

Siemens Energy Spontaneous Leak Detection Service powered by ProFlex

Overview

May 2021



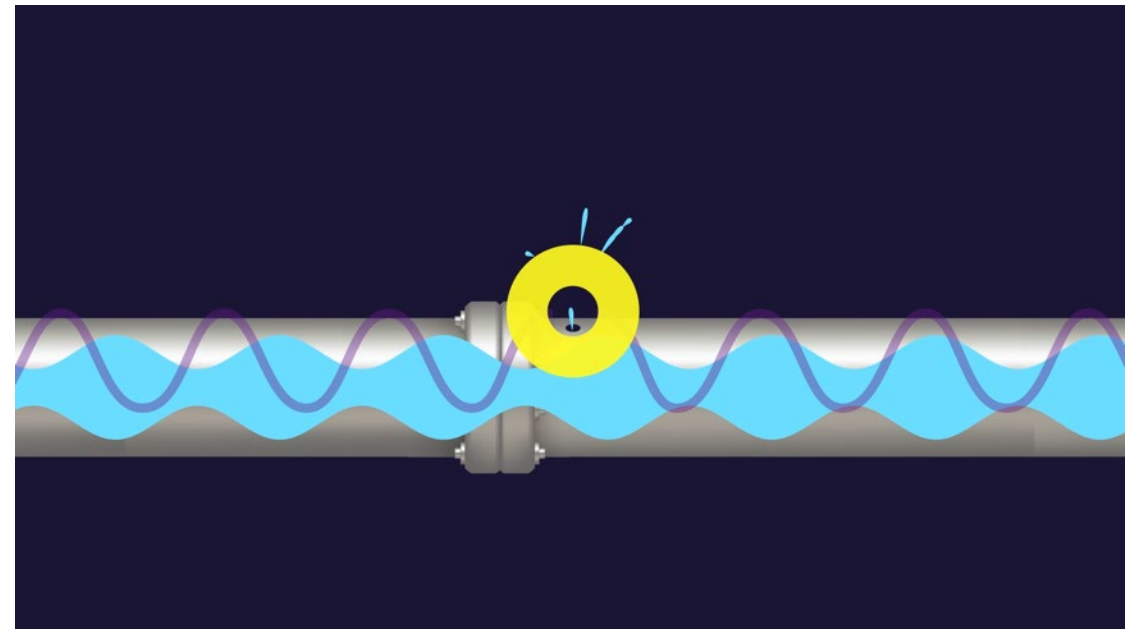
Setting the context for today's presentation

We will be discussing spontaneous leak detection.

We define this as an event that causes an immediate breach in the pipeline.

The breach will generate a negative pressure wave which the SLD Service will detect and report.

This will not detect a creeping leak such as a seal that is leaking small amounts of product over time.



Why look at new leak detection technology?

Our new leak detection technology brings:

Speed: detect leaks in a few seconds before significant environmental damage occurs.

Location: pinpoint leak location typically to +/- 20 to 50 feet minimizing excavation cost/time to find leaks

Reduce Product Loss – identify leaks typically as small as ½ to 2 inches dramatically reducing product loss

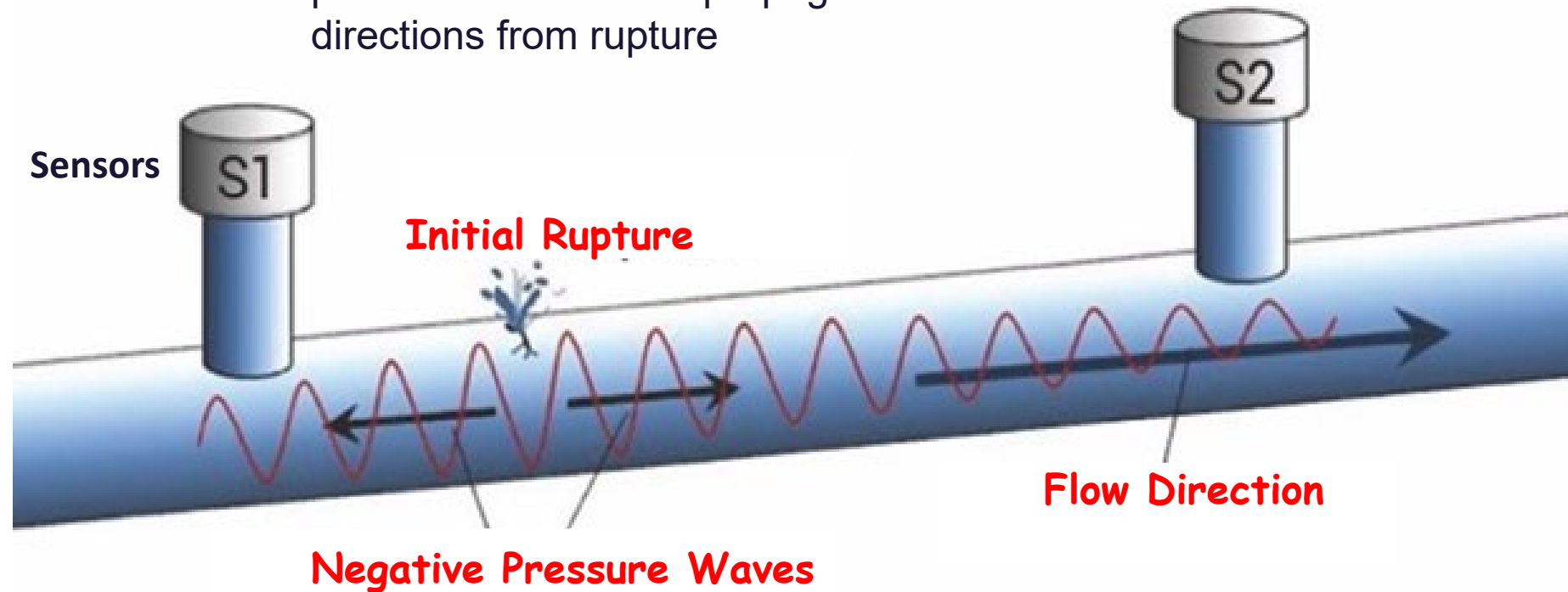
Layered Security – supplement existing leak detection systems for critical pipeline segments

Regulations – Be able to quickly respond to new/pending regulations

How we detect and localize small leaks in seconds

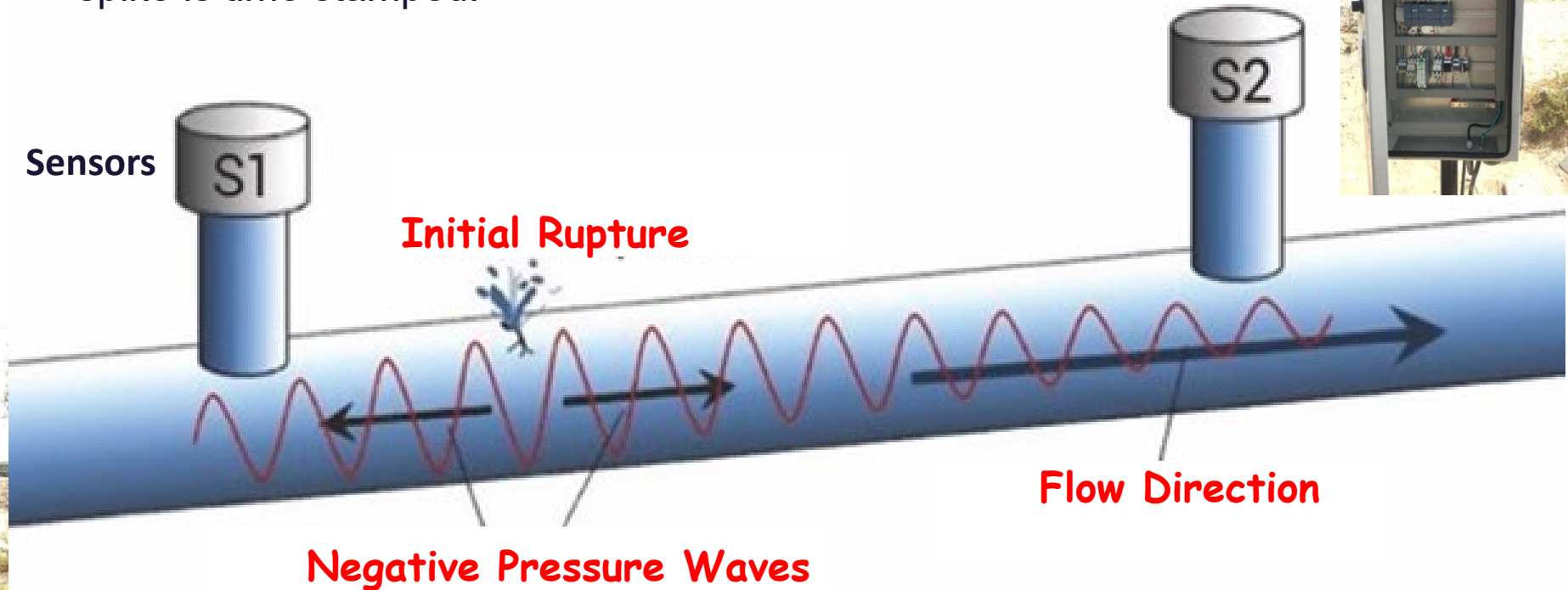
Enhanced negative pressure wave detection

Initial rupture in pipe generates negative pressure wave which propagates in both directions from rupture



How it works – Enhanced negative pressure wave detection

Edge computing processes the pressure and other sensor data with advanced signal processing algorithms to detect pressure wave from background noise. Detected pressure spike is time stamped.



Edge computer – LTE/Satellite and Solar/mains power

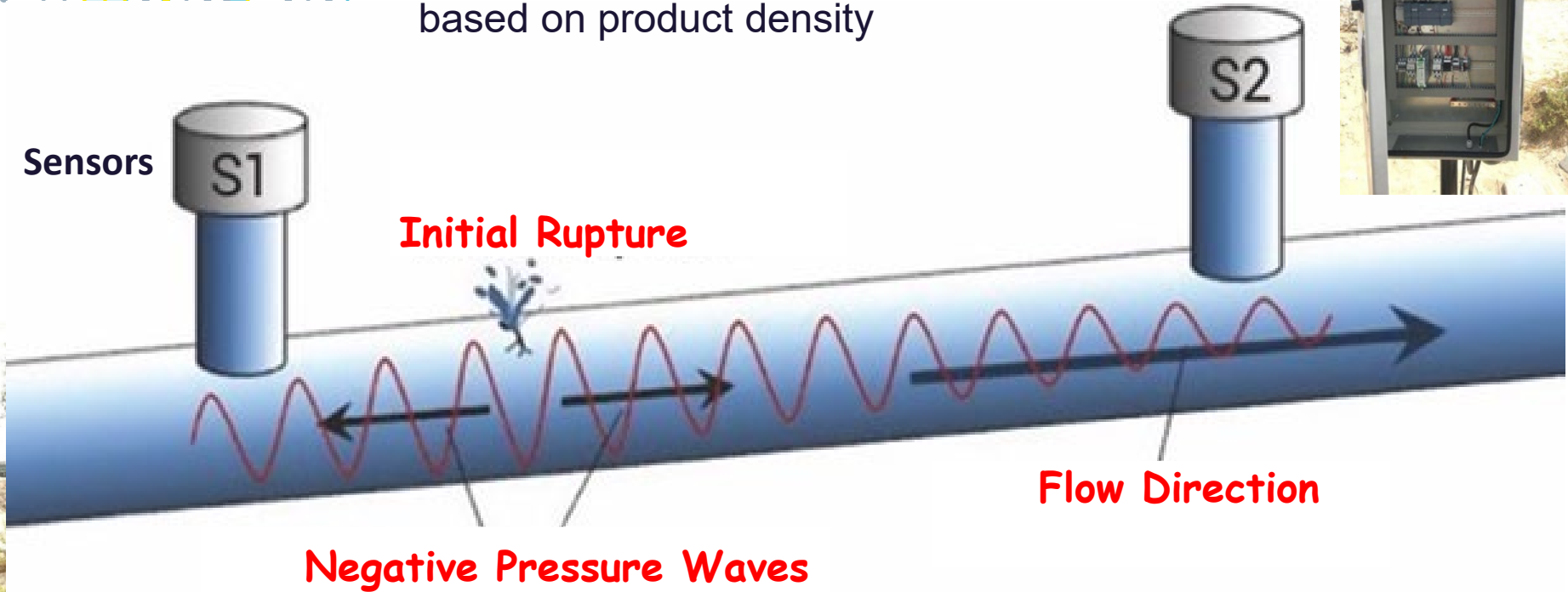
How it works – Enhanced negative pressure wave detection

Siemens Energy Cloud

The pressure spike and time stamp are transmitted to the cloud. Cloud computing compares time stamps and localizes the leak based on product density



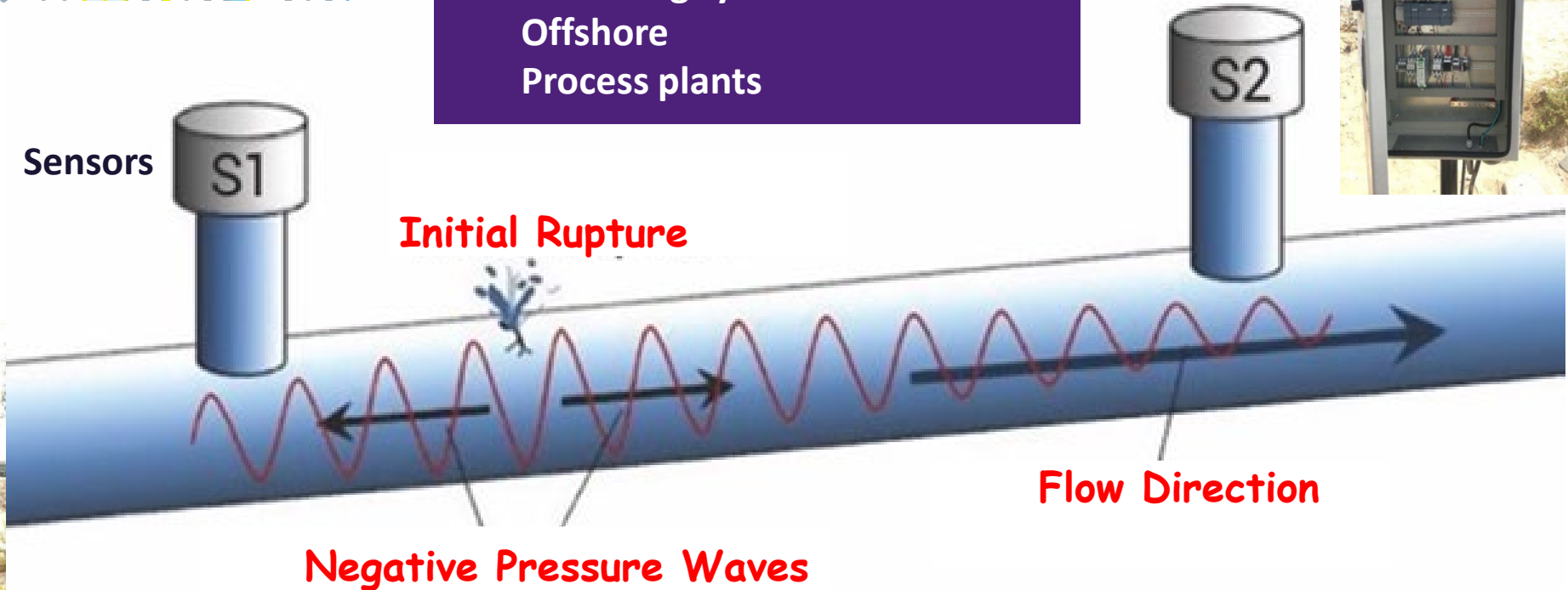
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How it works – Enhanced negative pressure wave detection

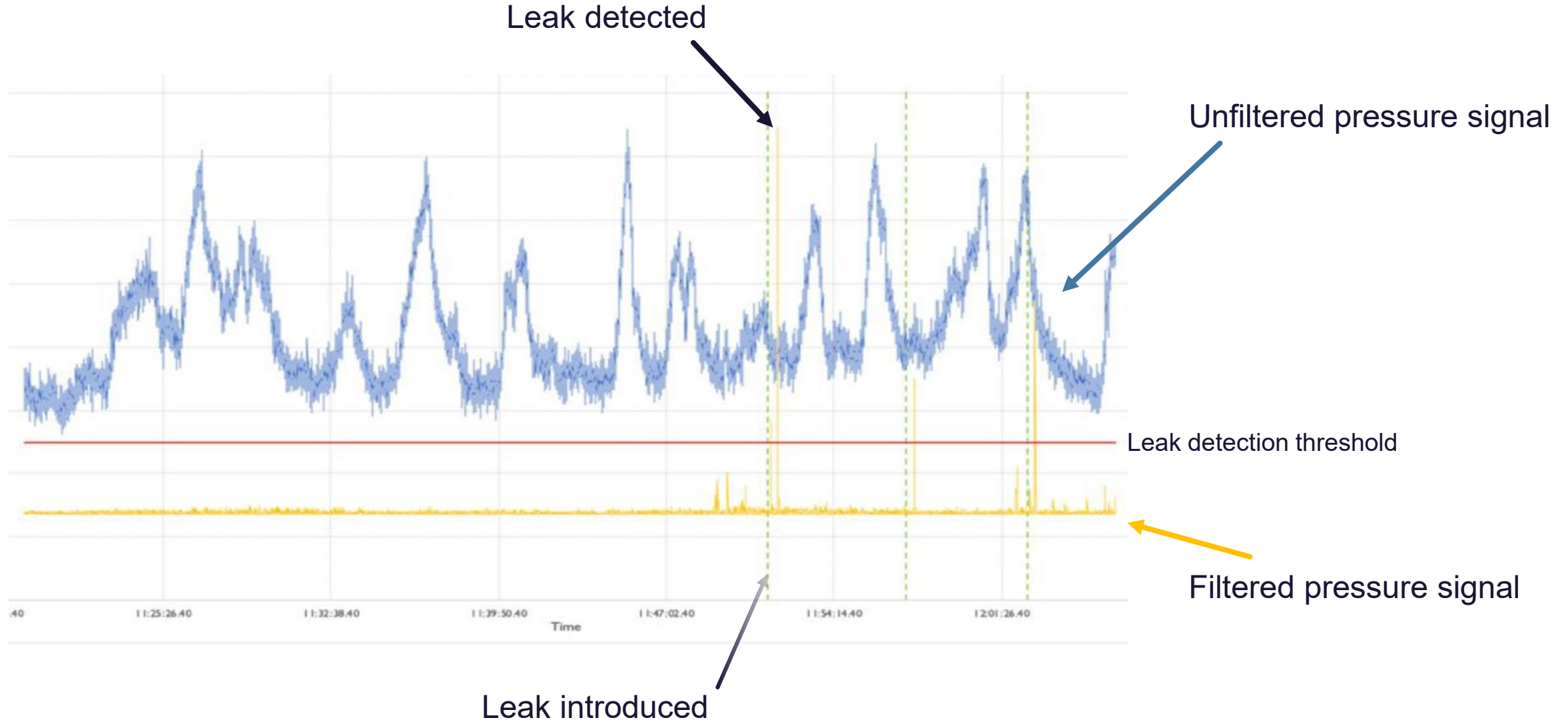
Siemens Energy Cloud

Applications:
Pipelines
Gathering systems
Offshore
Process plants



Technology is applicable to water, gases, oil, condensate, multi-phase flow

Case study - offshore



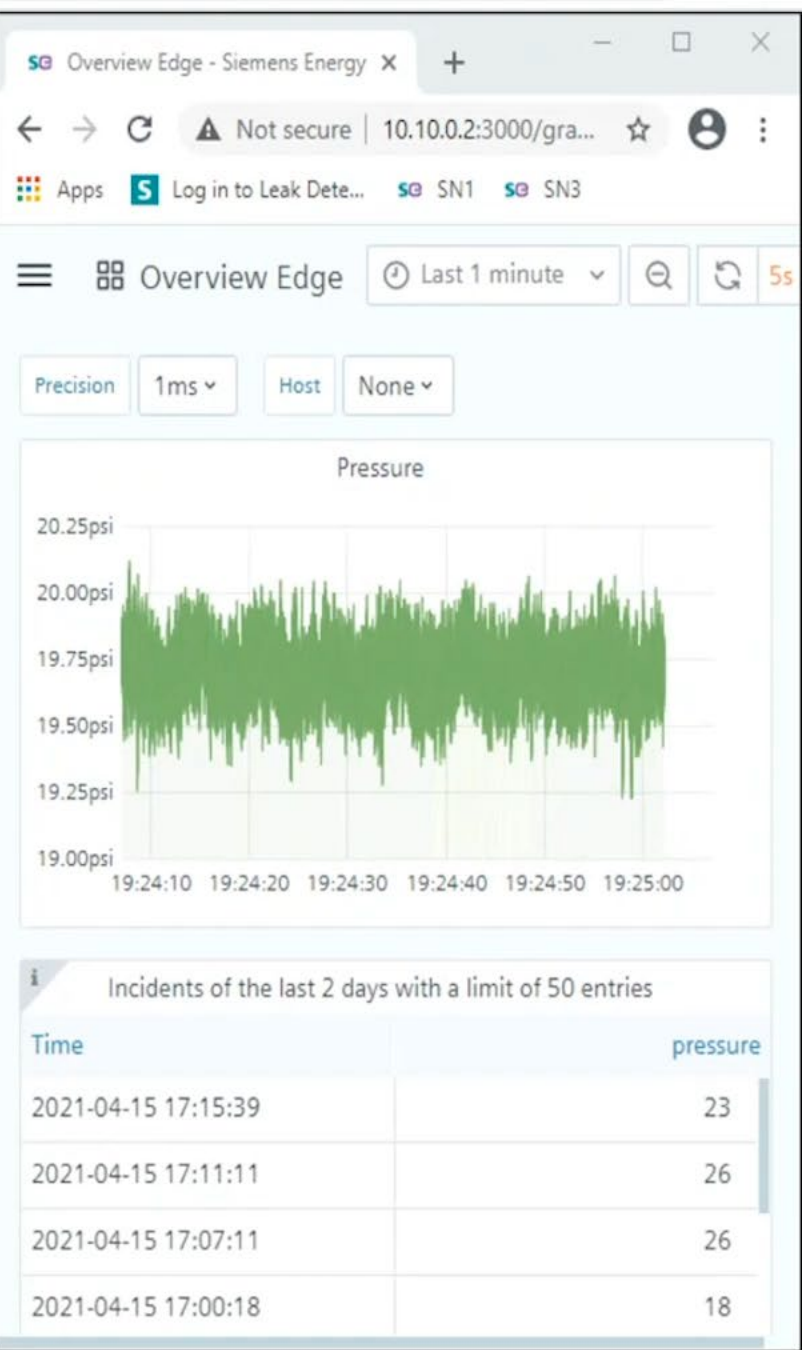
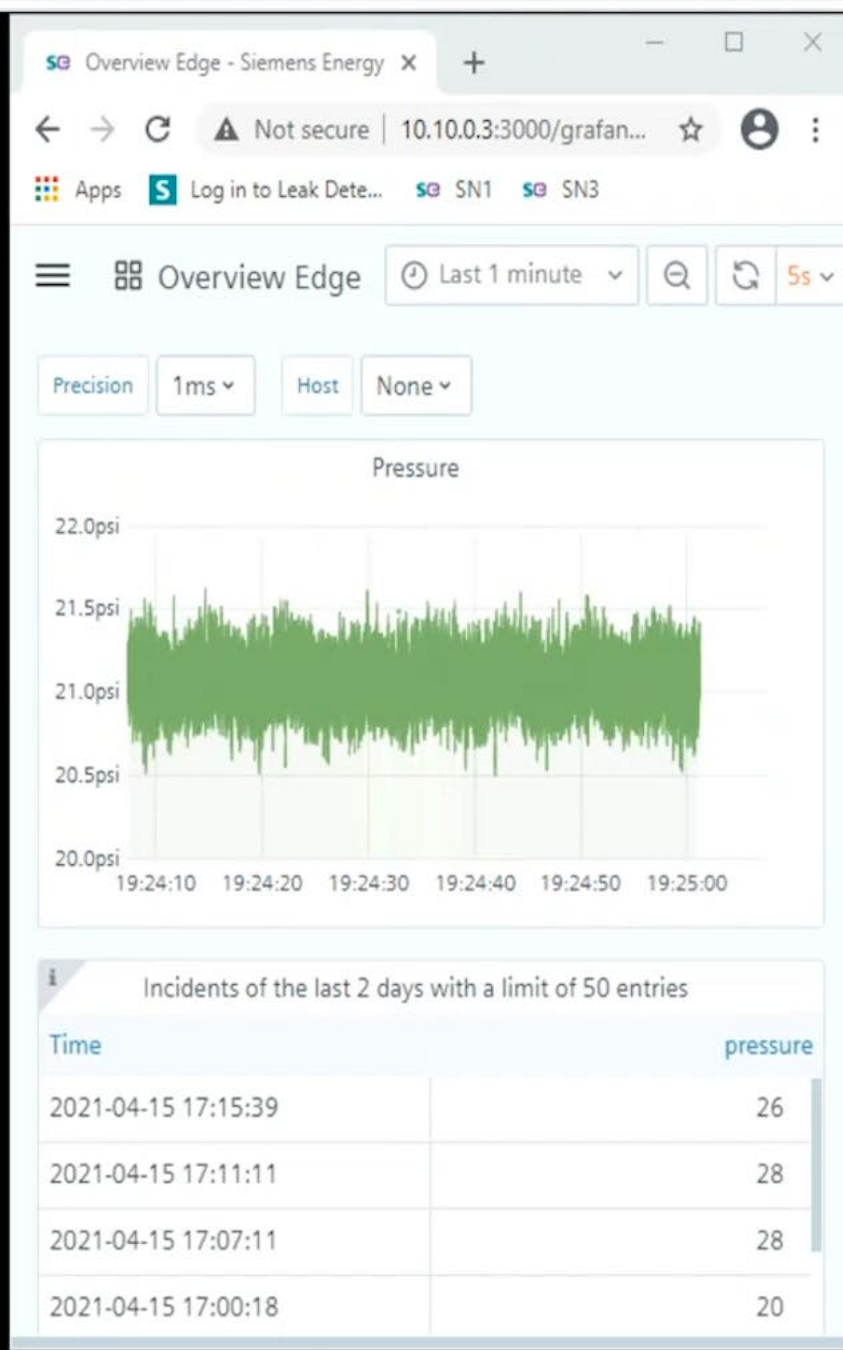
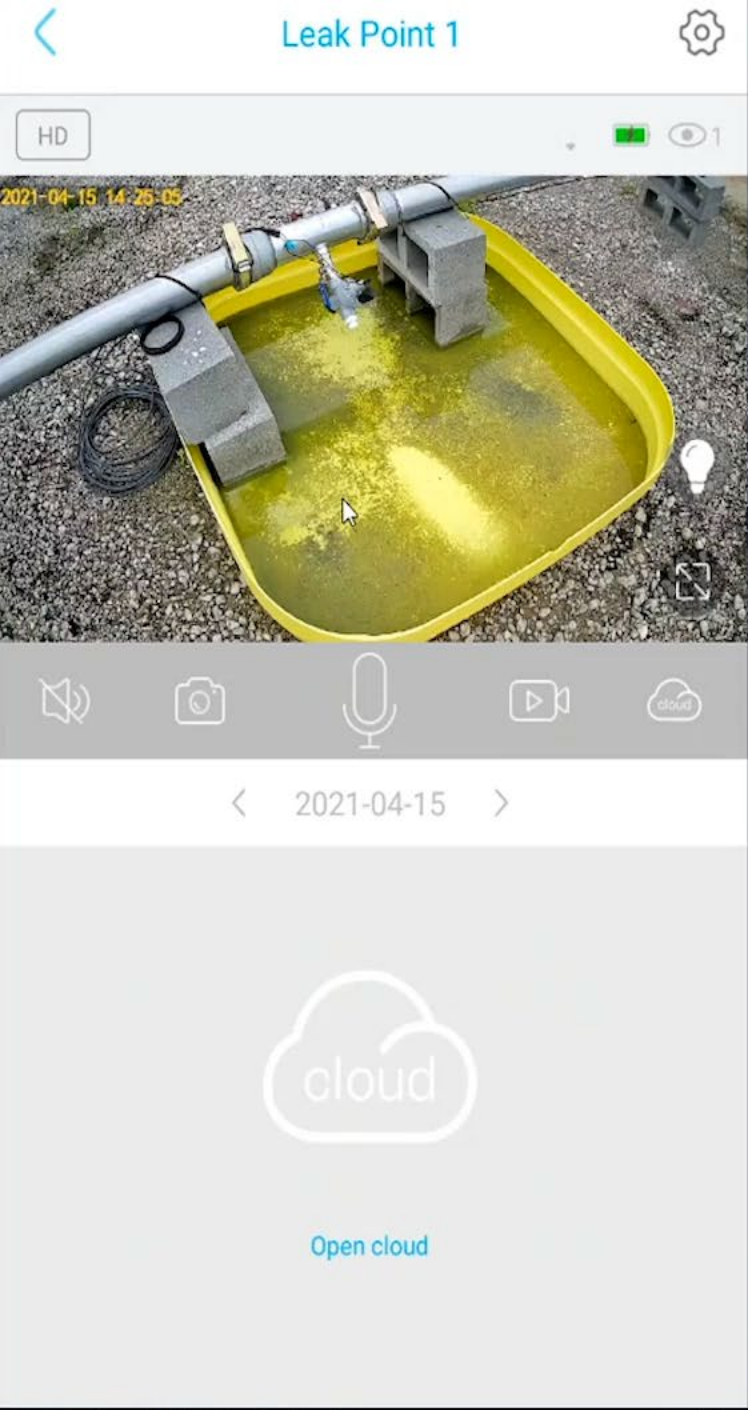
Implementation of SLDS is straightforward

The SLDS is an Engineered Solution that is tailored for your specific pipeline physical and operating conditions.

- The first step is a field test using portable SLDS hardware to determine feasibility
- The next step is determining the number of nodes and location and then installing the nodes and sensors along the pipeline
- We then “tune” the system to your specific pipeline operating conditions
- Operational handover
- Ongoing maintenance and support

Overall goal is minimal impact on pipeline operations and staff





Questions?



Contact us!



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