Central Event Management (CEM)

Creating a Central Hub for all Network Incidents

TaKaDu CEM's seamless integration with enterprise IT systems

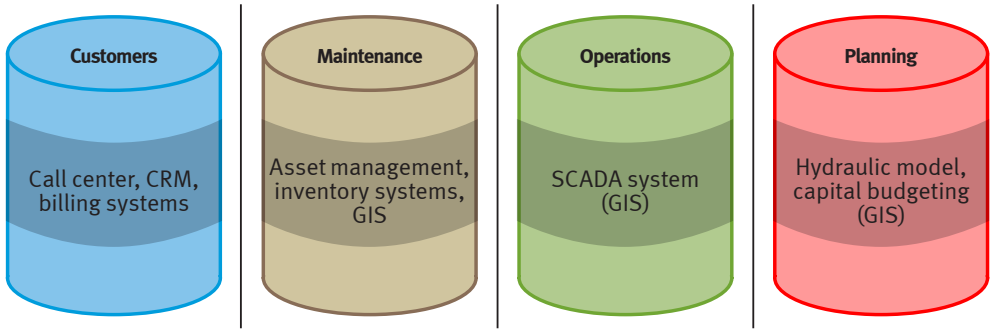
TaKaDu is a global leader in Central Event Management (CEM) solutions for water utilities, improving operational efficiency. TaKaDu's cloud-based service enables utilities to detect, analyze and manage network events and incidents, such as leaks, bursts, faulty assets, telemetry and data issues, operational failures, water quality and more. TaKaDu acts as the central management layer for all network events detected by its own data analytics engine and other external systems.

TaKaDu's patented technology is deployed in leading utilities in 13 countries across the US, Australia, South America, and Europe.

To learn more, contact us at info@takadu.com. www.takadu.com

Bridging the Silos

Disciplines in water utilities, like in other organizations, tend to inhabit their own domains, often referred to as “silos”. Each silo has its own role, with its organization, skills, systems, data and metrics functioning accordingly. However, when incidents occur, and collaboration is needed more than ever, boundaries between silos become impediments to the utility’s performance.

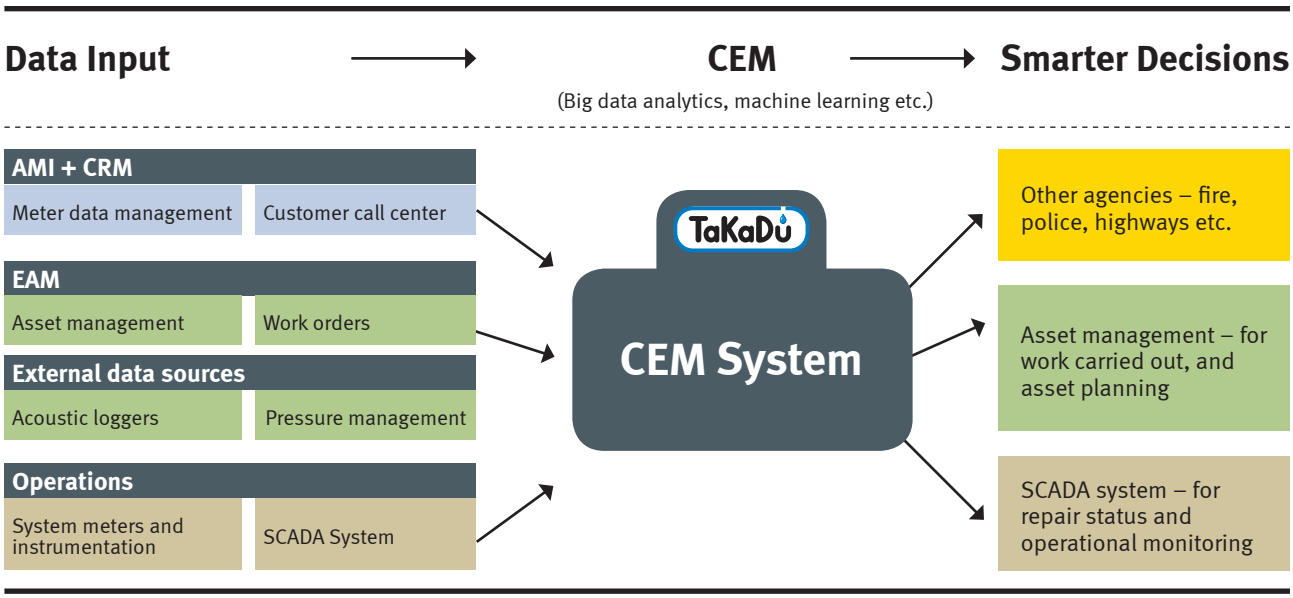


This is where a Central Event Management (CEM) platform comes in, enabling water utilities to optimize their operational performance and network efficiency. CEM combines data and information from several sources, uses strong analytics to detect anomalies, and integrates with other IT systems to provide a single layer of information about events and incidents for faster, smarter decisions.

TaKaDu’s CEM platform is seamlessly integrated with any SCADA, enterprise or IT system, including Enterprise Asset Management (EAM), CRM (call centers), AMI data, acoustic loggers, and more. Adding integration to TaKaDu’s core technology – using powerful big data analytics, machine learning and smart predictions to identify all types of anomalies – enables users to understand the full picture of operational activities.

All events are managed in **one single interface** – provided by TaKaDu. With all external systems’ data flowing into the same central hub, silos are removed, and collaboration is enabled between the back office, monitoring, operations and field teams.

TaKaDu CEM’s integration with other systems



TaKaDu – Serving as a Central Integrated Solution

Proven integration benefits

1. Enterprise Asset Management (EAM) systems

Rationale:

Combining asset conditions and critical field work information with developing network events enables better and faster decisions.

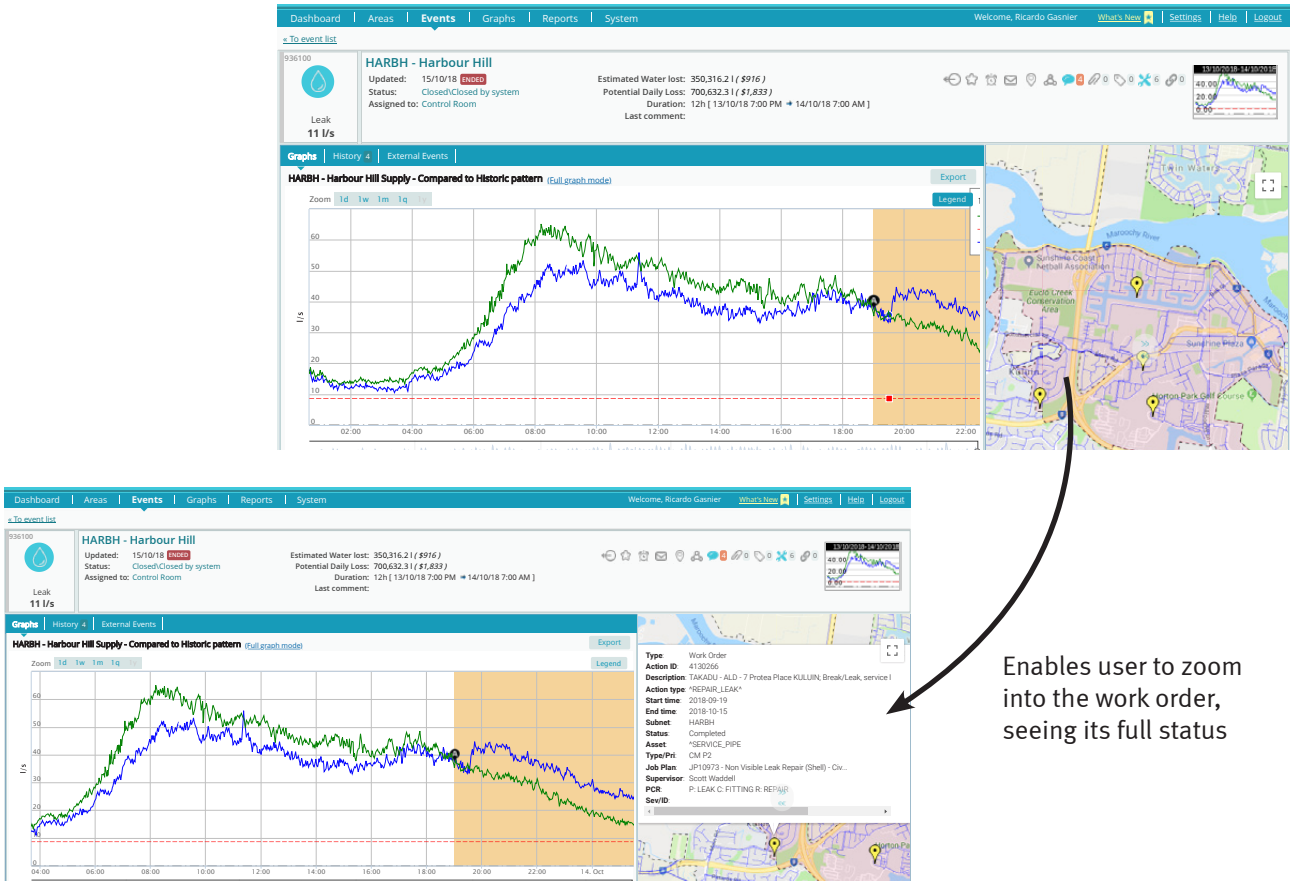
Integration Benefits:

Provides full visibility of the field-work status within TaKaDu's Event screen, enabling:

- Bridging the silo – between the water loss monitoring team and the operations team
- Additional information to TaKaDu users on what's happening in the field in real-time
- Links between open network field interventions and new developing events
- Operational assistance to manage, prioritize and optimize resources better

Process:

- Work order is manually initiated in the Enterprise Asset Management system (Example: IBM® Maximo®)
- Location of the event is matched with the corresponding DMA
- All the related work orders are displayed in TaKaDu's Event Management view, enabling a better understanding of the current field operations around the open event



2. Customer Relationship Management (CRM) systems

Rationale:

Combining customer information with developing network events helps to improve customer service and ensure optimal decision-making.

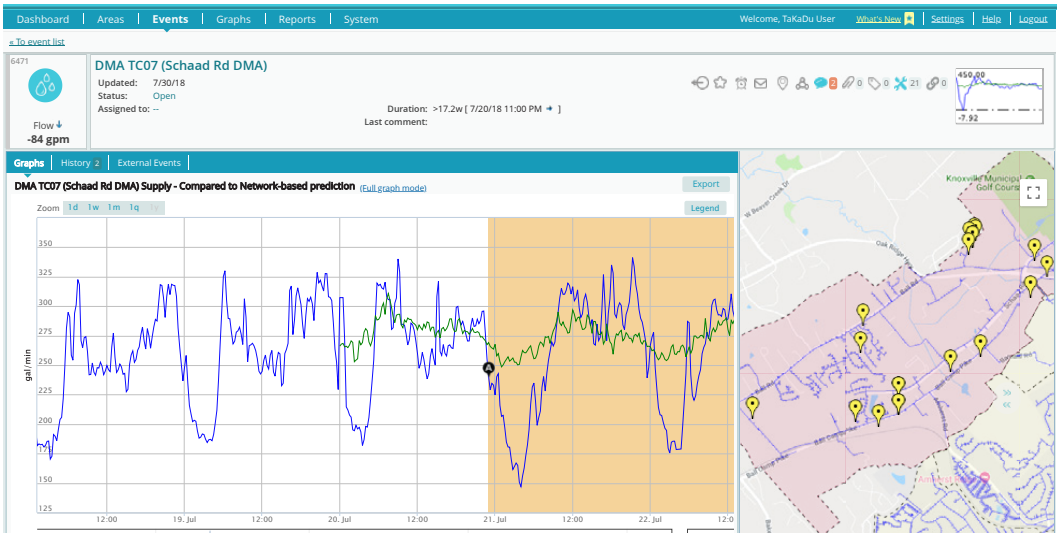
Integration Benefits:

Provides on-the-spot visibility to events which are directly associated with the customer calls coming into the call center, hotline or municipality enabling:

- Bridging the silo – connecting between customer service and operations hubs for better organizational coordination
- Event validation – having more than one source of a developing event (i.e. TaKaDu event analytics AND a call from a customer) increases the importance and priority of a new event, resulting in faster response times and reduced water supply interruptions

Process:

- Customer call is received in the call center reporting an incident
- Address and other customer call details are logged into the CRM
- Relevant data is sent automatically to the TaKaDu CEM platform
- TaKaDu connects the information to a related DMA
- TaKaDu's interface displays the calls received about the customer call in the event, alongside TaKaDu's own information about the event



3. External data sources, such as acoustic loggers and pressure management devices, for automatic leak detection, pressure management etc.

Rationale:

Providing alerts and events from multiple, independent data sources creates a stronger validation and drives operations to better, more efficient decisions.

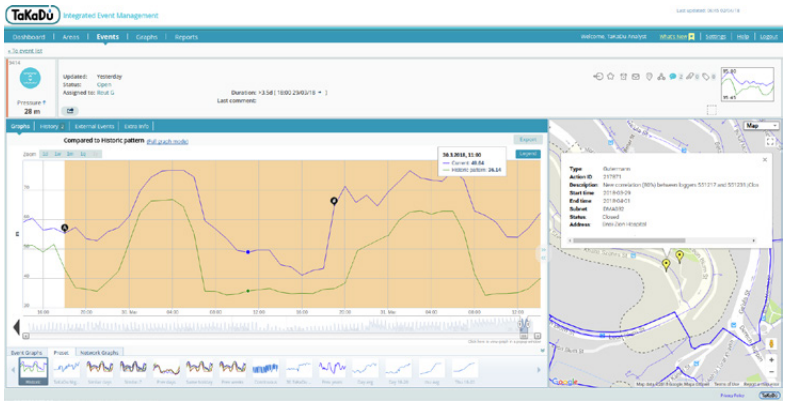
Integration Benefits:

Integration between external systems offers a one-stop-shop for effective water management and NRW (non-revenue water) loss reduction with greater visibility on network performance (various events are presented to the user on one central screen) enabling:

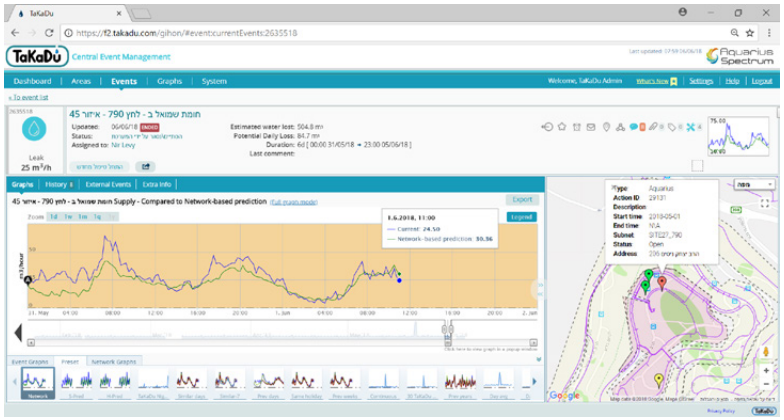
- Bridging the silo – reducing the amount of different data sources monitored by the operations team by combining all sources of anomalies/events into TaKaDu's CEM
- Event validation – provides two or more independent indications about the same problem in the same area, increasing operational confidence about each event
- Operational teams to find, validate, track, prioritize and resolve events more easily, in coordination with other departments in the organization
- Smarter decision-making and follow up actions (for repairs etc.) – provides management dashboards, actionable insights and detailed reports
- Systems to be used to assess the condition of water main infrastructures at any given time, significantly reducing unnecessary operating and maintenance costs

The Process:

- Smart IoT field devices (of any type and source), installed on the network, generate valuable data
- Data is sent automatically to TaKaDu within the right DMA, and shown within TaKaDu's DMA view
- User can analyze all events on one screen – TaKaDu-created events and external data events – and take the right action
- External events are fully managed within TaKaDu's platform in the same way as TaKaDu's own event – covering all aspects of life cycle management, report generation etc.



Example of GUTERMANN event in TaKaDu's CEM system



Example of Aquarius Spectrum event in TaKaDu's CEM system

4. Smart Meters (AMR/AMI) system

Rationale:

Adding consumer data to operational network performance “closes the loop”, presenting a complete NRW and water balance calculation and increasing water loss management control.

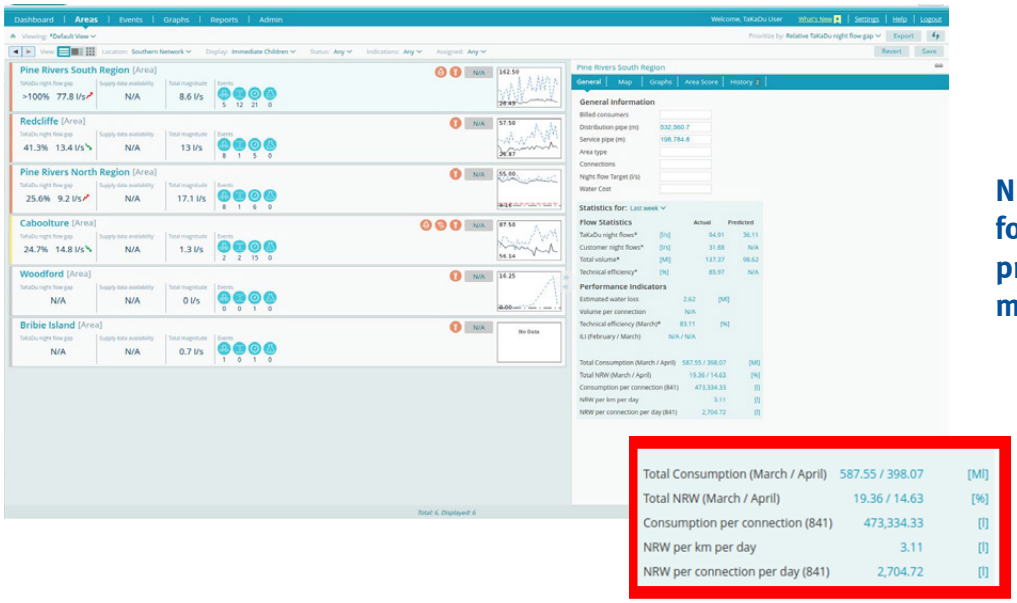
Integration Benefits:

Enables network operators to increase network efficiency, reduce water loss and improve customer service, for example:

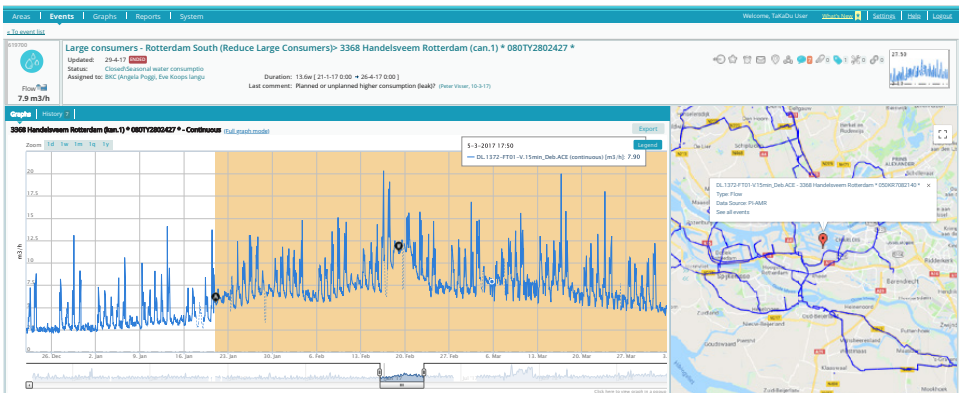
- Bridging the silo – between service/billing and operations teams
- Leak/flow increase detection for large consumers e.g. factories, hospitals
- Integrating AMI data can help with NRW (non-revenue water) reduction: physical losses & administrative losses caused by leaks, bursts, faulty assets or theft
- Translating large consumers usage and data trends into effective operational insights

The Process:

- Real time AMI consumer data sent to TaKaDu
- TaKaDu’s analytics calculate consumption vs. supply information per large consumer, DMA, entire network
- Enables operators to detect changes to usage patterns, trends in consumer consumption and various types of meter faults
- Makes NRW calculation available to compare and prioritize operational activities
- Allows operators to notify customer service of consumer events



NRW KPIs available for comparing and prioritizing DMA maintenance



Large consumer flow increase