

Hostile Actor Amplification via YouTube during NATO's Trident Juncture 2018

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Abstract. This research paper provides a top level down look at how anti-Western YouTube channels exhibit large increases in engagement during NATO's Trident Juncture 2018 exercise. Focusing specifically on comments on YouTube channels and the volume with which these were added identified multiple hostile networks with a single purpose, i.e., to derail NATO's narrative. Well-produced 'talk show' and 'news type channels' synchronized efforts that boosted and amplified their engagement. Preliminary results demonstrate a potential division of NATO-owned audiences that are pro or anti-NATO. Additionally, this shows that despite a misnomer that comments historically appeared irrelevant to nodal influence they actually have a hidden effect of increasing social media post's influence. Our assessment is that this manipulation was the result of a well-coordinated comment campaign conducted amongst the different channels, simultaneously interacting through a cross-media campaign over multiple social media platforms. Continuing work is to analyze the social networks of the actors which will illuminate the often forgotten networks within the YouTube ecosystem. We plan on conducting cyber forensics of specific nodes identified in order to ascertain whether these actors were human or bots that amplified YouTube channels. The novelty of this research is that it is the first identified instance in which channels are able to gain influence through the use of their followers/commenters alone.

Keywords: NATO, YouTube, social network analysis, social media engagement, social hysteria propagation, information actor analysis, discourse analysis, manipulation and deception analysis, online deviant behavior, commenter network

1 The Trident Juncture 2018 Information Environment

As highly-motivated information actors have become increasingly creative and coordinated across multiple media platforms, those who are slow to react may get swept up by a wave of malicious efforts aimed to undermine and take over the information environment. The uptick in Russian information activities since the release of the General Gerasimov's slide [1] in 2013 was uncannily present during Trident Juncture 2018 [2]. The slide detailed the six phases of conflict with information confrontation to be carried out continuously. To date, Trident Juncture 2018 remains one of the

largest NATO exercises to integrate land, sea, air, and cyberspace and simultaneously provided an overwhelming opportunity for Russian influence to have information confrontation. As expected, information confrontation was notable in several areas of the information environment during this exercise ranging from alleged GPS electromagnetic interference [3] to social media manipulation. NATO's social media managers posted on multiple social media outlets while their audiences watched with curiosity. The analysis was happening right along side with keen eyes programmed to detect community behaviors and prominent information actors as the digital information environment evolved into a complex network of millions of nodes representing both information actors and the content they added to the information environment. In this paper, we set out to provide an overview of hostile actors' tactics combined with social network analysis to show how commenter networks amplify YouTube videos, exhibiting strong indications of inorganic activities, a tactic that is typically used to drive content in YouTube's recommendation algorithms.

Prior to and throughout NATO's largest exercise in recent years, information actors added content to the information environment at a very high speed to not only reach audiences, but to engage them. Our research indicates Russian influence as a primary actor in the social media realm, with recent studies from the RAND Corporation describing how Russian-affiliated accounts add content to user-generated sites, such as YouTube, and "also add fear-mongering commentary to and amplify content produced by others" [4]. Studies of social media influence as a whole provide an overarching acumen such as the 2018 "Russian Social Media Influence: Understanding Russian Propaganda in Eastern Europe" report [4] indicate that Russian information actors aim to spread confusion, fear and aim to discredit the western nations.

We observed that the Russian multimedia efforts are well-coordinated by Russian state-affiliated media that first publish information which is then amplified by commenters and other information actors that use the same content to spread messages. Just as quickly as new user-generated content is added to online media platforms, audiences consume it and engage. They become spreaders of information themselves by interacting with the content. This can be done by sharing it, liking, disliking or commenting on it. Adversaries are taking full advantage of the opportunity to insert discord or weaponize narratives or worse yet, manipulate or change the information received. In addition to the usual platforms such as Twitter, Facebook, VKontakte (VK), and blogs where Trident Juncture information was present, a prominently emerging medium was YouTube.

2 Information Environment Assessment Methodology

To better understand the information environment and develop the assessment methodology used, we used NATO's previous large-scale exercise Trident Juncture 2015 as a baseline. Our previous experience conducting social media analysis during the 2015 exercise for near-real time messaging set the precedence for our data exploration. NATO employed the NATO Media Information Center which provided a well-rounded, multinational communications hub for all information activities including the

NATO Science & Technology Research Technology Group technical demonstration. This group was a resource for advice, knowledge, and capabilities that were often urgently needed. Most importantly, the experience working with many researchers showed that an individual's personal knowledge and experience of using digital media is insufficient to understanding the mass campaigns underwritten by strange and evolving technologies alone.

Building on our experience from Trident Juncture 2015, we set out and designed a longitudinal study over a seven-month period as outlined in figure 1. In May 2018, we planned the information environment assessment with NATO subject matter experts and began data collection training. The following three months, we conducted two test data collections to prepare for the main data collection during Trident Juncture from October 17 until November 20, 2018.

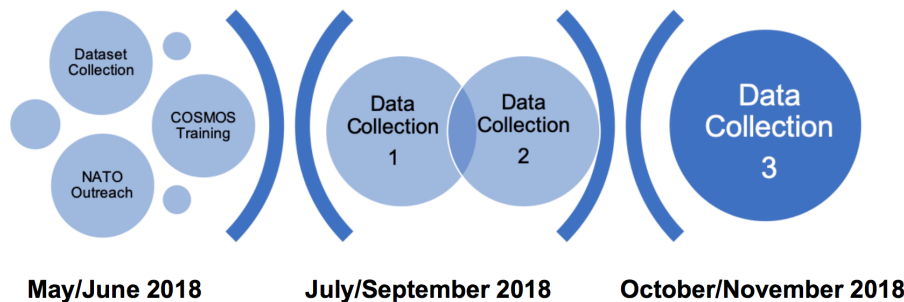


Figure 1. Trident Juncture 2018 Information Environment Assessment methodology.

Results of data collection 3 (October - November 2018) from the longitudinal study provided the following data: a total of 1324 videos were analyzed among which 7% (96 videos) were categorized as NATO-owned, 29% (390 videos) were hostile, and 63% (838 videos) were earned (news outlets and other non-hostile parties covering Trident Juncture). The categories are based on a theoretical lexicography developed by NATO [5]. The terms owned communication, hostile communication and earned communications are described in table 1. Categorization was done manually by the researchers after reviewing the videos. YouTube content was reviewed on a daily basis which assisted us in the identification of hostile actor tactics.

Owned Communication:	NATO official accounts and channels from NATO delegations
Hostile Communication:	The activities and communications of anti-NATO information actors.
Earned Communication:	What everyone is saying, and how audiences are reacting.

Table 1. NATO-developed categories for information sources

Data was collected utilizing YouTube’s APIs. The following attributes of the videos were obtained: URL of the video, video ID, title of the video, description of the video, number of views, number of likes, number of dislikes, number of comments the video received at the time data was collected, comment text, commenters’ unique identifiers, title of the channel that published the video, and the number of subscribers of the channel. Next, the data was structured using the cloud collaboration service Air Table, which allowed us to keep track of identified YouTube channels, connect them to other social media accounts identified by other researchers while easily sharing the data with the team members located across the United States and Europe, a sample of this is displayed in figure 2. We then conducted social network analysis utilizing the software ORA [6]. Social network analysis allowed us to dive deeper to identify information actors that were hostile based off of NATO’s lexicography.

Channel Title	Target URL	Video Title	Video URL	Own...
NATO	https://www.youtube.co...	Welcome to Norway	https://www.youtube.com/watc...	Own
NATO JFC Naples	https://www.youtube.co...	Trident Juncture 2018 - Bulgarian CBRN Defense Platoon	https://www.youtube.com/watc...	Own
NATO News	https://www.youtube.co...	Trident Juncture 2018 pre-briefing, 09 OCT 2018, Part 2 of 2	https://www.youtube.com/watc...	Own
DW Deutsch	https://www.youtube.co...	NATO-Großmanöver "Trident Juncture" in Norwegen DW Deutsch	https://www.youtube.com/watc...	Earned
DW English	https://www.youtube.co...	NATO military exercises largest since end of Cold War DW English	https://www.youtube.com/watc...	Earned
DW Ukrainian	https://www.youtube.co...	Trident Juncture: навіщо НАТО DW Ukrainian	https://www.youtube.com/watc...	Earned
RT	https://www.youtube.co...	OSCE observers attend NATO's Trident Juncture drills	https://www.youtube.com/watc...	Hostile
RT Arabic	https://www.youtube.co...	شاهد مناورات "البحر الأبيض المتوسط" الجلف الثاني من قرب	https://www.youtube.com/watc...	Hostile
RT Deutsch	https://www.youtube.co...	"Rund 10.000 Soldaten und 8.000 Fahrzeuge" - Bundeswehr verschiff Tru...	https://www.youtube.com/watc...	Hostile

Figure 2. Screen capture of Airtable utilized to track YouTube channels that published Trident Juncture 2018-related videos.

The high engagement on several channels, in particular in the comments section, led us to a co-commenter analysis described in the Future Research section. For this deep dive, we identified eighteen channels consisting of NATO-owned YouTube channels as well as hostile and earned actors as listed in table 2. These channels were chosen based on their views and engagement. In order to create the commenter network, we multiplied the network by its transpose. These calculations resulted in a square symmetric matrix. This folded network is a commenter-commenter network, where link values are the number of videos the two commenters commented on. For the purpose of this study, co-commenters would have to comment on at least ten of the same videos in order to have a connection.

Channel Name	
NATO	NATO-owned
SHAPE NATO	NATO-owned
NATO JFC Naples	NATO-owned
OTAN	NATO-owned
Bundeswehr	NATO-owned
alconafter	Hostile
R G D NEWS - Новости, факты, события	Hostile
Youtupe Mania	Hostile
Gung Ho Vids	Hostile
Hoje no Mundo Militar	Hostile
RT	Hostile
RT Deutsch	Hostile
KlagemauerTV	Hostile
Latest News 360	Hostile
Defense Flash News	Earned
US Defense News	Earned
Weapons of the World	Earned

Table 2. List of YouTube channels that were used for the analysis of the co-commenter network.

3 Discussion: Information Actors

3.1 Information Spreaders: Targeted Messaging presented as News to Divide and Spread Paranoia

The popularity of YouTube [7] led to the creation of programs produced solely for this platform. Users can view talk-shows that look like news broadcasts, but instead of it being an unbiased program hosted by neutral parties, they are orchestrated events intended to influence viewers. Several talk shows were observed in English, Russian and German that used video footage from the Russian international network RT and other Russian information actors. One example is KlagemauerTV, a channel that was created in Germany in 2012 and expanded to Russian-speaking audiences when it created KlagemauerTV - русский in 2014. The channel reported about Trident Juncture using RT Deutsch footage [8] depicting NATO as an aggressor aiming for Russia and informing viewers of Russia's newest doctrine with a focus on war prevention. The footage, that when directly viewed on RT Deutsch, was labeled by YouTube as a Russian government-funded broadcaster [9] but when incorporated in the video of a middleman, in this case KlagemauerTV, it did not receive the same labeling (as depicted in figure 3) making targeted messaging appear to be unbiased journalism.

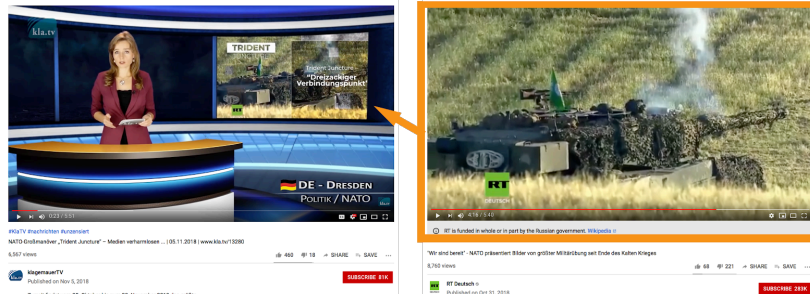


Figure 3. KlagemauerTV video depicted on the left showing RT Deutsch video clip. Original RT video clip with funding note depicted on the right.

Many channels added content to create friction and potentially a division of the public within NATO nations. Others ridiculed to question NATO's capabilities. The Russian state-owned channel Vesti News published "Vesti EXCLUSIVE! NATO's "Trident Juncture" Drills in Norway Are Comical But Potentially Dangerous", an English video that ridicules featuring a description that mentions anti-Russian sanctions [6]. The commenters use mockery and hate speech toward NATO as depicted in figure 2.

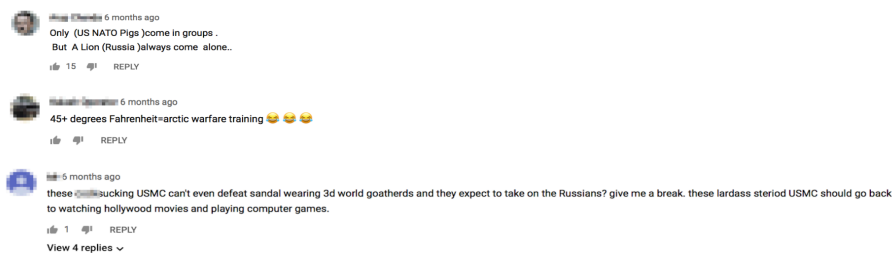


Figure 4. Comments posted on the video "Vesti EXCLUSIVE! NATO's "Trident Juncture" Drills in Norway Are Comical But Potentially Dangerous" published by Russian state-owned media outlet Vesti News.

3.2 Trident Juncture 2018 Narratives: Exaggeration and Hyperbole

Hostile content was added quickly and consistently with detailed descriptions, attention-grabbing titles and artificial engagement tactics. Many channels interacted with their audience in the comment section by liking comments and/or replying to them. Cross-media campaigns [11] were used in two ways: (1) links to YouTube videos were published on other social media platforms, such as Facebook and Twitter to draw a larger audience to the videos and (2) links to social media accounts and blogs were added to the video description. We identified many anti-NATO narratives in video format aimed to undermine NATO's reputation, credibility and questioning its capabilities while painting a picture for the public that WWII is near. Titles such as "Why US Military bases are vulnerable to Russian and Chinese missiles" [12], "NATO

maneuvers in Norway, Russia took it as a challenge” [13], and “World War 3 Russia-NATO tensions rise as Russia performs LIVE MISSILE DRILLS in Norway” [14] are just a few examples.

NATO’s narrative of being ready and well-prepared to preserve peace and defend all allies against any threat [15] was well-prepared but did not receive much engagement. The headlines were often generic and the descriptions, if any, brief. The NATO response force JFC Naples with its 215 subscribers at the beginning of Trident Juncture 2018 contributed to the information environment by adding videos, such as “Training Together” [16] and the monetized video “Trident Juncture 18, Norway” [17] which featured high-quality video content but did not provide any enticement for potential viewers lacking catchy titles, consistent detailed descriptions and references to other online media accounts.

3.3 Information Actors and their tactics

Hostile actors aimed to gain views by providing late-breaking news published by their verified channels giving the appearance that they are associated with NATO countries. The channel US Defense News is one of several channels that used videos from the online military media archive Digital Video Information Distribution System (DVIDS), added their own branding, and then uploaded the content to YouTube to appeal to the military enthusiast community. The videos were monetized allowing the publisher to earn income from advertisement displayed before or during the videos.

Some channels copied the DVIDS content verbatim, others used it to spread disinformation by adding their own narrative to the video footage. Latest News 360 videos focused on spreading paranoia with headlines, such as “WW3 Threat: Ex-Navy leader reveals true warning to Putin's Russia over HUGE Nato war games” and “Russia Furious As NATO Launches 31-nation Military Exercise in Largest Drill Since Cold War”. This channel is one example of an actor trying to represent itself as a legitimate news channel (a smoke screening tactic) and using artificial engagement tactics to increase viewer interaction. The channel also appeared to have used an artificial subscriber boost as an uncharacteristic sharp subscriber increase of 230% (29,460) in one day was detected [18].

By liking comments, channels appeal to commenters and encourage them to contribute more. The comment section of their videos is similar to a discussion thread users engage in on other social media platforms. YouTube is not a one-way communication outlet. Channels’ interaction with its viewers has clearly proven that this is a two-way communication platform. We observed multiple “news” channels that liked comments and do not moderate their comments section providing other actors with the means to control the comment narrative by adding hate speech, propaganda and disinformation.

3.4 Engagement Surge

A rapid surge in the cross-media campaigns after October 21, 2018 indicated a coordinated effort by actors that were intent on media manipulation. We observed a 200% increase in likes, views, and comments. The audiences reacted to the most influential posts with engagement that replicated any influential actor/node.

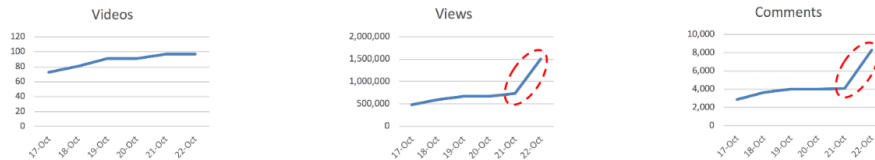


Figure 5. Overview of videos, views and comments activities between Oct. 17 – Oct. 22, 2018.

This rapid increase in audience participation is assessed as a reflection of the pre-emptive posts conducted in early October. These posts appear to be both automated and human like. A combined tactic such as this typically involves both botnets and trolls which in concert, create a perfect storm of an orchestrated media manipulation bringing not only fence sitters to the other side but gathering an audience that outnumbers NATO audience by metrics of engagements with views of 4:1 and comments at a staggering ratio of 36:1. As understood from Sun Tzu, “In doing battle . . . you achieve victory by irregular means.” [19] Here the irregular means was clearly utilized through the emerging broadcast of information to bombard audiences. This tactic is observed as a group formation and evolution for an organized political means. The means was to provide digital influence via social media platforms at an organizational level campaign; conducted in order to change the narrative of NATO’s exercise.

4 Future Research

This exercise opened the door to a plethora of data. The next phase of research will be a commenter analysis and how these comments have a measure of effect to push videos to audiences. A commenter YouTube network is the elementary network in relation to an overall feed in which comments are made under a post. The ability of viewers to comment on a video and respond to one another enables the creation of a co-commenter network, a network that focuses on users who comment on the same video. We observed conversations and group formations within the comment sections.

An increase in comments and co-comments increases outreach and audiences can rapidly expand without the need for amplification through paid marketing. This tactic was analyzed as a group formation and evolution for an organized political means. A node (or YouTube channel) will receive a higher outcome based on the success or failure of a single given event [20]. Hence, the reception of an actor that provides audience participation is influenced based upon engagement. The political means at which this transpired was for behavior change in order to embellish

audiences either for monetary gain (advertisements) or to sway public opinion of the exercise itself.

For this deep dive co-commenter analysis, we identified eighteen channels consisting of NATO-owned YouTube channels as well as hostile and earned actors and collected the comments and commenter data from all videos published by the channels from October 17, 2018 - November 20, 2018. In order to create the co-commenter network we folded the commenter network to create a commenter by commenter network whose commenter to commenter link values are the number of videos the two commenters have both commented on. For the purpose of this study, co-commenters would have to comment on at least ten of the same videos in order to have a connection.

By narrowing it down to at least ten videos, the network was reduced to 583 nodes connected by 5,844 edges. We removed 35,018 isolates. The minimum of ten and the maximum of 118 videos that commenters had in common showed a large difference among some commenters. The mean of 14.82 indicated that most commenters commented on 10-14 of the same videos.

Using centrality calculations, we identified three main commenters as depicted in figure 6. The nodes are colored based on their closeness centrality on a hue color scale with red being the most central and blue being the least central. The node size was also adjusted based on centrality. The larger the node, the higher its centrality. We have numbered the top three central nodes. The links are colored by value. The greater the amount of shared videos two commenters commented on, the darker the link. In addition, we also increased the width of the links based on value.

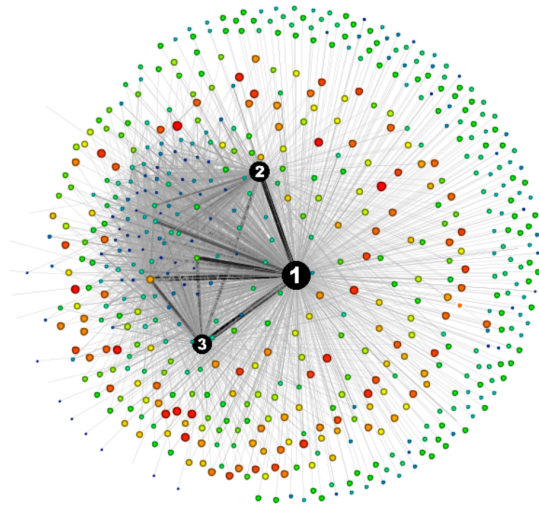


Figure 6. Top three co-commenters identified in the network based on centrality calculations. The commenters are connected by links representing comments made on the same videos.

Future research will further analyze these information actors and their posted comments. We set out to provide an overview of hostile actors' tactics and provide an initial overview of SNA to identify how commenters amplify YouTube videos. The case example of KlagemauerTV and RT demonstrate one example of many observed. Additionally, the sociogram presents a visual of the key actors in this particular network that amplified channel reach for the audience. Taking these individual nodes and conducting cyber forensic analysis is planned which will aid in identifying the potential inorganic behaviors.

Research has been conducted on similar actions of organized group formations with flash mobs. In the online information environment this instance observed automated and human produced media manipulation. Albeit, flash mobs set the basis for cyber flash mobs, which in turn are able to succumb to large scale effects of a massive messaging campaign. In the ever so presence of today's digital society, these outcomes are reticent upon discovery and countering these commenters or co-commenters through the simplicity of engagement from official channels dissuade narrative hijacking.

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