Request for Information
– NHN integration solution for AMK

This document is a Request for Information (RFI) regarding a new integration solution to be established as a central point of integration between a new national application for the medical emergency centers (AMK) in Norway and multiple internal/external data providers.

1. About Norsk Helsenett SF

Norsk Helsenett (The Norwegian Health Network) is a public enterprise, owned by the Ministry of Health and Care Services. Our mission is to ensure efficient, secure and reliable access to critical health information for users and actors in the health and care services sector.

Norsk Helsenett (hereafter "NHN") is responsible for the development and IT operations of Norwegian national digital eHealth services like www.helsenorge.no (citizen portal), Kjernejournal (national summary care record) and e-resept (electronic prescriptions).

Fulfilling the need for a secure, unified communication network for sharing and exchanging information is also one of our key tasks.

2. Objectives of this RFI

NHN is exploring how to set up an integration solution that will enable efficient and reliable data transfer between the new application for the medical emergency centers and data providers of call information, patient records, geo-information etc. needed during the handling of an emergency patient call/case.

NHN has conducted a preliminary technical and business evaluation of what such a solution would require. The solution should be based on a modern architecture, make use of mainly standardized components and be scalable for expanded use by future projects.

NHN needs better knowledge of what the market can offer in terms of features, consulting services, pricing models, as well as service and deployment models.

Please Note: NHN has a separate on-going process to look at API Management solutions, where an RFI was conducted in the autumn of 2019. That process is separate from this RFI, which has been triggered by the immediate needs of the new AMK application project. NHN has decided to keep these two processes separate. However, the two solutions must be able to work together.

3. Proposed solution

The technical solution concept consists of the NHN integration solution whose purpose is to cover the current integration needs of the new AMK application, as well as be scalable to cover future needs.

The NHN integration solution will create a central information gateway at NHN between data consumers and data providers, as shown in the following illustration. The goal is that all

integration traffic between data consumers and data providers should be channeled through the NHN integration solution.

The NHN integration solution concept consists of 3 main components: infrastructure / network, Gateway and API management, of which **Gateway is the focus of this RFI**, as indicated by the red box in Fig. 1.

- Infrastructure / network consist of basic network services like load balancing, package routing, VPN and firewall. NHN already offers these services today.
- **Gateway** is a new solution that should offer functionality like authentication, authorization, audit/logging, URL-routing, transformation, validating and analysis/reporting. It may consist of one or more software components.
- An API Management solution (separate process) should be able to work together with the Gateway and enable the offering of life cycle management of interfaces, versioning and a portal for self-service.
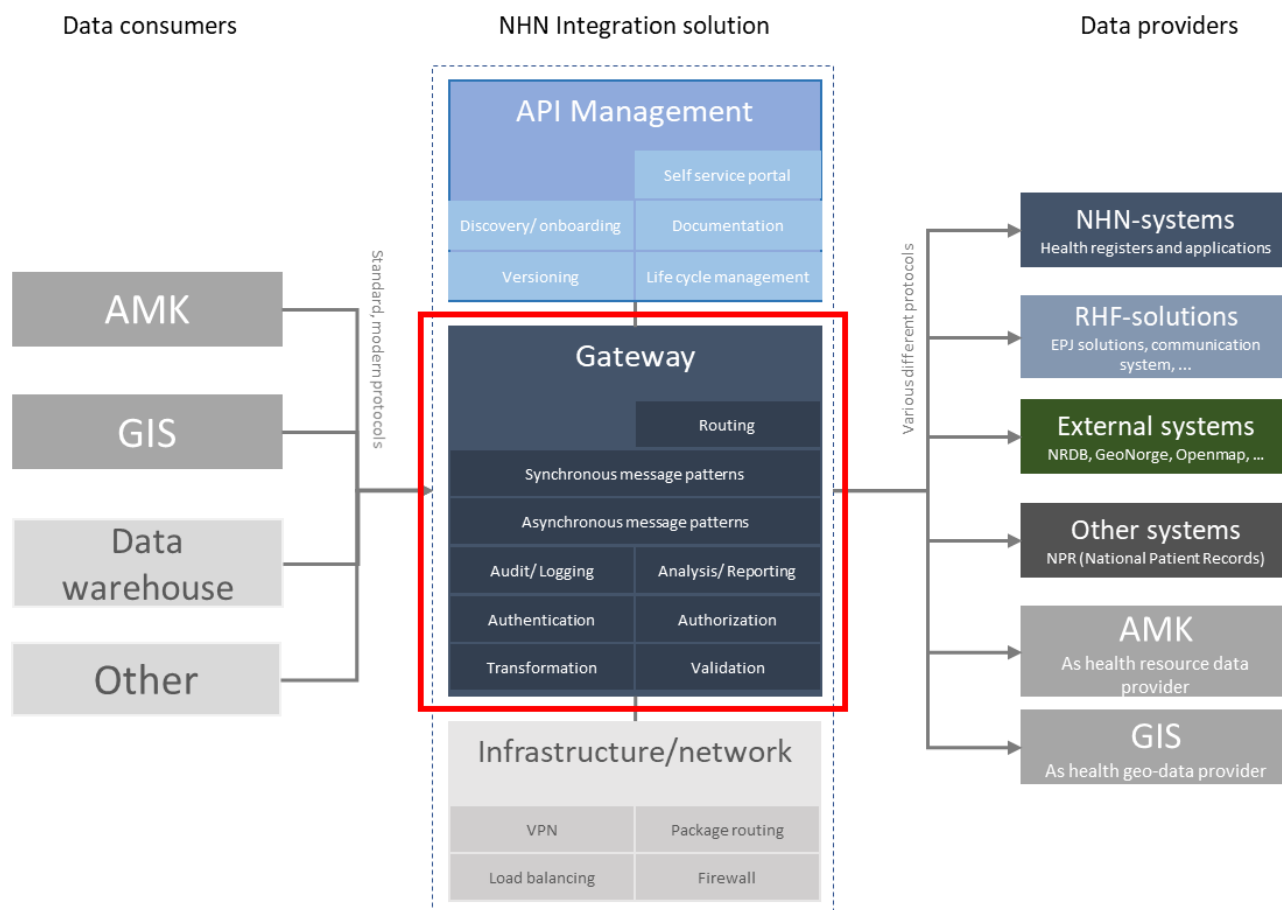

Fig. 1. Sketch of the proposed NHN integration solution

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The following explanatory comments relate to Fig. 1.

Data consumers

- AMK and GIS (The new AMK application will consist of 2 integrated components: AMK and GIS (Geographical Information System).
- Data warehouse is 4 regional data warehouse applications
- "Other" are future data consumers of information collected by AMK and GIS

Data providers

- NHN is itself responsible for several health resource registers and e-health applications
- Regional (4 health regions run several EPJ applications)
- External (NRDB – emergency call tracking application, geo-data etc.)
- Other (NPR – National Patient Register)
- Note that both AMK and GIS may also have roles as data providers of gathered health related information, hence they are also listed as data providers

Gateway

- The Gateway offers critical functionality and should be designed for very high reliability and availability, as indicated by the Fig. 2
- The Gateway should support synchronous message patterns
- The Gateway may also support asynchronous message patterns, as these are in current use for some interfaces. However, it has not yet been decided whether the new Gateway should handle this.
- The Gateway should support network security, authentication and authorization
- Routing and transformation in the Gateway may be used to offer standardized API's to the data consumers and to simplify the integration to e.g. older protocols/interfaces at the data providers, plus making it simpler to implement changes by the data providers
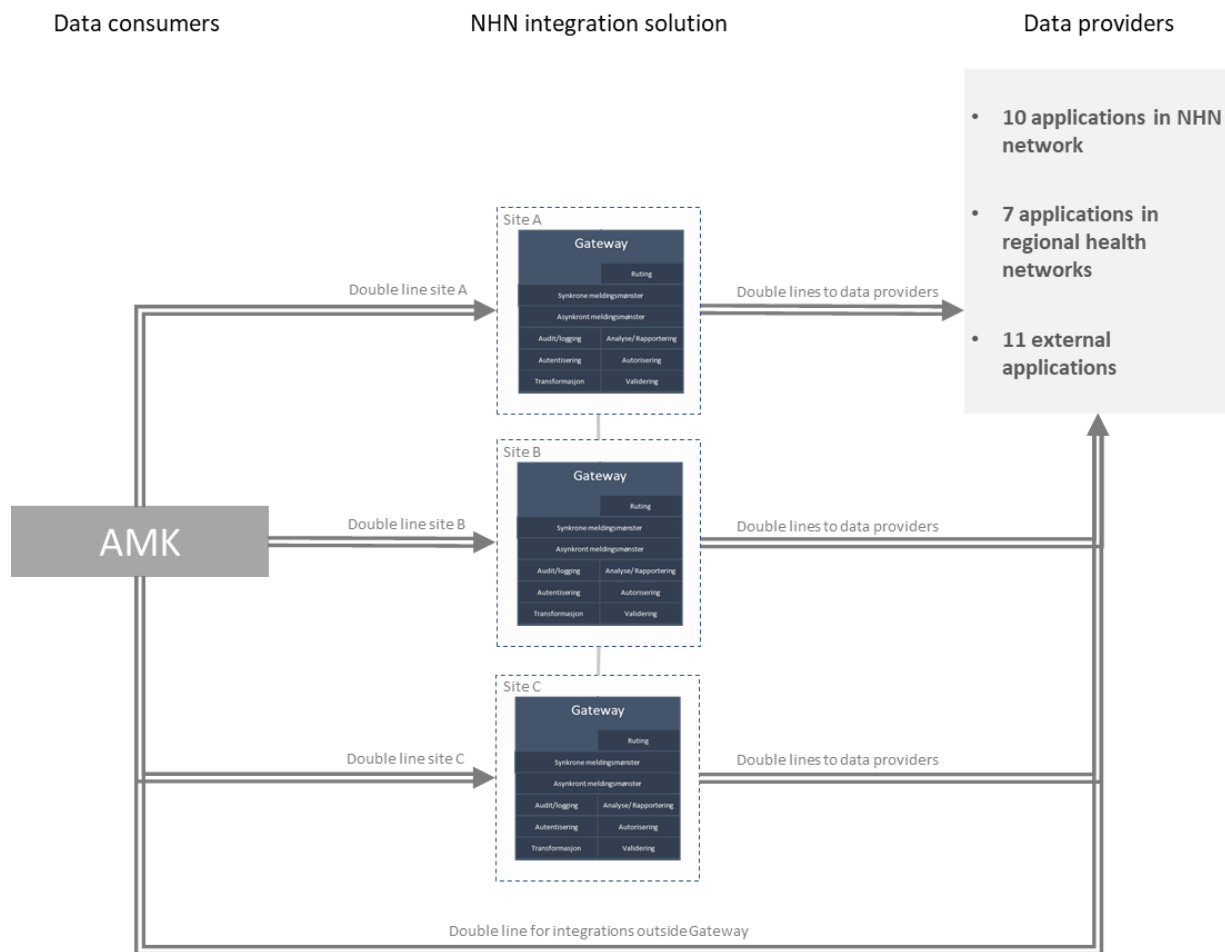
Fig. 2. Sketch of proposed operations environment of NHN integration solution for AMK with redundancy setup

The NHN integration solution for AMK will be implemented in a phased approach over a timeline as indicated below:

- Phase 1 – configuration 2021, test & deployment 2022
- Phase 2 – configuration 2022, test & deployment 2023
- Phase 3 – further development from 2023

Estimated number of integrations/interfaces in the new AMK application

No. of integrations	via Gateway	via network only*	Total
Phase 1	15	15	30
Phase 2	10	20	30

*) AMK/GIS vendor will call these data sources directly over the NHN network/infrastructure, using established protocols

The volume of transactions for the AMK application is approx. 1 mill. emergency calls/cases per year, resulting in an expected 10+ mill. transactions per year for the NHN integration solution.

The Gateway will require the following environments:

- Development environment (1 site)
- Testing environment (1 site)
- Pre-Production environment (with 3 sites)
- Production environment (with 3 sites, as shown in Fig. 2)

4. Product features

The technologies and functionality in components will probably vary between vendors.
In order to get better knowledge of what the market can offer in terms of product features, we would like to receive responses from the vendors in the marketplace to the following high-level questions:

4.1 General features

1. What is your recommended architecture for the new NHN integration solution, based on the information provided in this RFI?

2. Which deployment models are available for your solution and components?
    - On premise?
    - Cloud? Which cloud are supported?
    - Hybrid environments?
    - Other?

3. Are there any limitations on the number of data consumers and data providers in your solution? Please provide any performance benchmark for the number of transactions and connections.

4. Which API Management solutions are commonly used together with your proposed integration solution? Are there any known compatibility issues between your proposed Gateway solution and API Management solutions from other vendors?

4.2 Technical features

1. Does your solution handle <u>synchronous</u> communication patterns? Which synchronous message patterns are supported?

The Norwegian health regions has an existing asynchronous communication solution in operation for transferring patient records from the existing AMK solution to other EPJ applications based on SMTP. NHN is unsure whether asynchronous message handling should be part of the new gateway or whether to reuse the existing solution.

2. Does your solution handle <u>asynchronous</u> communication patterns? Which asynchronous message patterns are supported?

3. Is asynchronous message handling integrated in your proposed gateway or a separate product? If a separate product, how is it integrated with your proposed gateway in terms

of security, reporting/analysis and other features? Are there any advantages / disadvantages of providing asynchronous communication in addition to synchronous in the gateway?

4. Does your solution offer all or parts of the following functionalities: audit, logging, URL-routing, transformation, validating? Does it offer additional or other features for handling communication?

5. Does your solution offer traffic analysis and reporting tools?

6. Which security features does your solution offer for authentication and authorization? Which protocols are supported?

7. What are the capabilities in your solution for delegating security to separate security components?

8. Can logging of your solution be done by plugging in Splunk?

9. If you are providing a multi-product solution, how do these products integrate?

5. Solution support

1. Is solution support provided by the producer/vendor (directly) or via a partner (indirectly). From which geographic location (country) will support be provided?

2. How do you support a solution which is both on premise and cloud based?

3. What are the procedures for providing the customer with updates and new versions of the solution?

6. Services

We need to understand which capabilities we need to build, to utilize and manage the new NHN integration solution efficiently.

1. Which services are you offering - license only, system configuration, implementation services, operations and maintenance?

7. Pricing models

We need an understanding of the different product pricing models across vendors in the market. The vendor is encouraged to describe pricing models offered to enterprise customers like NHN.

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Although the NHN integration solution is needed to cover the specific needs for the new AMK application, we envision that the solution can be used for other customers or projects in the future.

1. Which alternative pricing models do you offer, and which (price-driving) factors are they based on?

2. Do you offer a pricing model that allows us to expand the solution to future customers/projects?

3. Do you offer a dynamic pricing model that allows us to scale quickly up/down to cover future project-based or emergency needs? How do you handle temporary spikes in usage with regards to pricing, e.g. in case of an emergency like Covid19?

4. Do you offer an enterprise license?

5. Please provide a ROM (Rough Order of Magnitude) price estimate for your proposed solution, based on the information in this RFI.

8. Instructions for vendors

This is a Request for Information (RFI), not an order. No cost can be charged to us for any reason.

This document shall not be construed as a request or authorization to perform work at our expense. Any work performed by a vendor will be at the vendor's own discretion and expense. This RFI does not represent a commitment to purchase or lease. Submission of a response constitutes acknowledgement that the vendor has read and agrees to be bound by such terms.

8.1 NHN Point of contact

All communication, including written response to the RFI, must be directed in writing through the communication module in Mercell.

8.2 Deadline for submission of response

A written response must be committed by Friday 14th August 2020 12:00 CET. Extensions to this deadline will not be granted.

Responses must be submitted complete and in electronic form through the communication module in Mercell.

8.3 Vendor meetings

After assessing the responses to the RFI, NHN will invite some of the relevant vendors to one-on-one meetings through Skype / video. Invitations to these meetings will be sent shortly after the deadline for submission of response. The purpose of these vendor meetings is to discuss the invited vendor's written response and further investigate different options for an AMK integration solution.