
OPEN SOURCE ASYMMETRIC CYBERWARFARE CURRICULUM

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The United States Space Force has been charged with educating each of its potentially 6700 service members in “CYBER” – a directive with little guidance on what that means. While much may be focused on “bits and bytes” skills: anything from “cloud operations” to software development to systems administration... to power point; the future – and increasingly present – of CYBER is WARFARE and as such I contend all of those with a meaningful certification in CYBER, particularly those in an official organized military force, must be Cognitive Warriors.

Cognitive Warfare, for our purposes, is simply next-order Cyberwarfare, or “beyond the bits and bytes”. Social Engineering would be another synonym. Classical Game Theory is ultimately about making decisions – given rules and utility curves (and their associated payoff functions) who does what? Social Engineering on the other hand could be described as an applied branch of Game Theory where the rules and utility curves are altered – either in reality or just in meta – to adjust opponents play in reality. Bottom line CQW (Cognitive Warfare) is about bending information to the will of the beholder in order to manipulate the perceptions of our adversaries. It should be noted this cannot be done in a silo – that is employing this tactic will have blowback on the aggressor’s population which must be accounted for. [“A Cognitive Cyberwar” Lind, et al 2020]

SETEC ASTRONOMY

To account for blow back all tactics reduce to leveraging transparency as a weapon. We are quickly entering an age of “no more secrets” and as such OPSEC that relies on obfuscation of strategy is inherently flawed. Ostensibly this turns Sun Tzu on its head, deception being the heart of warfare and all, however “The knights of old would first put themselves beyond the possibility of defeat before mounting a devastating attack against their enemy; thus achieving victory” – to be beyond defeat against enemy that sees and knows all is to have a plan that can’t be defeated.

This is of course easier said than done and much research and development, in both human and computational resources, must be done before we start advertising our battle plans – however in order to do this we need to develop a new generation of CQW Operators and to do that we need a mission set. There is a clear need for “Operational Education” where training and operations are intermingled on a continuum – each driving the other. The subsequent pages describes, at a high level, a curriculum for manifesting StratML.services as a Massive Global Open Source Initiative (MGOSI).

MANIFESTING A MGOSI

This type of Cyberattack is not without precedent: from 1995-2001 an OSS initiative, founded by Canadian child prodigy Reece Sellin, called Freedoms OS Project that was ostensibly a project to build an Operating System that could conceptually run any other operating system, under my leadership of the non-OS side of the house membership grew to over 4000 people in nearly every networked country in the world delving into various degrees of white, grey and even black hat cyberwarfare. Microsoft eventually used a proxy, Davis Sickmon, to infiltrate the OS side of the house and cause a fracture among the ranks bringing it down. Truly nothing before or since has quite matched the combination of scale and ambition of this project – while there are larger scale OSS projects before or since none had the military style operational leadership without funding.

STRATML.SERVICES

Strategy Markup Language is an ISO (Part 1) and ANSI (Part 1) standard currently under consideration for recertification by the W3C. In 2018 my team at, the now defunct, Transformation.run produced a POC for StratML.services which included StratML 3.5 which combined modeling aspects with markup and then syndicated the storage, transformation and indexing of these plans across domain sets.

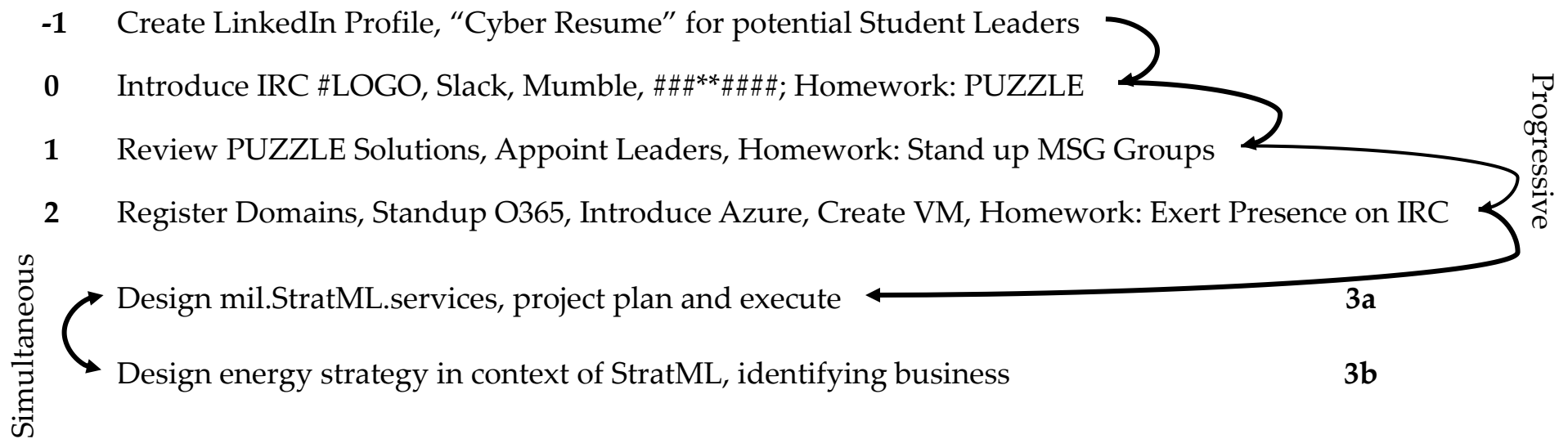
Now we propose to take this to the logical conclusion of creating a microServices and microApplications catalog for creation a Domain Specific Runtime in StratMLX (XAML implementation) and then connect them to C2 systems on an as needed, distributed disconnected basis. This will include a graphical, UML-esque, modeling tool for high level decision makers to define and consume strategic plans in a human readable format, backed by StratML which is both machine readable and human.

The strategy is to leverage connect members: of Kessel Run and the 16th AF with Cadets at the USAF Academy, ROTC Programs and United States Space Force Personnel requiring certification - to offer a compelling continuum of instructors and instructees to be indoctrinated into CQW and simultaneously manifest StratML.services.

AFWERX ENERGY CHALLENGE – POLICY AND EDUCATION

The primary use case we will be driving to solve with StratML.services V1.0 is Energy Conservation, specifically modeling Aircraft flight plans, usage and performance (e.g. afterburner parameters): enforce those through existing C2 systems downstream and reporting back compliance upstream. This is an extremely complex problem set as - in addition to the strategy plans often not currently being in a coherent logical format - these systems are diverse, complex and often legacy requiring massive amounts of human resources to achieve: a resource pool that does not currently exist.

So as we build out the technical culture we will install the domain knowledge of the value proposition of energy consumption to shape the culture at the ground level.



The above is the example curriculum for a CQW Cyber Developmental Exercise that simultaneously has concrete and immediate operational benefits. Theoretically this will reduce initial development, and lifetime maintained, costs of ownership as it co-ops large pieces of low-cost if not free development community who will extend the StratML.services platform for their own, and thus our, benefit.

We can always on-load additional cohorts to stage -1, which is pre-“class room” and feed them through the process, additionally we can backfill additional intertwined projects that are currently unforeseeable into the stage 3 – the active project development continuum.

<i>Cloud</i>	Command	Control	Coalition	Coordination	Communications	Operations
<i>LinkedIn</i>	High	Medium	Root	Medium	High	High
<i>Facebook</i>	-	Observe	Medium	Medium	Low	Root
<i>Twitter</i>	-	Observe	Low	Medium	Low	High
<i>YouTube</i>	-	Observe	-	-	-	High
<i>IRC</i>	Low	-	High	Medium	High	High
<i>Telecom</i>	High	Root	High	Medium	High	High
<i>Email</i>	Root	High	High	Medium	High	High



The C5M model introduced in “A Treatise on Reality” [Lind 2020] roughly breaks down this, implicitly we will be breaking our forces into these cross functional groups and practice areas.

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