.
7.	The Contractor shall make any changes or amendments to the SSA-D in Appendix 8 Changes to the general contractual wording, in order to make these applicable, except for cases where the contractual text refers to other documents.
8.	If Standard terms and conditions for third-party deliveries are made applicable, these must be described under the relevant section in Appendix 2, with clear reference to which parts of the delivery they are made applicable. The terms themselves must be included in Appendix 10. It is emphasized that these may only be supplementary, and not contrary to the SSA-D. To the extent that they affect the offered performance, this must be clearly stated in the Contractors' reply to Appendix 2 under the relevant section.