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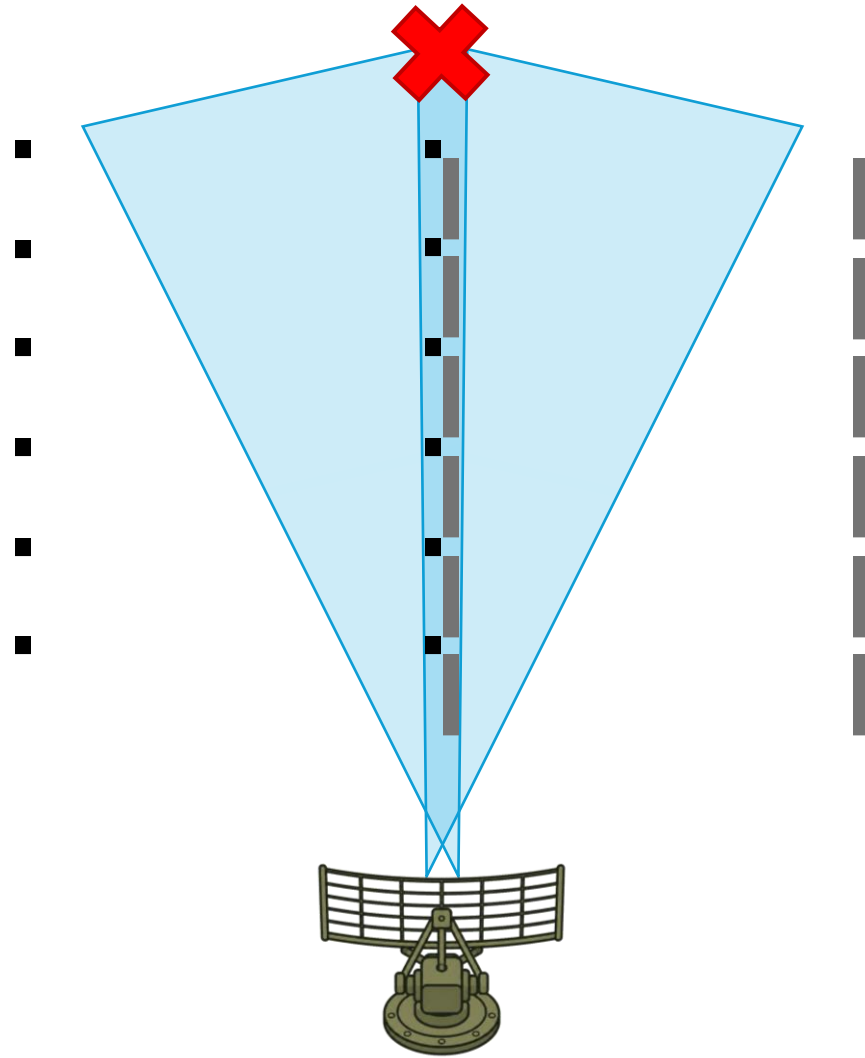


**The Secret War for the Spectrum:
From World War II to Starlink and Beyond**

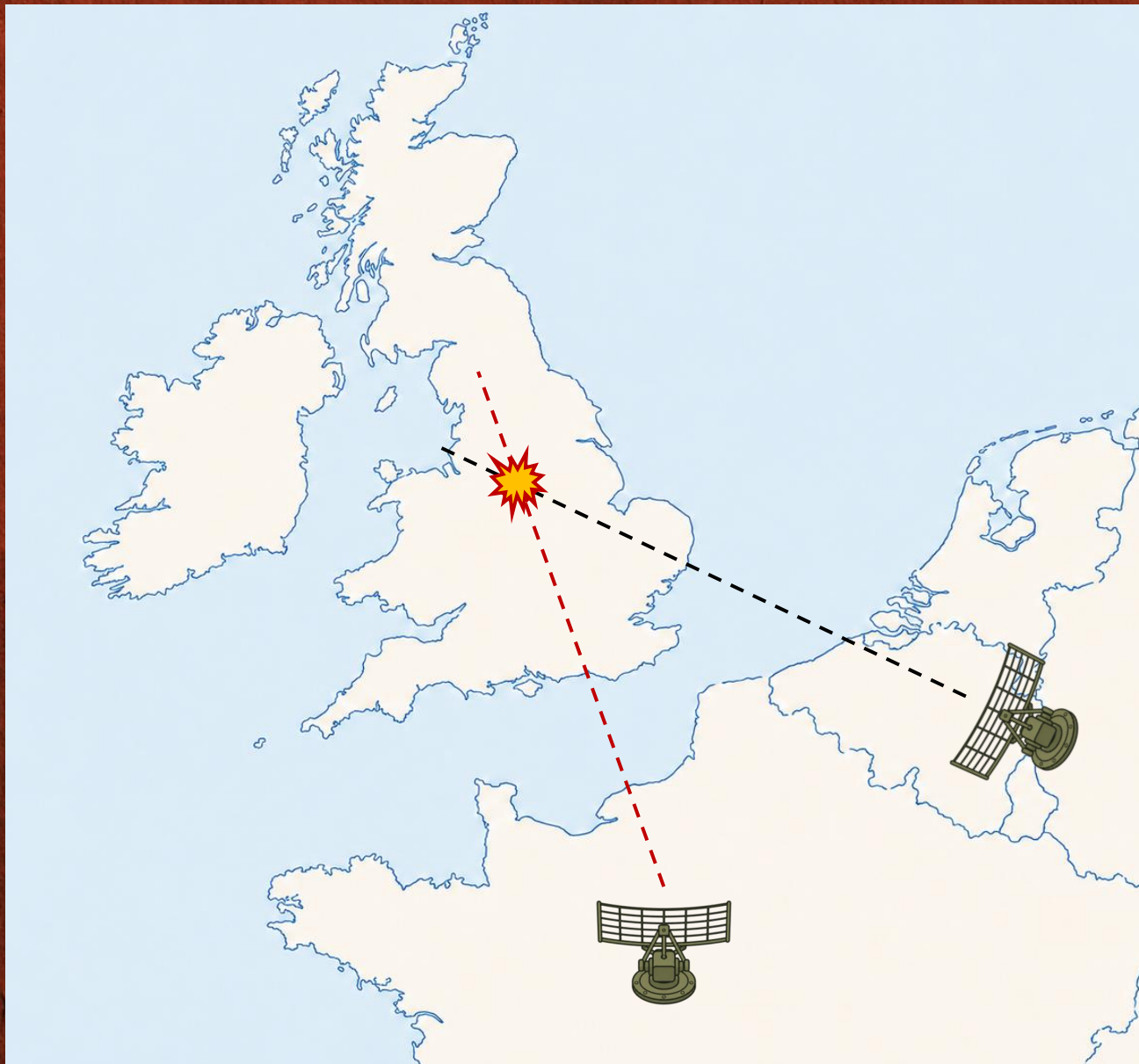
Daniel Bachmat

Battle of the Beams - Cyber Before the Digital Age

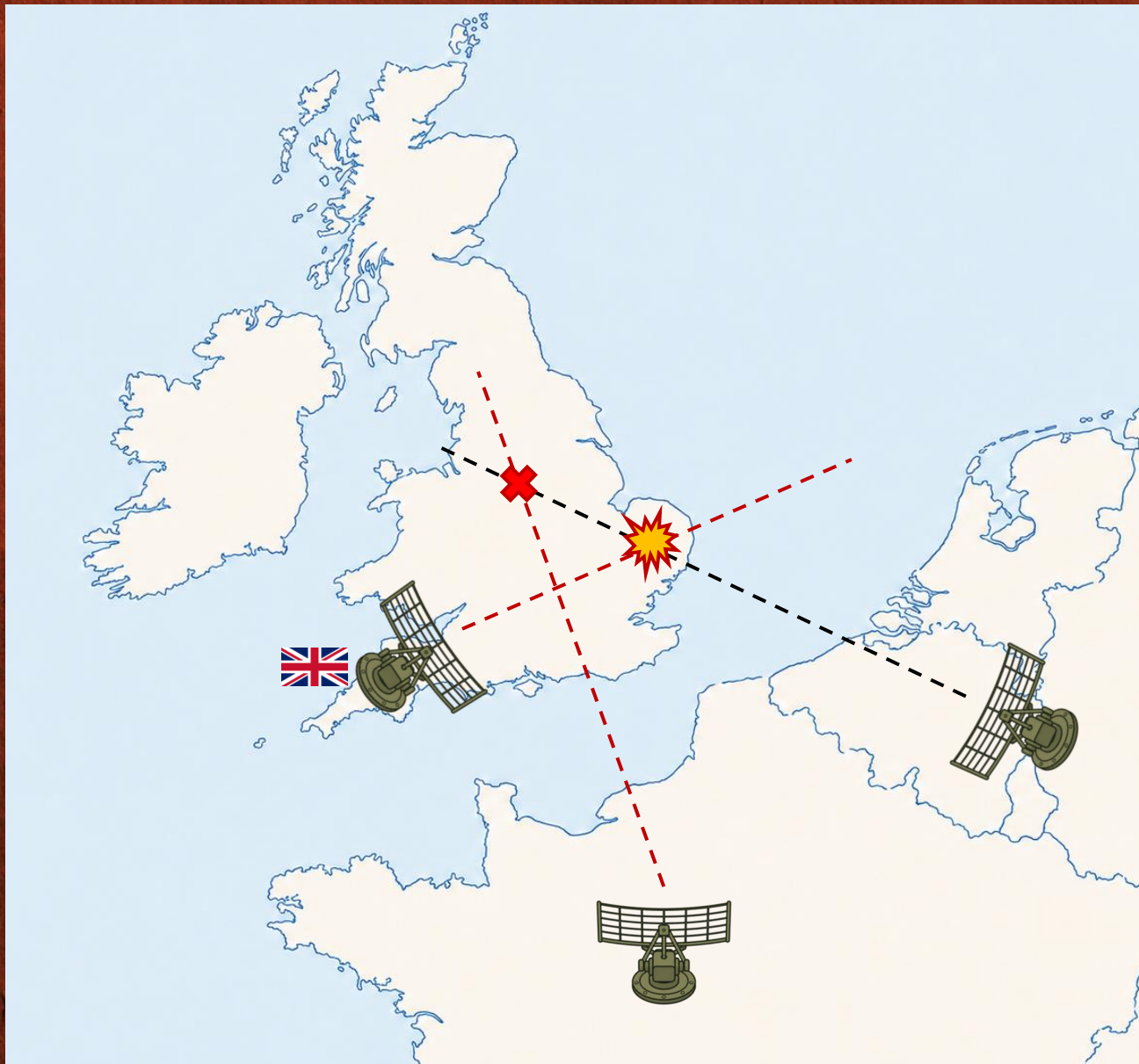




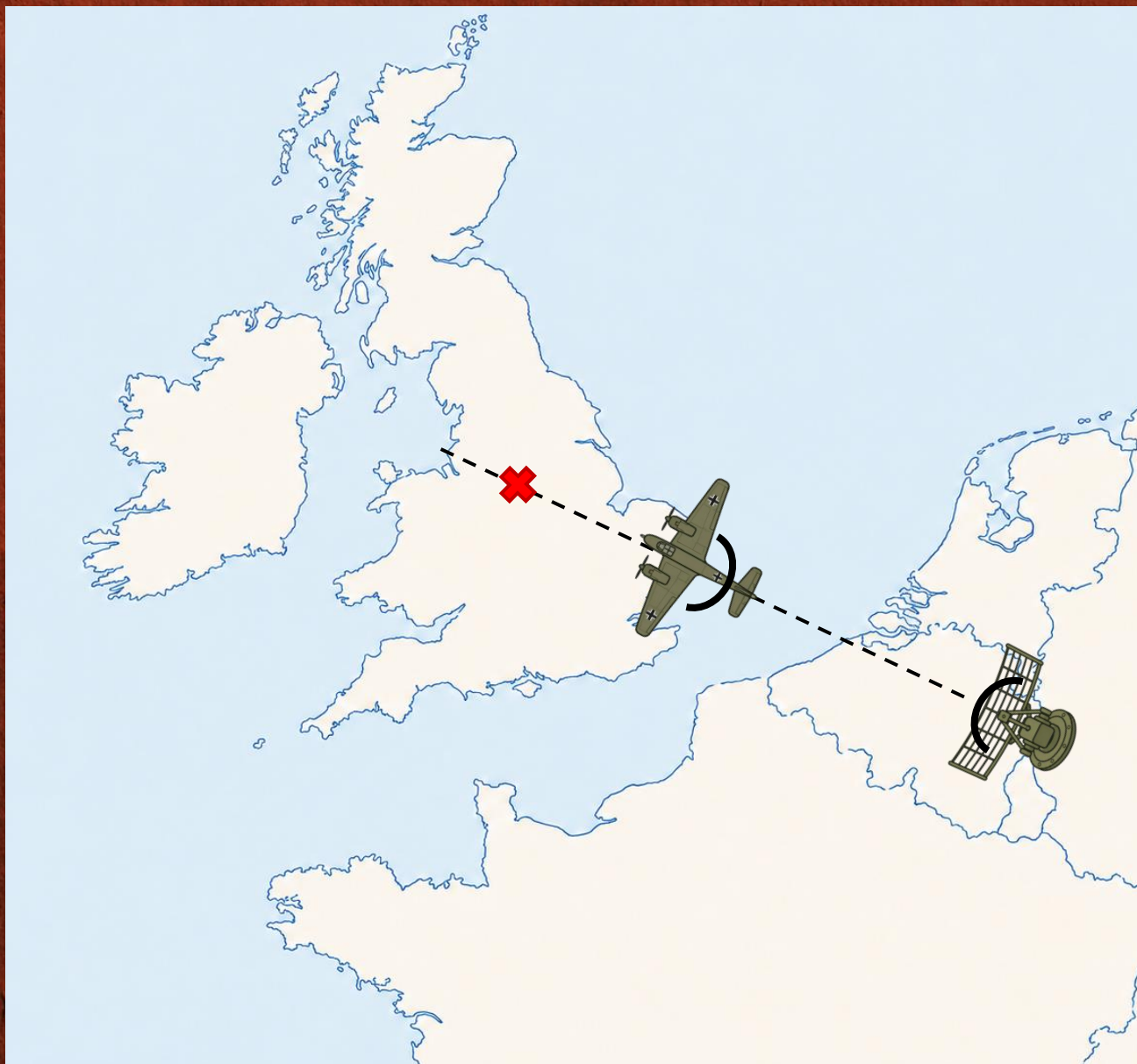
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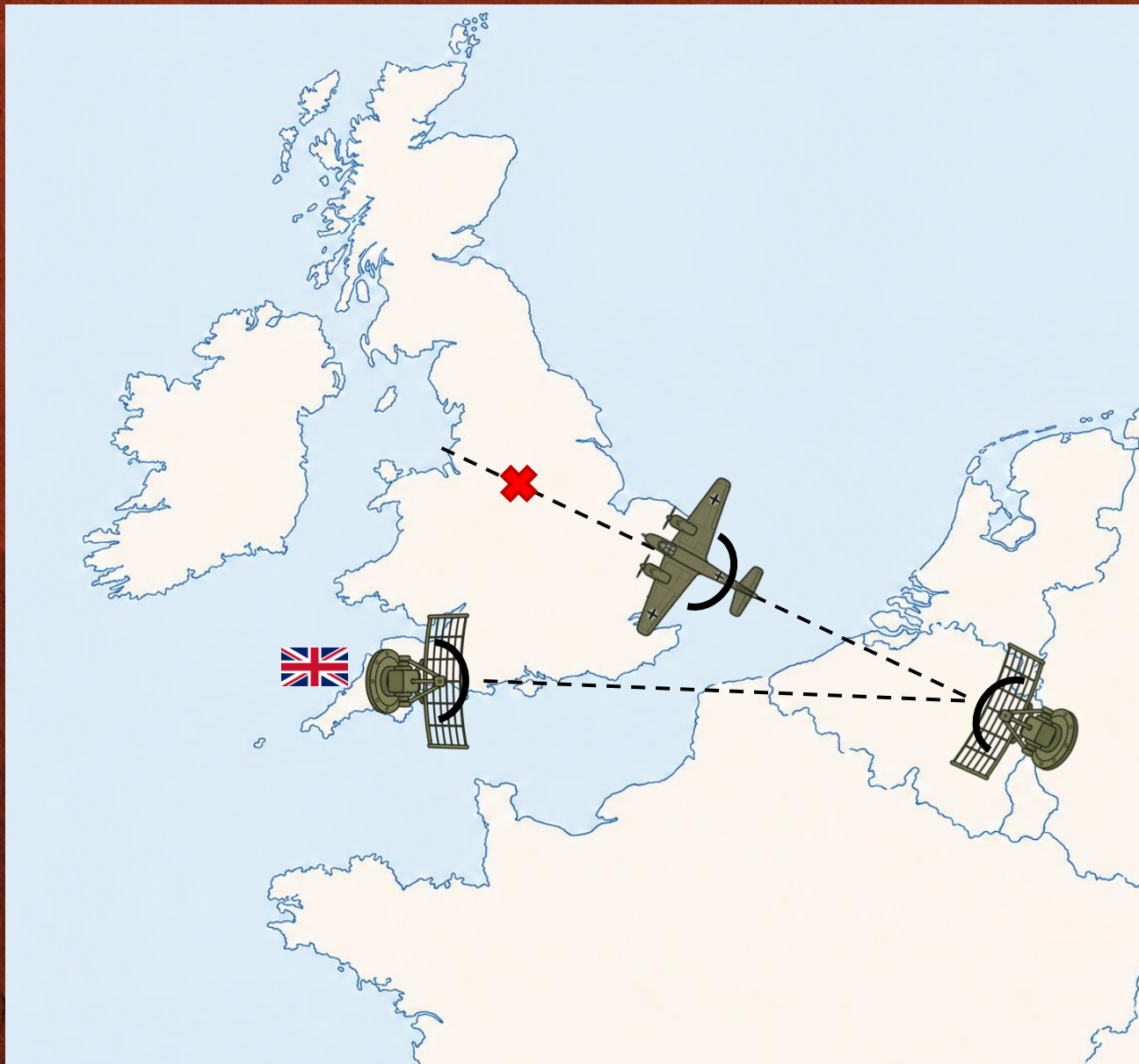
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But radio navigation didn't die...

GPS – The Modern Radio Navigation



GPS – The Modern Radio Navigation



GPS – The Modern Radio Navigation



The Evolution of GPS

The Evolution of GPS

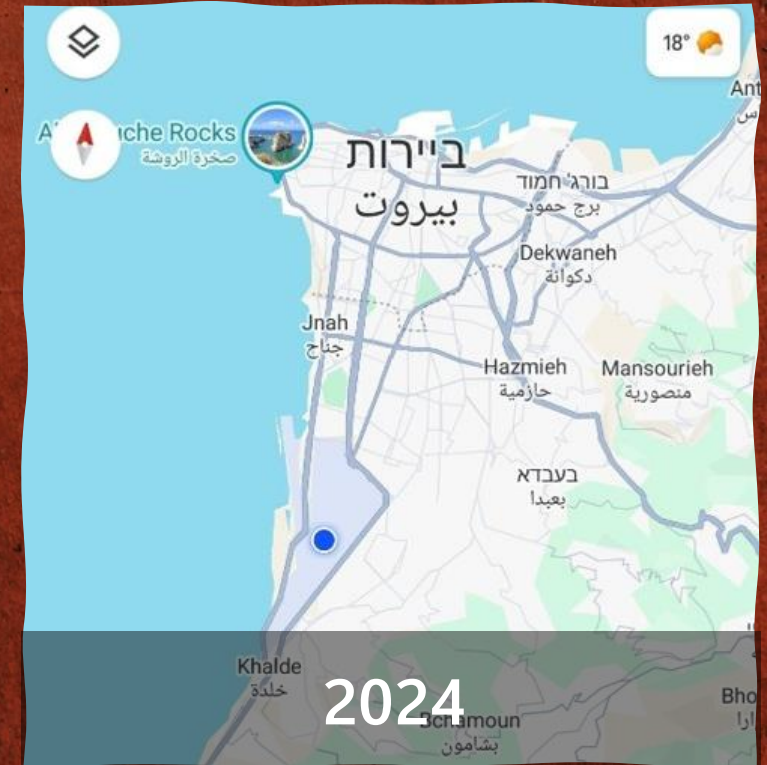


1991

The Evolution of GPS



The Evolution of GPS



Interim Summery

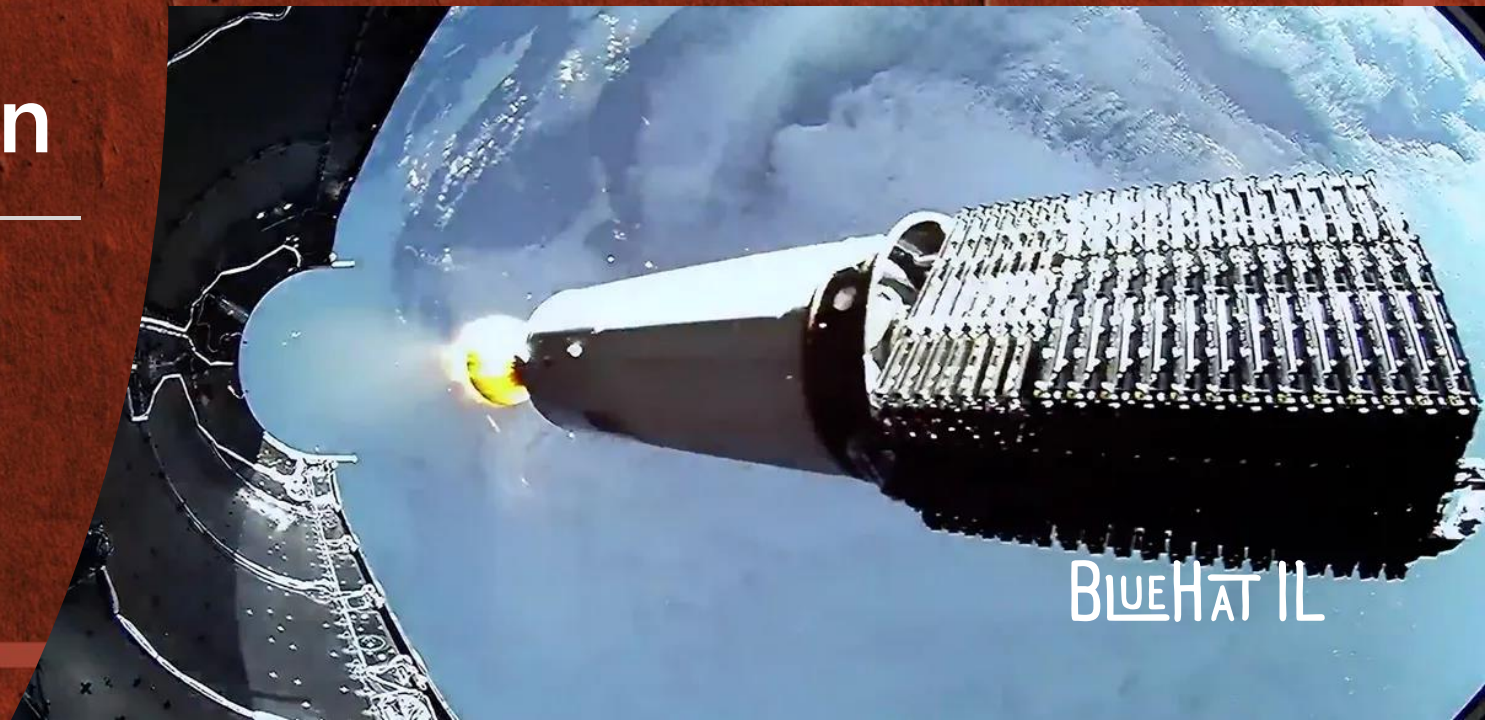
- Radio navigation had a rough start in WWII
- GPS turned navigation into a global utility – accurate, widely available and far more resilient than earlier systems
- But navigation is just one case of a broader challenge...

From Navigation to Communication

- The challenge – unlimited long-range communication
- A naive solution – the same thing we did with GPS
- Why this doesn't work – communication bottlenecks:
 - Low bandwidth
 - High latency
 - Easily jammed

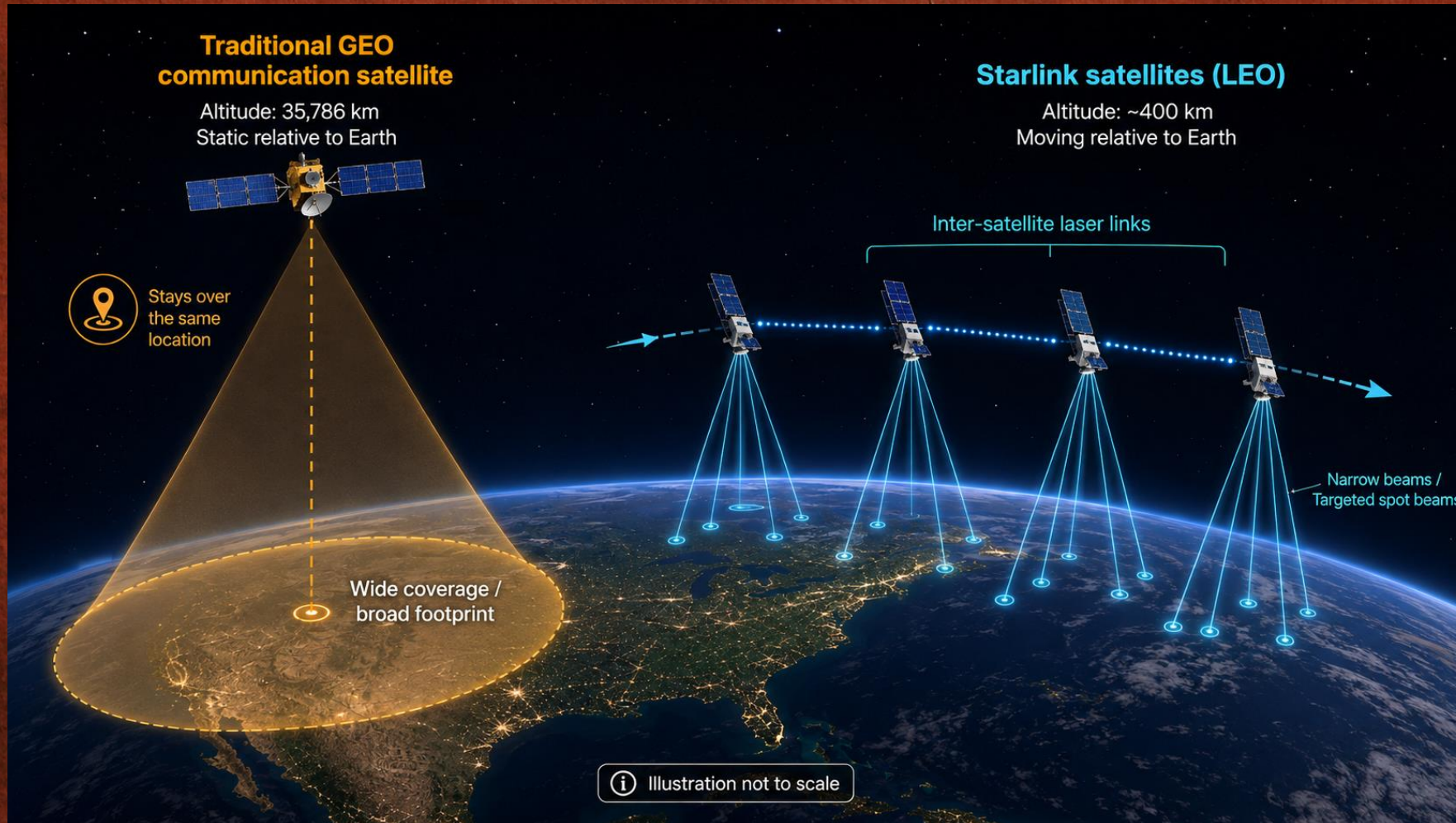


Starlink – A Star is Born

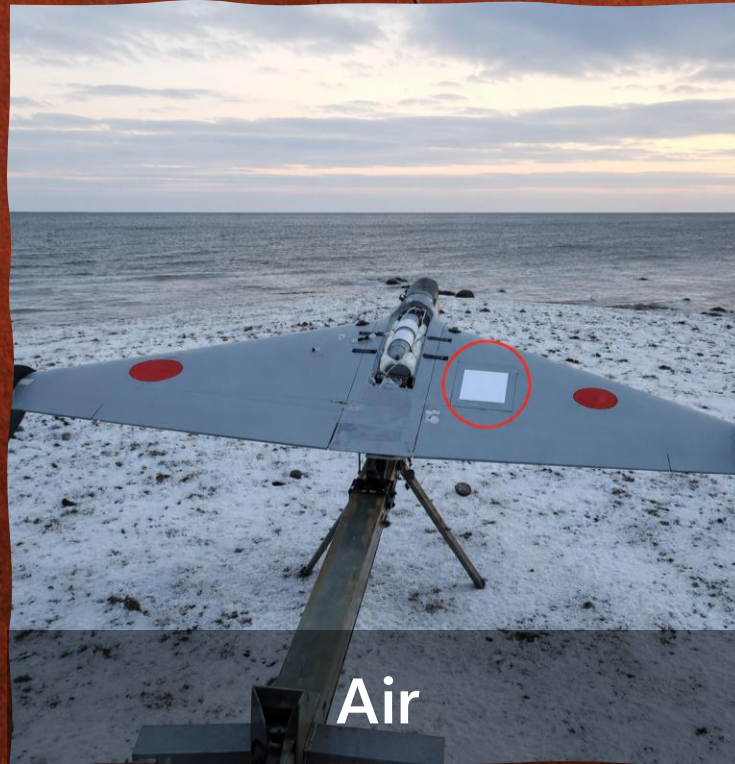






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Starlink VS Traditional Satellite Communications













How is War Effectuated Today



 **Mykhailo Fedorov**  @FedorovMykhailo · 29 січ.  







Within hours of reports that Russian drones equipped with Starlink connectivity were operating over Ukrainian cities, the Ministry of Defense team promptly contacted @SpaceX and proposed concrete ways to resolve the issue.






 65  603  4 тис.  411 тис.  

 **Mykhailo Fedorov**  @FedorovMykhailo · 29 січ.  

I am grateful to SpaceX President @Gwynne_Shotwell and personally to @elonmusk for their swift response and for immediately beginning work on a solution.

Elon Musk's decision to urgently activate Starlink and send the first batch of terminals to Ukraine at the outset of the [Показати більше](#)

 187  716  9 тис.  46 млн  

 **Elon Musk**   [Підписатися](#)  

Looks like the steps we took to stop the unauthorized use of Starlink by Russia have worked. Let us know if more needs to be done.

[Перекласти пост](#)

9:53 дп · 1 лют. 2026 · **4 857** переглядів

× Информация о боте



Регистрация Starlink РФ

бот



@russian_starlink_bot

Имя пользователя



Регистрация терминалов Starlink для использования на всей территории России.

О себе

The War of Tomorrow



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A Force for Good



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Thank You for Listening

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