



Make your Water Network  
**Surge Free**  
Reduce Water Loss

# SurgeView™

IDENTIFYING AND PREDICTING ASSETS THAT ARE  
IN POOR CONDITION AND LIKELY TO BREAK

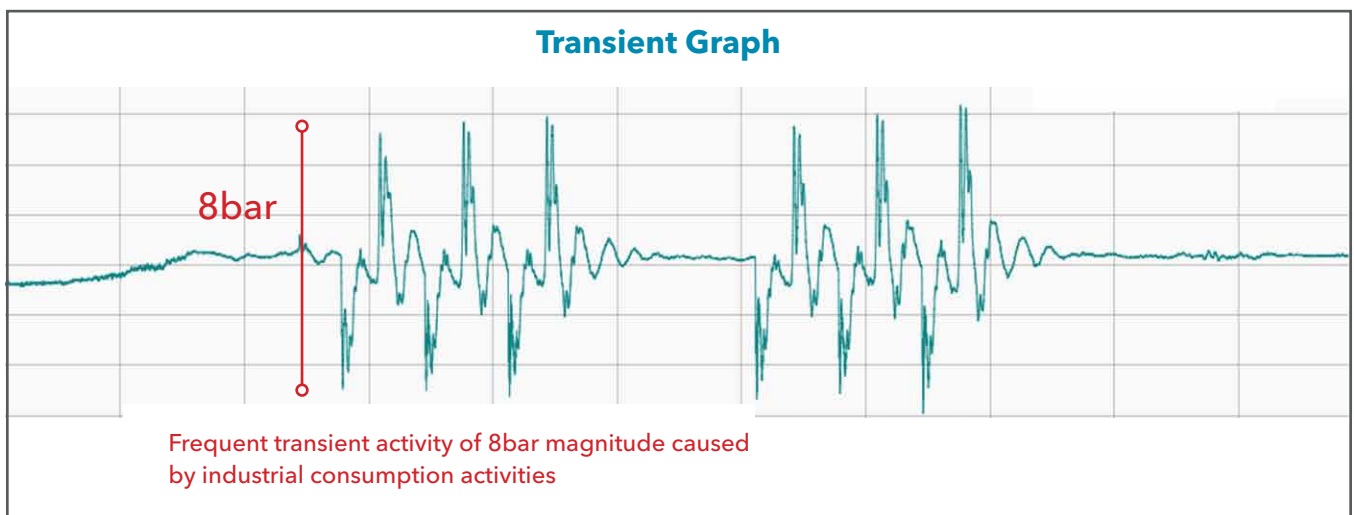
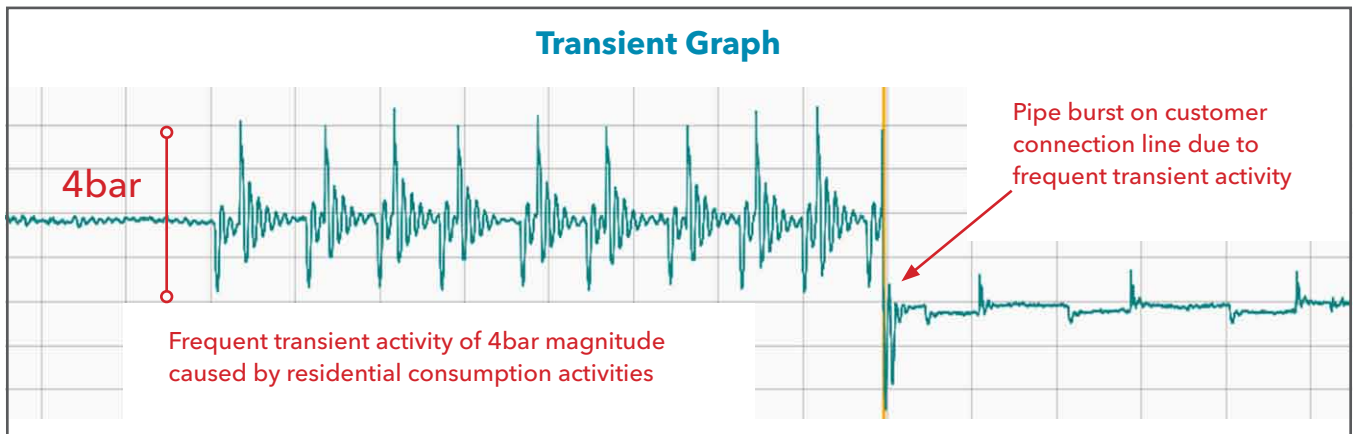
 visenti  
a xylem brand

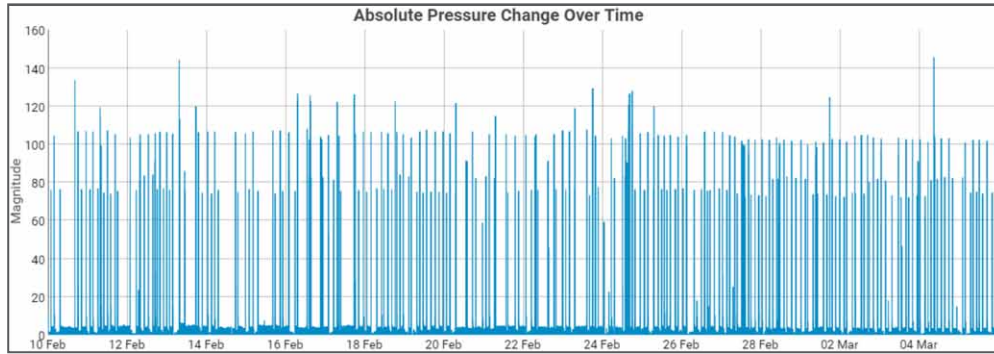
# Utilities Need Better Pressure Intelligence

High-rate pressure sensing integrated with state-of-the-art analytics - for improving asset life through reducing stress on pipes - keeping the network surge-free and calm

## Why should you care?

Water supply networks face pipe failures that range from small service connection leaks to catastrophic transmission main bursts. The IWA has identified that many of these failures occur due to frequent high amplitude variations in pressure known as pressure transients or water-hammer events. Such variations stress the pipes and joints, cause pipe material fatigue and act to reduce the effective age and useful lifespan of the distribution network assets. If there exist small leaks on such pipes, pressure transients worsen them. Even newer infrastructure may fail if the pressure transient patterns are sufficiently intense. These pressure pulsations are caused by switching on and off of pumps; actuation of valves with short opening and closing times; flow rate fluctuations due to large customer consumption activities, construction as well as seismic vibrations.



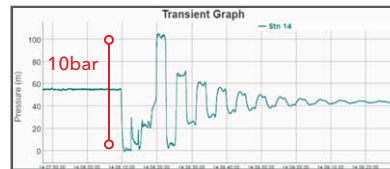


## Transient patterns and their profile

Frequent Transients with up to 140m magnitude due to pumping operations showed **high risk to old iron pipes in the vicinity of this pump station**



75m (7.5bar) pressure spike due to pump start



100m (10 bar) pressure transient due to pump stop

Pipes under stress and at high risk of failure are identified and reported

### How does it work ?

SurgeView™ is a service based solution that integrates Visenti's multi-frequency pressure monitoring sensors (highest sampling rate at 256Hz) to detect sources of damaging pressure transients throughout a pipe network. Visenti sensors can be easily deployed at optimal locations across the network or in the vicinity of suspected sources of damaging transients (permanently or on an ad-hoc basis). With a detection range of up to 4Km per sensor, even a small number of sensing units is sufficient to cover large pipe lengths. Pressure data from sensors is transmitted wirelessly in real-time to the SurgeView™ software.

### Pipe Network Failure Mitigation

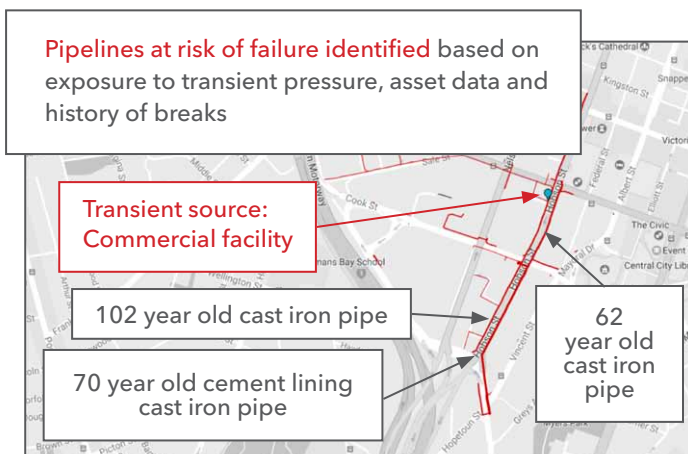
Through SurgeView™ analytics, a water utility will gain key insights into which hydraulic elements are causing damaging transients, where are the sources, and whether those transients are stressing any parts of the network - especially old pipe sections - so called 'hot-spots'. Once transient sources have been identified, water utilities can intervene by installing hydraulic dampers or surge relief instruments. For hot-spots, our customers can conduct targeted condition assessment and leakage identification surveys on specific at-risk pipe sections, instead of spending money on condition assessment or leakage surveys of the entire network or at sections where it may not be necessary.

### Non-Intrusive Pipe Condition and Stress Level Monitoring

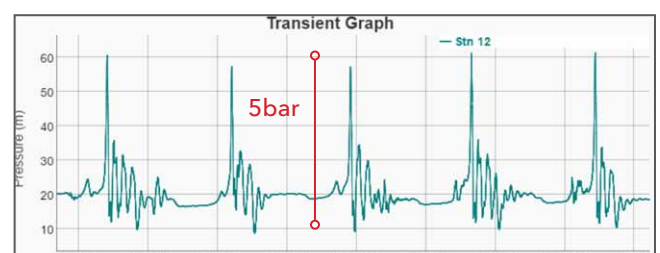
Over longer periods, SurgeView™ learns different pressure variations being experienced by different parts of the network. Thus, it can help monitor critical mains for their deteriorating condition and hence provide a prediction on likely failures in the near future. This early warning is critical for water operators for mitigating the risks associated with premature pipe failures.

**SurgeView**

monitors pressure transients that damage the pipe network and accelerate their material fatigue process.



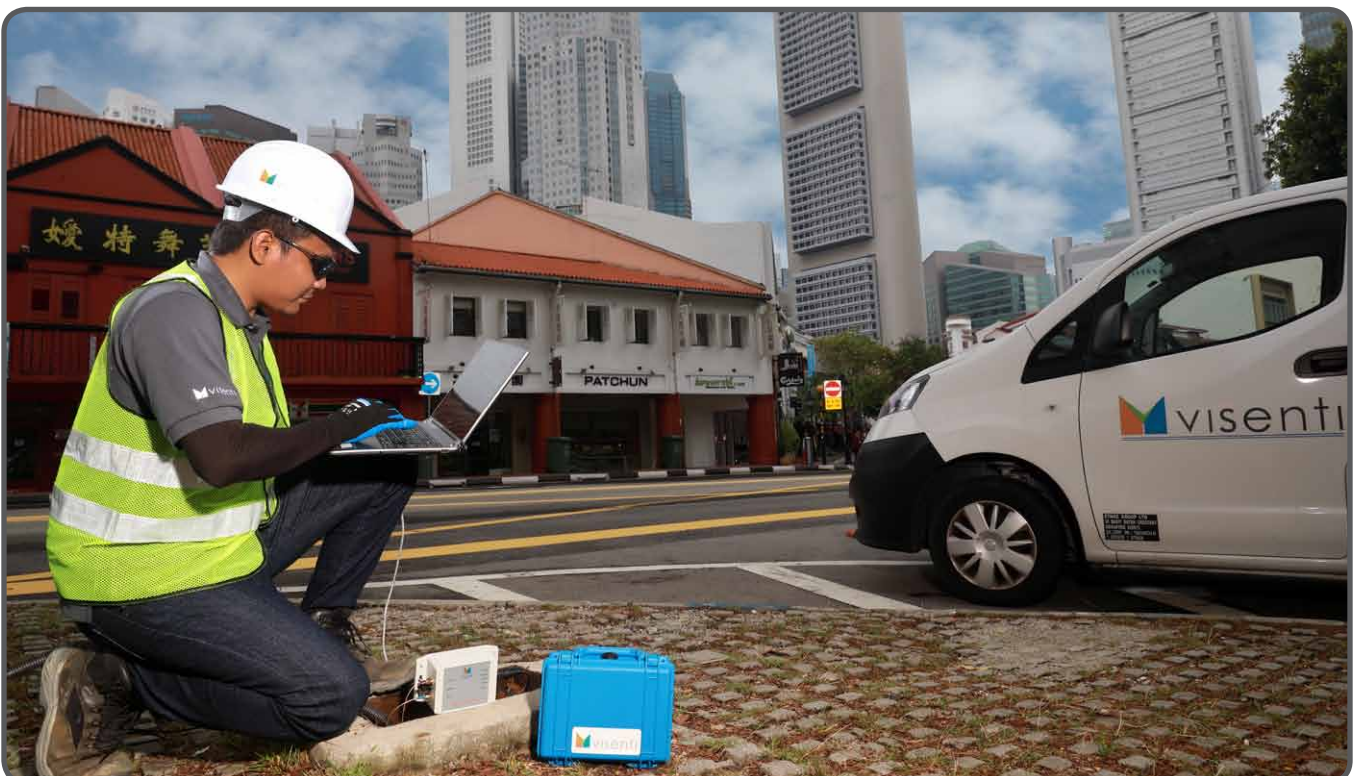
Transient activity caused by a commercial water consumer



Visenti offers both short-term (lift-and-shift) monitoring and permanent monitoring  
Installations can be carried out on existing hydrants, pipe taps or air valves



- ✓ Compact Transient Pressure Transmitters installed at key network locations
- ✓ Lift-and-shift short-term monitoring activity to identify pipes at risk.
- ✓ Can be located in existing small chambers
- ✓ Water proof
- ✓ Easy installation on existing taps



## Infrastructure

- Save CAPEX - Identify failure-prone points in network for proactive asset management
- Optimize operational costs - prioritizing fixes

## Asset Management

- Extend Asset Life - Identify cause and location of damaging transients and excessive stress being applied to the pipelines, which reduces the life of your assets.
- Reduce rehabilitation costs dramatically - Targeting only the areas in need of maintenance.
- Identify high-risk assets - Early and targeted intervention/damage prevention for deteriorated/deteriorating sections
- Provide evidence of damage caused by transient events
- Identify even tiny changes in system operation that could be an early warning of something wrong or changed.
- Manage your pressures, optimise pressure to reduced transient effects
- Understand how your pumps are performing,
- Understand who, what, when and where is causing your damaging transient events
- Education of customers and operations in reducing their activities that are causing transients

## Valve Management

- Monitoring valve operations automatically (when/where valves have been operated)
- Know the position of valves (open or closed) - especially DMA boundary valves
- Know exactly when and where critical boundary/ Pressure boundary and DMA valves are operated.

## Pressure Management

- Know how your pressure management is really performing in high resolution of up to 256 samples per second
- See such minute changes that low resolution pressure monitoring cannot see
- Learn the optimal minimum pressure reduction to reduce transient effects.
- Allow SurgeView™ to be your pressure manager

# SurgeView™

SurgeView™ is a non-invasive and cost effective way to monitor water networks for the presence of damaging pressure surges. Through its on-line detection of pressure transients, SurgeView™ helps determine the sources of these events and identifies pipes under stress with high leakage likelihood. This allows water operators to proactively manage such damaging pressure variations, preventing pipe failures and prolonging the effective life of their infrastructure assets.

# What can Xylem do for you?

Xylem [ˈzɪl m]

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

**For more information on how Xylem can help you, go to [www.xylem.com](http://www.xylem.com)**



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