Greenbird

Utilihive SMOC Smart Meter Operations Center

Introduction

For most utilities that have completed their smart meter rollout or are in the process of deploying, a centralized (multi-utility) smart meter operations center (SMOC) is a logical progression. These utilities may have completed their rollout from first-time installations to second wave implementations. Or they may be in the process of deploying smart meters for the first time. Either way, these utilities are looking for the best way to achieve total visibility of their AMI operations or launch pad for successfully delivering advanced utility solutions with its pre-configured integration content.

SMOC is responsible for monitoring and overseeing the health and operations of all smart meters deployed and installed by a utility. It provides a “birds eye view” of the entire AMI operation and offers a platform to liaise with other utility operational teams and departments to ensure services provided to customers are of the highest quality.

Overview

Solution purpose

Utilihive SMOC offers smart metering operational teams real-time, end-to-end monitoring, analysis and management of their systems and the entire metering value chain. This allows them to continuously optimize their metering operations and achieve their service level goals.

AMI (Advanced Metering Infrastructure) operations typically rely on a collection of disparate systems including Head End Systems (HES), Meter Data Management (MDM), CIS, ADMS, SCADA and other legacy systems that power the meter-to-cash or meter-to-ops value chain.

Utilities that deploy Utilihive SMOC as their future proof SMOC benefit from having a holistic view to monitor and manage all their daily operations including:

- Progress and quality measures of rollout and smart meter installation and rollout plans
- Status and quality measures of the AMI and communication network
- Real-time insight and transparency of low / mid voltage grid infrastructure
- Quality insights across all stakeholders in the entire metering value chain
- Quality of the IT operations, message exchange, system, and data integrations across all interconnected systems and applications
- Alerts, alarms and incident management

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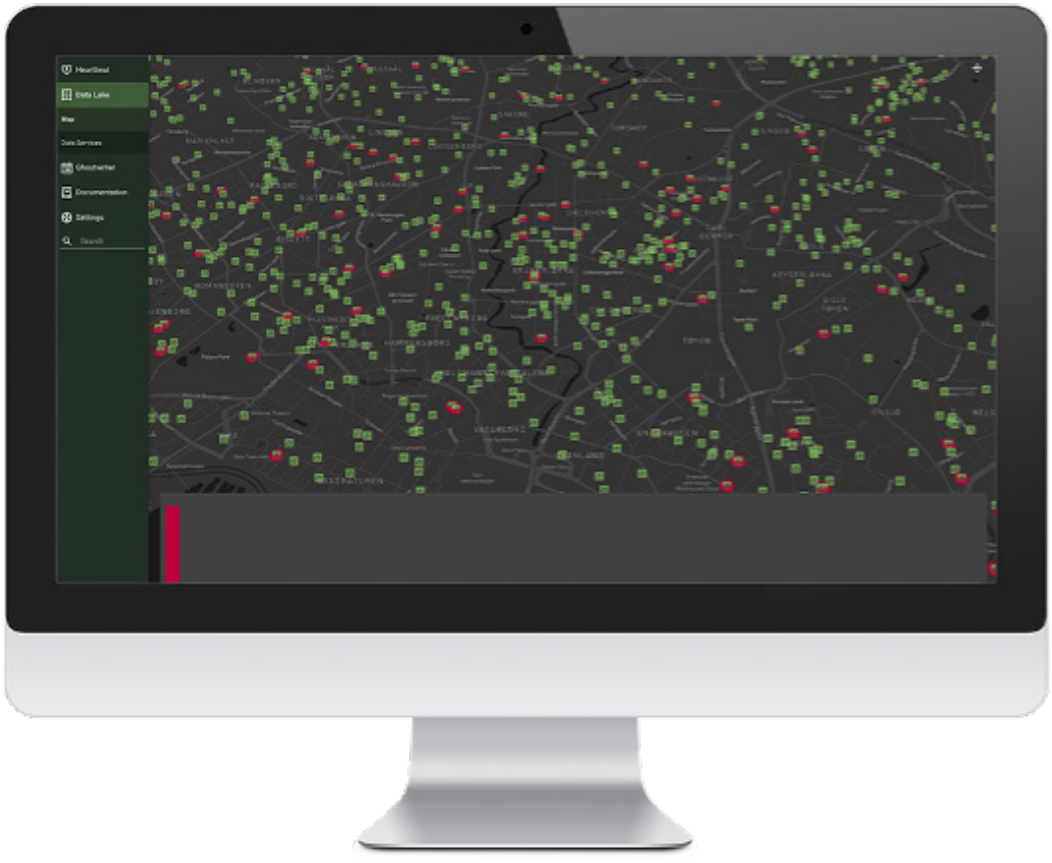
Key Components

Rollout and installation Monitoring

As utilities look to their smart meter suppliers and installation partners to offer a cost-effective and CAPEX optimized rollout and installation process, they need real-time insights to monitor the status and quality of the deployment progress, ensuring compliance with strict Service Level Agreements.

Utilihive SMOC unifies and utilizes data from various source systems. These include Work Order Management (WOMS), data from various source systems including Meter Data Management (MDM), Asset Management (AM) or Geographical Information System (GIS), as well as metering data, events and alarms from the Head End System(s) (HES). Together, this data provides a holistic view of the progress and quality of the smart meter rollout.



Key Components

Utilihive SMOC alerts users to any installation challenges, discrepancies, or inefficient processes during the rollout and subsequently during daily operations. This helps avoid issues that may have a significant financial impact or result in a poor customer experience.

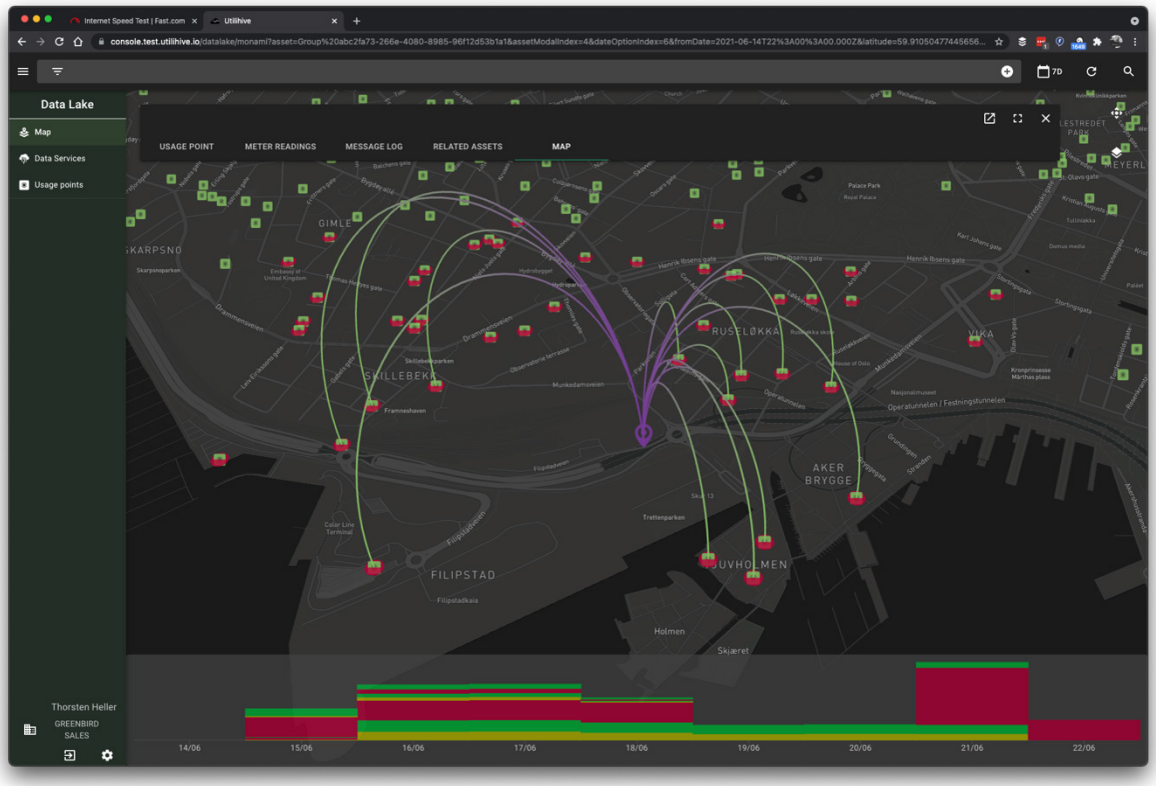
Utilihive SMOC offers a modern and responsive user interface to provide authorized users and operators with the tools, insights and operational support needed to monitor all aspects of smart meter installation and rollout processes. Built-in smart filters offer users and operators real-time insights and answers to typical questions and challenges that arise during the rollout / installation in an effective easy to use interface. Typical questions may include:

- How many smart meters are planned to be installed in the given period?
- How many smart meters (communication devices or sensors) have been installed during a given period?
- How many work orders / field service orders have been installed?
- How many meters of a particular type have been installed in the given period?
- How many of the installed meters are communicating correctly / partially / poorly?
- How many of the installed meters have been accepted and commissioned?
- How many of the installed meters in the given period are communicating correctly / partly / poorly compared to a previous period?
- In which areas are the new meters installed?
- In which areas do new meters communicate correctly / partly / poorly?

Key Components

AMI Monitoring and Communication Management

As utilities deploy more and more smart meters, sensors or intelligent IoT devices they must be able to monitor and manage their entire AMI and communication network.



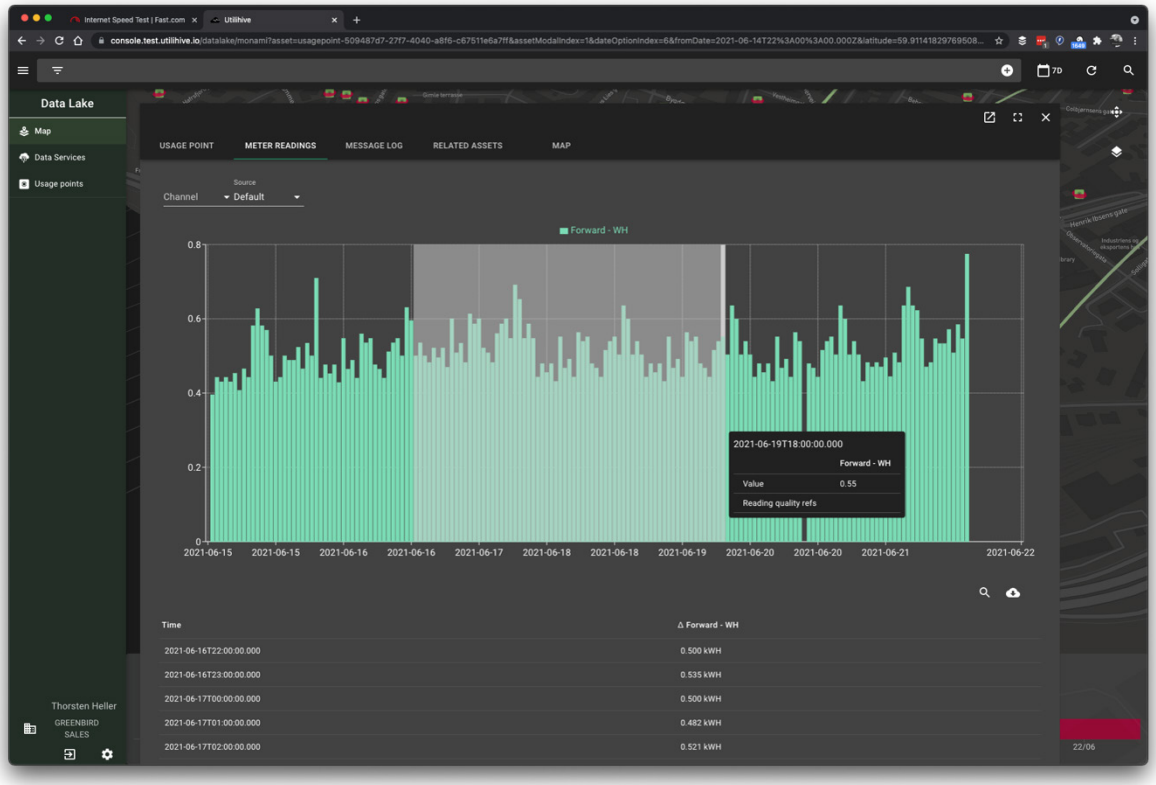
Utilihive SMOC combines data from the Head End System(s) (HES); network device, communication performance information, fault information from the telco provider, network topology information from the GIS and other reference data from the System-of-Records (SOR) to provide a holistic view of the AMI and communication network status.

Utilihive SMOC provides authorized users and operators tooling support tools to identify and analyze communication problems or failures using configurable filters for both list and map-based views to display alarms, events, or metering data.

Key Components

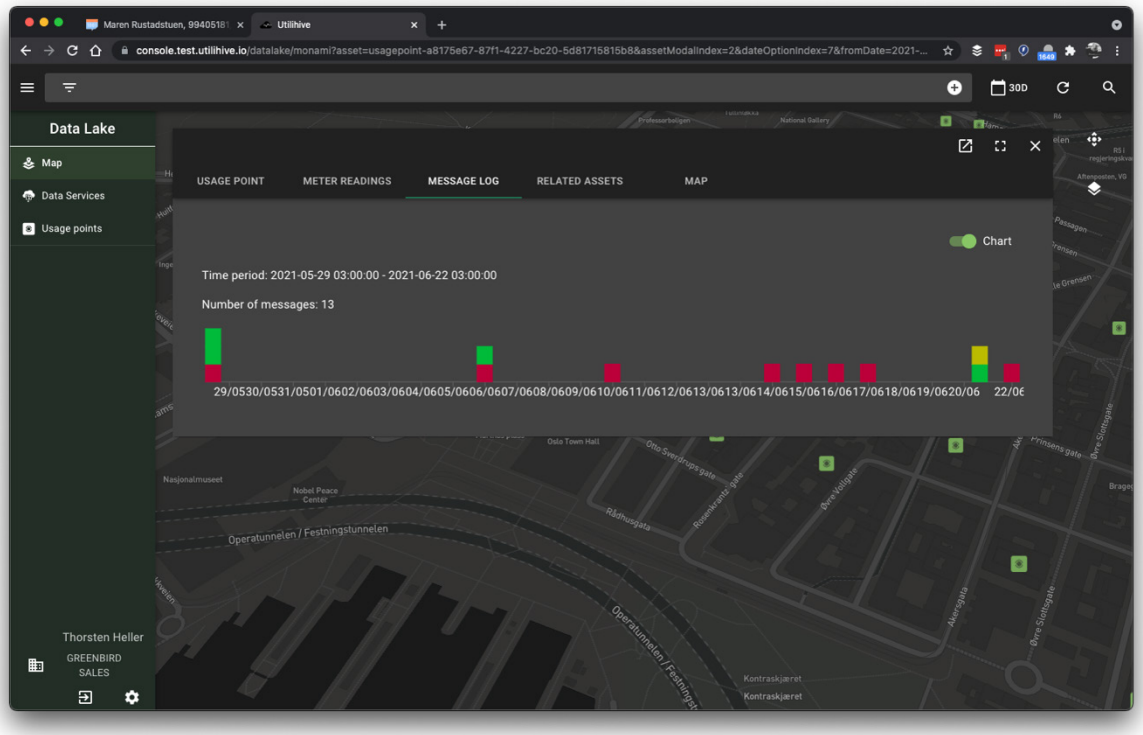
Insight and Transparency of the grid

Utilities understand that energy data is a valuable resource for optimizing their grid operations and for providing innovative smart services to their customers. They want to analyze and interpret their AMI data to leverage their investments in smart meters beyond billing to create value.



Utilihive SMOC incorporates Utilihive MonAMI medium / low voltage grid and AMI Monitoring. These tools leverage metering data, events and alarms combined with asset and structural information from smart meters and sensors. This combined information creates situational awareness and transparency into the distribution network without the expense and complexities of an Advanced Distribution Management System (ADMS) deployment.

Key Components

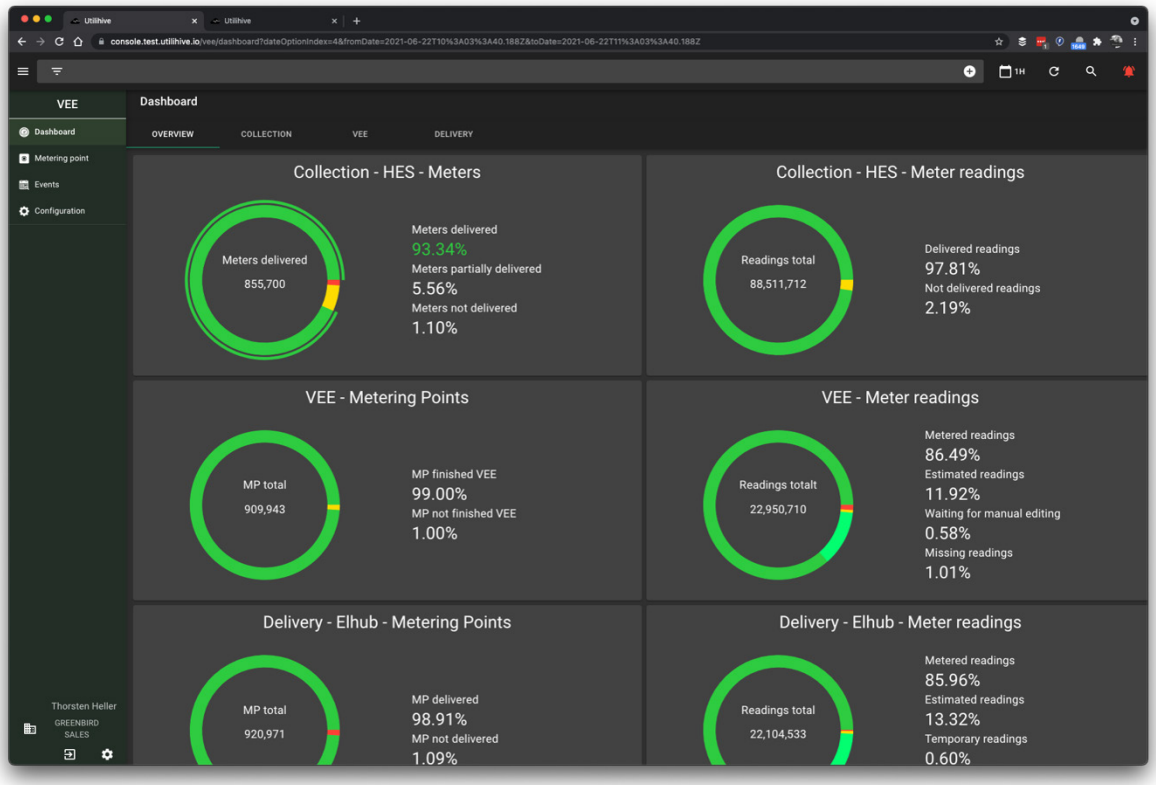


Utilihive MonAMI gives authorized users and operators different views and tools to display and analyze metering data for the different channels, alarms, or events both in real-time or in a configurable historical view.

Key Components

KPI Monitoring of the Metering Value Chain

Utilities are moving towards a distributed and deregulated energy system. Processes are increasingly digitalized and operations are becoming integrated across all market participants. This network will include smart meter suppliers and system providers that offer managed services. Utilities need real-time insights to monitor the quality of their end-to-end metering operations, according to strict Service Level Agreements (SLA) and Key Performance Indicators (KPI).



Key Components

Utilihive SMOC uses log data from interconnected systems such as Head End System (HES), Meter Data Management (MDM), Customer Care and Billing (CC&B, CIS). But it can also use the interfaces for required energy market communication or to regional data hubs to create an end-to-end monitoring of the entire metering value chain. This includes the message content exchanged between the various applications and market participants.

Utilihive SMOC creates an overview with drill-down possibilities into all stages of a meter-to-cash process including:

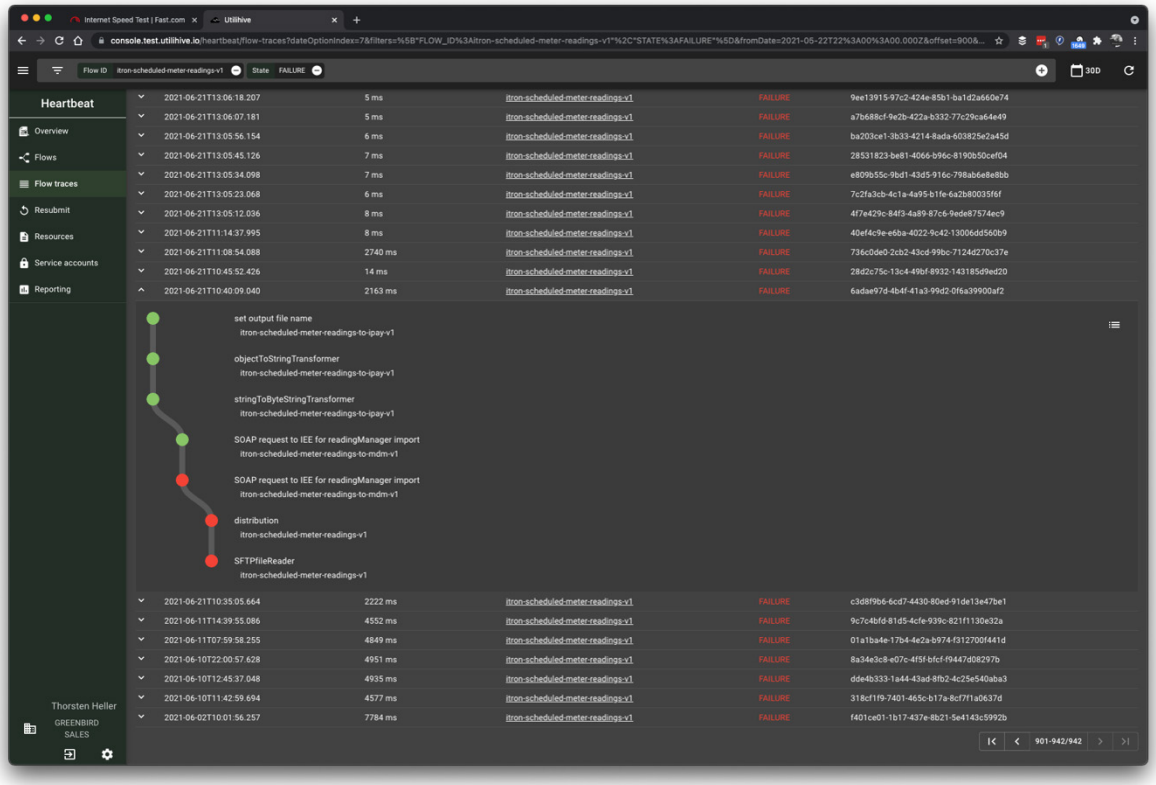
- Data collection
- VEE processing
- Billing
- Market communication

Authorized users and operators can customize the dashboard(s) in Utilihive SMOC to fit their requirements, KPIs or SLAs.

Key Components

IT Operations and Integration Monitoring

Utilities undergoing digital transformation are entering a new era. This era is driven by many different data sources, systems, applications, and stakeholders. Having the right support tools to monitor, manage and continuously optimize AMI and IT operations and effectively manage data integrations will be critical for the future success of these utilities.



Utilihive SMOC incorporates Utilihive Heartbeat. Heartbeat indexes both log data and all messages and metrics from every integration, API, and interconnected application. This provides an end-to-end view of the data and message exchange across all systems and parties.

Key Components

Utilihive Heartbeat provides the best unified monitoring environment for all your applications and integrations across the entire smart metering / AMI system landscape.

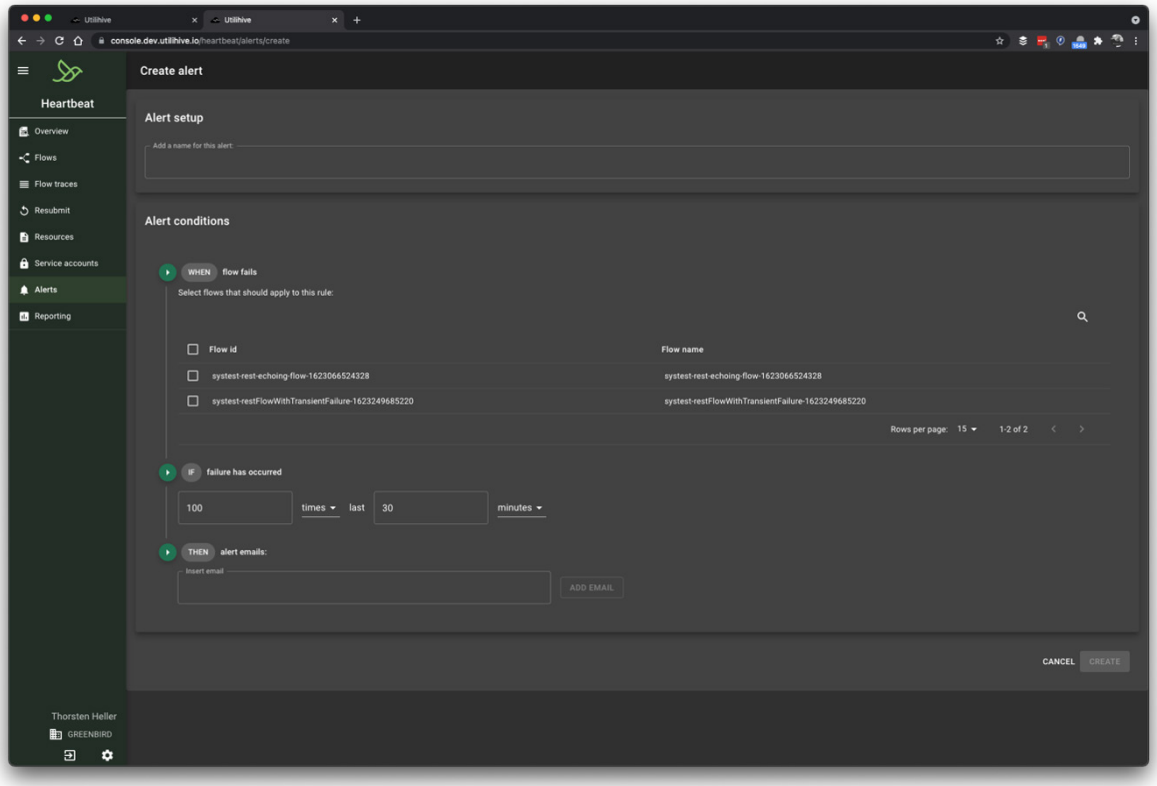
Utilihive Heartbeat reports and displays all messages, data flows and integrations for a selected time frame. Authorized users and operators can drill down in message to analyze the processing steps and message payloads that help to identify any anomalies or failures.

Authorized users and operators can then use smart filters in Utilihive Heartbeat to select messages and integration flows of specific interest.

Key Components

Alerting and Incident Management

Utilities operating a network of smart devices within a distributed data architecture need support tools to handle incidents. These may include power quality issues, tampering alarms, or communication failures and many other alerts. Having the right tools underpins effective AMI and IT infrastructure management. But it also supports teams managing grid operations and client services.



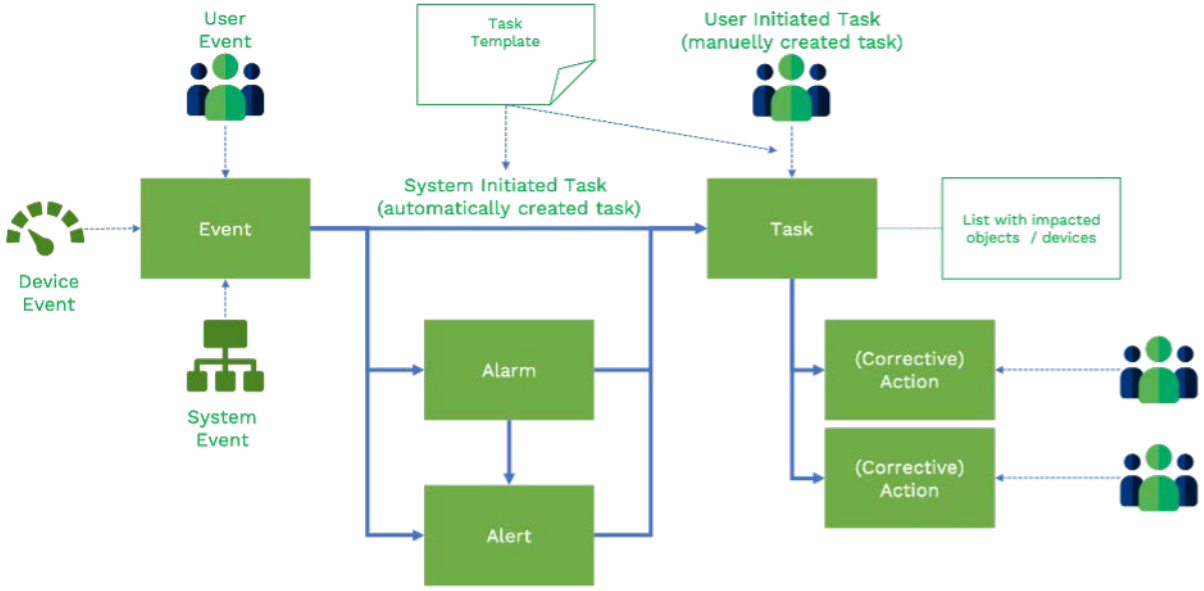
Key Components

Utilihive SMOC offers Incident Management capability in the form of 'Tasks'. A Task in Utilihive is a container that describes a given situation or objective and one-to-many actions that are performed as well as documented to help resolve it.

A Task in Utilihive can have zero-to many assets, devices or objects linked to it.

A Task in Utilihive can be created based on:

- configurable rules automatically created from Events, Alerts, and Alarms
- manually created by authorized users and operators
- created via an API from a third-party application



Key Components

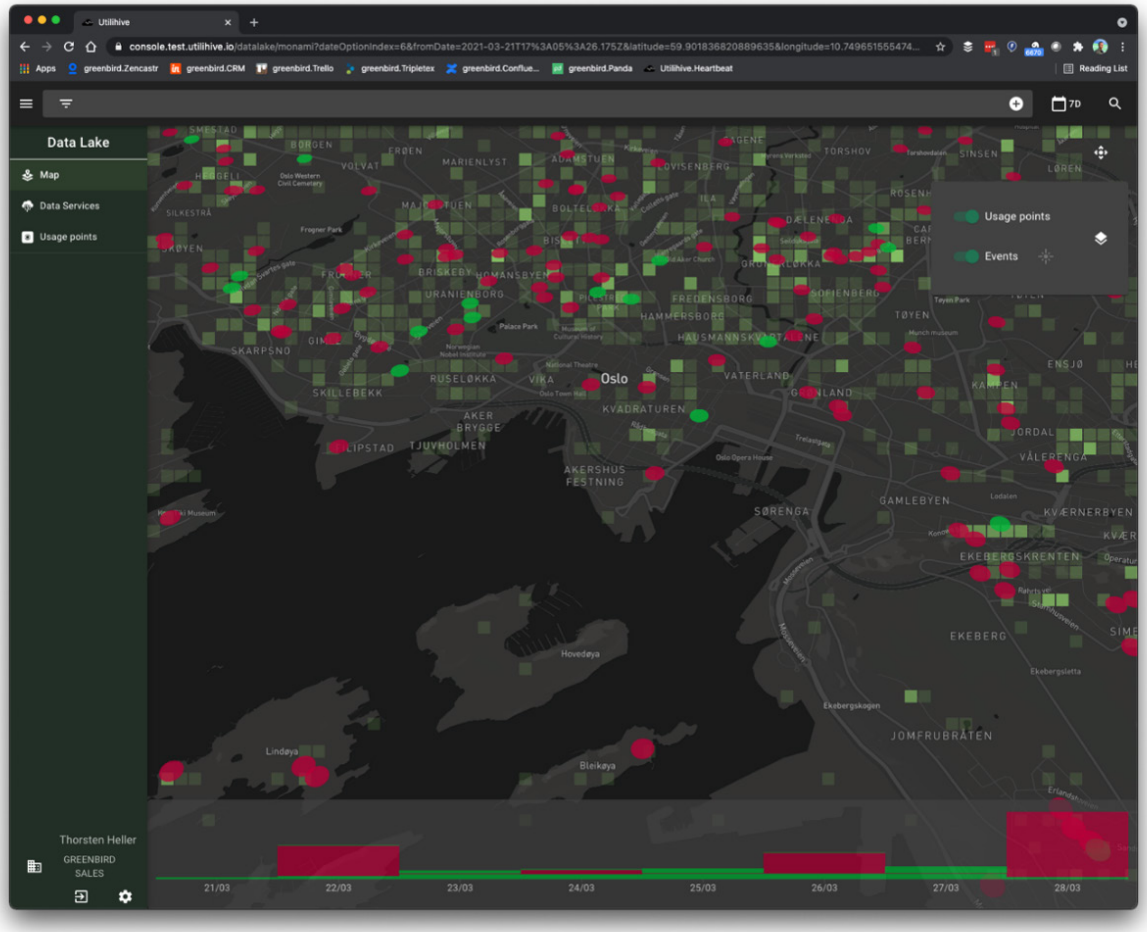
Users and operators can use smart filters and search capabilities in Utilihive SMOC to select assets or devices they want to link to a task. They can also mark the objects directly in the map view simply by drawing a polygon.

Tasks are logged and stored in the Utilihive's built-in task management and are displayed in list- or map-based views within Utilihive SMOC. Tasks can be created, updated, or queried through the task API that enables a seamless integration with other external Incident Management tools.

An Event in Utilihive is an observed change in normal operations or any system information message (i.e. Meter-Connected-Event, Power-Restored-Event, Workorder-Completed-Event). All Events are logged and stored in the Utilihive built-in event management and are displayed on list- or map-based views in Utilihive SMOC. Utilihive exposes a managed API for events, in a similar way to the task API.

Key Components

An Event in Utilihive can trigger an Alarm based on configurable rules.
An Alarm is created when a situation in normal operations requires attention from an operator, user or the system itself (i.e. Tampering-Alarm, Power-Outage-Alarm, Voltage-Alarm).



Key Components

All Alarms are logged and stored in Utilihive built-in alarm manager and are displayed in list or map-based views in Utilihive SMOC. Utilihive exposes a managed API for Alarms in a similar way to the task API.

An Alert in Utilihive is created when a situation is an abnormal system behavior is experienced that requires attention from a user or operator (i.e. Billing-System-Integration-Failure Alert, Validation-Estimation-Failure-Alert, Missing-Readings-Alert, Suspicious-Meteringdata-Alert).

All Alerts are logged and stored in Utilihive's built-in alert management. If there is an Alert, Utilihive SMOC notifies users and operators. Utilihive exposes a managed API for alerts in a similar way to the task API.

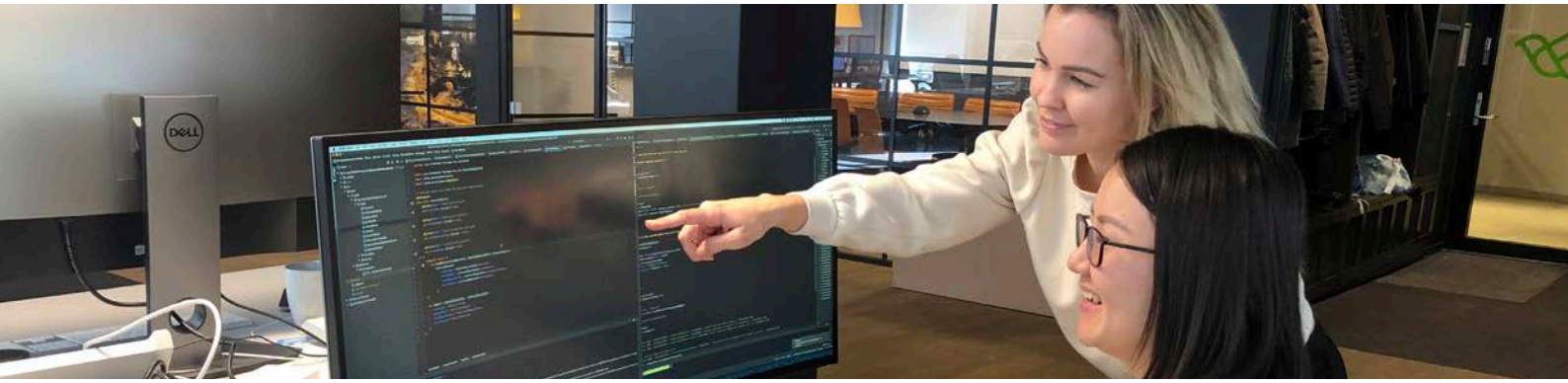
Authorized users and operators can configure rules for alerts, alarms or tasks in Utilihive SMOC.

Utilihive Advantages

Accelerating innovation with Utilihive
Utilihive provides competitive advantages compared to open source and market ESBs or iPaaS. Utilities will benefit from Utilihive's architecture, platform capabilities, integration styles, development and tooling support, underlying technology and domain specific integration content.

Benchmark	ESB / iPaaS	Utilihive
Platform Architecture	Centralized integration middleware creating a resource-hungry infrastructure and costly operations.	Service mesh of reactive micro-services providing integration capabilities to build resilient, mission critical infrastructure in a cost-effective way.
Platform Capabilities	Pure integration broker or enterprise service bus capabilities leading utilities to operate a technology and vendor mix to support digital utility use cases.	Complete digital integration hub helping utilities to accelerate digital energy services by handling integration of enterprise data, structuring big data storage and provisioning modern data APIs.
Integration Style	Process driven integrations creating very complex flows or orchestrations to handle utility integrations.	100 % event driven and elastically scalable data flows to handle vast amounts of data and messages.
Integration Development	Graphical modeling and development creating complex and hard to manage integrating code.	Low code development with annotations to describe declarative integration behavior and create highly scalable, performant and manageable code.
Domain Specific Logic	None, forcing utilities to spend significant resources and time to develop, operate and maintain custom integration solutions.	Prebuilt connectivity to utility IT/OT systems, pre-configured data flows, utility data model, utility specific data services and API, utility value adding apps.

Contact us



Don’t let disruptive forces disrupt your business

The adoption of smart devices in homes and in the grid presents tremendous opportunities and challenges for Utilities.

We have experience of working with utilities all over the world whose combined customers total more than 50 million households and businesses.

We have a growing ecosystem of technology partners, enabling our customers to benefit from the greatest minds and best of breed technologies. Which means you can focus on delivering the future of Smart Energy.

Get in touch. We’re here to help.

Contact us