

Annex 10 – Streaming of Data Evaluation Criteria

This document describes how KNMI will evaluate **Desirable #28: “Streaming of Data”**.

KNMI has traditionally ingested lightning data via secure FTP as files containing observations from a certain geographic area and time window. This method works well, is widely supported in the market and the resulting files are easy to archive. It, however, also introduces additional latency. As KNMI is transforming into an Early Warning Center, it is important that any data stream is available with minimal latency. This allows for example the KNMI weather room to see near-real-time lightning detection and use the latest lightning data in derived products.

KNMI will award points to the solution based on the following criteria:

Criteria	Weight
Use of Open standards	30%
Security	0% (mandatory)
Ease of Integration and Operation	40%
Availability	0% (mandatory)
Timeliness	30%

Use of Open standards

- KNMI wants the solution to align with the KNMI i-strategy and Enterprise Architecture, which promote using working event-driven and cloud agnostic where possible while using open (non-proprietary) standards.
- This criterium applies to both the streaming technology as well as the payload. Examples of technologies in use within the KNMI (not prescriptive):
 - HTTPs, MQTTs and Kafka
 - GeoJSON, CoverageJSON and XML.
- Full points are awarded to a solution that uses only open standards for its streaming interface, thus allowing another vendor to implement the same interface.

Security

- Mandatory Requirement #40 (Secure Connection) also applies to this solution. It must be substantiated how this is achieved for the streaming solution, as the streaming solution is built on different technologies.

Ease of Integration and Operation

- A solution that is easy to integrate and operate is valued.
- For example if KNMI does not need to run brokers, but instead can use off-the shelf (stateless) listeners within its AWS-based Container (ECS/EKS) platform, this makes integration easier. If KNMI needs to run server-side stateful applications, the substantiation should explain the effort.
- Full points are awarded to a solution that does facilitates a serverless design, especially one not requiring KNMI to run stateful brokers/queues.

Availability

- Mandatory Requirement #1 (System availability and uptime) also applies to this solution. It must be substantiated how this is achieved for the streaming solution.

Timeliness

- Mandatory Requirement #2 (Real-time lightning event data distribution) largely applies to this solution, but for the streaming solution there is no “closing of the interval”, thus 15 seconds from detection of Lightning to availability at KNMI.
- Full points are awarded to a solution that substantiates and guarantees timeliness within 2 seconds (detection of Lightning in the vendor’s network to availability at KNMI). Half points are awarded to a streaming solution that offers 15 seconds latency.