#59 Network Analysis of Players Transfers in eSports: The Case of Dota 2

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INTRODUCTION

Dota 2 is one of the most popular eSports disciplines. During the match two teams of five eSportsmen try to destroy the side of adversary. The International is the biggest Dota 2 eSports tournament with a $24.7 mln prize pool.

Transfers and performance metrics, which show teams' strength and players' skill, allow to model mobility between teams as a network.
Research question: how Dota 2 transfer network is organized?
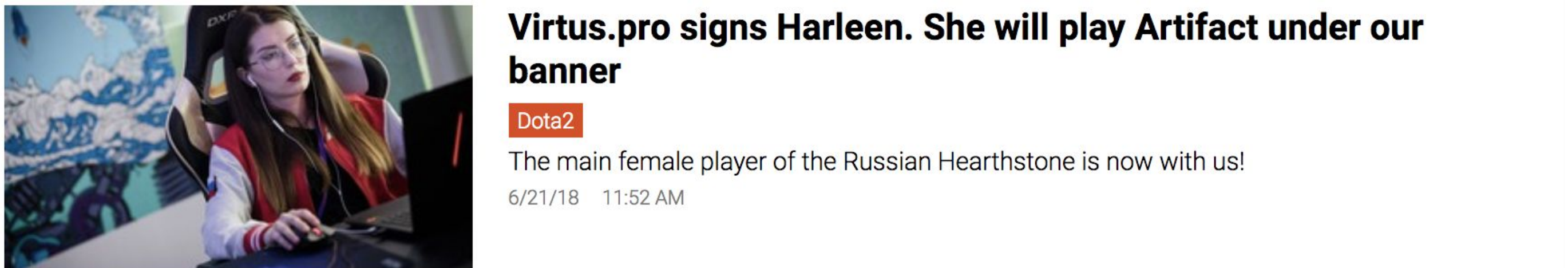
DATA AND METHOD

All transfers between **The Internationals (TI)** of 2016 and 2017 years from Liquipedia and their involvement, i.e. 322 transfers for 118 teams, calculated performance metric (Elo rating) of each team, their regions.

Elo rating for teams was calculated based on three months data. We used **ERGM** model with **dyadic attributes** of nodes look at the structure of transfer market, focusing on node attributes (participation in TI, region, and Elo rating).

● North America ● Europe ● China ● CIS ● South America ● Southeast Asia
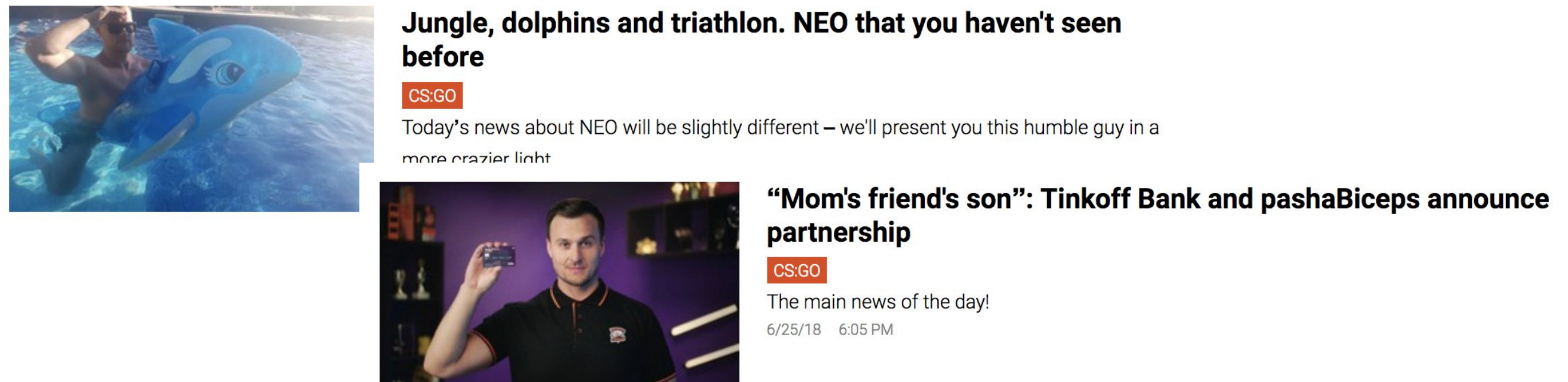○ TI participants ● non-TI
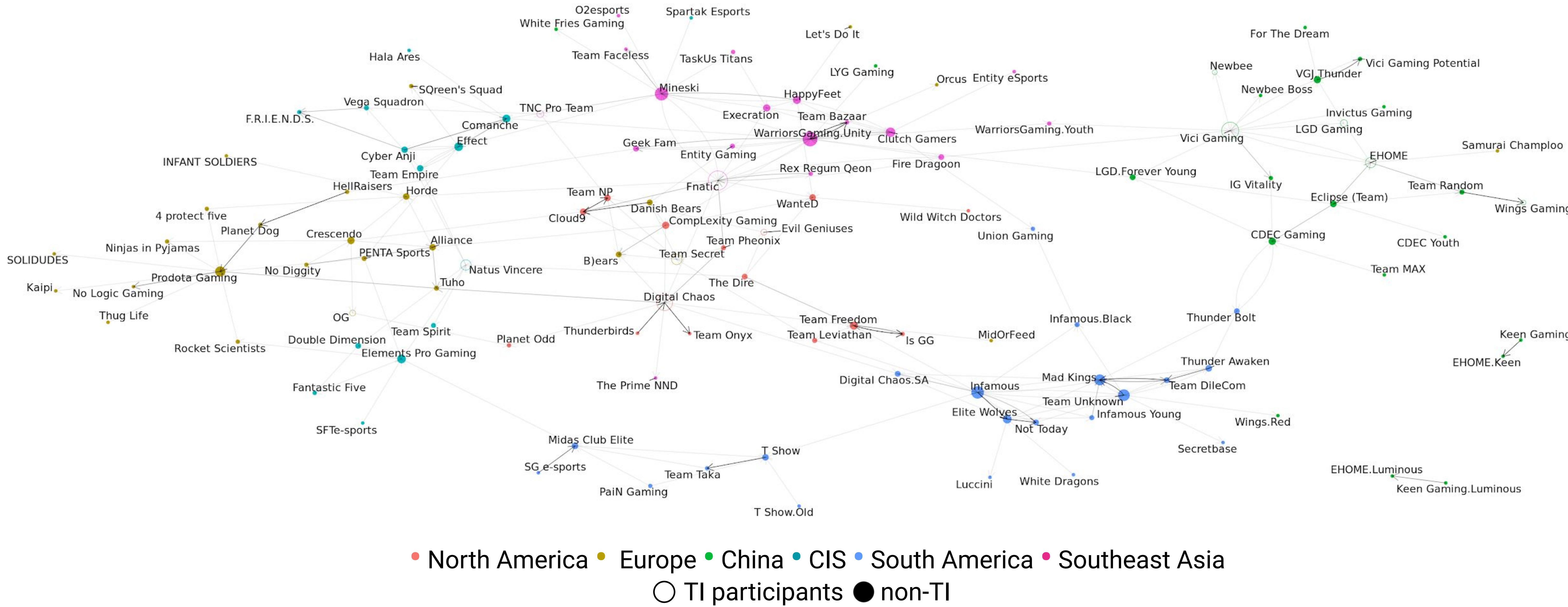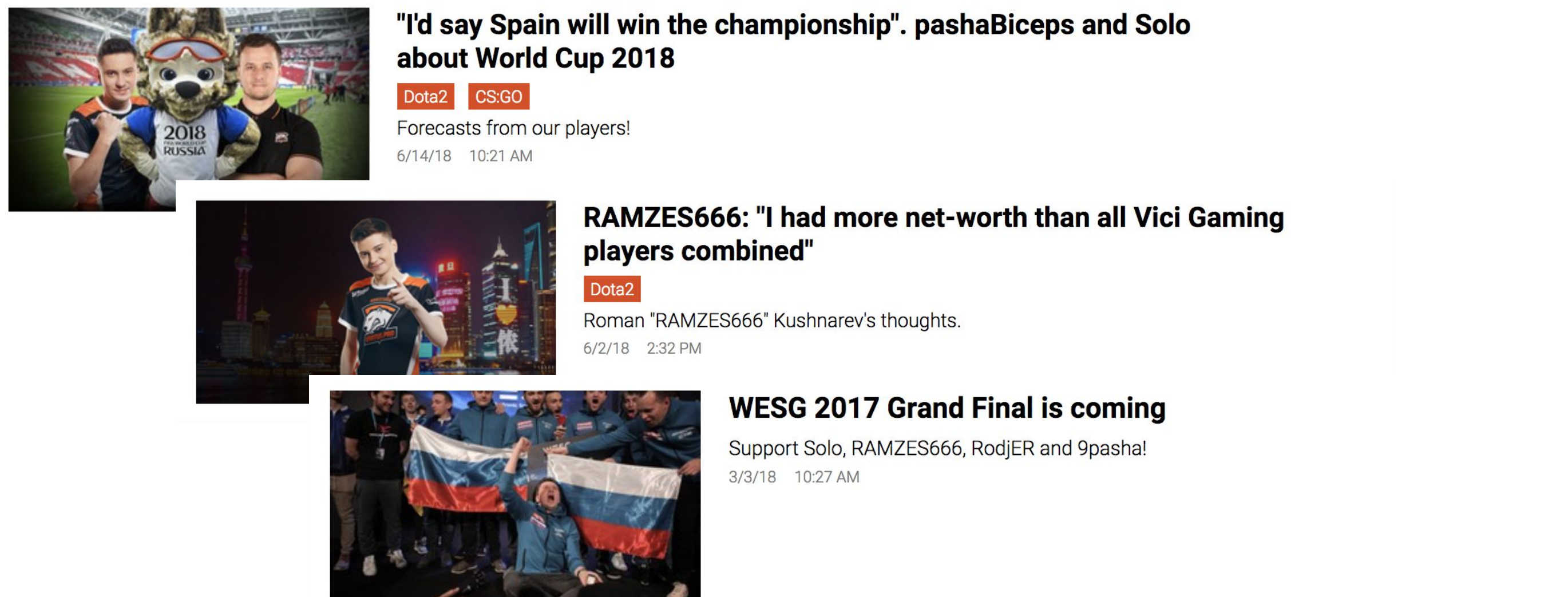
BACKGROUND

Transfer is an important event which is covered not only by media but also by official team sources where organizations introduce new players to their audience.

Virtus.pro signs Harleen. She will play Artifact under our banner
Dota2
The main female player of the Russian Hearthstone is now with us!
6/21/18 11:52 AM

Transfers can be used to explore intertwined connections between the personal and team's brands.
The audience can find information about player they are interested in on official sources (e.g. website), and on personal players accounts (e.g. Twitter and Twitch.tv).

Jungle, dolphins and triathlon. NEO that you haven't seen before
CS:GO
Today's news about NEO will be slightly different — we'll present you this humble guy in a more crazier light.

"Mom's friend's son": Tinkoff Bank and pashaBiceps announce partnership
CS:GO
The main news of the day!
6/25/18 6:05 PM

Team brand is supported by publishing interviews and stories about teams life, and allows to establish closer relationships between players and audience.

"I'd say Spain will win the championship". pashaBiceps and Solo about World Cup 2018
Dota2 CS:GO
Forecasts from our players!
6/14/18 10:21 AM

RAMZES666: "I had more net-worth than all Vici Gaming players combined"
Dota2
Roman "RAMZES666" Kushnarev's thoughts.
6/2/18 2:32 PM

WESG 2017 Grand Final is coming
Support Solo, RAMZES666, RodjER and 9pasha!
3/3/18 10:27 AM

RESULTS

The network is not saturated, and in most cases there is only one transfer between two different teams. There is higher chance to establish connections between teams if the receiver is TI-participant.

	Estimate	p-value
edges	-5.6427065	1e-04 ***
mutual	1.7326681	1e-04 ***
mix.TI.YES. NO	0.3572090	0.13676
mix.TI.NO.YES	0.5946246	0.00984 **
mix.TI.YES. YES	1.2070947	0.00522 **
nodematch.region.NAm	2.0971600	1e-04 ***
nodematch.region.EU	3.0406129	1e-04 ***
nodematch.region.CH	1.9799179	1e-04 ***
nodematch.region.CIS	2.6480748	1e-04 ***
nodematch.region.SAm	3.1127612	1e-04 ***
nodematch.region.SA	3.0408033	1e-04 ***
absdiff.ELO	0.0011157	0.08906 .

Signif. codes: 0 *** 0.05 ** . 0.1 . 1

Intra-region transfers are more probable than inter-region. The difference in skills that we found through the Elo rating is not significant.

ACKNOWLEDGEMENTS