

### Why measure pressure?

- Is my system operating at optimal levels?
- **Too High:** Increased leaks and water loss, pipe breaks, excavation, property damage and potential liability, excessive pumping
- **Too Low:** Increased customer complaints, state mandated minimum PSI, may indicate blockages, reduced revenue, may allow backflow

### Why measure temperature?

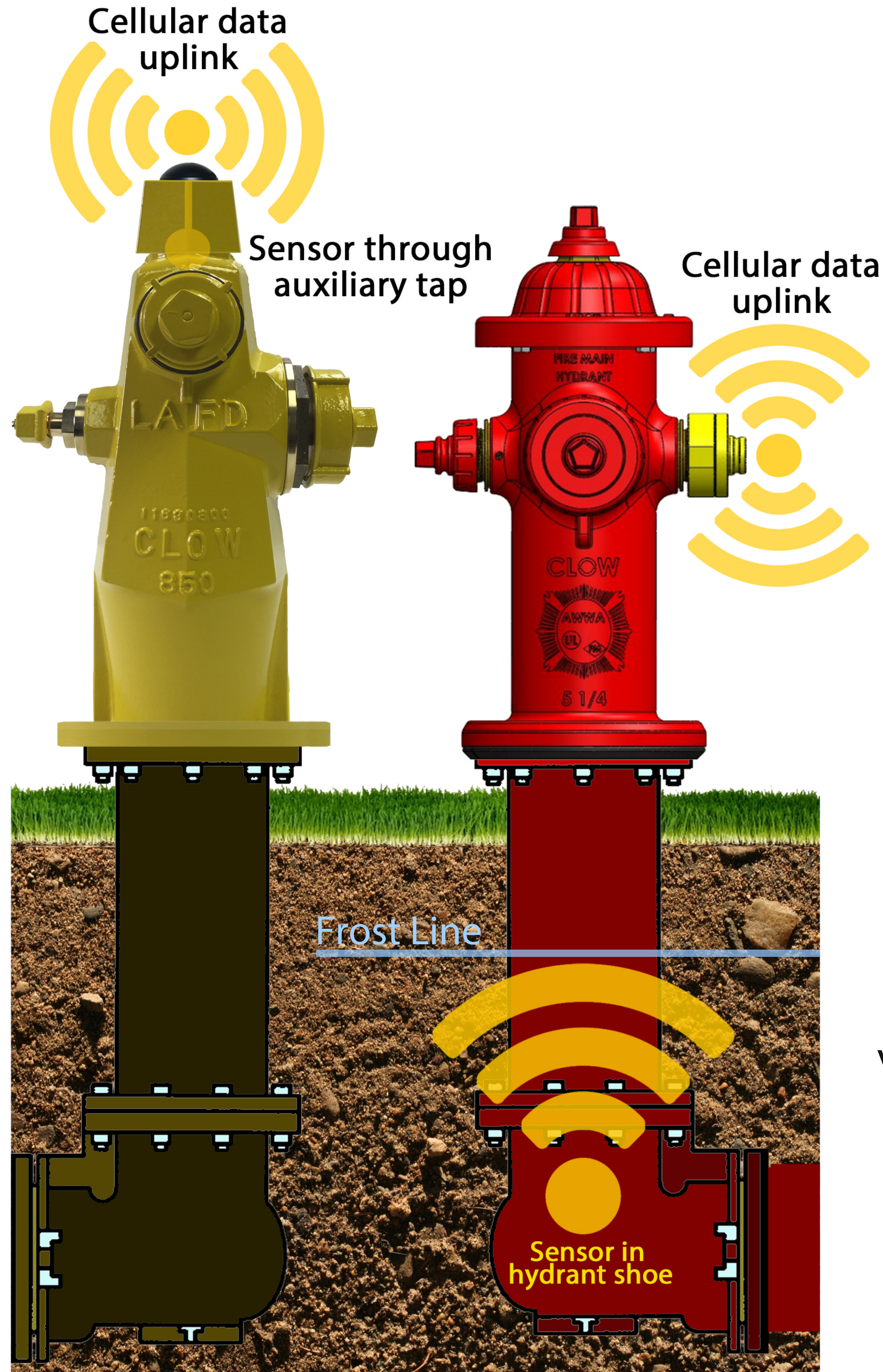
- Prevent damage from freezing
- **Too Warm:** May indicate accelerated disinfectant breakdown and conditions for bacterial growth
- **Too Cold:** Warns when pipes are about to freeze: expensive repairs; thermal shrinkage causes leakage when cold joints open up; plastic pipe is more brittle when cold

### Why measure in hydrants?

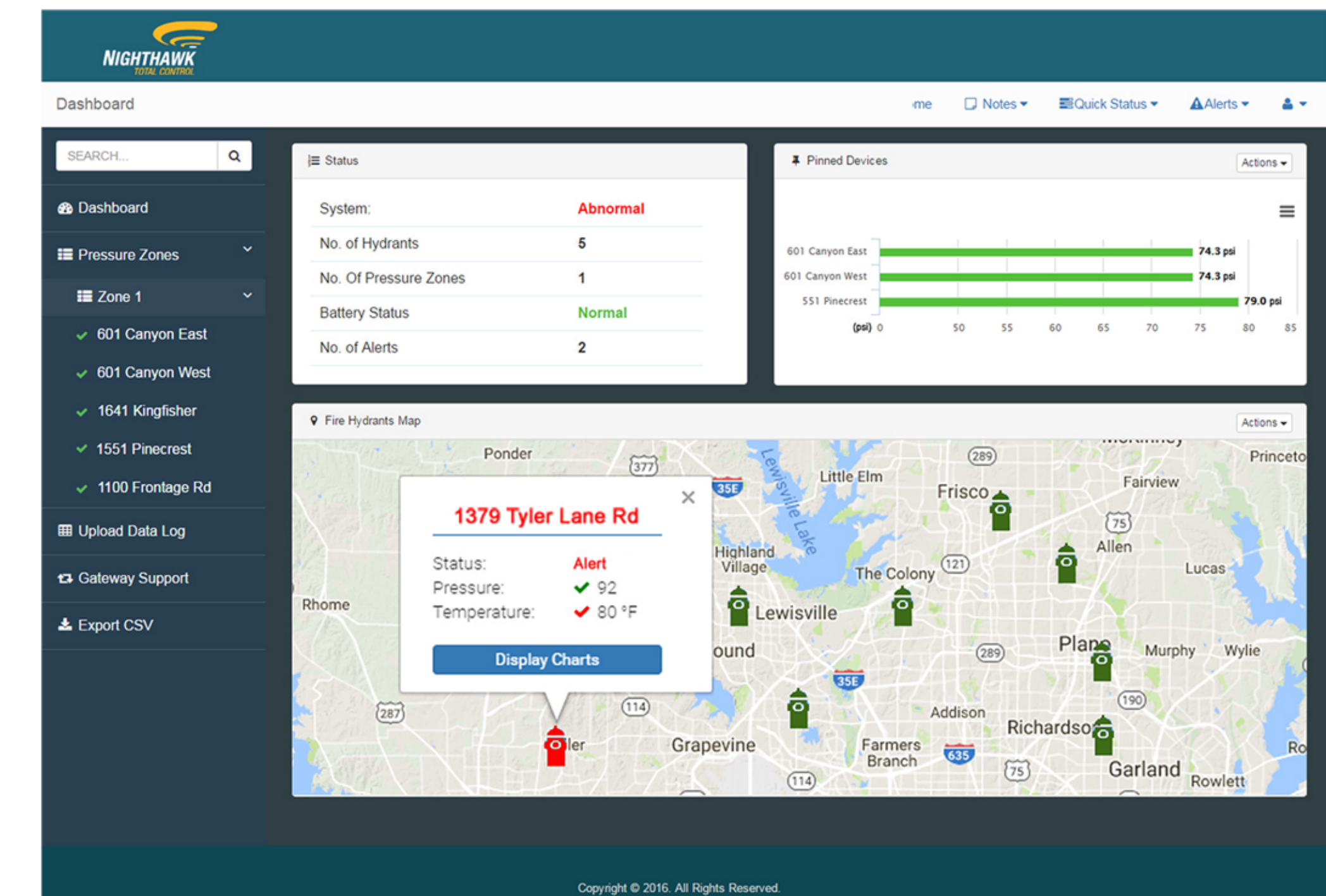
- **Evenly Distributed:** Thereby providing a representative sampling of data across the water system, especially near distribution end points (e.g. residential subdivisions)
- **Easily Accessible:** Above ground, easy to retrofit with technology and good for cellular communications

### Why monitor over time?

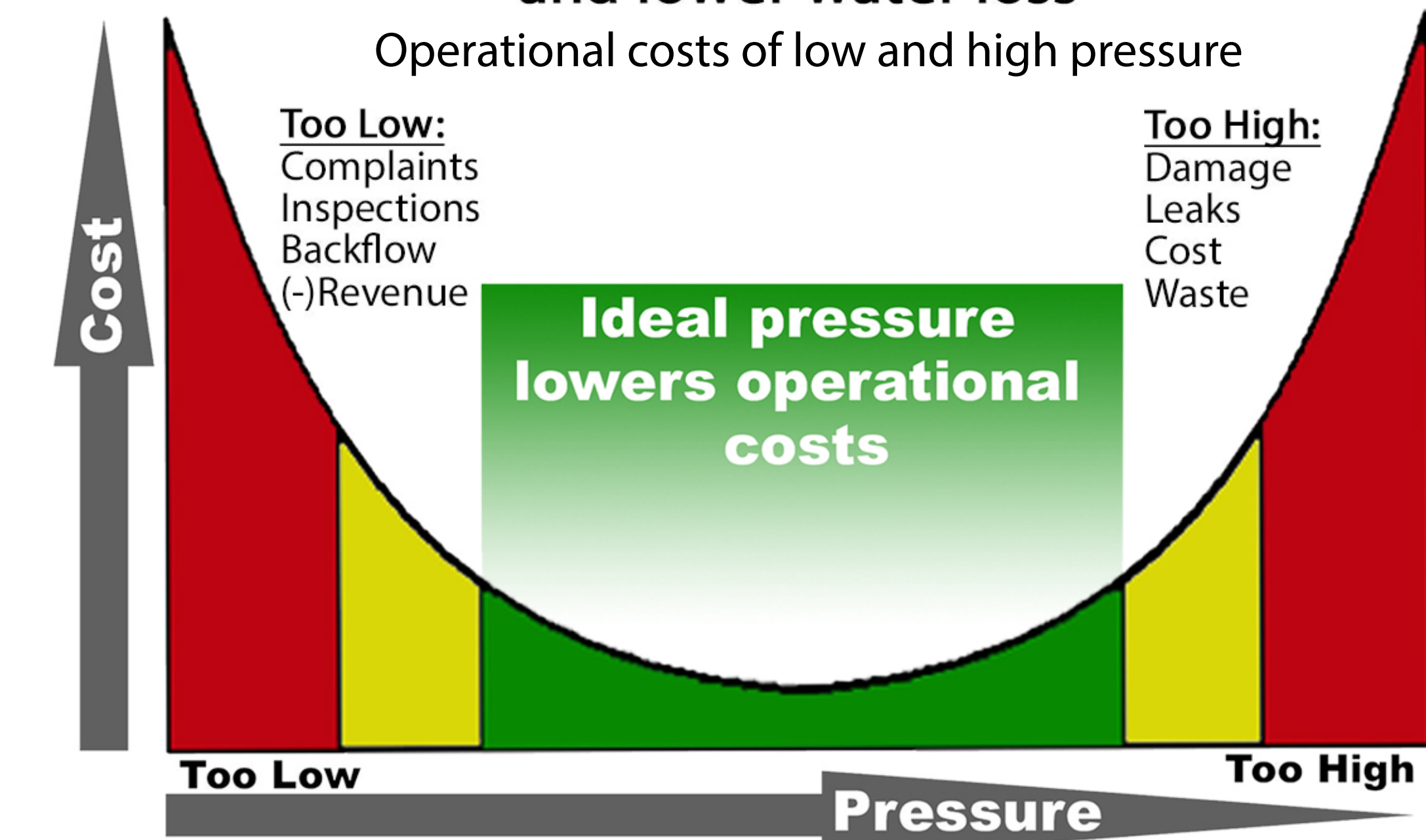
- **Identify Intermittent Conditions:** Recognize patterns of pressure variations which may be unduly straining the system, causing excessive pumping and related wasteful costs
- **Reduce Potential Damage:** Historical data can be used to reduce water loss, pipe breaks, and energy use



### Cloud-based head-end system



Optimizing pressure results in reduced leaks, fewer customer complaints, less energy use and lower water loss



Remote monitoring provides valuable insight, automates data collection, enhances SCADA systems and saves utilities time and money

**If you cannot measure it, you cannot improve it**