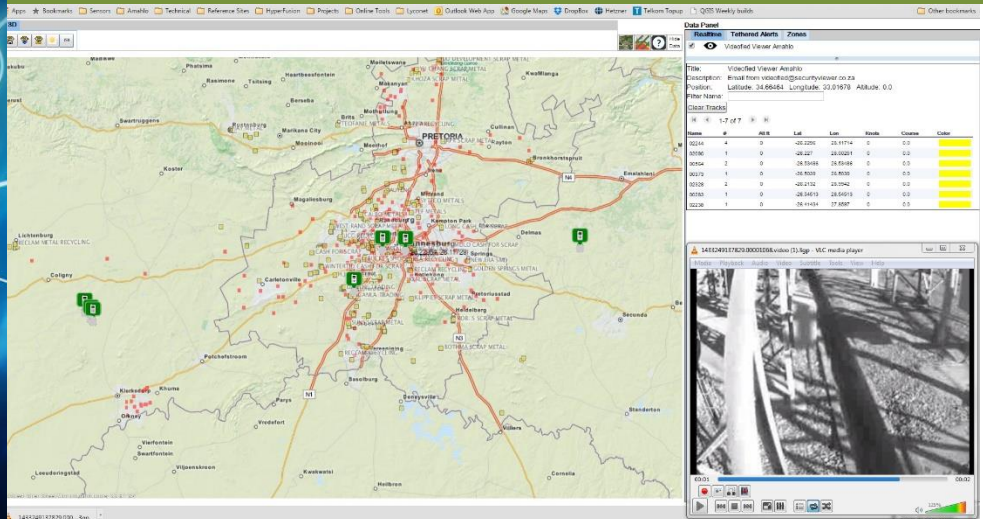




## Situational Awareness & Asset Tracking

### Sensor Assisted Activity Based Intelligence



#### REALTIME GEO-SPATIAL VISUALISATION

Best-of-breed open source Geographic Information Systems tools and interfaces

#### MULTI SENSOR DATA STREAMING

Distribute in real time any sensor or source information to interfaces and data stores

#### PERSISTENT SURVEILLANCE

Persistent monitoring anywhere on the globe through a 2D and 3D interface

#### MULTI SENSOR WIDE AREA MONITORING

Together with a variety of sensors, the solution provides a unique early warning capability to protect critical infrastructure

#### VISUAL ANALYTICS & BIG DATA ANALYSIS

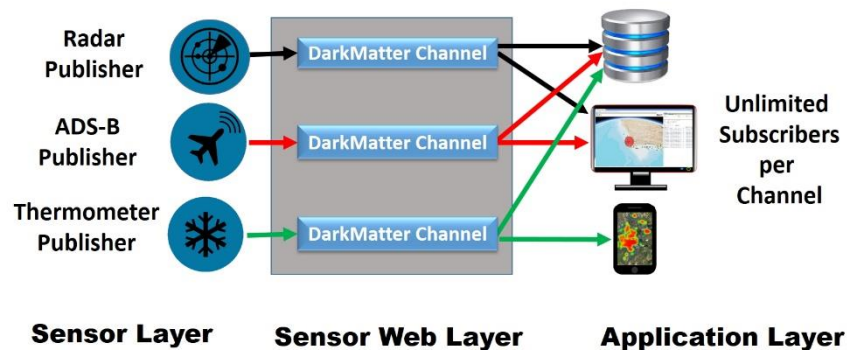
Integration with Big Data Tools and Visual Analytics allow for the display of real-time data within a historical pattern context

## The Cygnus Solution

Cygnus is a Risk Situational Awareness system specifically suited to monitoring and tracking resources and assets in time and space. It was developed for use in the African Risk Environment by taking into the account years of experience of Subject Matter Experts providing feedback into the development cycle. Cygnus is highly suited for real-time risk monitoring with a need to accommodate a high number of and variety of disparate sensors and tracking scenarios.

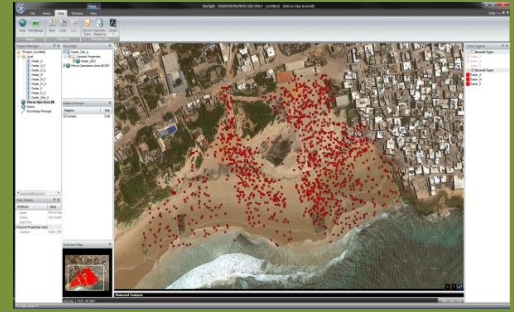
Cygnus has a tiered architecture that includes the:

- DarkMatter™ sensor agnostic data streaming bus
- Fault-tolerant Big Data Storage Environment with no single point of failure
- 2D and 3D Geo-spatial visualization environment .



# Patterns of Life

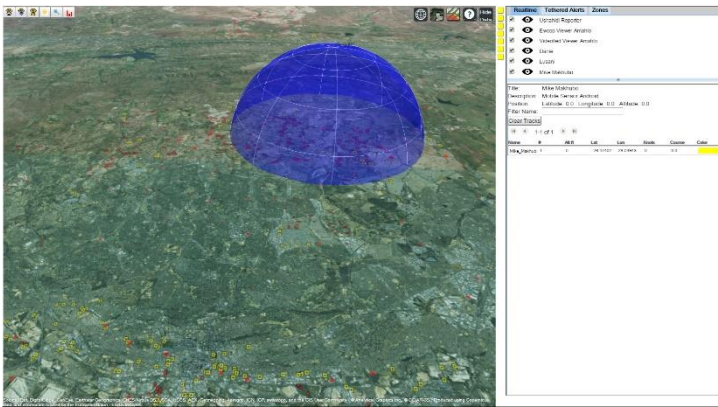
With the necessary tools and techniques in place, security and risk analysts are now in the position to determine specific patterns-of-life in an area of interest. Transients or anomalies in specific life patterns provide early warning indicators relative to the likelihood of specific risk incidents. Patterns of Life derived from within a Multi-INT environment allow analysts to make sense of complex relationships and spatial-temporal movement patterns allowing for pro-active intervention in a complex risk environment.



Integration of Visual Analytics and Geospatial Analytical tools for rendering of life patterns.

## Client Case Study – Countering Copper Theft

Our client is contracted to provide crime information solutions countering copper conductor theft for a utility in South Africa. Principles of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) are applied in conjunction with detailed geospatial intelligence analysis in predicting and preventing copper theft. A Multi-INT approach to analysis incorporating: crowdsourcing, direct field observation, thermal detection cameras, seismic sensors, open sources (internet, propriety databases, media, etc.) and other sensor information, drives the successful deployment of scarce human resources in countering and preventing copper cable theft in a proactive manner. Cygnus is the software system framework that manages this process and fuses historical and real-time data in a common geo-spatial visualisation interface.

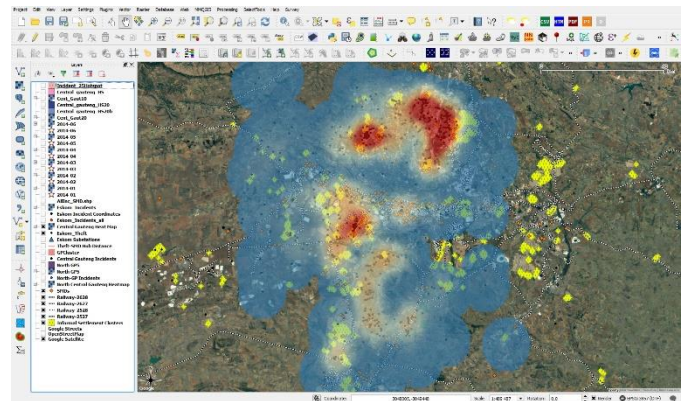


Cygnus has the capability of creating tethered geo-fences around high value assets that create a secure zone around the object as it moves

## A force multiplier

It was important for our client to assess the predictive nature of copper cable theft in order to direct the strategic and tactical responses in a proactive manner. Cygnus together with our client’s analytical team facilitated this crucial requirement. The system also allows the client to monitor feedback from field actions and provides a predictive capability in the deployment of resources in areas where incidents are expected in the future.

All contextual information about an operational area is loaded as transparent geo-spatial layers in the real-time monitoring environment. Real-time tracking of the client’s field personnel allows for effective command and control of resources combating copper cable theft. Field personnel are able to communicate directly from the field into the Cygnus system, including short messages, field reports and photographs. This tracking/reporting together with thermal trigger cameras and other deployed sensors provides operational decision makers in the client’s Information Centre with a high level of situation awareness which enables effective decision making.



Geo-spatial analytical products that are served to the real-time interface as layers to provide enhanced context to risk scenarios.

