



**Invitation to participate in a technical market dialogue  
for  
Cloud Services (PaaS)**

**NRK MA2403/11E**

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## 1. Introduction

Norwegian Broadcasting Corporation Ltd., subsequently named NRK, is the public broadcasting corporation in Norway with main responsibility to produce and distribute radio or television programs for the entire Norwegian population. NRK also delivers a comprehensive portfolio of Internet, mobile and text-TV content. Presently NRK employs approximately 3,500.

NRK has a nationwide activity, including 12 regional offices and is the country's largest media company.

**NRK is one of Norway's largest web content providers with services such as nrk.no, yr.no and ut.no with estimated 2.800.000 unique users per week and 850 000 per day.**

For more information about the activities please visit [www.nrk.no](http://www.nrk.no).

We want to engage in dialogue with potential suppliers who can provide the desired services. In order to prepare the final Tender and specifications, and before the announcement of the actual competition, NRK will invite you to participate in a technical market dialogue.

As a governmental body, NRK is subject to comply with the Public Procurement Act and is therefore committed to follow the rules and regulations for public procurement. NRK wants with this Prior Information Notice to initiate a technical market dialogue on the future publication of PaaS Services.

## 2. Market dialogue purpose

NRK invites you to participate in a technical market dialogue and subsequently qualify for offering framework agreements for delivery for PaaS Services for NRKs web services.

With PaaS Services, NRK hopes to offer our audience a higher quality of experience for consuming web services and multimedia distributed over the open Internet. At the same time NRK needs to produce these services as cost effective and professional as possible in today's market. NRK believes that the best way to obtain this is goal by exploring the typical solutions described as "Platform as a Service". Subsequently this service is named "PaaS".

NRK needs to understand how PaaS partners could help us provide a distribution portfolio which will cover live and on-demand delivery of web services and multimedia content to the end users mainly in Norway. Although NRK believe to understand many of the different aspects regarding such services there is still series of questions to be answered (some listed in section 3.2). Principally NRK staff will be responsible for deployment and change management and will need tools to deploy, tune, monitor and maintain the applications from NRK's site in Oslo.

In an initial phase NRK believes that services like content delivery services such as NRKs web-pages consisting live and on-demand audio and video would best suited.

NRK believes the most important success factors for such a system will relate to the suppliers ability to deliver a "future-proof" and cost effective system with easy adoption to new platforms and devices, new user habits and new ways to present this type of content.

NRK is currently standardizing on the following technologies, Microsoft (dot)NET and SQL, Sun Java and/or PHP. Initially NRK wants to start the process of pushing (dot)NET services into the cloud.

The users on NRK's web services consist of an audience mainly situated in Norway. This traffic increases with a rate of 4 - 7% on a yearly basis. Furthermore NRK is continuously developing

new services which can largely influence the need for more capacity.

The supplier must be able to provide a high level SLA including; technical delivery, customer support, technical insight, network capacity and statistics in addition to the web distribution. Specific details of requirements will be given in the Tender documents to those who qualify for participation.

### 3. Technical market dialogue

#### 3.1 Purpose

We want to engage in dialogue with potential suppliers who can provide the desired services. Therefore NRK will conduct a technical market dialogue in advance and before preparing the final Tender and specifications, and well before the announcement of the actual competition.

The purpose of such dialogue is to give an overall presentation of NRK's service needs related to the PaaS, and on this basis receive input from the supplier market to facilitate.

Primarily NRK wants to talk with existing suppliers of relevant media services as described in chapter 2, who is willing to share their knowledge and experience on the matter.

#### 3.2 Areas of uncertainty

NRK acknowledge that these types of services are in an early phase and subsequently we do not know to which extent and speed we will take it into use. Never the less, NRK will need to have a framework agreement for such services. These are the main areas of our concern for insufficient information/understanding on the market situation.

- **Technical**
  - Deployment management – Automatic deployment
  - Capacity management - scalability during planned and unplanned peaks
  - Application lifecycle management – security, maintenance, NRK's ability to influence
  - Compatibility issues with existing CDN provider
  - Locations
  - Technologies supported
  - Type of support – Service desk and response levels offered
- **Commercial**
  - Price models – What structure and variations can NRK expect?
  - Commitments and minimum obligations
  - Scalability and price consequences
- **Legal**
  - Type of contracts acceptable to the suppliers
  - Suppliers Compliance with Norwegian laws and regulations

#### 3.3 Scope and theme

It is our intention that the technical market dialogue will provide NRK with information about how the need for how PaaS services can best be used based on the technological solutions that are established in the market and developments in the near future.

***The dialogue will not include discussion of eligibility requirements, selection criteria and award criteria nor will we include discussions of factors that may distort or otherwise affect competition for deliveries.***

Accordingly, the dialogue will not include discussions of detailed / specific price, beyond general conditions such as to identify cost-driving elements.

### **3.4 Execution of the dialogue**

NRK will carry out technical market dialogue as follows:

1. NRK will set up a public information meeting with the registered suppliers.  
In this meeting we will present our needs and **the suppliers are expected to give a short presentation of their existing offerings and typical solutions / technologies that will be relevant.** Subsequent dialogue / Q & A session.
2. Individual meetings with the suppliers who request it, with the possibility of deepening and further clarification of both NRK's needs and suppliers' suggestions for possible solutions. **NRK will use their own discretion in limiting the number of suppliers for such meetings in order to give us increased knowledge.**

With the implementation of this technical market dialogue, NRK will strive to fulfil basic requirements of equal treatment set out in the rules and regulations of public procurement, so that it sought not to give any supplier a competitive advantage by:

- Influenced the design of requirements specification
- Influenced the design of the tender documents
- Achieve greater insight about the actual conditions
- Achieve a greater understanding of the client's wishes

Summing up, NRK will not seek to provide information or use the information received in a manner that provides a competitive advantage. Information advantages can be offset by giving the same information to other suppliers and give them sufficient time to submit a tender based on the information.

Suppliers should therefore be able to participate in this market dialogue in assurance that the principle of equal treatment will apply and that they, by participating in this dialogue, should not be prevented from participating in the following competition due to information received by or communicated to NRK.

## **4. Administrative provisions**

Bellow you will find the administrative provisions for the suppliers.

### **4.1 Announcement**

This prior announcement has been published **9. January 2012** at [www.mercell.no](http://www.mercell.no) (reference NRK-MA2403/11E) and at [www.doffin.no](http://www.doffin.no) as well as at TED ([www.ted.publications.eu.int/official](http://www.ted.publications.eu.int/official))

**The Tender announcement will be conducted separately when it is defined after the completion of technical marketing dialogue in the spring of 2012.**

### **4.2 Time plan**

The dialogue is scheduled to be completed after the tentative and overall milestone schedule as given in the table below.

Activity	Date
Announcement of Prior notice	9. January 2012
Public information meeting with the registered suppliers (ref. section 3.4)	7. February 2012 10:00 am CET
Possible bi-lateral meeting with selected relevant potential suppliers	7. and 8. of Feb.2012
Scheduled announcement of Tender notice	Q1-Q2 2012

Explicit time schedules for the acquisition would be announced in the qualification-/Tender documents.

### 4.3 Communication regarding the dialogue

NRK manages its procurement processes and market dialogues in Merzell Pro Portal ([www.mercell.no](http://www.mercell.no)).

This will include the announcement, which this document is attached, the suppliers' registration to participate in the dialogue, following the dispatch of information and documentation, and submission of any documentation from the suppliers.

For questions about the use of the Merzell portal, please referred to Merzell Support on telephone +47 21 01 88 61 / +47 21 01 88 00 or e-mail: [pro.norge@mercell.com](mailto:pro.norge@mercell.com) .

### 4.4 Your required response to the RFI

Suppliers are asked to confirm the download of the invitation, and inform whether they intend to participate. This is communicated through the procurement portal [www.mercell.no](http://www.mercell.no) by using the button "I want to respond" preferably in less than 10 days after reading this.

You are also required to use the communication module to send us a message with names and position of the persons attending. Please observe that NRK would like to have the discretion of limiting the number of persons attending form each supplier.

**Explicitly;** you are not required to upload any documents in this stage of the process, even if the portal may generally indicate such.

### 4.5 Cost of participation

Suppliers participate and prepare presentations at their own expense and risk. NRK thus assumes no financial responsibility for the invested effort or other costs in connection with the preparation of an application for participation or the participation in the competition as such.

# Referat leverandørkonferanse Cloud Services

NRK 7. februar 2012, Kristen Erik Thorp

Emne	<b>Leverandørkonferanse Cloud Services (PaaS)</b>
Dato og sted	7. februar 2012 09:00 - 16:00, Møterom Embla (Glassgården, 1.etg)
NRK Deltakere	Jan Inge Sommerseth; Bjarne Andre Myklebust; Håkon Brynildsen; Andreas Munkelien; Steinar Aasheim; Rita Nottveit
Eksterne Deltakere	Imenta Crayon, IBM, Dell, EDB Ergo Group, Basefarm, Avanade, Cap gemini, Oracle, Steria, Microsoft, Vimont,

## Agenda:

**10:00 a.m. to 10:15 Short presentation of the participants (NRK/Vendors)**

**10:15 to 10:45 Presentation of NRK public web services (NRK)**

**10:45 to 11:00 Presentation of our CDN usage (NRK)**

**11:00 to 11:15 Break**

**11:15 to 11:30 Presentation of NRK's technical structure (NRK)**

**11:30 a.m. to 1:45 p.m. (including brake) Vendor Presentations max 10 min "lightning talk" with an emphasis on what can be delivered within the context of this notice**

**2:00 p.m. to 2:15 p.m. Presentation of the upcoming Tender process (NRK)**

**2:15 p.m. to 3:00 p.m. Presentation of our wishes for the contract, (NRK)**

• **Our uncertainties**

• **preferences and tradeoffs**

**15:00 - until finished - 1:1 to meetings afterwards as necessary. (Is not on the agenda)**

## Referat punkter:

### **Presentation of NRK public web services (NRK)**

nrk.no. ble restrukturert for noen år siden. Noe innhold tilgjengeliggjort som apper.

Responsivt design, sidene tilpasser seg størrelse på skjerm.

Tekst-Tv ca 1 mill brukere pr dag. txt-Tv finnes nå også som app.

Publiseringsfilosofi framover. «Dingsefabrikanter» ser på flere skjermer, da må NRK også gjøre det.

Super, er f.eks. formatert for norske barn.

P3, eldre unge,

Almennkringkaster på nett innebærer enkelte ekstraordinære roller.

- Valg 2011, NRK har som ambisjon å ta stor rolle i valg
- OL/store evenementer, NRK har som ambisjon å samle folk, gir folk noe å prate om.
- Valg + OL skaper mest trafikk, noe av det største NRK driver med
- Terror,

**Nett-TV**, vår neste nett-TV, vet ikke akkurat når den kommer, men er nå i intern betafase. Demo.

Formatet tilpasser seg «devicen». Streamer i 2,3 mbit, grei HD. Viktig å nå parallelle skjermer. Støtter

HLS, MPEG 4, h264. bruker åpne standarder, HTML5 er sentralt framover. I direkte TV- vil en kunne dra tidslinjen tre timer tilbake, uten å ha programmert opptak.

Å se på TV er ikke døende, NRK må gi mulighet til TV på andre måter.

**Mobil:** foretrekker web, framfor apper. For mye vedlikehold på apper.

**WEB:** største og mest aktuelle tjenester

- Yr. 3,5 mill unike brukere.
- Ut.no. en voksende tjeneste.
- Trafikk-tjeneste (ny), søknad til behandling, samarbeid trafikanten/vegvesnet. For om mulig å fylle et hull for brukerne. Dataene vil bli frigjort til sekundærbruk.
- NRKbeta.
- NRKskole. For skoler. Lage sammen med undervisningsmyndigheter etter læreplaner.

***Sammen med radio og Tv, når NRK 80% av Norges befolkning hver dag. NRK har en strategisk plan for at dette skal fortsette.***

## **Presentation of our CDN usage (NRK)**

### **Hensikt**

Være mer tilstede på nett med det beste innholdet.

Økende krav til internettkapasitet, transportvei for video

Leveransen skjer i hovedsak over egen infrastruktur

130.000 samtidige på TV via internett under herrestafetten i fjor.

Tjenester vi legger i skyen må tåler stort trykk og fungere sammen med dagens CDN leverandører.

NRK leverer i dag store deler av video for nett over CDNer (Content Delivery Network). Denne migreringen vil bli total i forhold til lansering av ny nett-tv i løpet av våren. Når det gjelder webtjenester utover lyd og bilde leveres det i dag i hovedsak over fiber via det norske internettknutepunktet NIX.

NRK har i dag rammeavtaler med selskapene Akamai, Telenor og Qbrick for CDN tjenester. Avtalene åpner også for caching av hjemmesider og applikasjoner. Denne funksjonen er derimot ikke benyttet i særlig grad idag. CDN funksjonalitet inkluderer også mellomlagring i utlandet gjeldene for det innhold NRK har internasjonale rettigheter til. Det finnes her mekanismer for geoblokkering av innholdet og styringsfunksjoner for det.

Video og lyd levers i hovedsak over http og gjør bruk av video codecen h.265. I tillegg blir strømmene levert pakket inn i transportstrømmer som muliggjør adaptiv bitrate switching. Her benyttes Dynamic Streaming og HLS.

Totalt leverte NRK via CDN video og lyd tilsvarende ca. 17 petabyte i 2011. Cloud Services og PaaS vil ikke nødvendigvis berøre denne delen av NRK nettdistribusjon, men det kan være grensesnitt som en må ta i betraktning.

## **Presentation of NRK's technical structure (NRK)**

NRK viser til vedlagt PPT presentasjon.

## **Presentation of the upcoming Tender process (NRK)**



Mangler presentasjonen fra Jan Inge.

### **Questions from the audience attending**

#### **Ramp-up tid?**

NRK har i dag drift av alle tjenester som er på nett.

Slide: visual overview

Kan i dag bytte ut servere i fart.

Slide: servers, 1500 servere, fokus på virtuelle servere, aktuelt å flytte ut i skytjenester, vi leverer IaaS til resten av NRK, har også fysiske servere, 30 % virtuelle – skal opp til 50%.

Overvåking.

Tenker oss mulighet for å linke dette til PaaS

#### **Utvikler dere Nagios-prober selv?**

Ja.

Streamer radio fra nrk, podcast fra nrk.

Prøver å legge til rette for dette i serverparken, håper PaaS skal hjelpe oss til lettere å skalere opp/ned.

Ønsker å bli mer dynamiske, øke/ fjerne kapasitet, litt gammeldags driftsorg, vi vil øke muligheten til å snu oss rundt, ser skytjenester som mulighet for oss til å ta vekst og gi økt fleksibilitet.

#### **Info knyttet til kommende konkurranse**

NRK vil en prosedyre knyttet til regelverket om offentlige anskaffelser. Fram til konkurransen er lagt ut vil kommunikasjonskanalene inn i NRK være helt åpne. Denne prosessen er å betrakte som en slags RFI .

Målet er en rammeavtale med flere.



# Overview of technical infrastructure

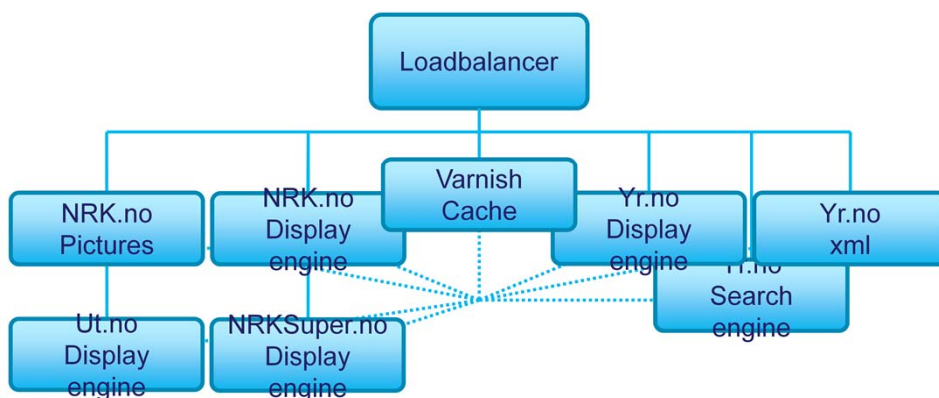
Extracts from monitoring systems and uCMDB

2/15/12

↑ NRK Overview technical infrastructure



## Visual overview



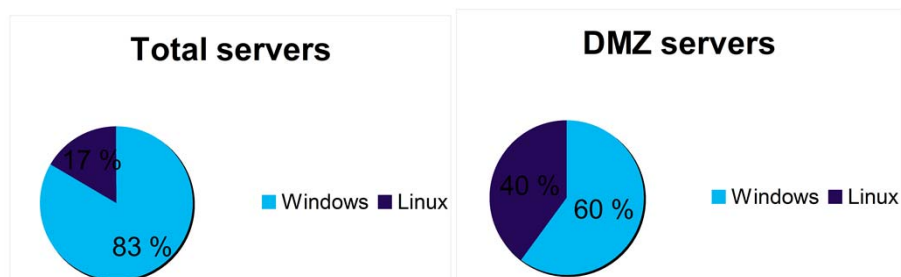
Lastbalanserer håndterer alle inkommende URL'er og sender til logisk Pool.

Varnish kan håndtere egne undernoder eller forholde seg til Lastbalansererens «Pooler»

32 «Pooler» i LB. Fortsatt mange ikke-lastbalanserte systemer (av historiske årsaker) og single servere.

## Servers

- 1500+ servers total
- 400+ DMZ servers

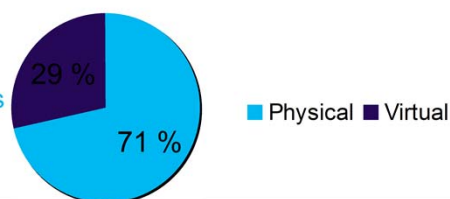


Av 400 dmz servere, 10-20%  
administrative systemer, PORT,  
DNS, FTP, Mail osv

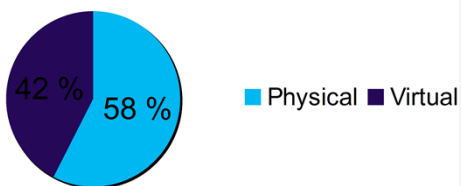
## Servers

- Collection of Physical and Virtual servers
- Focus on virtualising serverfarm

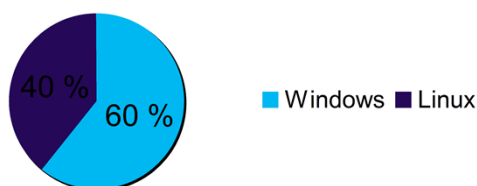
### Total Server HW



### DMZ servers



### DMZ virtual OS

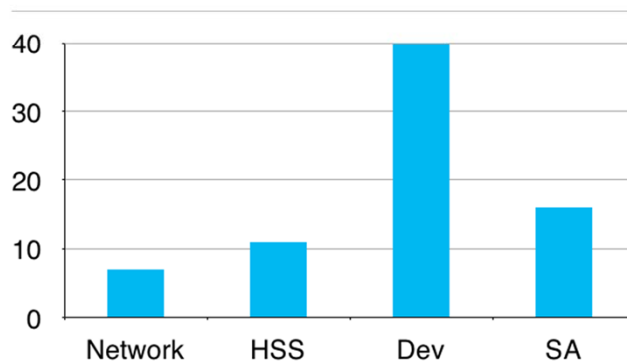


Høyt fokus på virtualisering av servere. Jobber med self-service funksjonalitet. Trenger enklere og kjappere utvidelse av pressede applikasjoner.

Mye spesialhardware som ikke lar seg virtualisere pga egne behov for PCI kort: Enkodere, styringssystemer, ingest stasjoner for journalister osv osv

## Resources

- Area specific organisation
  - Network
  - Hardware, Servers, Storage
  - Development
  - System administration



2/15/12

5 NRK Overview technical infrastructure



Flere organisasjonsenheter.  
«Ballpark» figure. Har ikke tatt med  
prosjektledere, linjeledere, ikke-  
publiserings  
spesifikke ressurser

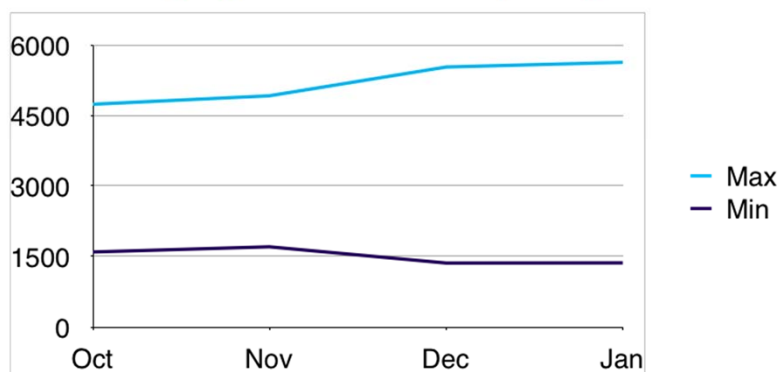
## Resources

- [Monitoring systems](#)
  - [SCOM](#)
  - [Nagios](#)
  - [Munin](#)
  - [System administration](#)
  - [HP Operations Manager agent](#)

## De mest brukte overvåkingssystemer

## Network usage

- Normal Outgoing network traffic (Mb/s)

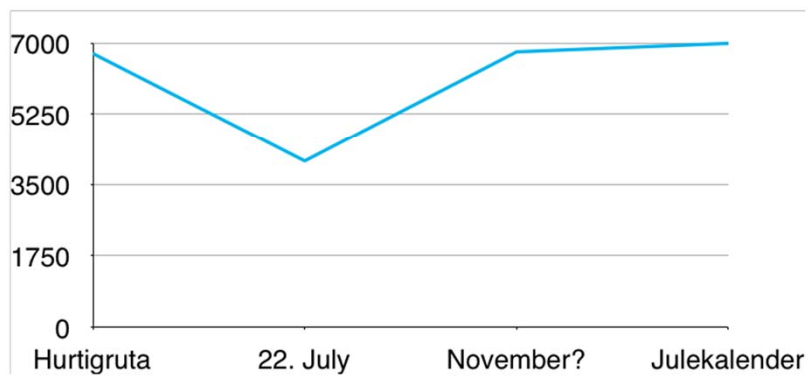


## Mangler data fra utenlandet



## Network usage

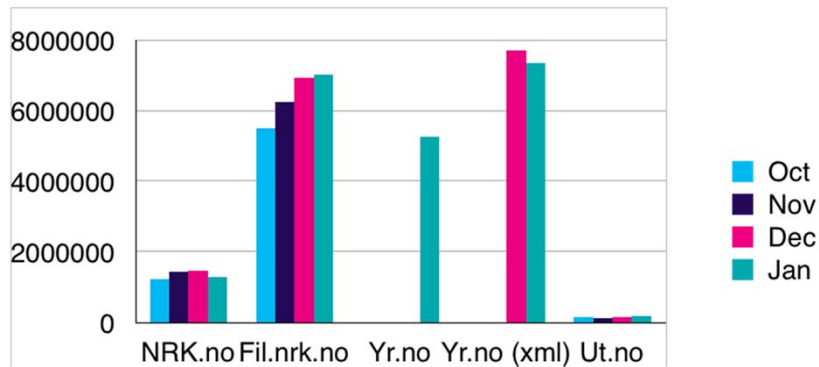
- Event driven Outgoing network traffic (Mb/s)



## Mangler utenlandslinjen

## Network usage

- Website unique visits



NRK.no er kun artikkelvisning.

Mangler f.eks. bilder, video

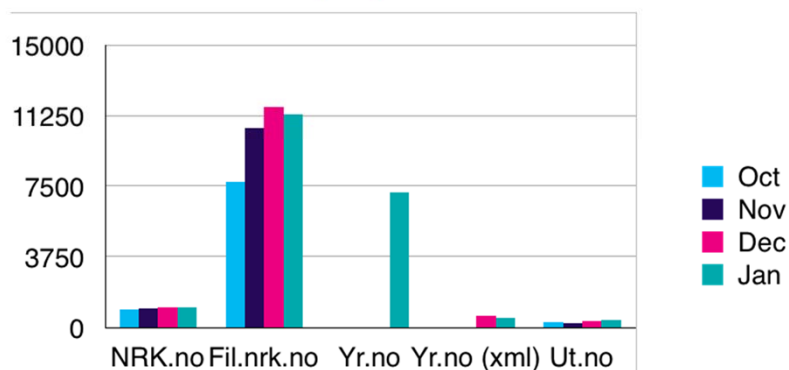
Fil.nrk.no er statisk  
applikasjonsinnhold

Yr.no startet logganalyse i januar

Yr.no xml startet logganalyse i  
desember

## Network usage

- Website data traffic (GB)



NRK.no er kun artikkelvisning.

Mangler f.eks. bilder

Fil.nrk.no er statisk  
applikasjonsinnhold

Yr.no startet logganalyse i januar

Yr.no xml startet logganalyse i  
desember