



SOF in Contested Environments

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US Special Operations Command
SOFIC 2020

Buhaug, Halvard and Rudolfson, Ida. Global
distribution of armed civil conflict since 1946.

Agenda

- The Evolving Operating Environment
- Transforming Special Operations Capabilities
- Technology Priorities
- Discussion

Tactical FOE: What Does The Future Hold For Us? (2018)

- Dominance of **air, space, and information domains** cannot be assumed.
- **PNT/C4I** is not only disrupted, but unreliable.
- Proliferated advanced weapons (e.g., WMD, **cyber**) that are increasingly difficult to identify.
- Routine scrutiny by FIS, with **adversary data sharing and analytic tools**.
- Current MFF/air infil may not be feasible
- Enemy access to advanced technology including **artificial intelligence, quantum technologies**, enhanced human performance, synthetic biology/CRISPR, and **autonomous systems**.
- **Enemy cyber and informational domains** will extend their reach.
- Multiple, small actors will be synchronized, capable, and dispersed.
- Remain offensive, but more time/resources spent on **securing our forces and systems**.

We will all have the same tools. Our competitive edge will come from better leveraging the tools we have: quickly **deriving information** from data, and more efficiently/securely delivering **information, guidance, and authorities** to the nodes that are able to **act**.

The operating landscape evolved
as we expected...

...but much faster than anticipated.

The Competitive Space Expanded...

- Environment dominates enemy
- Soft power with “hard” effects
- Non-escalatory responses?

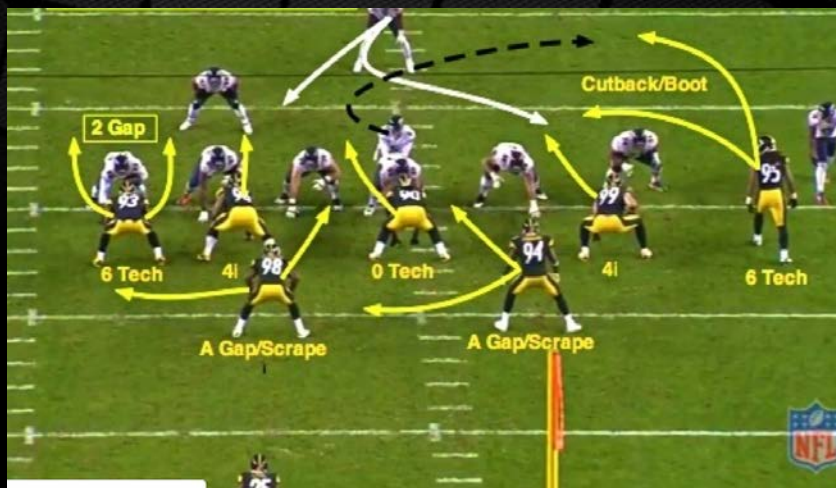


...but it was not all us

End use devices and connectivity

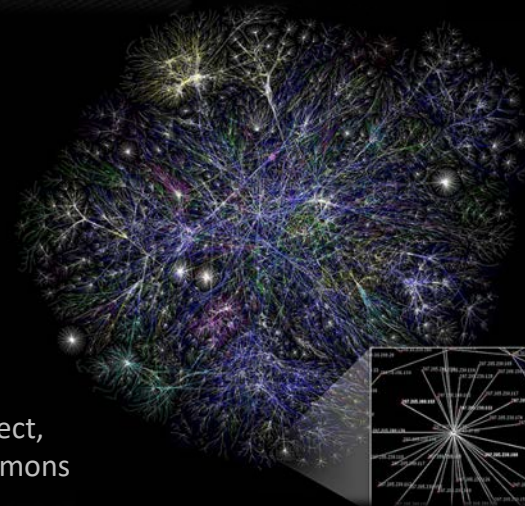
Unprecedented Digital Expansion...

Cyber defense and seams



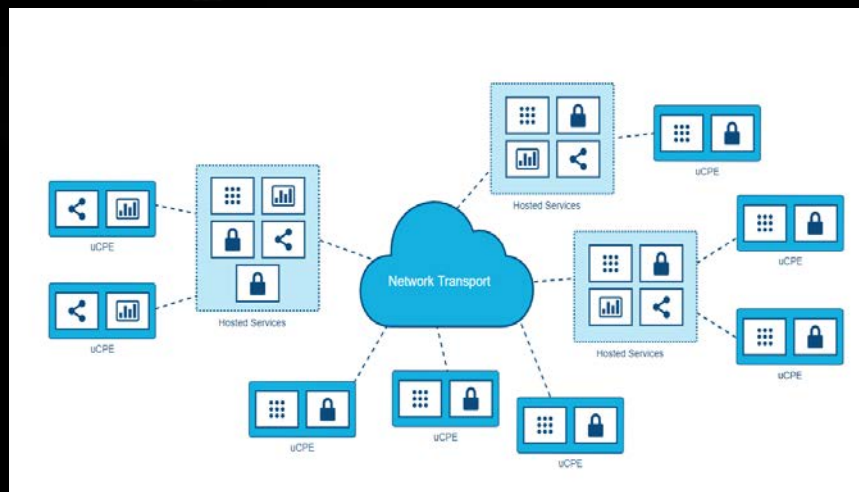
Bleacher Report.com

...the double-edged sword



The Opti Project,
Creative Commons

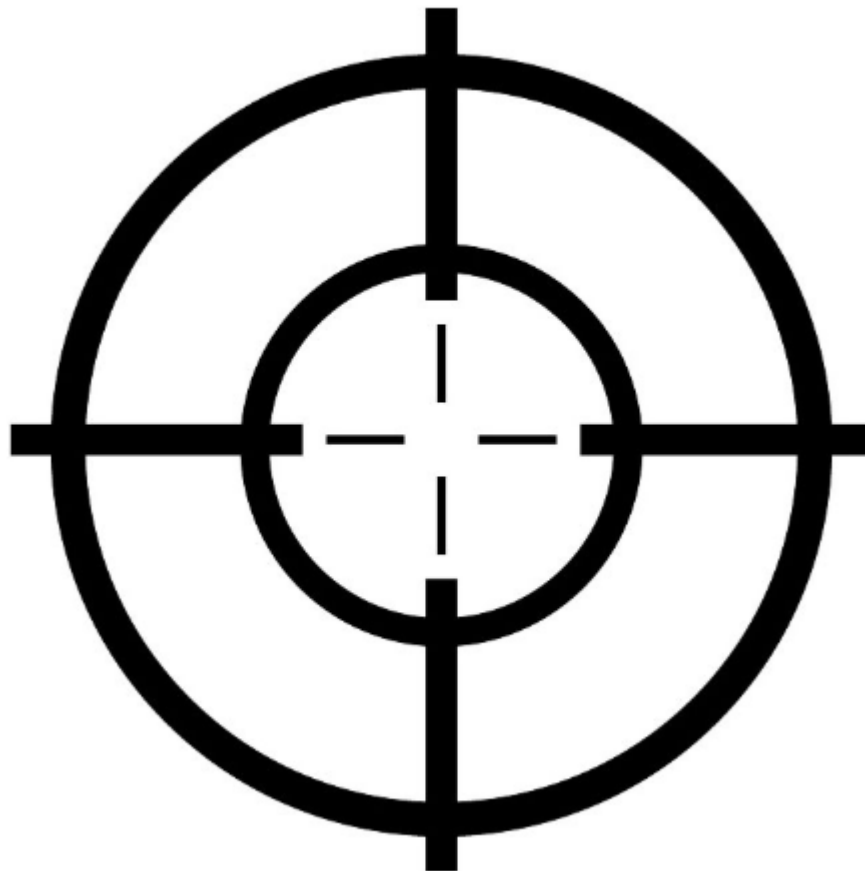
Distributed compute and storage capability



OpenStack.org

Targeting Environment Evolves...

- Convergence of EW, Cyber, SIGINT
- Decreasing return on exploitation, SSE
- Rise of open source



...so must our tools

Transformation Priorities

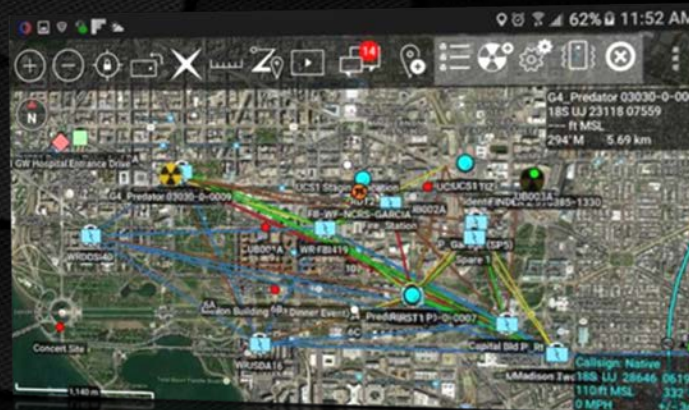
Next Generation Information



Human Machine Teaming



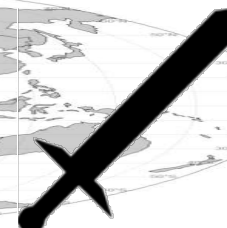
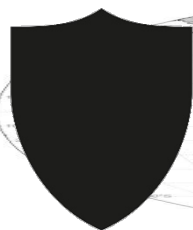
Robust Tactical Communications



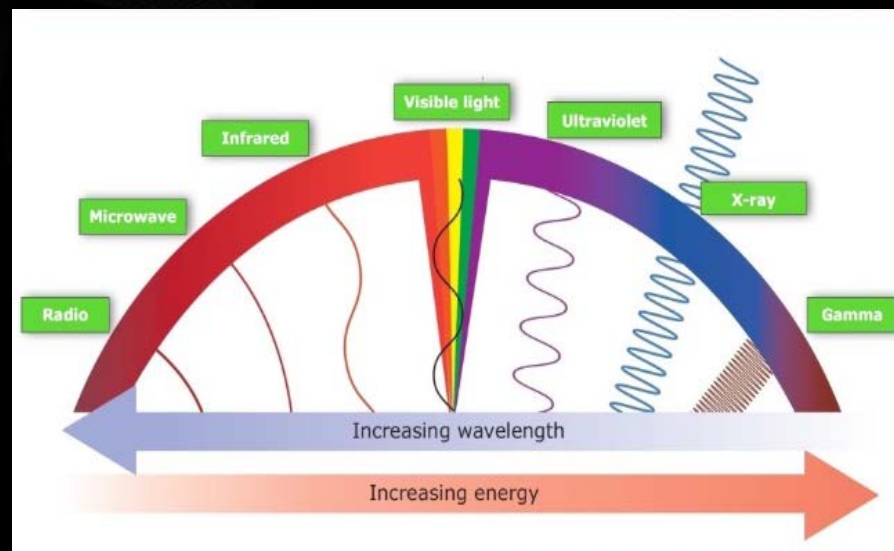
Expand the Competitive Space



Expeditionary Protect and Project



Protect the Force: Expeditionary



University of Waikato

Project the Force: Expeditionary



- Organic
- Long-Range
- Precise
- PNT Resilient
- Expeditionary

RealClearDefense.com

- Organic
- Modular
- PNT Resilient
- Integrated
- Expeditionary



Supporting Technology Focus Areas

(Visit <https://www.socom.mil/SOF-ATL/Pages/Capabilities.aspx>)

- Data transport, storage, analysis:
 - Secure, flexible data architecture.
 - Edge compute capability.
 - Reduce data transport signature
- Non-RF navigation and timing.
- Human-machine team: training and intent.
- Standoff, multi-spectral, networked sensors.
- Information fusion and visualization.
- Signature management.
- Expeditionary force protection.
- Organic targeting and lethality.



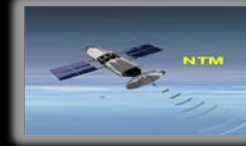
Next
Generation
Targeting



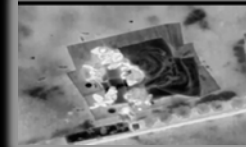
Tactical
Signature
Management



Resilient
Comms and
Navigation



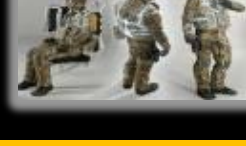
Space
Based Assets



Competitive
Offset
(Near-Peers)



Human
Machine
Teaming



Power
Generation,
Storage

We will all have the same tools. Our competitive edge will come from better leveraging the tools we have, more effectively **analyzing the data** we collect, and more efficiently **pushing information, guidance, and authorities** to the nodes that are able to act.

What do we need from Tomorrow's SOF Operator?

- Be **trained** for the mission and the environment
- Be tactically proficient and **strategically aware**
- Have the **right information** at the **right time**
- Be positioned, capable, and **empowered** to act
- Use technology to **extend reach**, **multiply effects**, and **manage risk**



Combat Development Lessons Learned

- Spend more time in the problem phase
- Develop to evolve with technology
- Avoid stand-alone solutions
- Provide interface and data standards— own the ecosystem
- Iterate early with the end user
- Operational testing is more important than equipment testing
- Use all of DoD's acquisition tools
- Evolve our workforce

**Equipping SOF in today's environment is a moving target.
We need to accept that, and leverage the tools we have available.**



INFORMATION

**DATA
TRANSPORT**

