

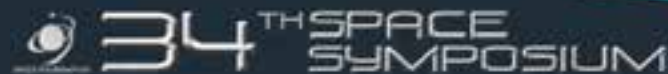
Analysis of Commercial Satcom Alternatives Closing Gaps in National Security Space

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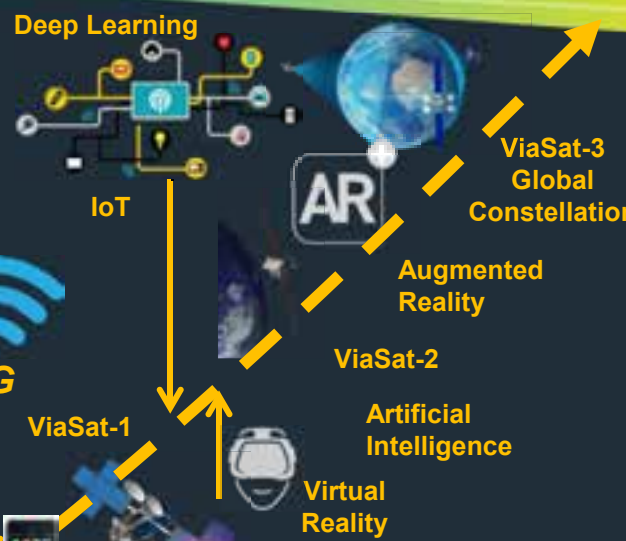
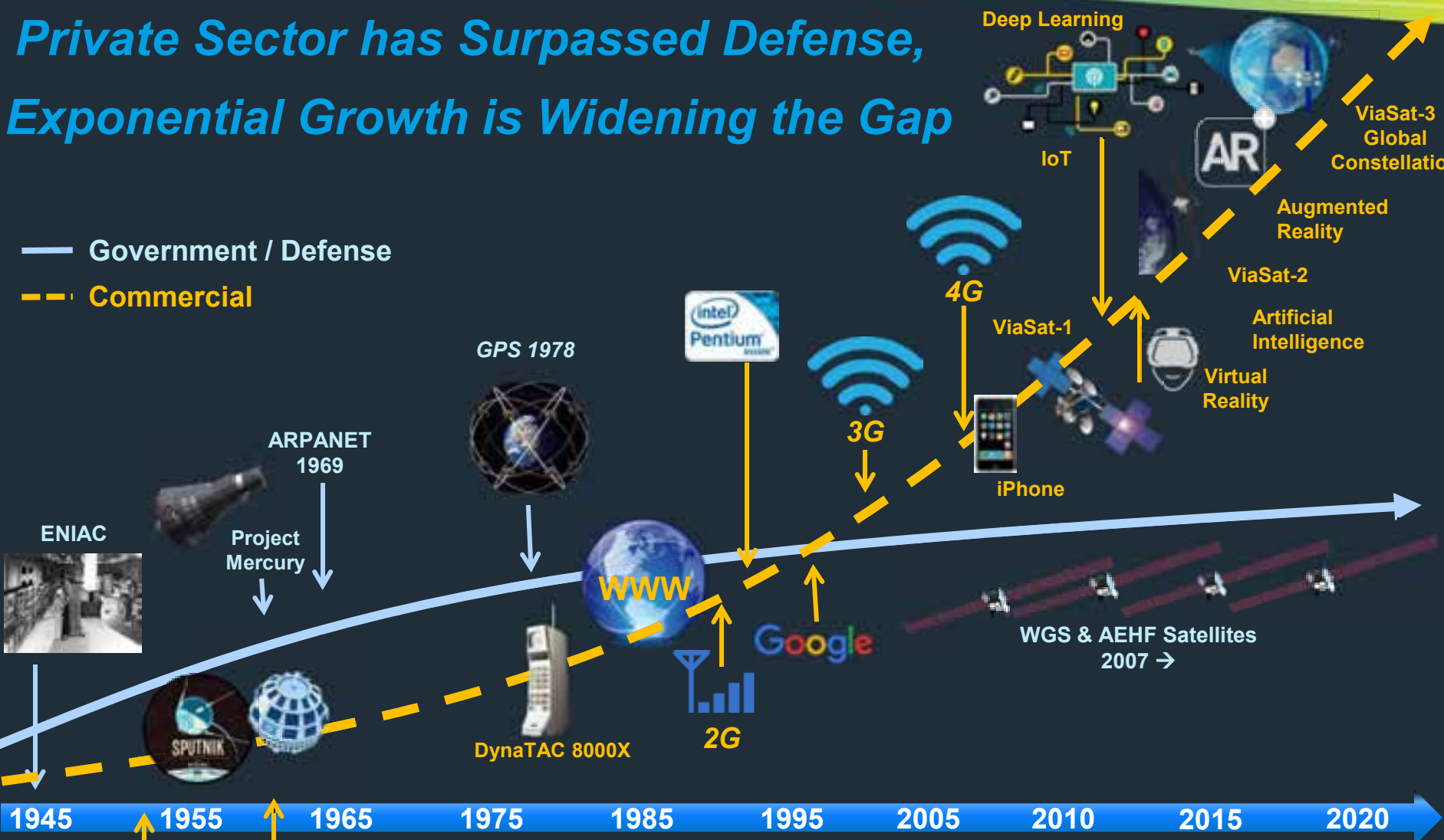
Meredith Caligiuri, meredith.caligiuri@viasat.com

16 April 2018

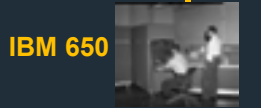


Private Sector has Surpassed Defense, Exponential Growth is Widening the Gap

— Government / Defense
 - - - Commercial



Focused on Satellite Communications, Networks, Cybersecurity, & Mission Resilience



Technology Innovation Enables



Satcom Technology Innovation Enables ...

Inmarsat GX



SES Networks



ViaSat-3 Constellation



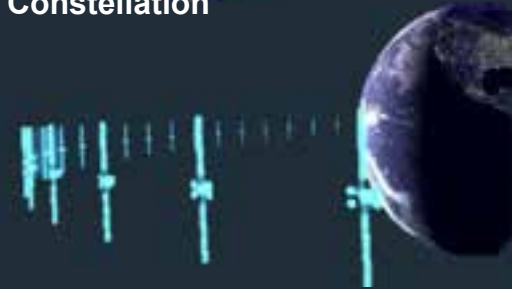
Service Delivery Platforms

Product Delivery Platforms

LEO Constellations



Intelsat EPIC^{NG}



... Evolving Service Delivery Platforms

- Lower Investment
- Shorter Time-to-Market
- Higher Performance

WGS



AEHF



DISA Teleports
Fixed Regional Hubs

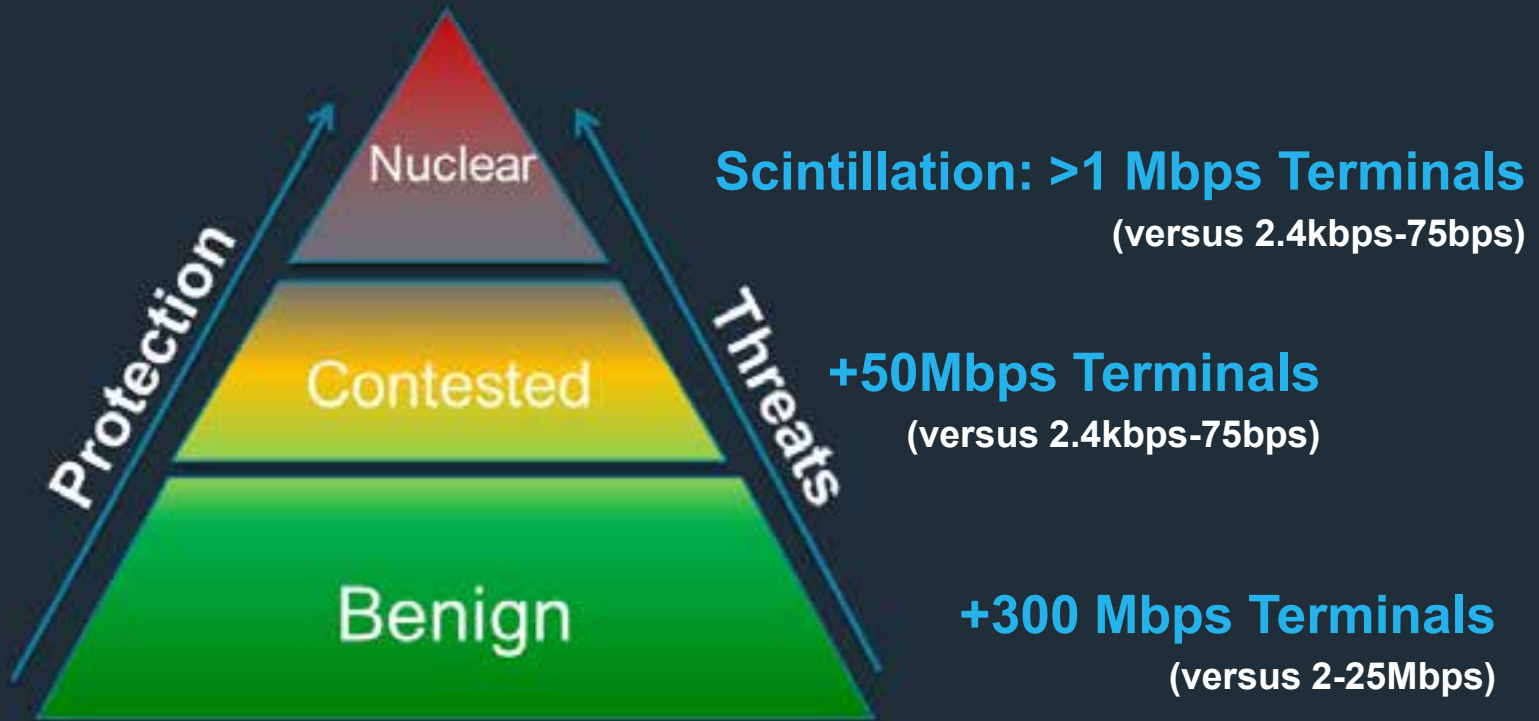


MET Sites
Shore Stations



Multiple Service Delivery Platforms Offering

Increased Warfighting Performance in all Environments

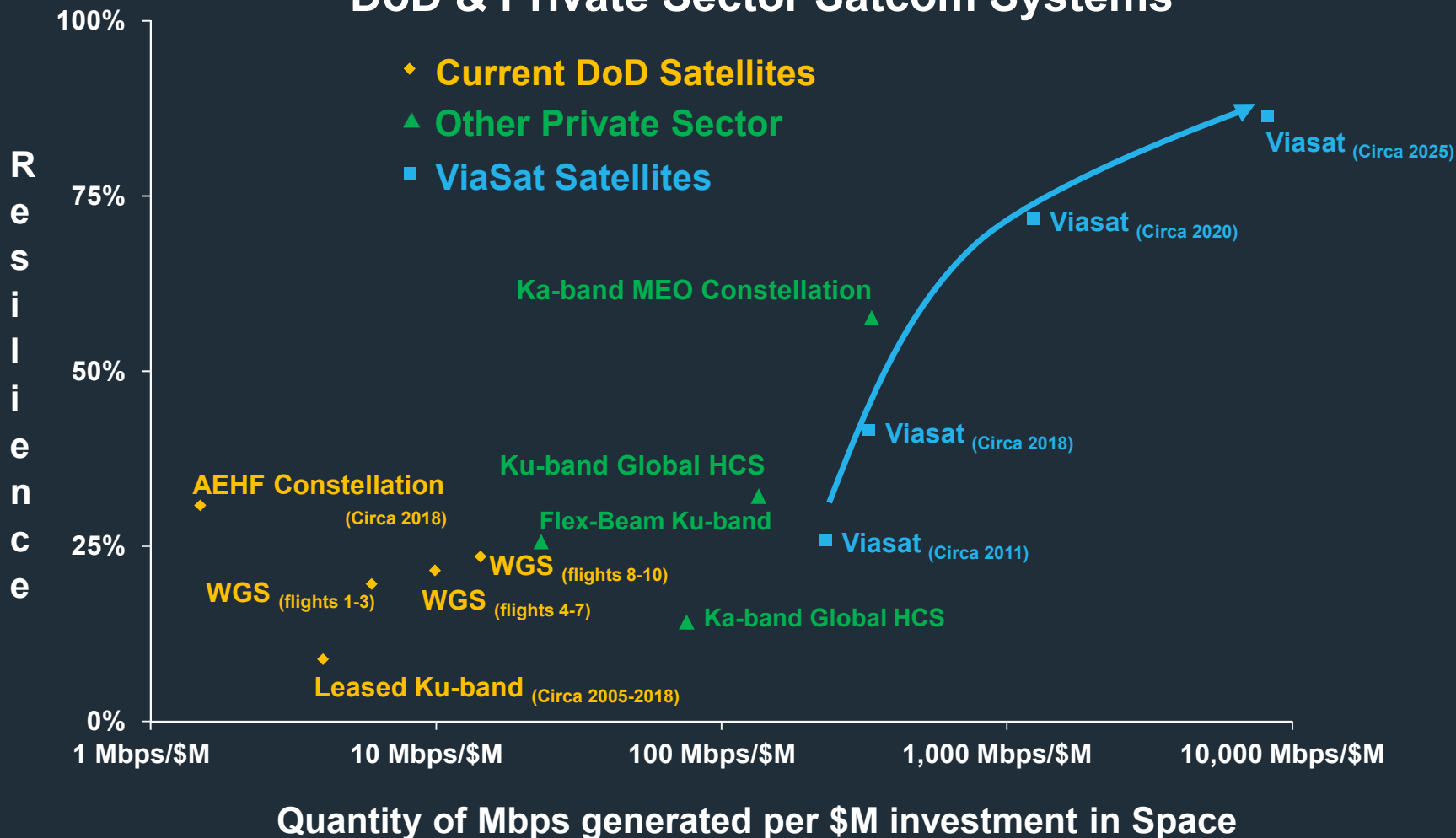


Close Mission Gaps

- » Jamming / Interference
- » Teleport Exploitation
- » Cyber Attacks

Viasat's AoA – Resilience and Affordability Assessment

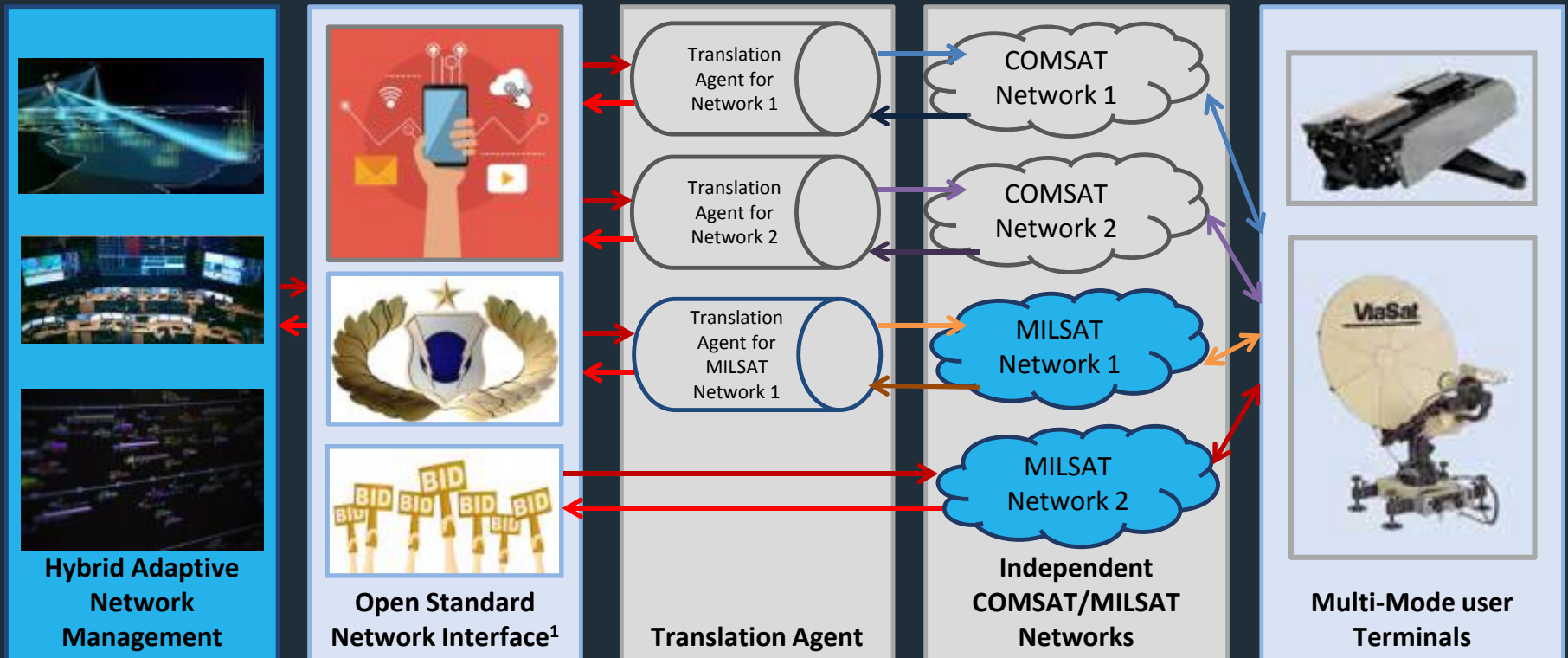
DoD & Private Sector Satcom Systems



Quantity of Mbps generated per \$M investment in Space

Hybrid Adaptive Networking

Maximize Warfighter Performance & Resilience
with simultaneous access to multiple DoD & Private Sector Networks



- Blue outlines are gov't developed/maintained, possible commercial collaboration
- Light Blue is commercial/government collaboration
- Gray outlines are commercial developed/maintained

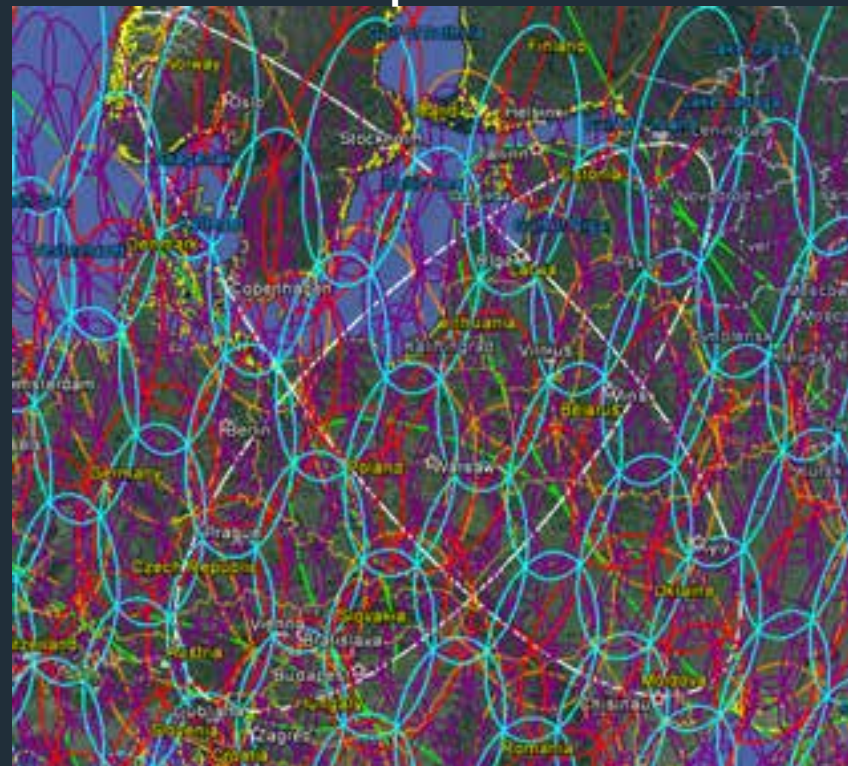
DoD Purpose-Built vs Fully Layered Networking

Deter war and if necessary Win by fully leveraging DoD & Private Sector Satcom services

Circa 2022 NATO Exercise – Eastern Europe



WGS-2 & 3



WGS-2 & 3

KaSat

Inmarsat GX

IntelSat EPIC^{NG}

SES Network O3b

ViaSat-3

- > Relieves Congestion: Over 50 Gbps in any AoR
- > Eliminate effect of Interference (intentional/unintentional)
- > Eliminate effects of Cyber attacks
- > Eliminate effects of loss of Ground sites
- > Eliminate effects of loss of Space assets



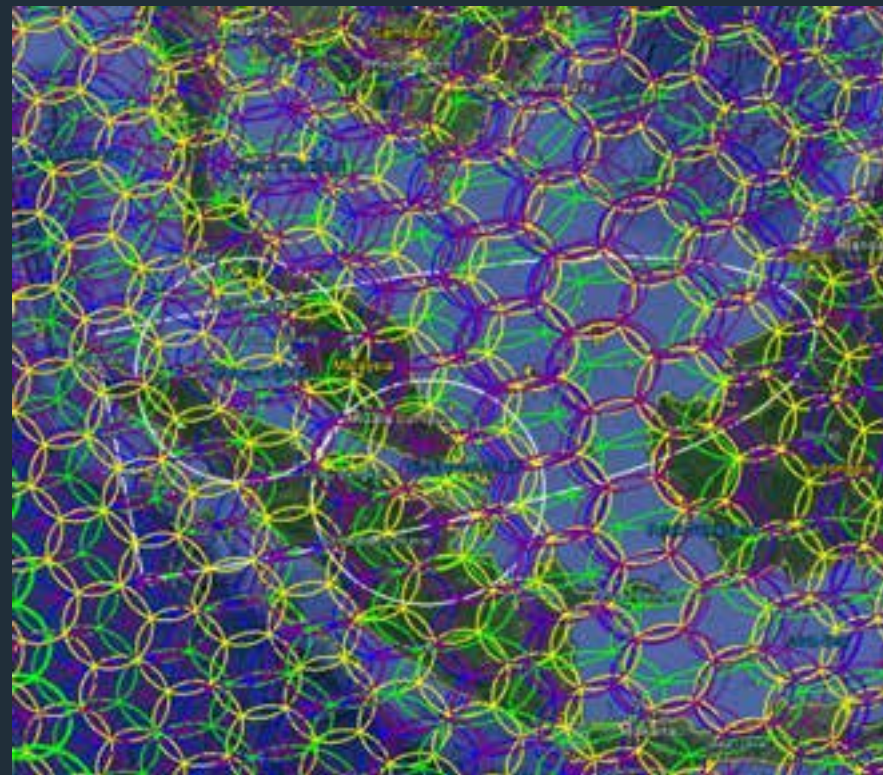
DoD Purpose-built vs Fully Layered Networking

Deter war and if necessary Win by fully leveraging DoD & Private Sector Satcom services

Circa 2022 Freedom-of-Navigation Exercise - Straits of Malacca



WGS-4 & 7



WGS-4 & 7 Inmarsat GX Intelsat EPIC^{NG} SES Network O3b ViaSat-3

- > Relieves Congestion: Over 50 Gbps in any AoR
- > Eliminate effect of Interference (intentional/unintentional)
- > Eliminate effects of Cyber attacks
- > Eliminate effects of loss of Ground sites
- > Eliminate effects of loss of Space assets

Department is at a Crossroads ...

Enhance the DoD Enduring Mission

1. Immediately assess private sector Satcom services in a warfighter context
2. Change the pilot/pathfinder acquisition model to enable “Satcom as a Service” including “operational effects” against current and emerging threat vectors
3. Immediately expand existing capabilities to encompass private sector Satcom services
4. Deploy multi-network terminals that can support both existing and emerging networks to add resiliency and enabling an immediate **pivot-off** leased Ku-band
5. Immediately implement a scalable Hybrid Adaptive Network architecture