
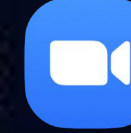


Designing a new world



Full-res images: 
Meeting link: 
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Summary

In December 2018, HawkEye 360 (HE360) launched the very first cluster of commercial RF-sensing satellites. Pioneers in satellite geolocation of RF emitters, HE360 collects and analyzes a variety of RF signals; such as AIS, EPIRB, UHF, VHF, L-Band, S-Band & X-Band. HE360 also created maritime vessel analytics that indicated when ships would go dark (stopping AIS emissions) or rendezvous together.

Realizing that these new data and analytics required a new way to look at the world, HE360 built the world's first commercial RF visualization capability, Mission Space. Taking on the challenge, to bring the market from an almost total lack of acquaintance with RF - to making it intuitive, HE360 transformed from a Data-as-a-Service provider, with disparate DaaS products to providing RF data & analytics in one RF experience.

Now mission analysts can experience one holistic worldwide view of RF activity.

Highlights

- First in space with commercial Radio Frequency (RF) detection.
- Satellites fly in clusters of three so they can geolocate on-the-ground emitters.
- We see every spot on the globe three to four times per day.
- AI is used to construct a neural network graph and elucidate hidden emitter/vessel behavior.
- RFML is used to tease out hidden analytic factors.
- All the RF signals & analytics have been brought together in one holistic experience called 'Mission Space'.
- We are enriching the Mission Space experience with commercial open source intelligence, e.g., OSINT, SAR, EO, and FMV.



What is RF?



Many people did not know what radio frequency (RF) Waves were. HE360 had to set about educating the public on the pervasiveness and utility of RF. Along with education we had to make the consumption of RF data intuitive.

Method



The HE360 Product and Engineering teams used 'Design Thinking' to create a solution that dealt with the complexities of RF data, and modeled intelligence analysts desired workflows.

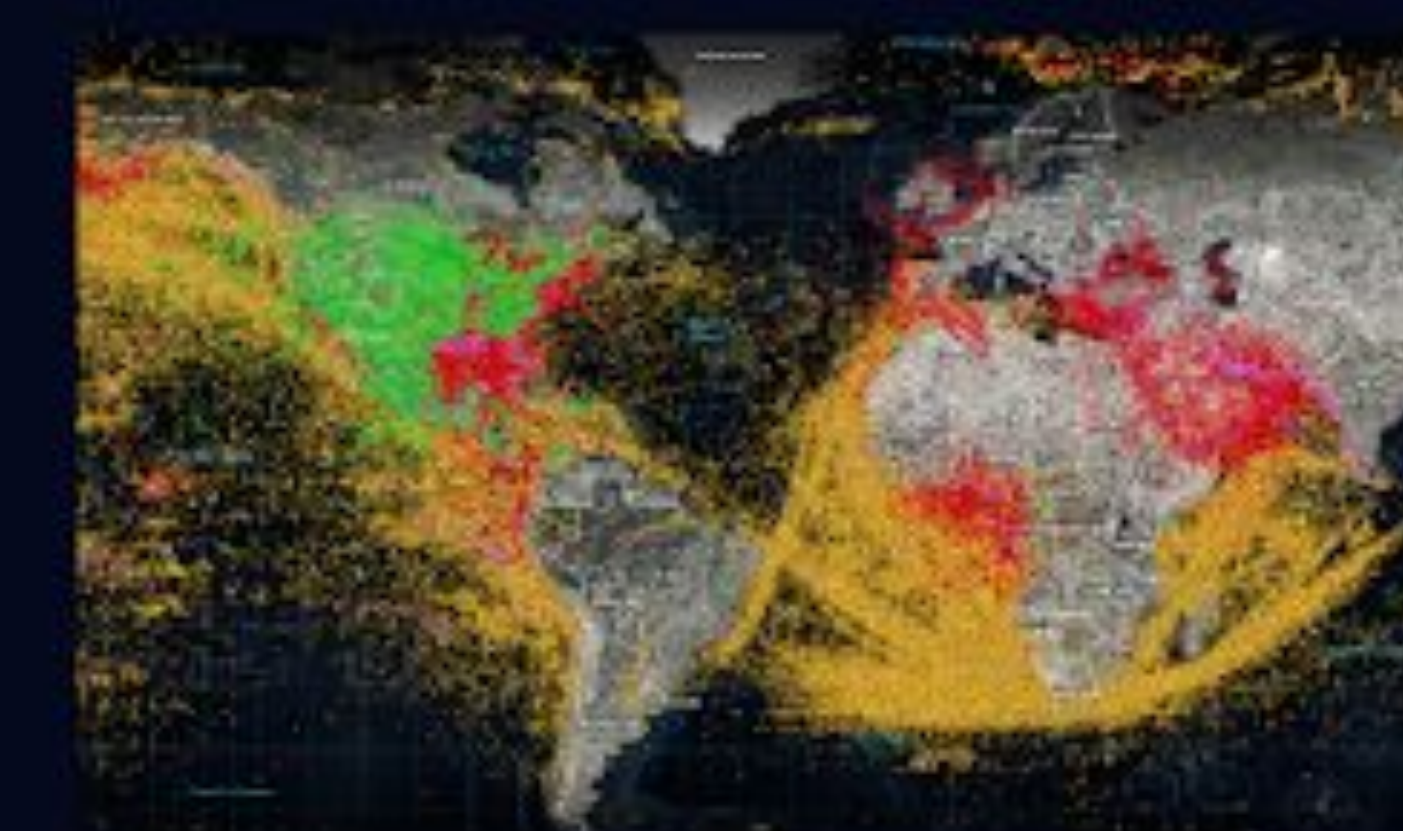
Early innovation



One of the earlier representations, of radio frequency geolocation and identification was a collaboration between HawkEye's Principal Geolocation Engineer and Principal Designer.

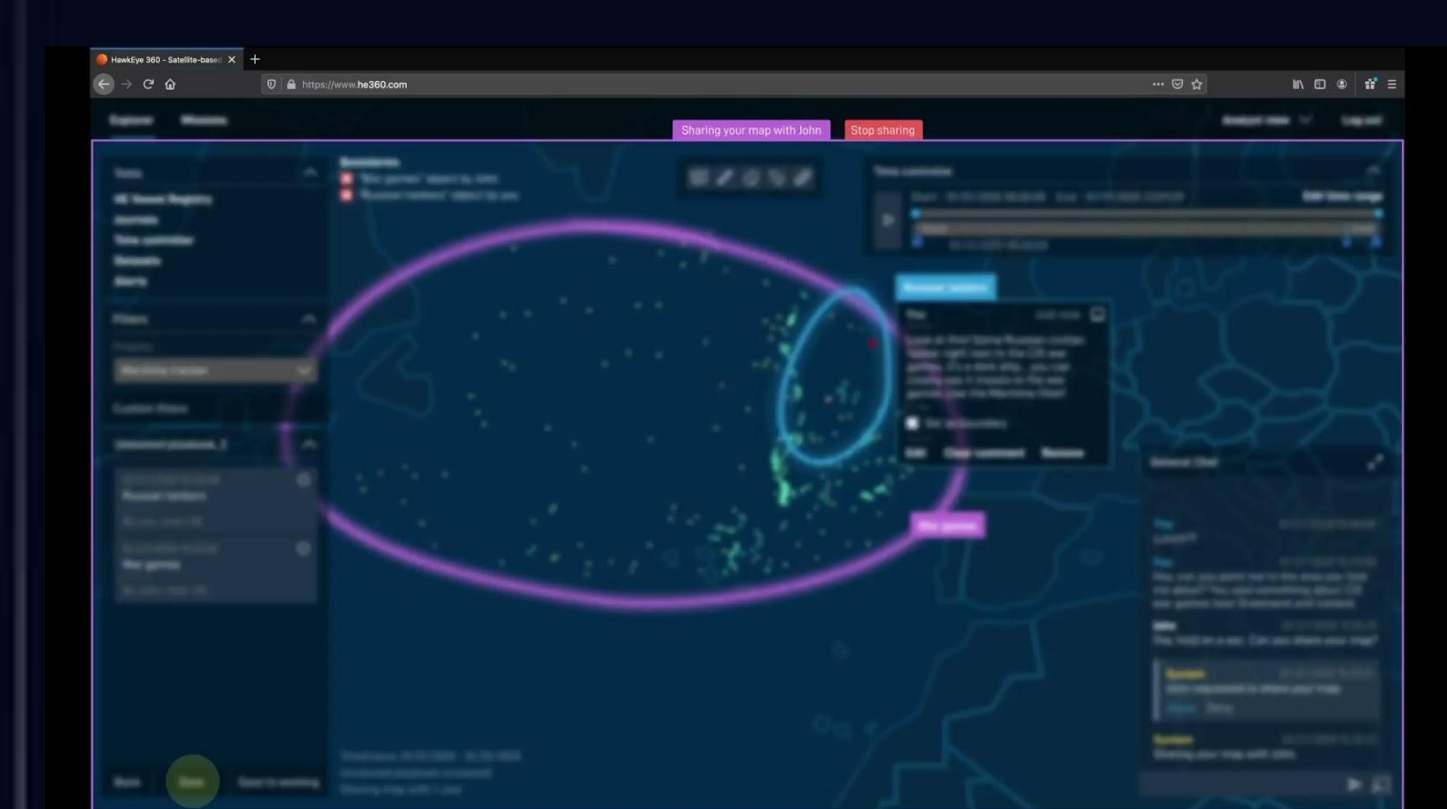
The poster, distributed to all employees, showed everyone how the physics of geolocations are computed.

"Too many dots..."



As soon as people became familiar with RF, they ran into visualization obstacles. Customers would look at a display and routinely say "Too many dots, I can't tell what is important." We knew we had to radically simplify the experience.

The concept



One of the earliest prototypes was a video to demonstrate the product concept. This concept prototype was shown to key stakeholders to validate the early design.