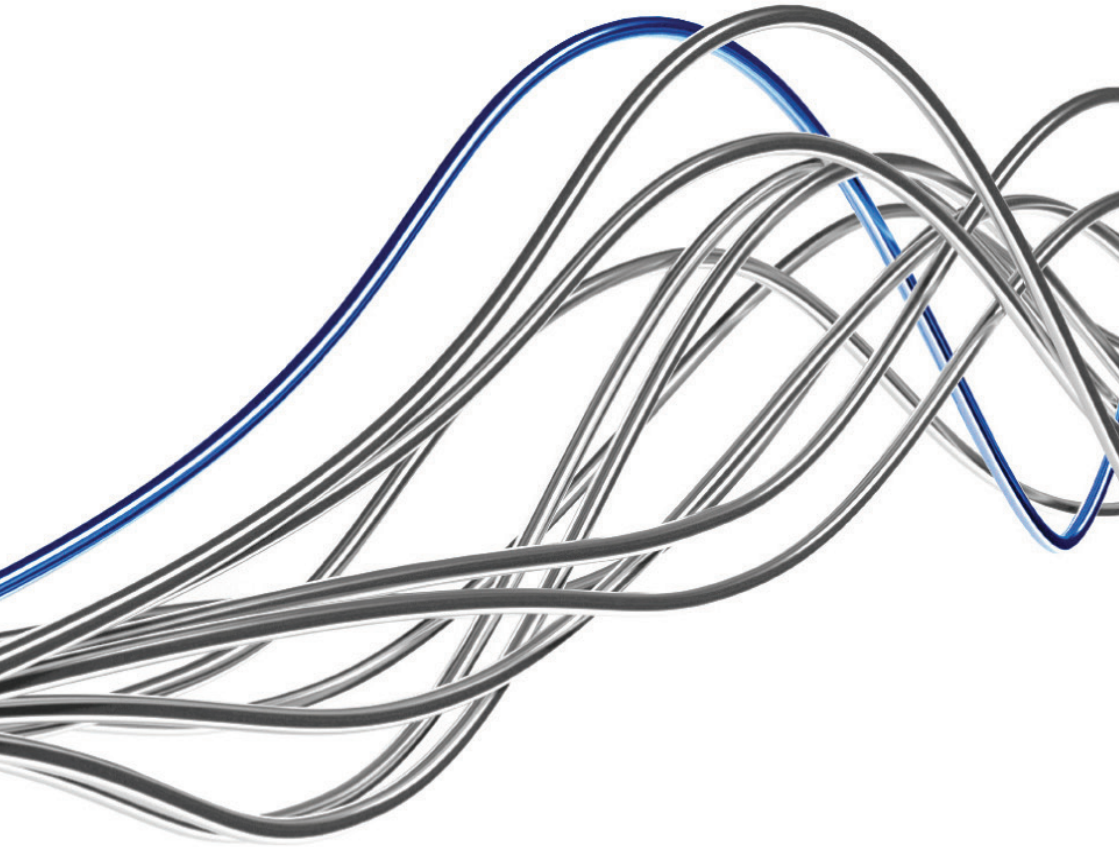
OptaSense®

a QinetiQ company

Perimeter Security and Monitoring



Reducing the cost of ownership

OptaSense is designed to detect, classify and locate events along large linear assets with sufficient accuracy and early warning to enable corrective action to be put in place *to prevent incidents and cost occuring.*

Security: *Preventing incidents*

OptaSense provides unprecedented levels of around the clock *situational awareness* of the assets you wish to protect in order to prevent damage from Third Party Intrusion by detecting threats before they reach your fence line.

Condition monitoring: *Cost saving information*

A number of features have been built into OptaSense to extract value from real time *operational data* to further protect the integrity of your entire asset. OptaSense is being used in a number of locations to monitor maintenance operations, security patrols and equipment at remote locations.

Unique features

- ***Retro fit to your environment***
  - Uses existing fibre optic cable and requires no modifications
  - Low infield power consumption
  - No new infield equipment locations required
- ***Smart zones & custom user interface***
  - OptaSense can be tailored to your asset's exact needs
- ***Classification engine***
  - Intelligent software effectively minimises nuisance alarms
- ***Cues other security platforms***
  - Integrate with other platforms such as CCTV & UAVs (OPC, Pelco and others supported)
- ***Management reporting & forensic analysis***
  - Instantly review historical data of activity around your asset

Operations globally

A proven system

OptaSense is a proven method for detecting any activity in the vicinity of an asset over long distances. OptaSense converts your existing fibre optic communications cables into an array of virtual microphones with no infield equipment. An operator is able to detect, classify and locate any threatening events near to your assets in real time.

System components

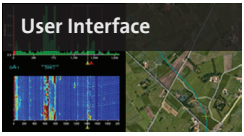
Interrogator Unit

The OptaSense Interrogator Unit sends a conditioned pulse of light into the fibre to create virtual microphones. By varying the size of the pulse, these virtual microphones can be spaced between 5 and 15m apart along the length of the fibre.

Processing Unit

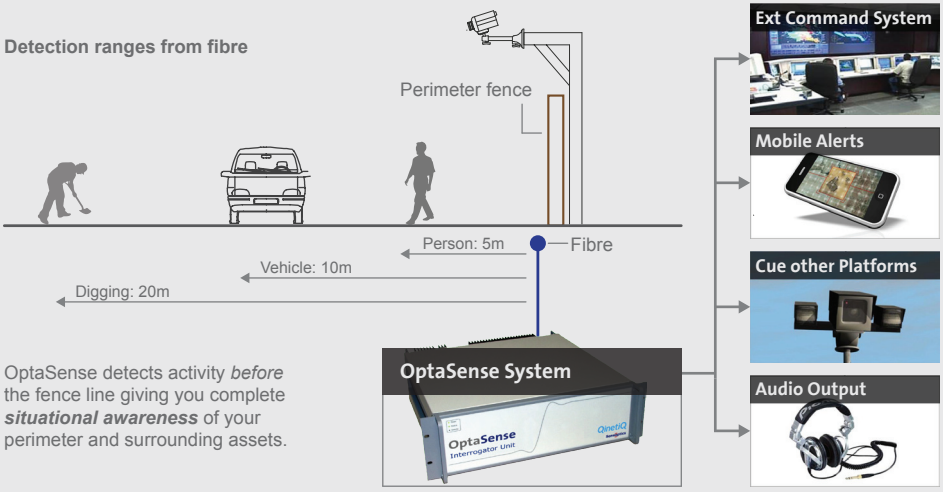
The acoustic data is received by the Processing Unit which monitors each microphone channel in real time for the presence of specific acoustic events. The classification engine then passes the event data onto the User Interface. The Interrogator/Processing Server combination is typically installed in the facilities control room.

User Interface



The User Interface presents the real time event data to the operator in a clear and intuitive manner where classified alerts are shown on a map display with location coordinates. By networking Interrogator Units together the system has the capability to allow an operator to monitor over 5,000km from one location and can easily be integrated with existing control systems (e.g. via OPC, Pelco etc).

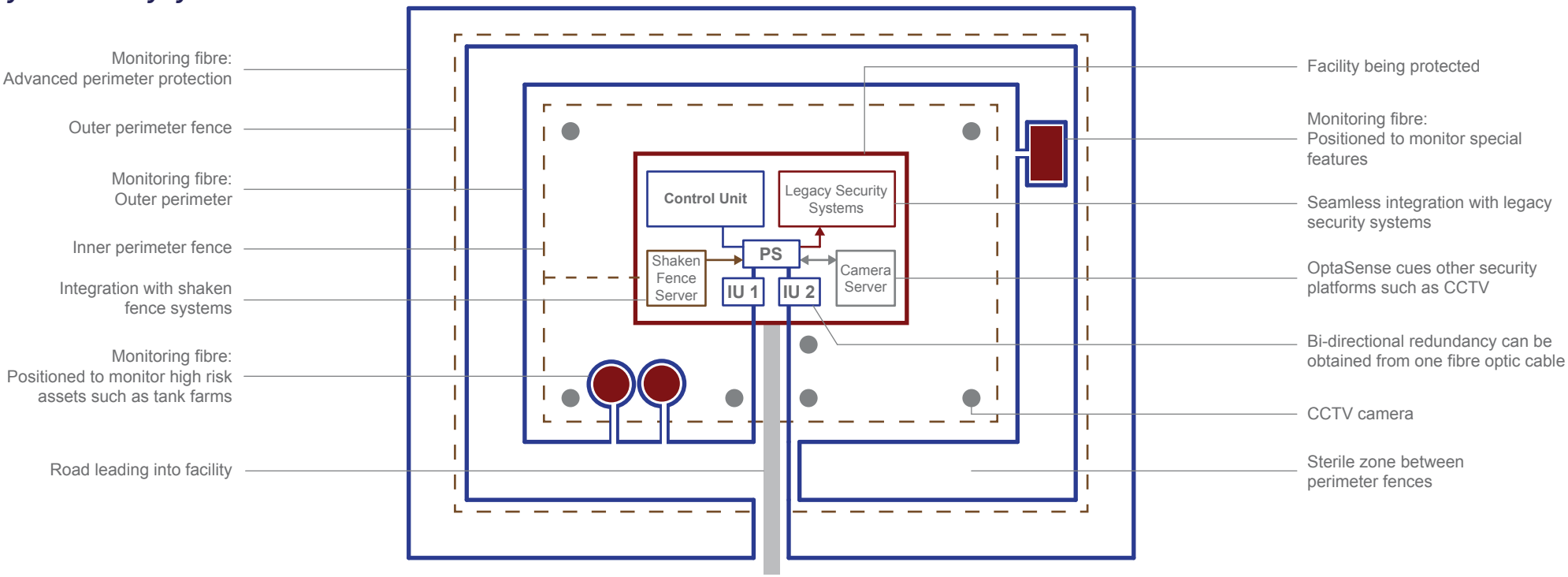
Closed Circuit Audio (CCA) to compliment CCTV



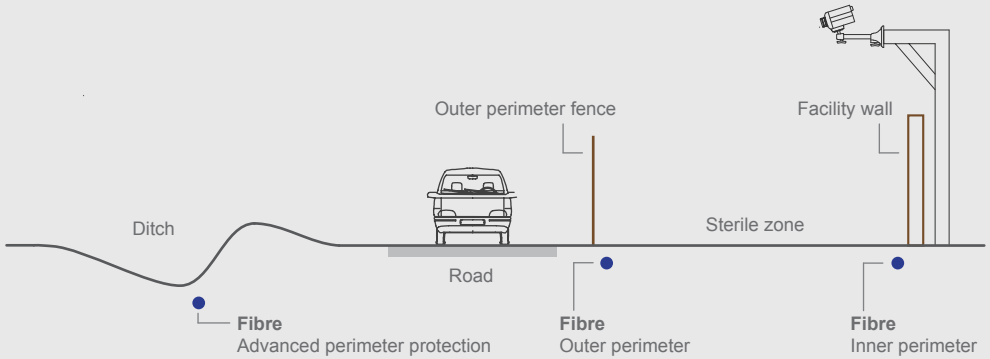
OptaSense detects activity *before* the fence line giving you complete ***situational awareness*** of your perimeter and surrounding assets.

Perimeter protection

A layered security system

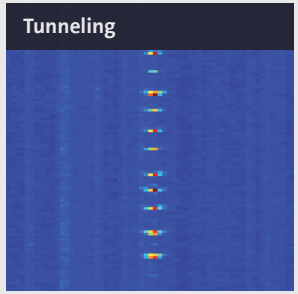


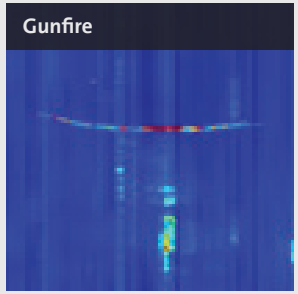
Advanced perimeter protection

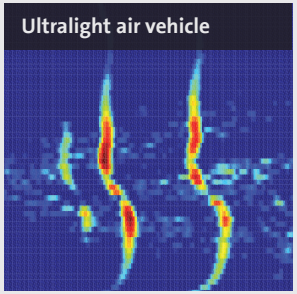


Protecting against threats on, below and above ground

OptaSense detects a wide variety of activity including digging, tunneling, gunfire and even air vehicles. The flexible nature of our system allows us to work with customers to create bespoke detection scenarios and apply these effectivley through our unique Smart Zone capability.





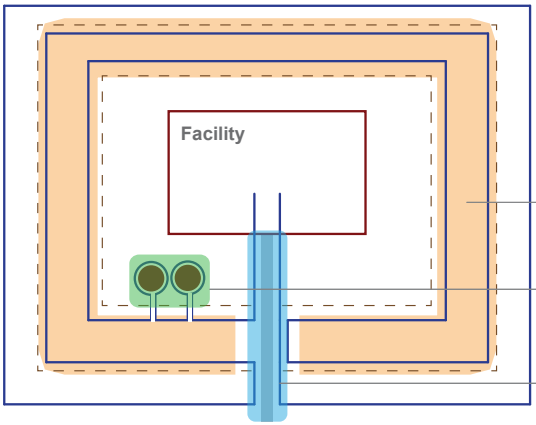


Smart Zones™

OptaSense's unique Smart Zone technology enables you to have different alert settings protecting different regions. Each zone is completely flexible, allowing you to choose which type of activity the system should alert to for a given zone.

OptaSense understands that your asset may cross different terrains such as entrances and exits. That's why we give you the option of setting up zones to suit your particular asset or facility. This includes the ability to add zones around high risk areas in or around your facility to provide a totally robust monitoring solution.

OptaSense knows that the time of day matters. Traffic on a road during the day may be no issue, but a vehicle arriving late at night, stopping, and unloading several people is quite different. Time settings on different zones minimise nuisance alarms and give you the sensitivity you need, when you need it.



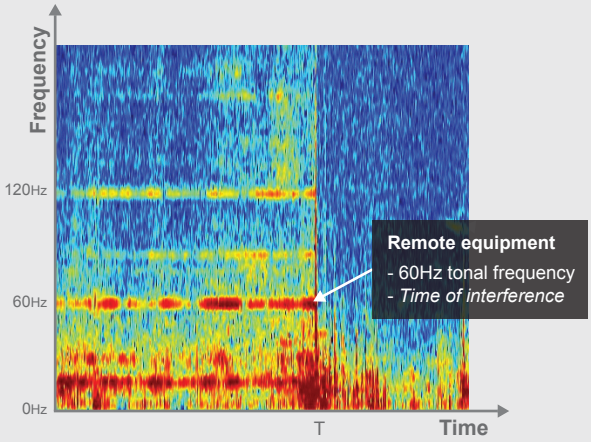
OptaSense can also detect changes in the underlying acoustic signature of equipment and machinery. It can therefore be used to monitor previously unmonitored equipment at remote locations.

Smart Zone 1: Stealth detector
Detecting all activity inside the sterile zone

Smart Zone 2: Personnel detector
Monitoring human activity around high risk assets

Smart Zone 3: Vehicle tracking
OptaSense can track vehicles on roads entering the facility

Case study: Remote equipment monitoring



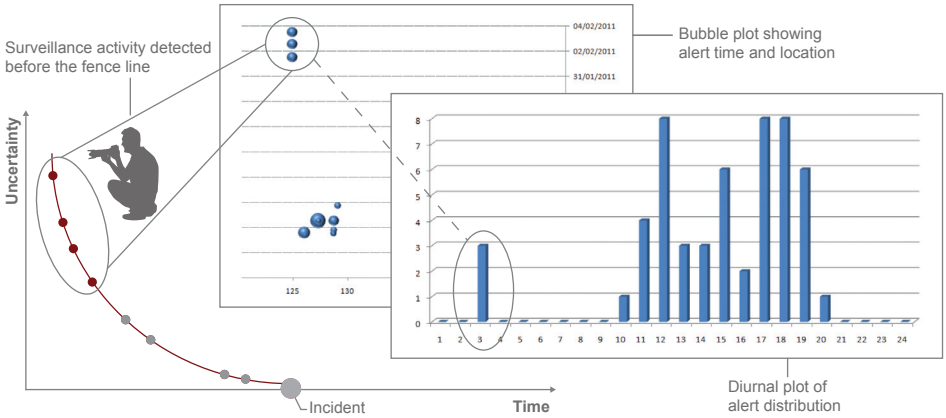
Failure of remote equipment had led to the shut down of critical electronic equipment, resulting in a compromised security system.

As the diagram shows, the main acoustic fingerprint that the remote equipment produces is around 60Hz.

At time T the remote equipment is interfered with. OptaSense can no longer detect the fingerprint and is configured to produce an alert.

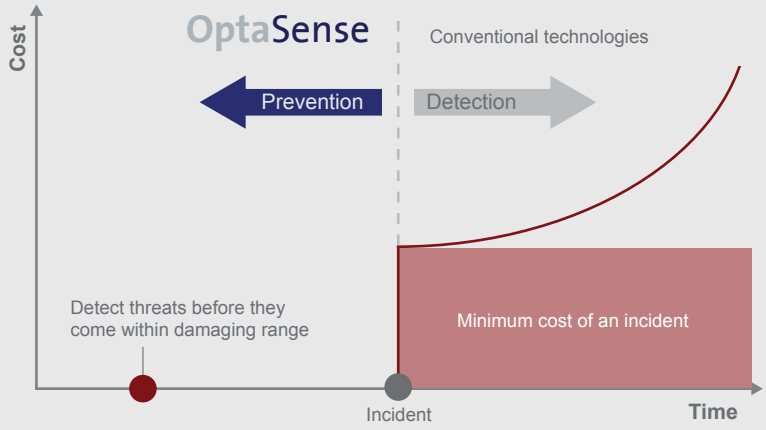
Reporting & Forensics

OptaSense records all the activity in the vicinity of your facility and associated assets. The activity data can be filtered by time, location and alert type enabling you to easily view the details of very specific events that are of high interest to you. Events can then be replayed and analysed by a suite of in-depth forensic analysis tools. OptaSense also makes management reporting easy with automated activity reports.



OptaSense detects the complete sequence of events leading up to a major incident with an increasing degree of certainty. The bubble plot above shows how the system has detected the same type of activity for three consecutive days. There may be nothing unusual about this type of activity during the day, however, the diurnal plot of alert distrubution shows that this activity is taking place at 3am. With this information, measures can be put in place to ensure all potential incidents are prevented. This level of situational awareness is provided before other security systems have even detected anything.

Incident prevention: *A unique OptaSense capability*



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