MRT-C – How do we get to Utopia?

C5 Cyber & IT Forum
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DISA C5I LNO

Objectives

- Whoami?
- What is MRT-C, and KT-C?
- Why do we care?
- What role DISA plays
- Challenges
- Path Forward

Mission Relevant Terrain – Cyber / Key Terrain - Cyber

- **Mission Relevant Terrain in Cyberspace** (MRT-C) as defined in OPORD 17-0106 is all devices, internal and external links, operating systems, services, applications, ports, protocols, hardware, and infrastructure that supports critical data paths vital for mission success. Of note, this may be infrastructure outside of our physical control, may be heavily contested, and may demand logically and physically redundant paths.
- **Key Terrain in Cyberspace** (KT-C) is the equivalent of high ground in the physical world. It is terrain in cyberspace that affords intrinsic advantage (like a firewall that logs traffic that we can analyze). Typically, this is infrastructure we control (have admin rights and physical access to) and must be specifically defended as any compromise may compromise the mission.
- In order for Mission Planners to effectively plan, they must be intimately familiar with the technical details of the cyber terrain they're planning on traversing as well as the mission's requirements.
- This "Terrain" is always changing. It undergoes continuous change as infrastructure and software are in constant flux. A method of tracking these relationships must be implemented and available to the planners.


Physical Dimension
Air Domain
Land Domain
Sea Domain
MRT-C lives up here too...
Another Dimension
Cyber Domain
MRT-C lives down here

Example of Joint Operation Enabled by C5I

NSANet

Cable Landing Station

Foreign Telecom

CENTRIXS-J

SATCOM

Ground Station

LUMEN

verizon

NMCI

NAVY MARINE CORPS INTRANET

Cable Landing Station

Foreign Telecom

NIPR

SIPR

CENTRIXS

TS/SCI

Army AA Battery

Navy Aircraft Carrier

The Future Will Be Faster

In order to be keep up, we must continually stay on top of emerging technologies without opening vulnerabilities in our own systems. This requires:

- Continuous Education.
- Promote innovation.
- MRT-C Mapping Solutions must be **technology agnostic**
- Flexible and scalable
- Vigorously question the need for something **New**

  Just because an industry is trending, doesn't mean it brings value! Question everything.
- **We must strive not just to map the MRT-C, but to ultimately maneuver within it!**

  Dynamically leverage multiple flexible data paths to route around disruption.

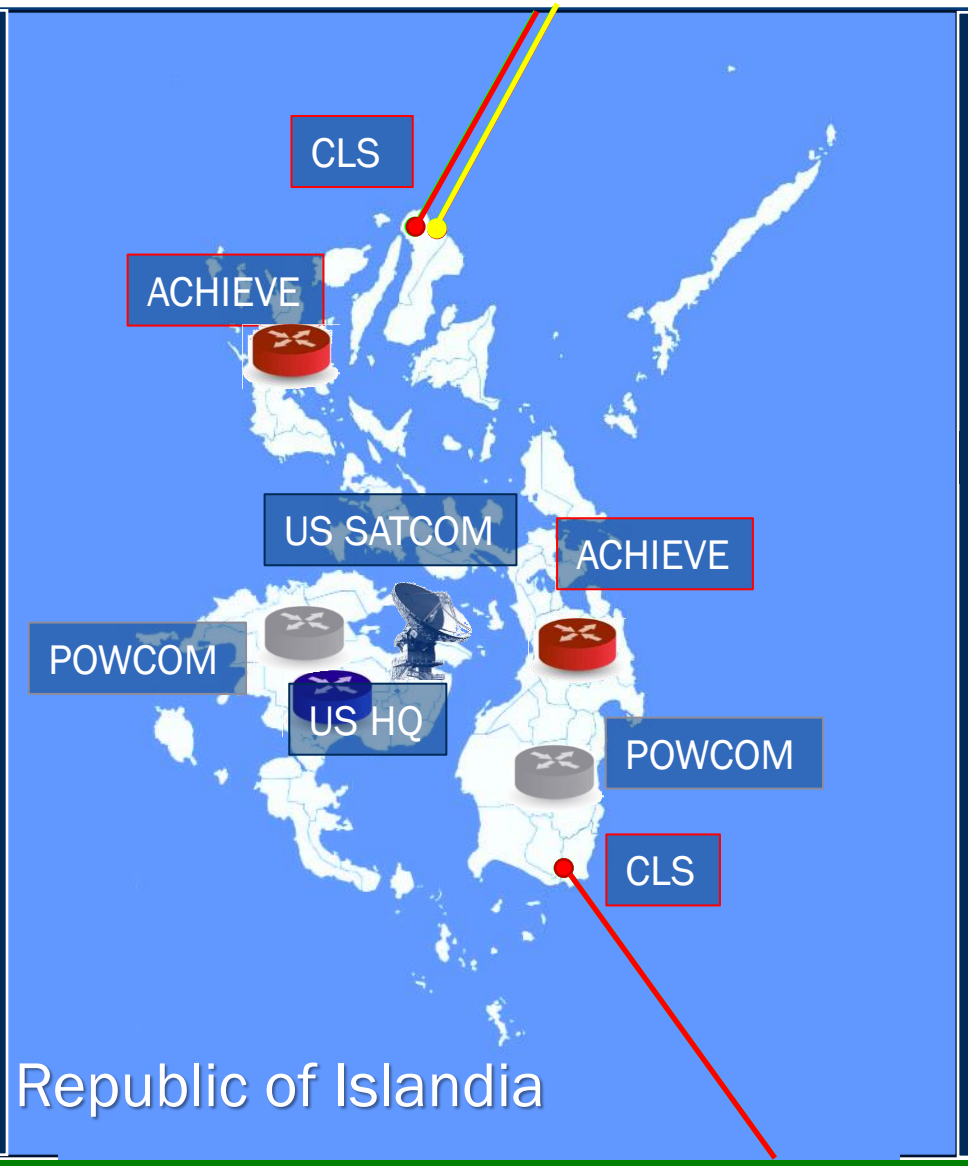
An Ideal Visualization Tool

OPERATION
EPIC TYPHOON

NIPR Email
NIPR Browsing
NIPR Chat

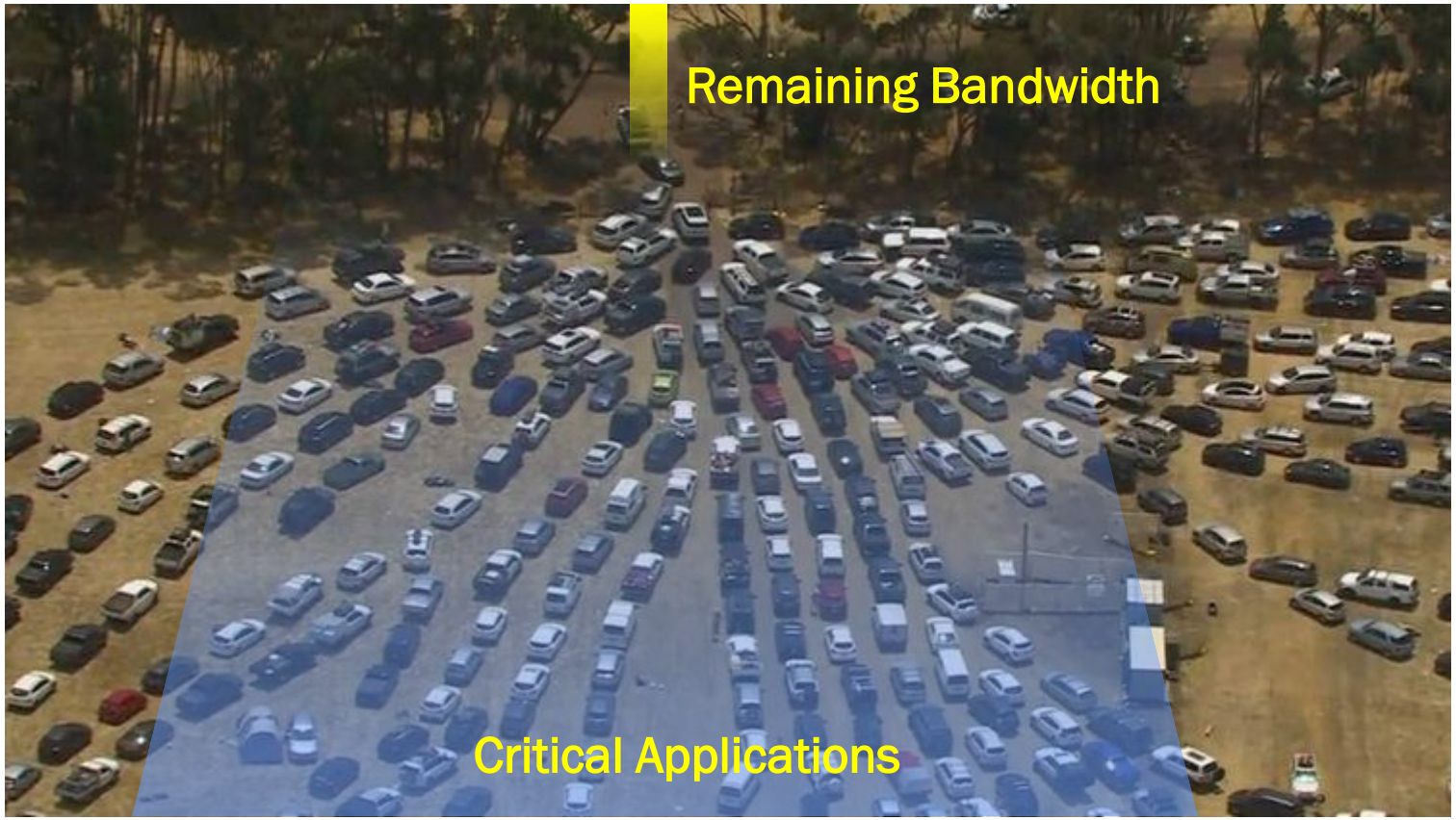
SIPR VTC
SIPR Email
SIPR Browsing
SIPR Chat

CENTRIXS Chat
CENTRIXS Email



13-APR-24 2200 HQ SVR Backups Complete
14-APR-24 1613 ** Severe WX Advisory **
14-APR-24 2200 HQ SVR Backups Complete
15-APR-24 2200 HQ SVR Backups Complete
15-APR-24 0913 POWCOM RTR-B.1 **Degraded**
15-APR-24 2200 HQ SVR Backups Complete
16-APR-24 1830 HQ RTR-A.1 Routine Maint. Completed

Avoiding the "Hunger Games"



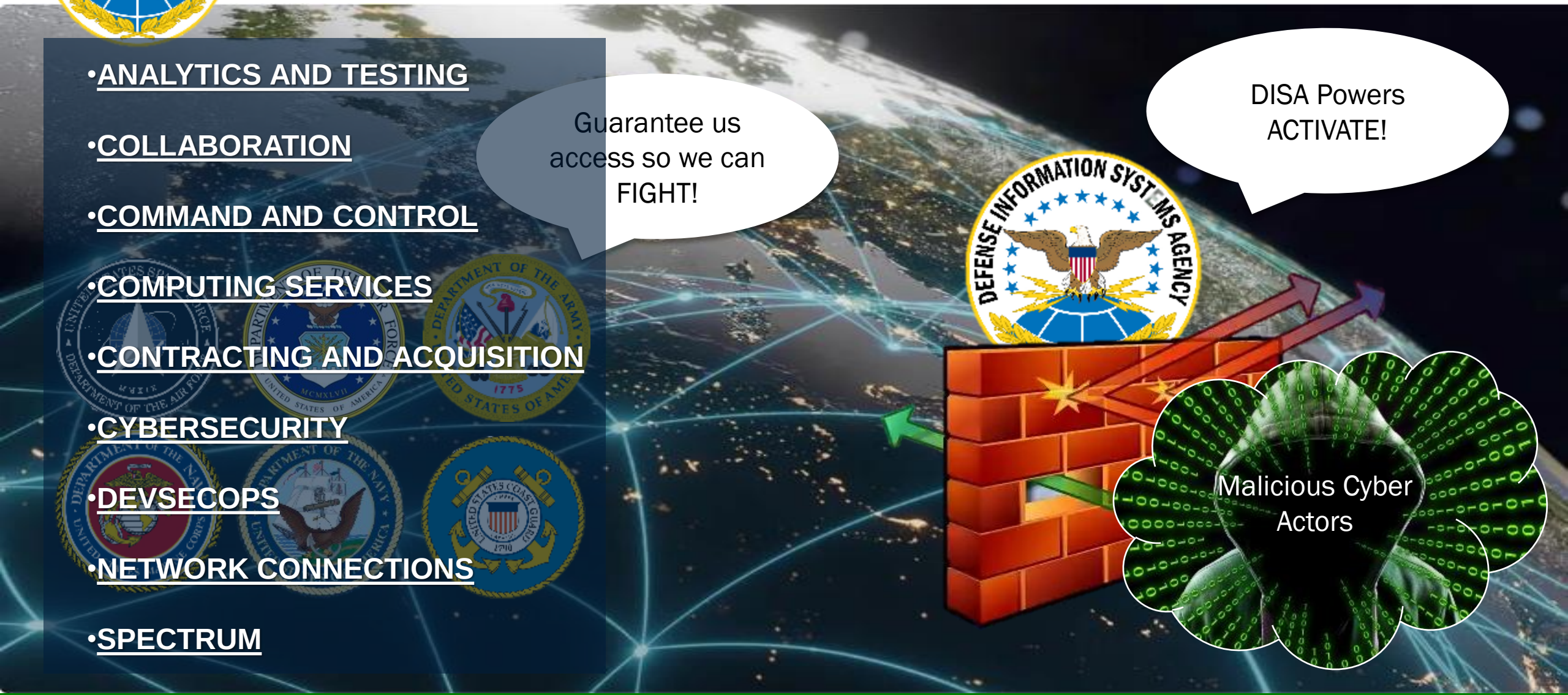
A well mapped MRT-C allows for much greater management in low-bandwidth conditions.
In addition to prioritization of applications and users, the **bandwidth footprints** of applications must be known.

DISA – Significance of MRT-C

- ANALYTICS AND TESTING
- COLLABORATION
- COMMAND AND CONTROL
- COMPUTING SERVICES
- CONTRACTING AND ACQUISITION
- CYBERSECURITY
- DEVSECOPS
- NETWORK CONNECTIONS
- SPECTRUM

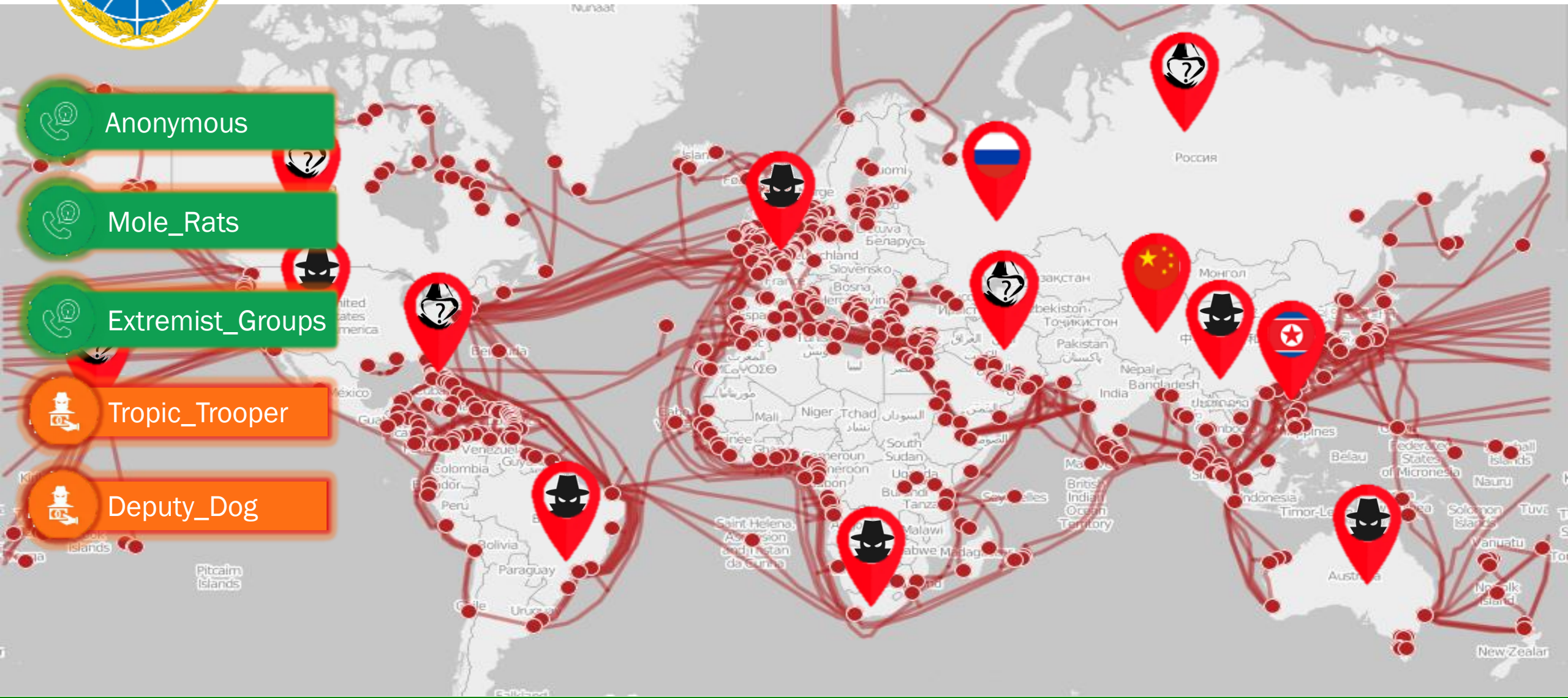
Guarantee us access so we can FIGHT!

DISA Powers ACTIVATE!

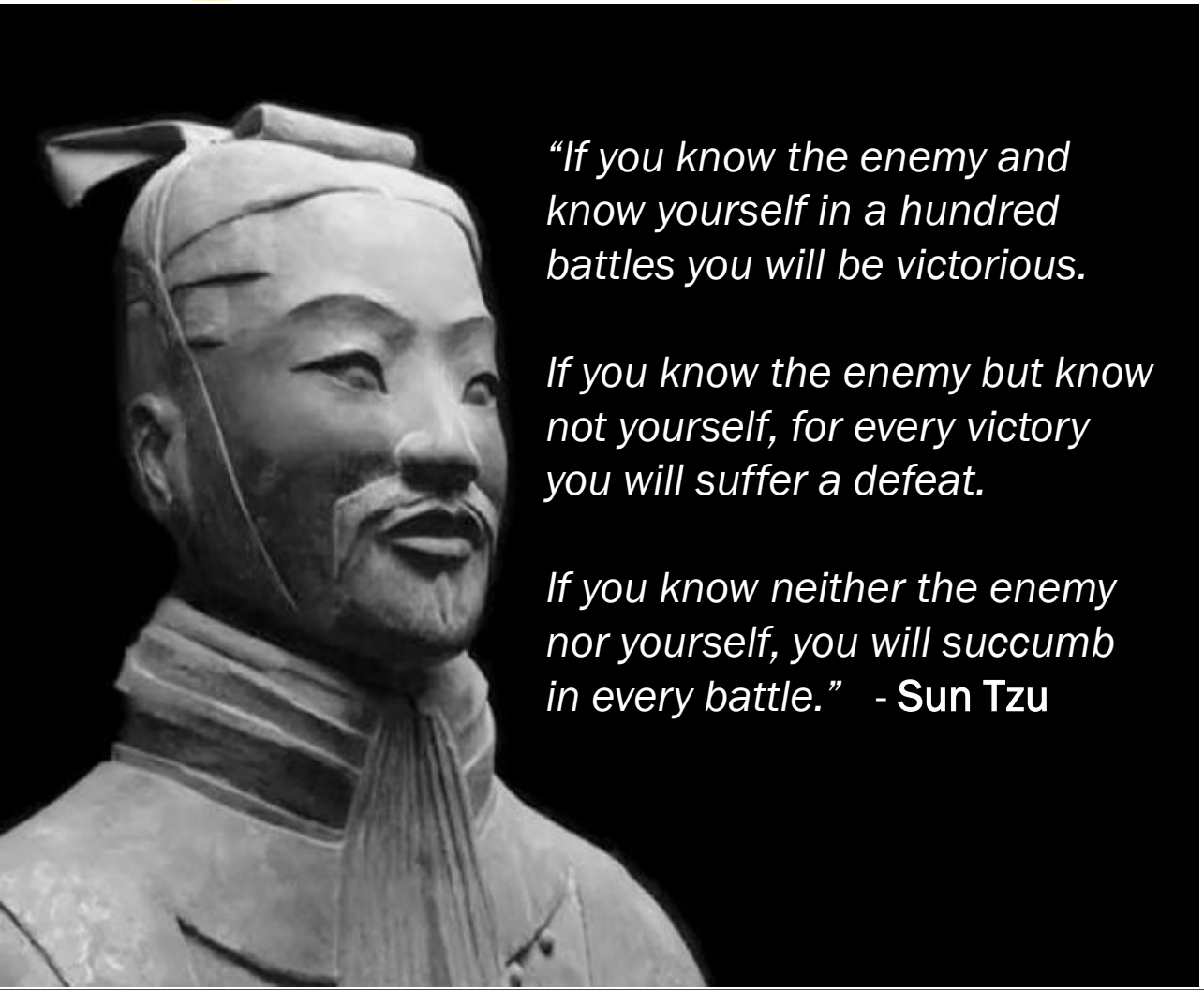


DISA – A Brief History

DISA – Competition in MRT-C



We Must Master Ourselves



"If you know the enemy and know yourself in a hundred battles you will be victorious.

If you know the enemy but know not yourself, for every victory you will suffer a defeat.

If you know neither the enemy nor yourself, you will succumb in every battle." - **Sun Tzu**

In order to be effective in the 21st Century, we must continuously look inward.

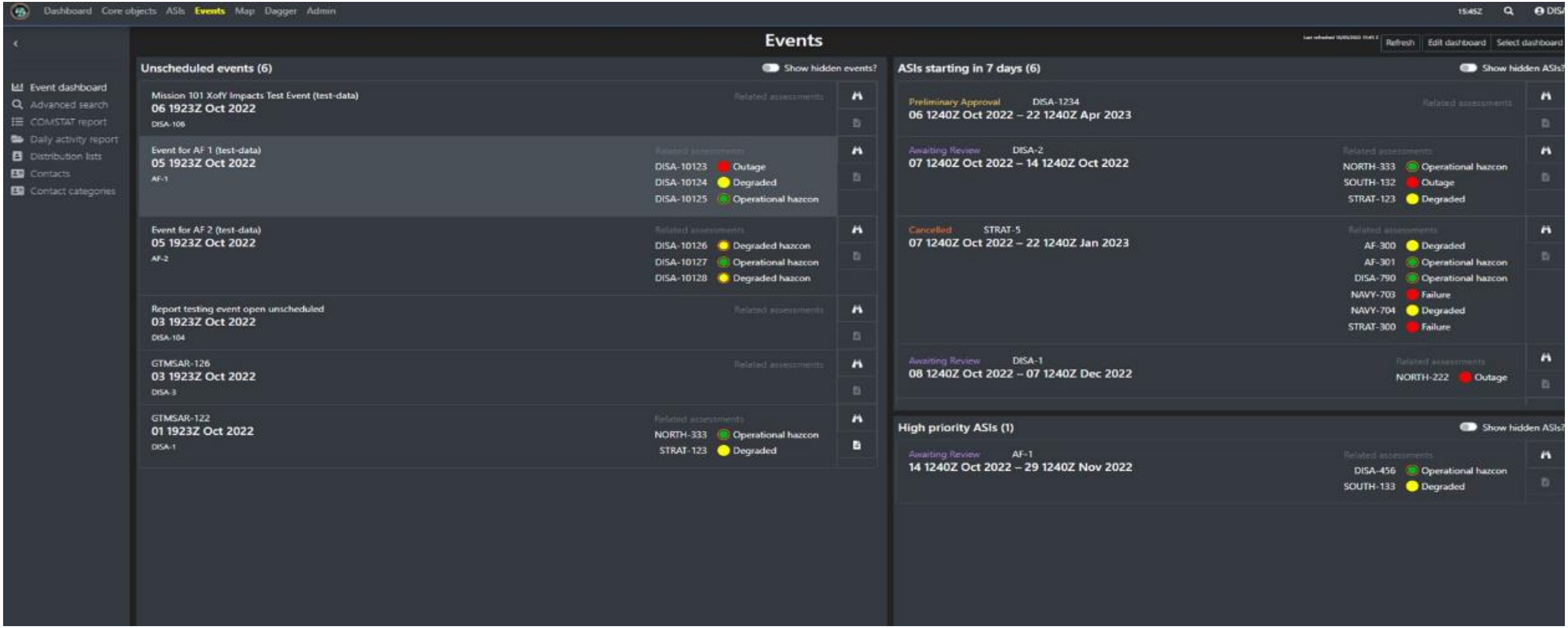
Just as the antithesis of security is convenience, the arch-nemesis of mapping MRT-C is complexity.

Especially as we adopt new technologies, we have to ensure we do not lose knowledge of ourselves. This requires:

- Vigilant observation
- Constant re-evaluation of MRT-C and KT-C
- Honest and humble self-assessment.
- Reject blind pursuit of consumer trends.
- **Robust methods of tracking.**

Mission Assurance Decision Support System

Mission Assurance Decision Support System



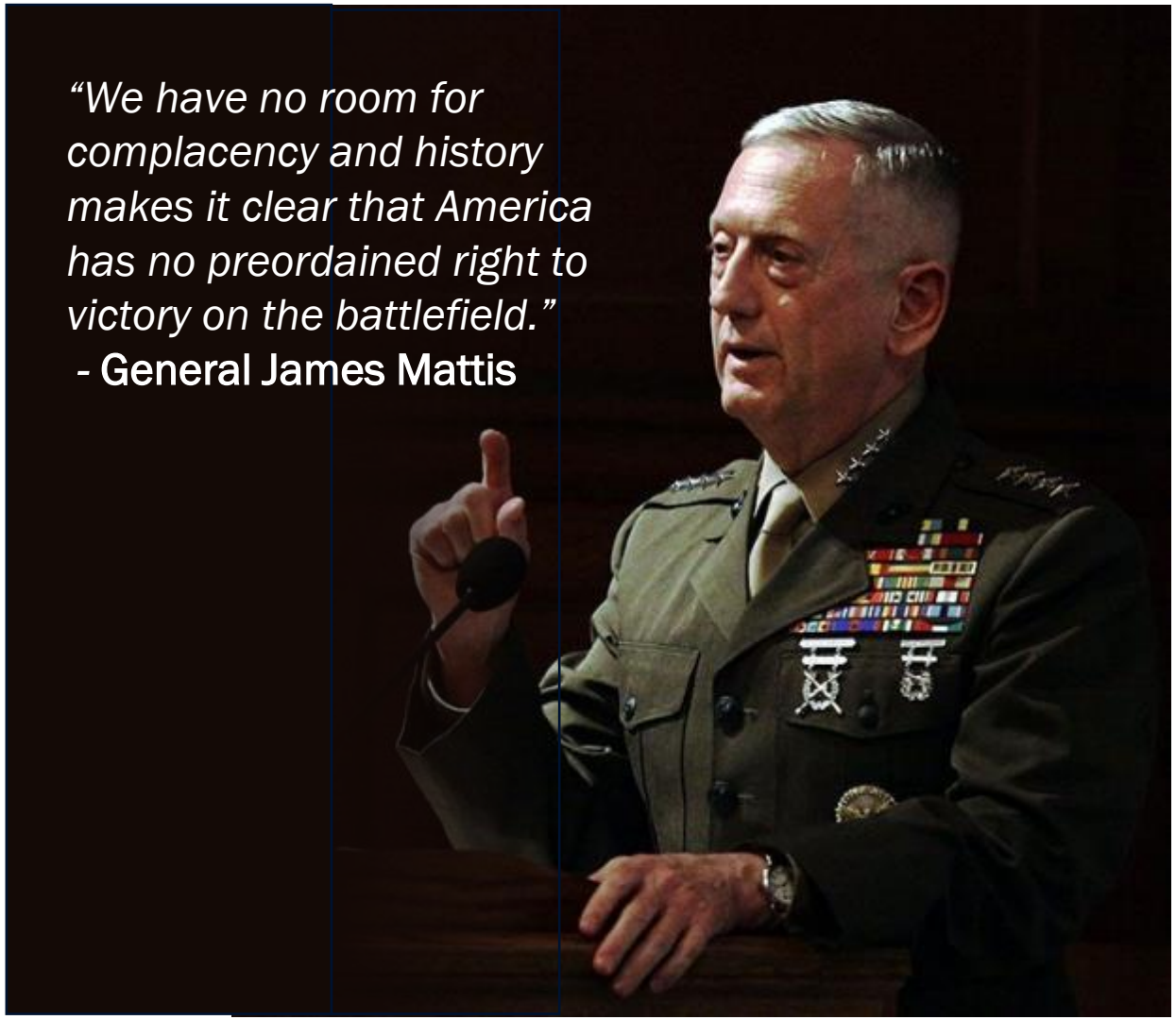
In Summation

MRT-C is a moving target!

In order to support the War Fighter we must not only understand MRT-C, but account for the relationships and impacts of every element even as they dynamically change.

It is therefore absolutely crucial to develop and map the MRT-C for a given mission not just during planning but continuously throughout that mission's lifetime, no matter the complexity.

There is no conquering the Cyber Domain, only the struggle to support the physical domains until they achieve victory. Ergo, the **MTR-C Utopia can never be reached**, and yet we must strive for its ideal to ensure victory on the battlefield.



Acknowledgments

[1] United States Cyber Command
Cyber Warfare Publication 3-0.1, Identification of Mission Relevant Terrain In Cyberspace

[2] United States Cyber Command
USCYBERCOM OPORD 17-0106, Identification and Mapping of MRT-C Supporting Critical Assets

[3] Maj E Pederson (USAF), MAJ D Palermo (USA), MAJ S Fancey (USA), LCDR T Blevins (USN)
DOD Cyberspace: Establishing a Shared Understanding and How to Protect It, 2022

[4] D Raymond, T Cross, G Conti, M Nowatkowski
Key Terrain in Cyberspace: Seeking the High Ground, 2014

Questions?

DISA: The premier IT and telecommunications provider for the US military

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