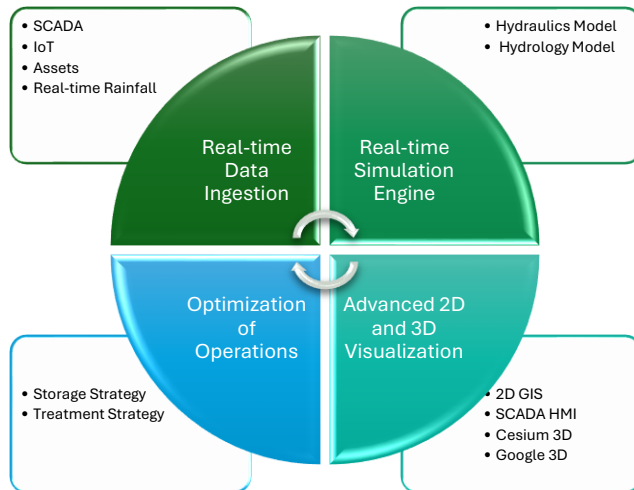


Wastewater Collection System (WCS) Digital Twin (DT)



Overview

The HydroTrek WCS DT is a leading software-as-a-service (SaaS) browser-based software platform that has been developed based on projects at several sanitation districts. It has been successfully utilized in several utilities to investigate sources of I&I, explore strategies to reduce SSO's and CSO's, and to examine system performance with real-time rainfall data. It shows comparisons with observed flows and modeled flows and those analyses can be used to improve model calibration. The DT uses the information from the SCADA and IoT systems to continuously revise the simulation model in real-time and accurately calculates the system conditions over the entire network.

Features

- Ingests the real-time rainfall and then calculates the systemwide conditions with the improved representation.
- Leverages SCADA data and IoT telemetry to change settings in the models. For example, the DT can change a valve setting to match the SCADA values.
- Shows the impacts of I&I to improve the determination of resiliency
- Calculates the water quality parameters at each time step.



Figure 1. A Systemwide Model Response



Figure 2. Advanced Real-time Chart of Water Depth at a Node

Advantages

- Provides insights into the complex interrelationships between the hydraulic grade, the flows, the water quality and the incidents such as SSO's and CSO's.
- The 3D visualization improves spatial understanding and highlights the any asset geographic data discrepancies compared to the ground truth.
- Lowers incident count and shows opportunities for improving storage utilization
- Increases the resilience through the modeling of the impact of what-if catastrophic events