

CYCLONE

Complete Dynamic Multi-cloud Application Management

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Change history

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0.1	26/10/2017	UvA	Initial version and placeholders for data collection
0.2	15/11/2017	UvA	First full version for internal review with full information
0.2	24/11/2017	IRT	Internal Review
0.3	24/11/2017	UvA	Integrated internal reviews
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Executive Summary

Effective dissemination and communication activity is an important factor of achieving higher impact of the innovative and practical results of the project by addressing main target groups in research and industry. General focus of WP2 activities in the third year was using established channels and network to provide information on the project results, collecting feedback from different user communities and preparing conditions for sustainable information communication after the project ends.

This report presents the results of dissemination and communication activity during the third year of the project. The project followed the initial plan and its update for the second and third years outlined in deliverables D2.2, D2.3 and D2.4. This document reports on the regular dissemination and communication activities that are strongly built on the successful results and network built in the first two years of the project. The following are the main components and results described in this report:

- Working with the established target communities and identification of new potential users of the project results.
- Consistent use of the project branding elements in all public, online and communication materials.
- Consistent use of different communication channels to the target audiences such as website, social media, newsletters
- Conference publications, exhibitions, events organisation
- Standardization related activities to ensure project results compliance with the industry standards and best practices.

Presented results demonstrate that the project fulfilled planned KPI in 2017 following similar successful results in the previous two years.

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1. Introduction

The CYCLONE project has well defined target communities that have demonstrated strong interest and are already using the project products for automated cloud services deployment and management that would allow both applications developers and services operators to effectively use cloud based resources by simplifying development, deployment and test of services and applications. The developed tools are extending their functionalities to integrate services from multiple providers and providing user friendly web-based interface for non-computer savvy users.

Effective dissemination and communication activity is an important factor of achieving higher impact of the innovative and practical results of the project by addressing main target groups in research and industry. General focus of WP2 activities in the third year was providing information on the project results and collecting feedback from different user communities as well as following new trends in the project related areas.

The presented report describes the results of dissemination and communication activity during the third year of the project that has been conducted according to the general dissemination and communication plan and its update for the second and third years outlined in deliverables D2.2, D2.3 and D2.4. This document reports on the regular dissemination and communication activities that are strongly built on the successful results in the previous two year. The following are the main components and results described in this report:

- Working with the initially identified target communities and identification of new potential users of the project results.
- Consistent use of the project branding elements in all public, online and communication materials.
- Consistent use of different communication channels to the target audiences such as website, social media, newsletters
- Conference publications, exhibitions, events organisation
- Standardization activities

The report provides information about improvements made to website to better focus on target user groups: IT managers, cloud based applications developers, service integrators, and applications users.

Presented results demonstrate that the project fulfilled planned KPI in 2017 following similar successful results in previous years. This includes number of publications, participated events, statistics on website visitors and social network activities.

This is the third and final dissemination and communication report and for easy navigation the document follows the same sections structure as the original Dissemination and Communication Plan (deliverable D2.2) and following early report in deliverable D2.3, D2.4.

2. General Strategy Development and Implementation

This section provides information about the project activities related to the general dissemination and communication strategy that was initially defined in deliverable D2.2 and updated in deliverables D2.3, D2.4.

2.1. Dissemination and communication strategy in the third project year

In the third year the CYCLONE project followed the updated Dissemination and Communication Plan (DCP) that included the activities identified in the DCP update after the second year, in particular, the targeting two new potential user groups:

- programmable network community that started using extensively Software Defined Network (*SDN*) and Network Function Virtualization (*NFV*) technologies for building overlay network and require massive Virtual Machines (*VM*) based network elements deployment on cloud
- Intercloud and multi-cloud infrastructures provisioning and management that is demanded by the emerging Big Data and Internet of Thing (IoT) applications.

The DCP realisation effectively involved the partners networks what allowed maintaining continuous connection with target communities during and after the project ends.

2.2. Branding, co-branding and exploitation

The project benefitted from the well-defined branding strategy that was developed at the beginning of the project and provided consistency of all dissemination and communication activities done in the following years, including website, social media icons, presentation and dissemination materials templates. Refer to deliverable D2.1 for the branding strategy outline.

2.2.1. Dissemination materials and branding

The CYCLONE branding strategy has been developed from the very beginning of the project and was methodically implemented in all dissemination materials and activities during the whole project duration starting from raising the community and stakeholders awareness till main project products presentation and informing target communities.

The third period required updating existing dissemination materials and developing new ones to present results and products or services' readiness status:

- Different leaflets and flyers focusing on CYCLONE products were produced for major events in which the project participated.
- CYCLONE Newsletters: 4 Newsletters summarising the project's ongoing activities and developments have been produced during project duration.
- CYCLONE posters were produced and presented in all conferences and events where project participated. Primer venues for project posters were EGI Conferences 2015-2017 and TNC15-TNC17.

All above mentioned materials used the main components of the CYCLONE brand such as logo, templates, and styles as well as specifically crafted messages to address different target communities.

All produced materials is available via the project website and announced on social media.

2.3.Key Performance Indicators

WP2 fulfilled the key performance indicators (KPI) in the third year as summarised in Table 2.1 below.

Table 2.1. KPI statistics for the third project year

<p><u>KPI-8.1:</u> Number of unique visitors to the CYCLONE online presence per week (Target: 50)</p> <p>Web site visitor’s statistic shows that CYCLONE website has in average 50+ visitors per week during data collection period with variation from 25 to 120 visitors per week (refer to Appendix B for sample website statistics).</p>
<p><u>KPI-8.2:</u> Number of CYCLONE software downloads per week (Target: 20)</p> <p>The project uses github as a code management repository. Github allows measuring download/clone and access statistics per software package. Combined statistics is not provided.</p> <p>Number of downloads/clones varies from 5 to 30+ per week per main project component (such as cyclone-DACI, SlipStreamPythonAPI, cyclone-federation-provider, cyclone-python-pam, CNSMO – see Appendix C)</p>
<p><u>KPI-8.3:</u> Number of news items on social media platforms per week (Target: 5)</p> <p>The project uses two major channels for publishing regular news about the project: news items on the project website (average 1 news bi-weekly), LinkedIn forum messages and Twitter. Twitter (account @h2020_cyclone) is the main news publishing channel, at the moment of reporting there is 683 tweets and 286 followers what averages to 5 tweets per week.</p> <p>There are in total published more than 60 news articles on the project website covering project development updates, events, publications and presentations.</p>
<p><u>KPI-8.4:</u> Number of scientific publications per year on CYCLONE topics (Target: 10)</p> <p>This dissemination channel has long term impact as published papers are effectively cited many years after publishing. The project has strong research team what allows producing sufficient number of scientific publications. Current results include</p> <ul style="list-style-type: none">• 10 publications in year 2015, and• 11 publications in year 2016• 9 publications in year 2017 <p>All publications are on the main research topics related to CYCLONE developments and practical use. All papers and publications are archived in one of recognized by academic community open access self-archiving service such as Arxiv.org, Researchgate.net, OpenAIRE or Zenodo.</p>

More detailed analysis of the corresponding KPI for website, social media is provided in sections 4.1 and 4.2, publications and conferences are detailed in sections 4.3 and 4.4.

3. Target Communities and Technology Focus

The following audiences were focus of dissemination activities for the main project products during the third year: Application Service Providers and Managed Service Providers. The fact that the project proposes tools and platforms for development of cloud based applications makes CYCLONE results potentially interesting to other audiences and developers who create and operate applications on cloud infrastructures. The most prominent communities here are European Grid Initiative (EGI) and the pan-European data network for the research and education community, GEANT.

In particular, the project identified two new target application domains for CYCLONE tools:

- Networking community (vendors and operators) that widely adopts Software Defined Networking (SDN) and Network Function Virtualization (NFV) which are becoming predominantly software and VM-based and use cloud deployment automation tools.
- Intercloud and multi-cloud infrastructures provisioning and management that is demanded by the emerging Big Data and Internet of Thing (IoT) applications. In addition to the general cloud based services provisioning, the deployment and bootstrapping of these complex infrastructures and applications requires incorporating additional intercloud control and management functionalities.

The DCP activity is focused on the target communities identified in the initial DCP plan (D2.2, 2015) and updated after the second project year (D2.4, 2016) that include general developer and provider communities and the ones related to the specific application domains:

- Application Service Providers and Managed Service Providers
- Bioinformatics community and energy providers' community.
- Networking community (vendors and operators) that widely adopts Software Defined Networks (SDN) and Network Functions Virtualisation (NFV).
- Big Data and Internet of Thing (IoT) that require Intercloud and multi-cloud infrastructures provisioning and management.

While developing applications and tools for these communities, the project identified and addressed their problems and challenges by providing targeted information, tutorials, targeted design templates and tools. The project leveraged the successful results in already supported domains (bioinformatics and energy) when targeting other communities.

4. Maintaining the CYCLONE network and sustaining the project awareness

The main goal of the final project year was to widely distribute information about the project results and activities to the established network of organisations and stakeholders, search for new areas of use, and prepare to the sustainable project results exploitation after the project ends. The following are the main milestones in realising this approach:

- Operation and monitoring of the CYCLONE website, regularly update information about the project results and activities.
- Active use of the CYCLONE social media accounts to deliver the project news and the updates on activities and new developments, specifically focusing on the project use cases for bioinformatics and for smart energy management sectors.
- Use established partner networks and channels for coordinated dissemination of the project, to access wide professional, national and international contacts, conferences, exhibitions, and social media.
- Continue with organising and sponsoring workshops that have already established audience and recognition of the CYCLONE contribution, using them for extending access to target communities and stakeholders.
- Actively using presentations and posters at a number of conferences targeting different stakeholder groups from research, industry and developer communities.
- Further cooperating with other H2020 cloud projects, in particular, those related to cluster on Inter-cloud, as well as with other projects, namely GEANT4 and ELIXIR.

4.1. Project website operation and improvement

The project website <http://www.cyclone-project.eu/> is operational from the very beginning of the project. It plays important role in increasing awareness about the CYCLONE activities and providing information about the project results and activities by publishing regular news items. It links to CYCLONE-related social media pages at Twitter and LinkedIn. The website contains also links to the project repositories on GitHub and a separate use-cases website.

The website was re-designed in 2016 to implement a content strategy, identifying the main target groups and structuring the project website according to their potential use of the project results. The content strategy uses the concept of targeted messages and vocabulary that presents project results, uses conversational style and appeal for actions, also gradually presenting information to motivate further visitors involvement.

The website presents information about the ongoing project development according to new website content strategy that was focusing in providing appealing messages to major target user groups or personas: developers and operators as a part of DevOps groups, Application Service Providers (ASP) and ASP users, researchers, and executive level decision makers interested in improving performance of their ASP and DevOps teams.

The screenshot of the project front page and website visiting statistics is presented in Appendix B.

4.2.Social Media

A social media presence and active interaction with followers' network is an important channel to disseminate information about the project goals, developments and events. The use of social networks allows the project to reach a larger group of people nearly instantly while support constant awareness about CYCLONE among created groups of followers and subscribers. The maintenance of the social media accounts serves the branding purposes as messages and posts use the CYCLONE logo and refers to the project website.

The project is maintaining two social media accounts (LinkedIn and Twitter) that provide the most effective channels to reach professional communities of the target user groups:

- **@H2020_CYCLONE Twitter account¹**

Twitter offers the most dynamic way of communicating project news and cross-posting relevant news items. Twitter account is actively used to publish regular project news and additional coverage of events where the project is involved. The CYCLONE Twitter account is linked with partners' individual accounts and in some cases organizational accounts, which extends the audience reached by tweets.

- **H2020 CYCLONE LinkedIn group²**

LinkedIn provides a benefit of accessing the professional community via creation of the interest groups. Up to date the LinkedIn group was not much active but it will serve long term dissemination purpose (including after the project ends) because of publishing summary of the project achievement.

The following results have been achieved in using social media for the project results and activities dissemination.

The H2020 CYCLONE LinkedIn group has 20 members, mostly from project partner and partners' professional contacts. It is primarily used for posting topics that may generate long lasting interest from professional community, such as newsletters, papers, tutorials.

Current CYCLONE Twitter hashtag has 286 followers and accumulated 683 tweets (at the time of this writing) which demonstrates significant increase from 179 followers in 2016 (see Fig 4-2).

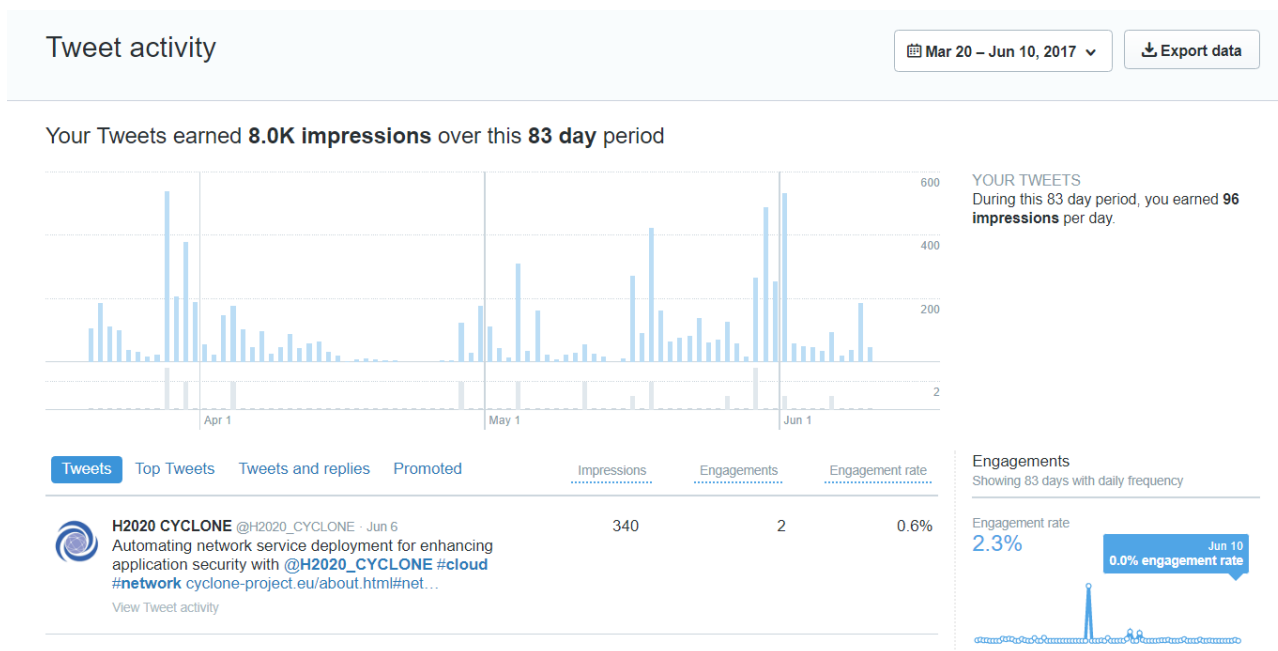
¹ https://twitter.com/H2020_CYCLONE

² <https://www.linkedin.com/groups/8259424>



Figure 4-2. CYCLONE Twitter homepage (683 tweets, 283 followers as of 20 November 2017).

An example of the CYCLONE Twitter activity over two of the most active periods is shown in Figure 4-3 that illustrates periodical increase of re-tweets, followers engagement and impressions. Figure 4-4 graphically represents the breakdown of the H2020 CYCLONE follower audience. It primarily consists of technology and technical oriented companies, startups and individuals. There is also significant share of news media what presumably provides a good channel for the project results dissemination.



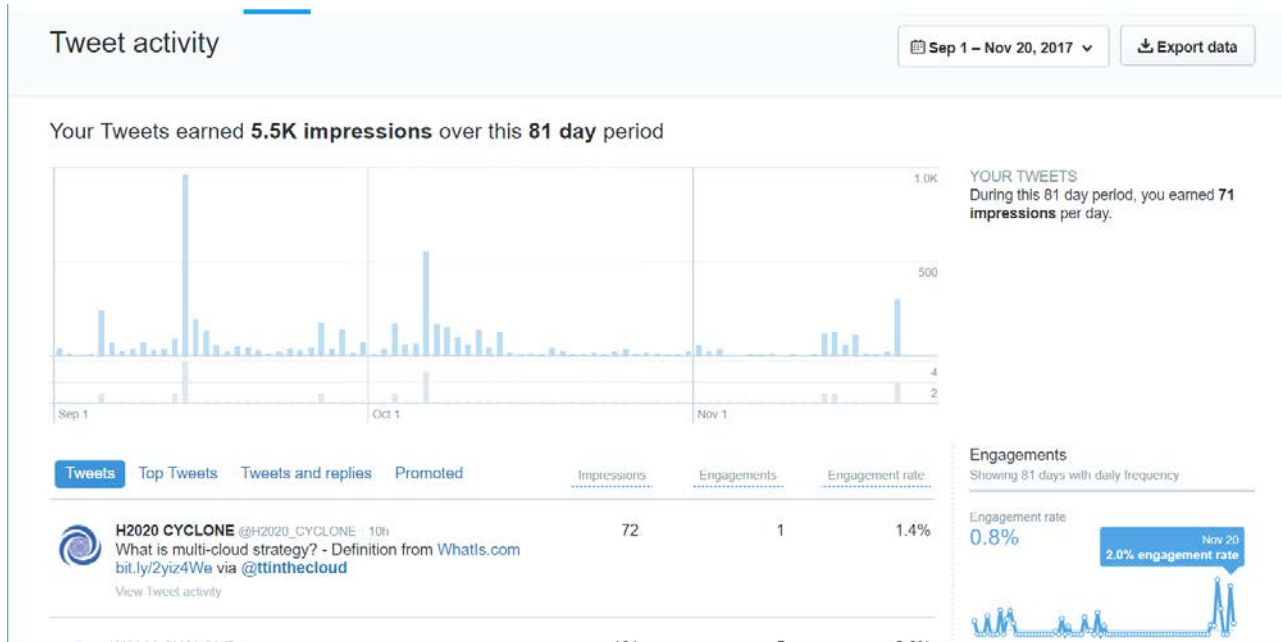


Figure 4-3. Tweets and followers engagement for two sample periods 20 March – 10 June 2017 and 1 September -19 November 2017.

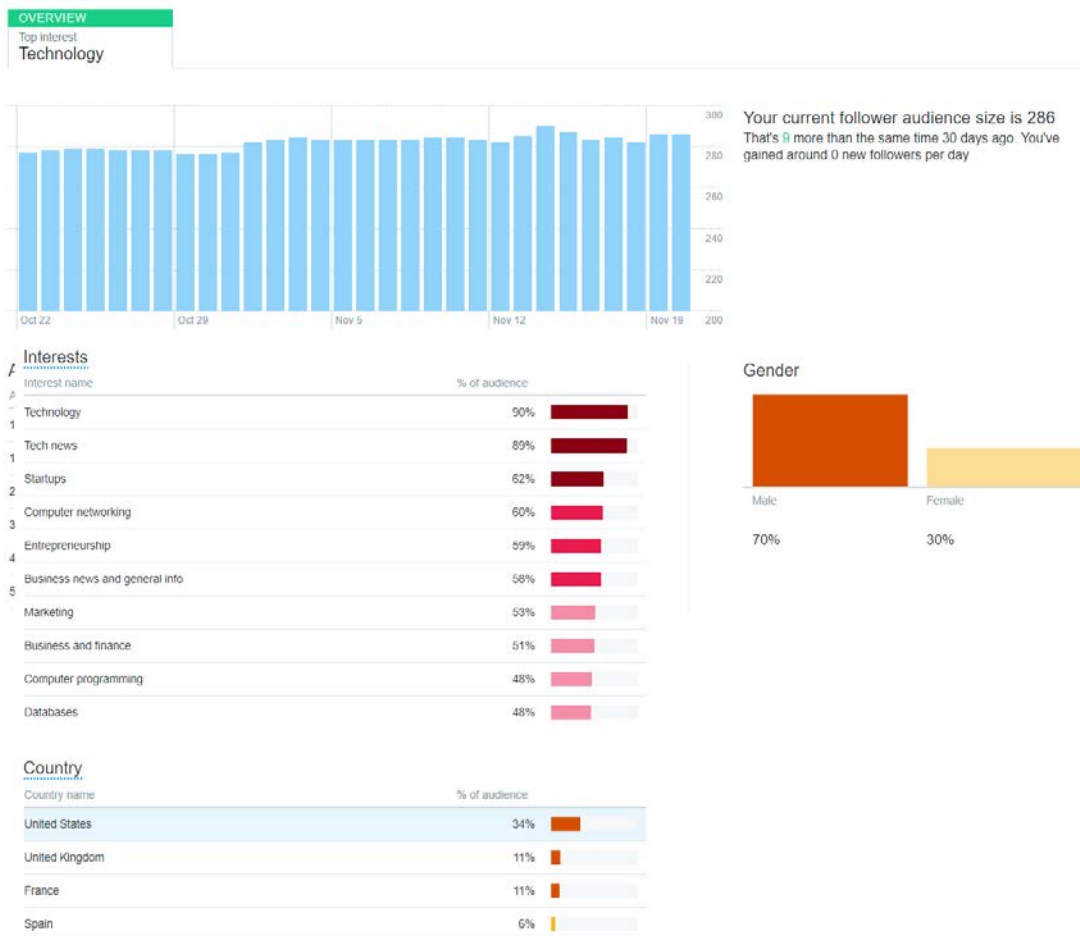


Figure 4-4. Breakdown of follower audience on interest group categories.

4.3. Publications

Four papers, one book chapter and one tutorial abstract are published in conference proceedings during the third year of the CYCLONE project. Four posters were presented and published online in the conference materials, bringing total count of project publications to 9 that is in compliance with related project KPI.

Refereed conference papers, conference posters, position papers

- [1] Demchenko, Yuri, Fatih Turkmen, Ching-Hsien Hsu, Christophe Blanchet, Charles Loomis, Cees de Laat, "Cloud Computing Infrastructure for Data Intensive Applications", Book chapter, In book "Big Data Analytics for Sensor-Network Collected Intelligence", Elsevier, 2017 (in production)
- [2] Yuri Demchenko, Fatih Turkmen, Mathias Slawik, "Defining Intercloud Security Framework and Architecture Components for Multi-Cloud Data Intensive Applications". Sixth IEEE International Workshop on Cloud Computing Interclouds, Multiclouds, Federations, and Interoperability (Intercloud 2017), In Proc. 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing. Madrid, Spain, May 14-17, 2017
- [3] Mathias Slawik, Yuri Demchenko, Fatih Turkmen, Alexey Ilyushkin, Cees de Laat, Charles Loomis, Christophe Blanchet, "CYCLONE: The Multi-Cloud Middleware Stack for Application Deployment and Management", IEEE CloudCom2017 Conference, 11-14 Dec 2017, Hong Kong.
- [4] Yuri Demchenko, Adam Belloum, Cees de Laat, Charles Loomis, Tomasz Wiktorski, Erwin Spekschoor, "Customisable Data Science Educational Environment: From Competences Management and Curriculum Design to Virtual Labs On-Demand", DTW2017 Workshop, part of IEEE CloudCom2017 Conference, 11-14 Dec 2017, Hong Kong.
- [5] Yuri Demchenko, "Cloud and Big Data infrastructure security and compliance", Tutorial abstract, IEEE CloudCom2017 Conference, 11-14 Dec 2017, Hong Kong.

Posters.

- [6] "Intercloud Security Framework and Architecture Components for Multi-Cloud Data Intensive Applications" by Yuri Demchenko, Fatih Turkmen, Cees de Laat (UvA), Eduard Escalona, Mathias Slawik, Christophe Blanchet (CNRS-IFB), Oleg Lodygensky (CNRS-LAL), Cal Loomis (SixSq), Ralf Fischer (QSC), EGI Conference 2017 and INDIGO Summit 2017, 9-12 May 2017, Catania, Italy
- [7] "CYCLONE Networking Architecture for Multi-cloud Applications" by Eduard Escalona, Albert Viñés (I2CAT), Yuri Demchenko, Fatih Turkmen, Cees de Laat (UvA), Mathias Slawik, Christophe Blanchet (CNRS-IFB), Oleg Lodygensky (CNRS-LAL), Cal Loomis (SixSq), Ralf Fischer (QSC), Presented at GEANT/TERENA Networking Conference TNC17, 29 May – 2 June 2017, Linz, Austria.
- [8] "CYCLONE Security Middleware: Enabling Security infrastructure for Multi-Cloud Applications, Deployment Automation and Compliance" DI4R 2017 Conference, 30 November – 1 December 2017, Brussels.
- [9] "Agile competence driven Data Science Educational Environment: From Competences Management and Curriculum Design to Virtual Labs On-Demand" DI4R 2017 Conference, 30 November – 1 December 2017, Brussels.

4.4. Conferences and workshops

In this section we give an overview of conferences, workshops EU research community and industry events attended and/or organized by the CYCLONE project members. This overview is given in Table 4-1. We provide more information on the Intercloud 2017 and NetCloud2017 workshops in respective subsections.

Table 4-1 Conferences and events where CYCLONE project members participated and/or contributed in 2017.

Date (Month/Year)	Event, place	Partner contribution	Target community
14-17 May 2017	IEEE Workshop on Cloud Computing, Interclouds, Multiclouds, Federations, and Interoperability, in conjunction with the IEEE International Conference on Cloud, Cluster and Grid (CCGrid2017), Madrid, Spain	Workshop organisation, paper presentation	Cloud services and infrastructure researchers and developers, researchers from big companies.
30 May - 2 June 2017	TNC17 – TERENA Networking Conference 2017 Linz, Austria	Poster, demo	Key European networking community event, 400-700 attendees
21-23 Nov 2017	European Big Data Value Forum, Versailles, France	Workshop pitch, networking	200 representatives from European big industry companies, Big Data Infrastructure providers
30 Nov – 1 Dec 2017	Digital Infrastructure for Research DI4R Conference Brussels, Belgium	Posters, networking	European Research Infrastructure and Big Data industry companies, Big Data Infrastructure providers
11-14 December 2017	NetCloud2017 Workshop Collocated with CloudCom2017 Hong Kong	Workshop organisation, papers submission, tutorial	Cloud and networking community: research and industry Estimated 20-30 attendees to workshop, Estimated tutorial attendees 50-60

4.4.1. InterCloud 2017 workshop

The 7th IEEE Workshop on Cloud Computing, Interclouds, Multiclouds, Federations and Interoperability (Intercloud2017) was held in conjunction with the IEEE International Conference Cluster, Cloud and Grid Computing (CCGrid2017) on 14-17 May 2017 in Madrid, Spain (<https://www.arco.inf.uc3m.es/ccgrid2017/>). The workshop has been organized in cooperation with GEANT4 project. This workshop provided an effective dissemination and awareness raising event targeted for diverse community of the general cloud and Intercloud services development among research and industry. The project presented one papers [7] on the security architecture for multi-cloud access control and security infrastructure.

4.4.2. NetCloud2017 workshop and other publications at CloudCom2017

The 7th NetCloud2017 Workshop, in conjunction with the IEEE International Conference on Cloud Computing (CloudCom2017) was held on December 11-14, 2017 in Hong Kong. The organization of the workshop was sponsored by two EU projects, namely CYCLONE and GEANT4. The workshop included one session with paper presentations and discussion on cloud automation tools.

CYCLONE presented one paper related to the general project architecture and developed services [8] and another paper exploring use of the CYCLONE cloud automation platform for building Virtual Labs on demand for university education [9].

In a summary, the NetCloud2017 workshop organization and contribution to another workshop provided a strong project presence at the top conferences on Cloud Computing technologies.

4.4.3. Coordination and cooperation with the cluster projects

CYCLONE is taking part in the Clusters of European Projects on Cloud, in particular, Cluster on Inter-cloud lead by Atos. The aim of Future Cloud Cluster is to provide a forum for discussion and collaboration for research and innovation initiatives that address next generation Cloud Computing challenges and issues, including diverse forms of distributed computing (Cloud, Multi-Cloud, Edge, Fog, Ad-hoc and Mobile computing).

These comprises research on diverse areas encountered in Future Cloud software and Infrastructure management such as: integration of heterogeneous devices ranging from high performance computing ones to mobile devices; development and design of decentralised service-oriented systems; improvements to virtualization, data and workload abstraction technologies; service management and QoS; or the automation the organisation and management of the back-end resources.

The CYCLONE developments contribute to the main defined topics of the cluster such as cloud based applications deployment and management, interoperability and portability. CYCLONE is primarily in contact with BEACON project in terms of cloud networking for cloud-federated environments.

The project contributed to the discussion related to the project areas aligned with main cluster topics and participated in the discussion of the Research Roadmap, FP9 Cluster Inputs submitted in September 2017.

4.5. Standardization activity

Standardization activities can be seen as a way to promote project results and secure products adoption on a longer time period. Standardization bodies typically involve industry experts and representatives from the provider community, developers, and the major industry vendors. The adopted standards have strong impact on the technology roadmaps for all involved parties. The main result of this activity was to follow standardisation activity related to Cloud Computing and cloud services engineering and management such as NIST, DMTF and TMF. Important area of standardisation is currently related to Software Defined Networks (SDN), Network Functions Virtualisation (NFV) and Virtual Private Network (VPN) that are important for building interoperable cloud based networks. This area is developed such standardisation bodies as IETF, IEEE, and also OASIS for applications related NFV. Infrastructure and applications security standards and best practices are developed by such standardisation bodies as IETF, OASIS, CSA.

Table 4.2 summarizes the main activities and contributions by project partners related to different standardisation bodies.

Table 4-2 Contribution to standardisation activity in 2017

SDO	Committee, Working group, topic	Partner involved	What kind of contribution	Impact/ community
NIST	Cloud Computing Architecture WG Big Data WG	UvA	Cloud architecture, cloud services management, cloud infrastructure for data centric services	Whole cloud industry, other IT sectors
IETF	Different groups focused on SDN, Cloud aware networks, Federated Identity	UvA	Following and evaluation of standards related to SDN, VPN, and federated access control.	Compatibility with industry solutions, solutions used by research infrastructure and networks such as GEANT, ELIXIR
IEEE	IEEE P2302 Intercloud Standards Working Group	UvA	Multi-cloud, Intercloud services federation Intercloud Testbed Initiative	Industry and wide developers community
DMTF	Cloud CIMI	SixSq	Implementation and feedback on cloud services description format for management purposes	Industry and wide developers community
TMF	Follow multiple standards development, use in research and education Affiliate University membership.	UvA	Cloud/multi-cloud services deployment, management and operation. Zero Touch services provisioning model	Telecom industry, emerging cloud IaaS providers
OASIS	Follow recent OASIS developments on SAML/XACML and TOSCA	UvA	Following and evaluation of standards related to network function virtualisation and security: NFV in TOSCA, SAML profiles and tokens format, XACML policy and attributes profiles	Compatibility of the CYCLONE products with the industry standards and increased interoperability
CSA	Follow Best Practices documents, contribute, use in research and cloud education (UvA)	SixSq, TUB, UvA	Cloud security, Big Data security, federated security services	Whole cloud industry, research community

4.6. Project results used in education and training

4.6.1. Training materials, tutorials and demo

The project provides general training materials, tutorials and demo packages on the main project components that are available at the project website³ (<http://www.cyclone-project.eu/demo.html>). Training materials on SlipStream and Nuvla are provided on the SixSq website⁴ and contain components

³ <http://www.cyclone-project.eu/tryit.html#helping-you-is-part-of-our-job> and <http://www.cyclone-project.eu/demo.html>

⁴ <http://ssdocs.sixsq.com/en/latest/tutorials/index.html>

developed by CYCLONE. These materials are considered to be extended with the final project results and remain after the project ends and will serve to support project results sustainability.

4.6.2. Using Project results in education and training

The CYCLONE cloud automation platform and SlipStream in particular are used in the education activities provided by academic partners such as Technical University Berlin (TUB) and University of Amsterdam (UvA).

TUB courses powered by CYCLONE developments and products:

- Internet of Service Lab (IOSL) based courses and master projects (past - Winter Term 2016/2017, future Winter Term 2017/2018)

UvA courses powered by CYCLONE developments and products:

- Cloud Computing and Web Services (past - Spring 2017, future Spring 2018)
- DevOps in Software Engineering – in development, to start in September 2018

The project will also contribute to the GEANT eAcademy⁵ initiative by providing several tutorials related to cloud based services deployment and DevOps using CYCLONE and SlipStream tools.

4.6.3. CYCLONE developments used in PhD research

The CYCLONE research provided input and acknowledged in multiple papers and was a part of research for two PhD theses, namely:

1) PhD thesis by Mathias Slawik (TUB) who is working on the thesis with the provisional title “Federated access control in multi-cloud applications”. The research contributed to the WP4 work.

2) PhD thesis by Alexey Ilyushkin (UvA) who is working on the thesis with the provisional title “Scheduling Workloads of Workflows in Clusters and Clouds”. The research contributed to the WP6 work.

Both theses are scheduled to be submitted and defended in the second quarter of 2018. The defence will also generate additional publications and contribute to the project results dissemination after the project ends.

⁵ <https://e-academy.geant.org/>

5. Conclusions

This report provides an overview of the major dissemination and standardization activities in the third year of the CYCLONE project. The effective dissemination is one of the priorities in the project activity to achieve the stronger project results impact and wider adoption after the project ends.

The dissemination and communication activities are based on the general dissemination strategy described in the original Dissemination and Communication Plan (DCP) and its update for 2017, it also followed the branding strategy described in respective CYCLONE deliverable. During the third project year the project continued working with stakeholder communities identified in the previous project years while extending outreach to new emerging areas related to Big Data Infrastructure. The project partners effectively used dissemination materials such as posters and flyers, news posts and newsletters that were distributed at all events that project members attended.

The project actively used Twitter (@H2020_CYCLONE) social account to reach the audience. In total, we have published nine publications (papers, posters and book chapter) meeting KPI target for 2017. The project partners organized two workshops that are described in the document. In summary, coordinated and committed activity of all partners realised extensive dissemination and communication activity in the final third project year that created a strong basis for project results exploitation after the project ends.

6. References

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3. CYCLONE Deliverable D2.3 Dissemination and Communication Plan (Update 1)
4. CYCLONE Deliverable D2.4 Dissemination and Communication Activity report 2015
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13. Poster. CYCLONE Security Middleware: Enabling Security infrastructure for Multi-Cloud Applications, Deployment Automation and Compliance, DI4R 2017 Conference, 30 November – 1 December 2017, Brussels.
14. Poster. Agile competence driven Data Science Educational Environment: From Competences Management and Curriculum Design to Virtual Labs On-Demand, DI4R 2017 Conference, 30 November – 1 December 2017, Brussels.

7. Abbreviations and Definitions

7.1. Definitions

No specific definitions are introduced in this document.

7.2. Abbreviations

CSA	Cloud Security Alliance
DC	Data Centre
DMTF	Distributed Management Task Force
DOA	
E2E	End-to-End
EGI	European Grid Initiative
IaaS	Infrastructure-as-a-Service
ICAF	Intercloud Architecture Framework
ICFF	Intercloud Federation Framework
IPR	Intellectual Property Rights
IT	Information Technology
IEEE	Institute of Electrical and Electronic Engineers
IETF	Internet Engineering Task Force
NaaS	Network-as-a-Service
NFV	Network Function Virtualization
NIST	National Institute of Standards and Technology
OASIS	Advancing open standards for the information society
OGF	Open Grid Forum
PaaS	Platform-as-a-Service
PoP	Point of Presence
RDA	Research Data Alliance
SaaS	Software-as-a-Service
SDN	Software Defined Networking
SDO	Standard Development Organisations
SP	Service Provider
TCTP	Trusted Cloud Transfer Protocol
TM Forum	Tele Management Forum
TNC	TERENA Networking Conference

Appendix A. Summary of dissemination activities in 2017

The Table below summarises the dissemination and communication activity linked to the project (in a format of the midterm review)

Number of Dissemination and Communication activities linked to the project for each of the following categories		
Organisation of a Conference	0	
Organisation of a Workshop	2	Intercloud2017, NetCloud2017
Press release	2	1 Newsletter issue and Whitepaper
Non-scientific and non-peer-reviewed publication (popularised publication)	0	
Exhibition	1	CeBIT2017
Flyer	4	Distributed at poster sessions at Intercloud2017, EGI2017&INDIGO2017, TNC17, DI4R 2017
Training	3	Public tutorial “Cloud and Big Data infrastructure security and compliance” at CloudCom2017 Special lecture on DevOps and Cloud automation for UvA “Cloud Computing and Web Services” masters Winter Term 2016/2017 TUB - Internet of Service Lab (IOSL)
Social Media	2	H2020 CYCLONE LinkedIn group Twitter (account @H2020_CYCLONE (683 tweets and 283 followers))
Website	1	More than 75 news items (in total)
Communication Campaign (e.g. Radio, TV)	0	
Participation to a Conference	5	4 conference publications
Participation to a Workshop	2	Intercloud2017, NetCloud2017
Participation to an Event other than a Conference or a Workshop		
Video/Film		
Brokerage Event	0	
Pitch Event	0	
Trade Fair	0	
Participation in activities organized jointly with other H2020 projects	2	Both workshops Intercloud and NetCloud are organised jointly with the GEANT project

Other	4	Posters at EGI2017 & INDIGO 2017 Summit, TNC17, DI4R 2017
Estimated number of persons reached, in the context of all dissemination and communication activities, in each of the following categories		
Scientific Community (Higher Education, Research)	600	All conferences, workshops, training activities
Industry	200	Primarily exhibition but also some per cent of industry attendees to other events
Civil Society	0	
General Public	100	Those interested in new technologies development
Policy Makers	30	
Media	10	Media accredited to major conferences and EC events
Investors	0	
Customers	40	Potential product users
Other	0	

Appendix B. CYCLONE website visitors sample data

Sample visitor data for period from January 2017 to October 2017 indicate average number of 50+ visitors per week with range from 28 to 107.

Website visitors statistics per week			
Week #	Week start	Week end	Number or visitors
week 01	02-01-17	08-01-17	64
week 02	09-01-17	15-01-17	75
week 03	16-01-17	22-01-17	107
week 04	23-01-17	29-01-17	78
week 05	30-01-17	05-02-17	86
week 06	06-02-17	12-02-17	58
week 07	13-02-17	19-02-17	73
week 08	20-02-17	26-02-17	73
week 09	27-02-17	05-03-17	64
week 10	06-03-17	12-03-17	60
week 11	13-03-17	19-03-17	42
week 12	20-03-17	26-03-17	61
week 13	27-03-17	02-04-17	42
week 14	03-04-17	09-04-17	46
week 15	10-04-17	16-04-17	37
week 16	17-04-17	23-04-17	30
week 17	24-04-17	30-04-17	31
week 18	01-05-17	07-05-17	34
week 19	08-05-17	14-05-17	37
week 20	15-05-17	21-05-17	46
week 21	22-05-17	28-05-17	50
week 22	29-05-17	04-06-17	49
week 23	05-06-17	11-06-17	52
week 24	12-06-17	18-06-17	55
week 25	19-06-17	25-06-17	54
week 26	26-06-17	02-07-17	55
week 27	03-07-17	09-07-17	53
week 28	10-07-17	16-07-17	49
week 29	17-07-17	23-07-17	53
week 30	24-07-17	30-07-17	52
week 31	31-07-17	06-08-17	43
week 32	07-08-17	13-08-17	46
week 33	14-08-17	20-08-17	46
week 34	21-08-17	27-08-17	35
week 35	28-08-17	03-09-17	36
week 36	04-09-17	10-09-17	35
week 37	11-09-17	17-09-17	32
week 38	18-09-17	24-09-17	36

week 39	25-09-17	01-10-17	34
week 40	02-10-17	08-10-17	33
week 41	09-10-17	15-10-17	35
week 42	16-10-17	22-10-17	35
week 43	23-10-17	29-10-17	34

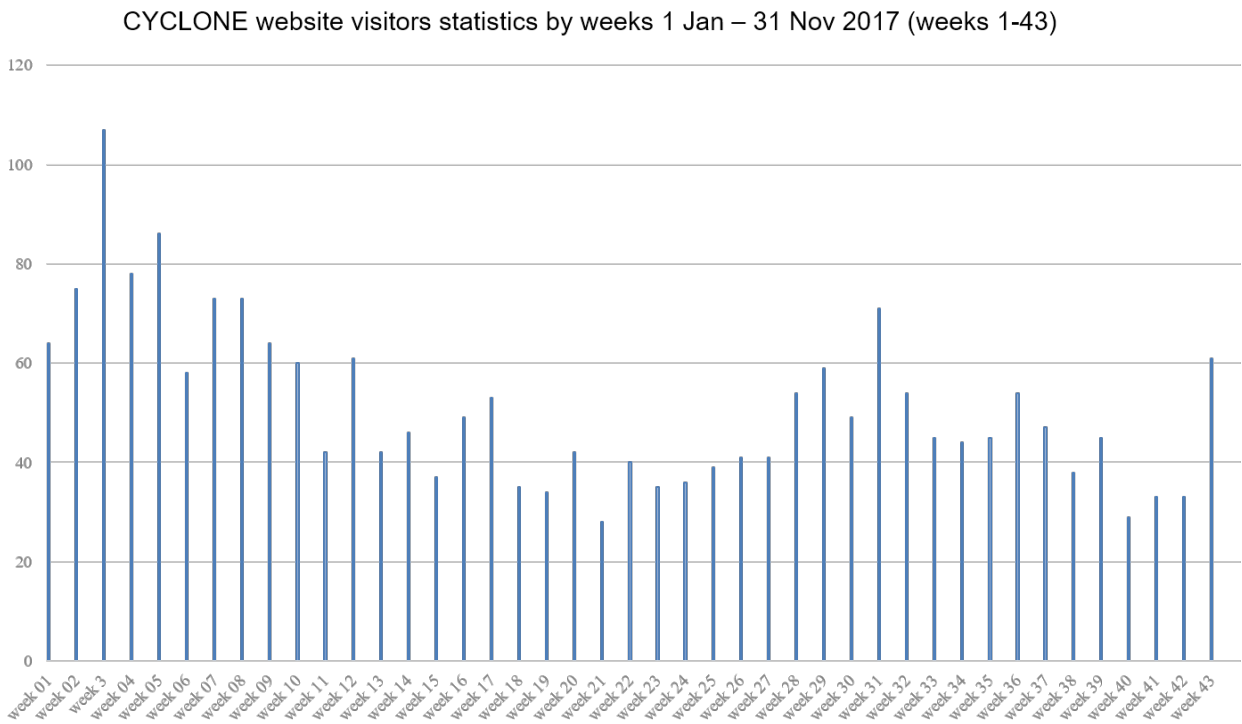


Figure B.1: Number of CYCLONE website visitors per week in period Jan - Oct 2017

Appendix C. CYCLONE github downloads


The diagrams below illustrate example of github traffic statistics for selected CYCLONE software components with the most active downloads/clones: SlipStreamPythonAPI, CNSMO, DACI.

Number of software packages download counts up to 46 per week with uneven distribution during week days.

Note github statistics is provided only for the period of two weeks.

11/28/2017

Traffic · cyclone-project/SlipStreamPythonAPI

 cyclone-project / SlipStreamPythonAPI
forked from slipstream/SlipStreamPythonAPI

- [Pulse](#)
- [Contributors](#)
- [Traffic](#)**
- [Commits](#)
- [Code frequency](#)
- [Dependency graph](#)
- [Network](#)
- [Forks](#)

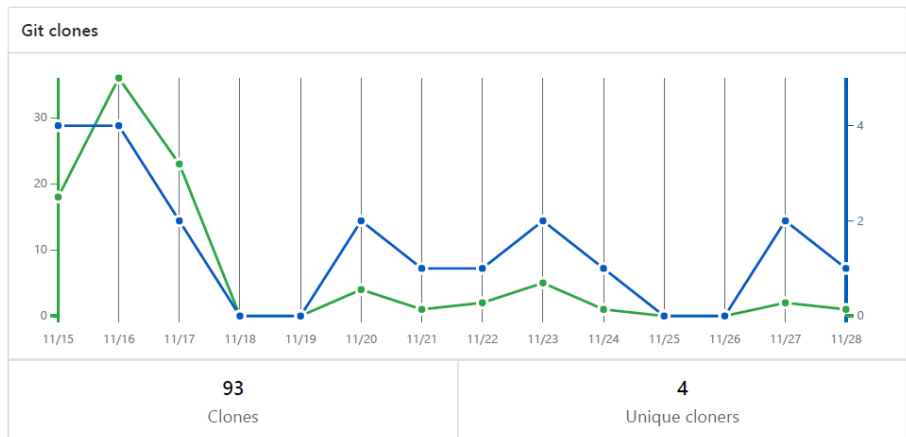


Figure C.2: Number of SlipStreamPythonAPI downloads in 2 weeks period in November 2017

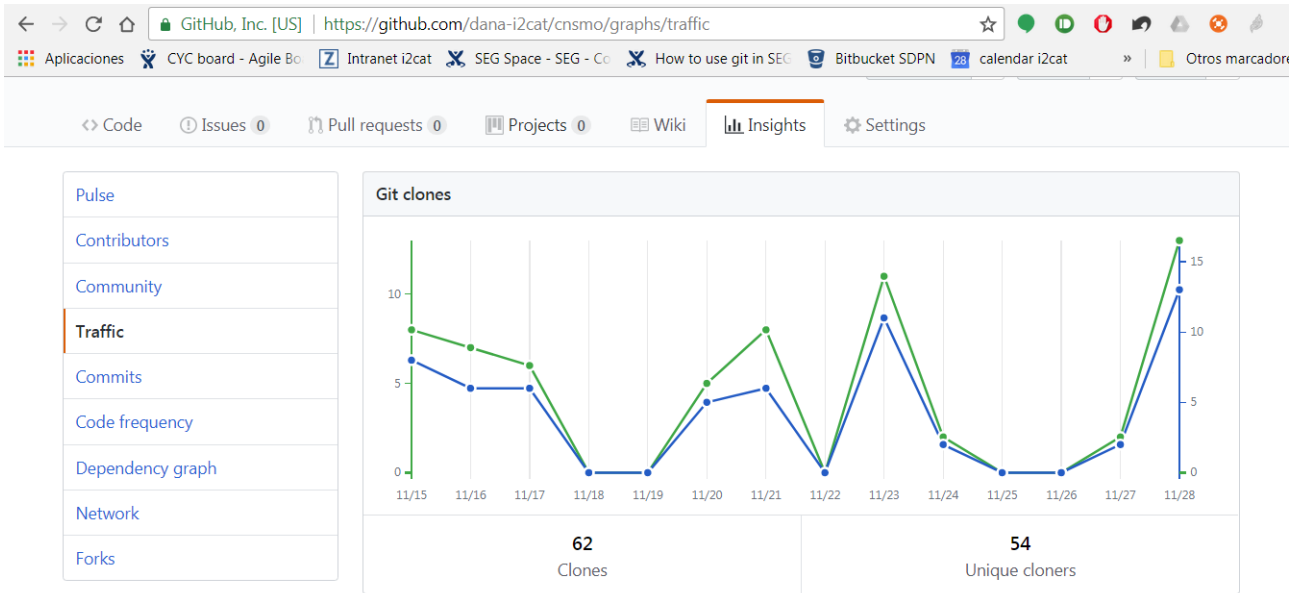


Figure C.2: Number of CNSMO downloads in 2 weeks period in November 2017

11/29/2017

Traffic · cyclone-project/cyclone-DACI

[cyclone-project / cyclone-DACI](#)

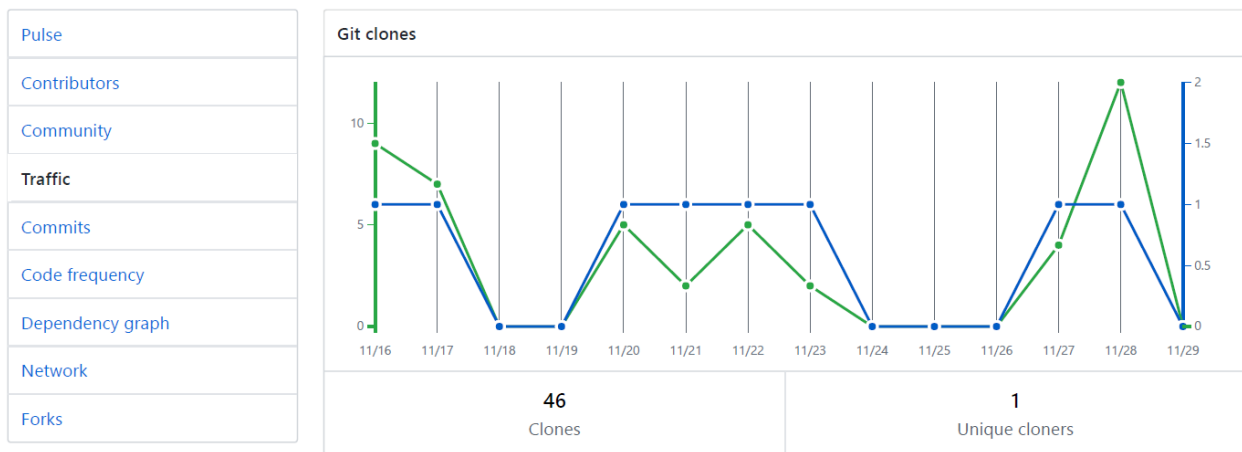


Figure C.3: Number of DACI downloads in 2 weeks period in November 2017

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