

TECHNOLOGY DEPT FOUNDATIONAL/SUSTAINING CHECK-IN 2017-10



WIKIMEDIA
FOUNDATION

All content is © 2017 Wikimedia Foundation and is available under [CC-BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/) unless noted otherwise

TECH GOAL QUADRANT

A Foundation level goals	C Features that we build to improve our technology offering
B Features we build for others	D Modernization, renewal and tech debt goals

The goals in each team pack are annotated using this scheme
illustrate the broad trends in our priorities

Programs: Planned Work



WIKIMEDIA
FOUNDATION

Departmental programs in this deck:

Program 1: Availability, performance, and maintenance

Program 2: MediaWiki

Program 3: Addressing technical debt

Program 6. Streamlined service delivery

Program 8. Multi-datacenter support

Product Program 1: Make knowledge more easily discoverable

Cross-departmental programs in this deck:

Privacy, Security and Data Management (Tech department portions only)

The following will be part of the Audiences presentation, so will not be covered here:

Structured Data on Commons (Tech department portions only)

The following will be part of the Advancement presentation, so will not be included here:

Product Program 7: Payment processor investigation and long-term strategy

Product Program 8: Donor retention



Department Programs



WIKIMEDIA
FOUNDATION



Technology Program 1: Availability, Performance and Maintenance

We will **maintain** the availability of Wikimedia's sites and services for our global audiences, and ensure they're running **reliably**, **securely** and **performant** while *modernizing* our infrastructure and improving current levels of service when it comes to testing, deployments and maintenance of software and hardware



2017-10

Technical Operations / Traffic

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Continue Asia Cache PoP procurement, installation, and configuration tasks (A: REACH)	<p>LAST QUARTER & NEXT QUARTER</p> <ul style="list-style-type: none"> • Finance • Legal • Partnerships 	<ul style="list-style-type: none"> • Finish up trailing purchasing tasks from previous quarter (DC, hardware, network links, etc). • Procure at least one transit or peering link to help advance address space issue • Physically install all hardware • Acquire address space & communicate it to Wikipedia Zero partners (via the Zero team) • Turn up network links (stretch) • Configure network devices and hosts (stretch)

STATUS: OBJECTIVE AT RISK; DATA CENTER CONTRACT SIGNED END OF SEPT, UNBLOCKING ALL OTHER WORK

2017-10

Technical Operations

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Deploy, update, configure, and maintain production services (D)	LAST QUARTER	
		Improve database backups' coverage, monitoring and data recovery time (part 1) <ul style="list-style-type: none"> • Support MariaDB multiple instances on backup infrastructure • Research backup storage options and prepare a design document • Investigate and experiment with replacements of mysqldump
	NEXT QUARTER	
		Hardware procurement (further work on this will pick up again in Q3)

STATUS: OBJECTIVE ON TRACK

2017-10

Technical Operations

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Objective 1: Deploy, update, configure, and maintain production services (D)</p>	<p>NEXT QUARTER</p> <ul style="list-style-type: none"> ● Release Engineering ● WMCS ● MediaWiki ● Wikidata team ● (all MediaWiki developers using Wikidata) 	<p>Provide dedicated database resources for Wikidata</p> <ul style="list-style-type: none"> ● Create new functional group s8, dedicated to Wikidata <ul style="list-style-type: none"> ○ Prepare MediaWiki and Cloud Services wiki replica configuration for s8 ○ Provision new hardware, serving exclusively the wikidata dataset ● Refactor Puppet/core db to introduce multi-instance for MediaWiki hosts ● Switchover service to the new functional group s8 (master failover)

STATUS: OBJECTIVE ON TRACK

2017-10

Technical Operations

1.1 [\[LINK\]](#)

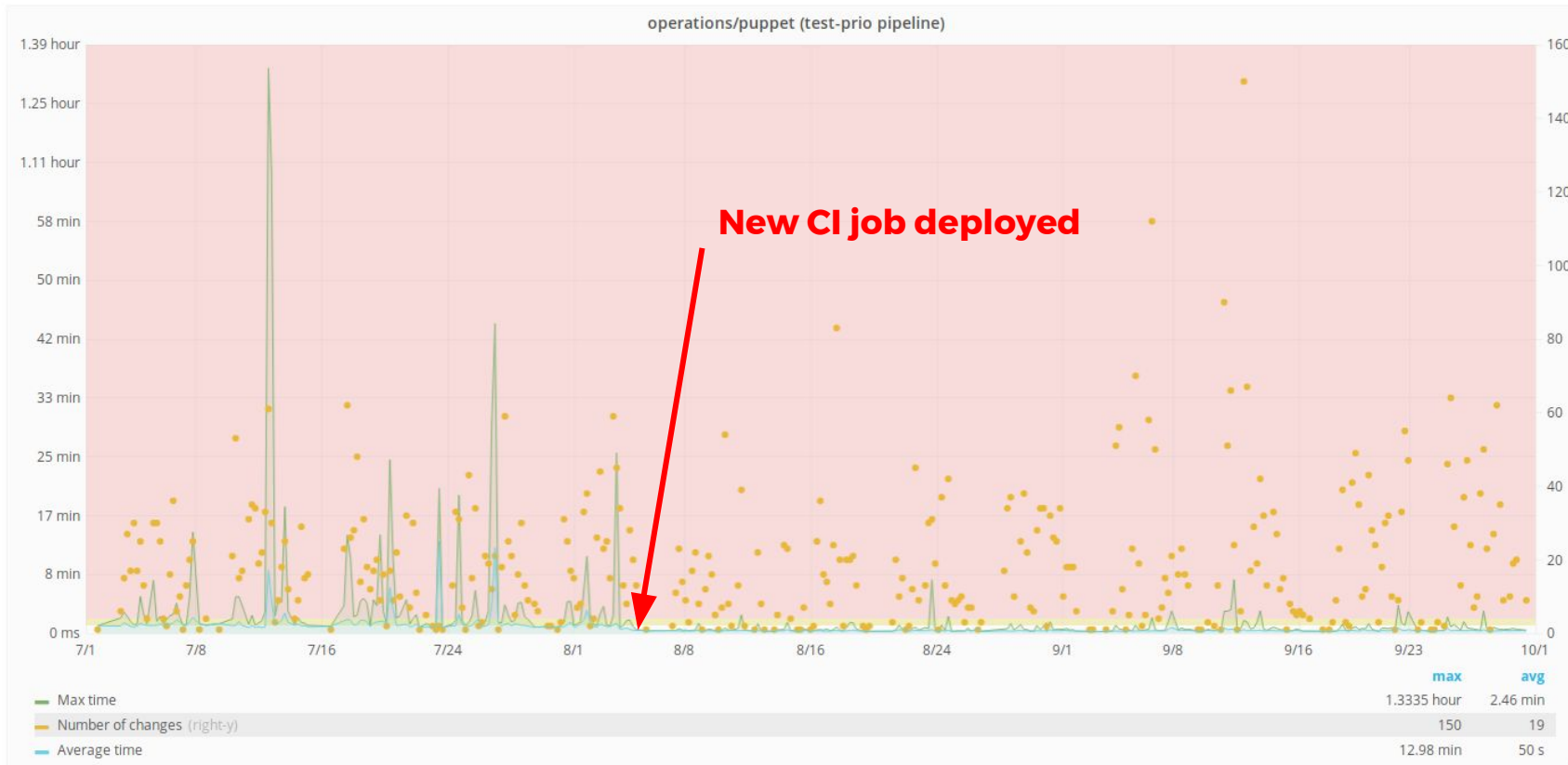
Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Deploy, update, configure, and maintain production services (D)	LAST QUARTER	
	<ul style="list-style-type: none"> Release Engineering 	Prepare for Puppet 4: <ul style="list-style-type: none"> Support directory environments in our Puppet infrastructure and add an environment that uses Puppet's future parser Switch at least 3 node groups to the future parser environment Force current and future parser for every test in the puppet-compiler Integrate puppet-compiler with the Continuous Integration infrastructure (task T166066) (stretch) Speed up CI for operations/puppet (task T166888) and add future parser validation
	NEXT QUARTER	
		Modernize Puppet configuration management: <ul style="list-style-type: none"> Upgrade PuppetDB to version 3.2 or newer Upgrade Puppet to 4.8 or newer

STATUS: OBJECTIVE ON TRACK



▼ Gate processing time



2017-10

Technical Operations

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Objective 1: Deploy, update, configure, and maintain production services (D)</p>	<p>LAST QUARTER</p> <ul style="list-style-type: none"> • Release Engineering • WMCS 	<p>Remove Salt from our infrastructure</p> <ul style="list-style-type: none"> • Port debdeploy to Cumin • Migrate the reimage script to Cumin • Remove support for the Trebuchet deployment system • Remove Salt from production & WMCS
<p>STATUS: OBJECTIVE COMPLETE; SALT AND TREBUCHET REMOVED COMPLETELY</p>		

2017-10

Release Engineering

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Deploy, update, configure, and maintain production services (D)	LAST QUARTER	<ul style="list-style-type: none"> • Technical Operations • Services • Discovery • Cloud Services <p>Deprecate use of Trebuchet across production</p> <p>Consolidation of deployment tools into a single tool (“scap”) and thus removal of long-standing technical debt</p>
	NEXT QUARTER	

STATUS: OBJECTIVE COMPLETE; ALL USE OF TREBUCHET MIGRATED TO SCAP

CHECK IN

TEAM/DEPT

PROGRAM

[WIKIMEDIA
FOUNDATION
ANNUAL PLAN](#)

2017-10

CTO Team

1.1 [[LINK](#)]

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Deploy, update, configure, and maintain production services (D)	NEXT QUARTER	Plan for when HHVM no longer supports PHP5 <ul style="list-style-type: none">• Officially decide on our path forward (e.g. "migrate to Zend/PHP7")• Identify the work that will be required to implement that decision at a very high level
	<ul style="list-style-type: none">• MediaWiki Platform• Technical Operations• TechCom	

STATUS: OBJECTIVE ON TRACK

2017-10

Performance1.2 [[LINK](#)]**Outcome 2: All our users consistently experience systems that perform well.**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Catch and address performance regressions in a timely fashion through automation (D)	LAST QUARTER	
	<ul style="list-style-type: none"> Release Engineering 	Performance optimizations <ul style="list-style-type: none"> Preload base module requests T164299 Upgrade to jQuery 3 T124742
	NEXT QUARTER	
	<ul style="list-style-type: none"> Contributors 	<ul style="list-style-type: none"> Performance review of VisualEditor

STATUS: OBJECTIVE ON TRACK

2017-10

Performance1.2 [[LINK](#)]**Outcome 2: All our users consistently experience systems that perform well.**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 3: Modernize our performance toolset. We will measure performance metrics that are closer to what users experience.	LAST QUARTER	
		Rework and add metrics (C) <ul style="list-style-type: none"> Rework NavigationTiming metrics to make them stackable - T104902 Add metrics for master queries on HTTP GET/HEAD - T166199
	NEXT QUARTER	
	<ul style="list-style-type: none"> Audiences 	Support other teams (A/B) <ul style="list-style-type: none"> Helping Audiences set up tooling to compare Marvin's performance with the mobile site Write a guide on how to test performance locally before pushing changes - T175239

STATUS: OBJECTIVE ON TRACK

Outcome 3: Scalable, reliable and secure systems for data transport

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Consolidation of Kafka infrastructure to tier-1 requirements, including TLS encryption (C, D)	LAST QUARTER	
	Technical Operations	<ul style="list-style-type: none"> Bootstrap the new Kafka cluster (hardware refresh) with an upgraded version and TLS encryption and access control lists support.
	NEXT QUARTER	
	Technical Operations	<ul style="list-style-type: none"> Write generic certificate management software for use with Puppet and Self Signing CAs. Switch the Varnishkafka cache misc configuration to the new cluster and enable TLS authentication for it. Attempt to port as many clients as possible to new cluster (stretch)

STATUS: OBJECTIVE ON TRACK



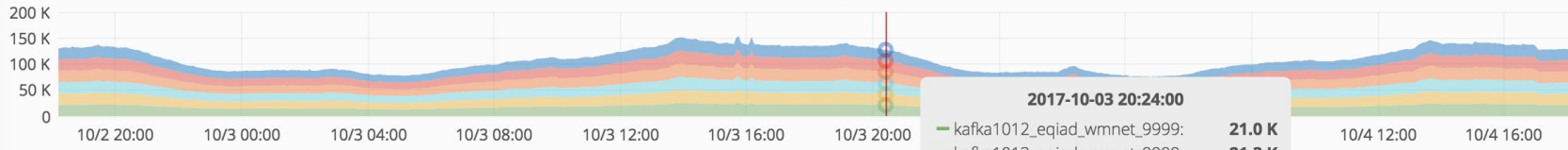
150,000 requests per sec processed at peak

108.7 K msgs/sec in

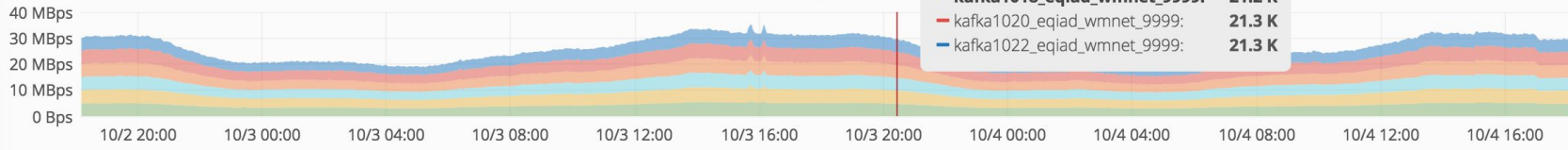
25.2 MBps in

127.0 MBps out

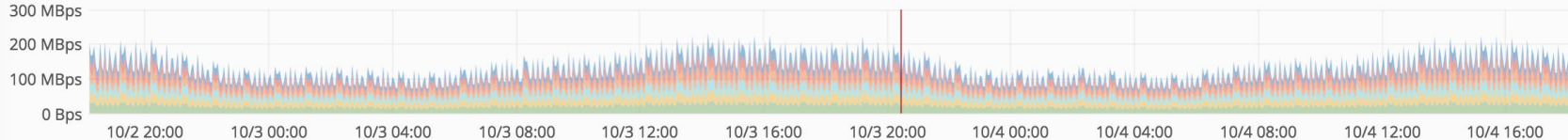
Kafka Messages In



Kafka Bytes In



Kafka Bytes Out



Outcome 4: Reliable public [IaaS](#) product ecosystem for [VPS](#) hosting

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Maintain existing OpenStack infrastructure and services (D)	LAST QUARTER	Define a metric to track OpenStack system availability <ul style="list-style-type: none"> • Added monitoring of OpenStack internal APIs • Created dashboard to display availability metrics

STATUS: OBJECTIVE COMPLETE

Outcome 4: Reliable public [IaaS](#) product ecosystem for [VPS](#) hosting

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Pay down tech debt by deploying OpenStack Neutron (C, D)	LAST QUARTER	
		Create a detailed migration plan for implementing Neutron as our OpenStack SDN layer <ul style="list-style-type: none"> Created rough plan for parallel control plane migration Refactored Puppet manifests to enable 3rd deployment environment for migration testing
	NEXT QUARTER	
		<ul style="list-style-type: none"> Build out migration testing environment Test migration plan

STATUS: OBJECTIVE ON TRACK

2017-10

Release Engineering1.5 [\[LINK\]](#)**Outcome 5: Effective and easy-to-use testing infrastructure and tooling**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Milestone 1: Develop and migrate to a JavaScript-based browser testing stack (C, D)	LAST QUARTER	
	<ul style="list-style-type: none"> All developers Notably: Wikidata, CirrusSearch 	Migrate majority of developers to JavaScript based browser test framework (webdriver.io) <ul style="list-style-type: none"> Port Selenium tests from Ruby to Node.js - task T139740
	NEXT QUARTER	
	<ul style="list-style-type: none"> All developers Notably: Wikidata, CirrusSearch 	Migrate majority of developers to JavaScript based browser test framework (webdriver.io) <ul style="list-style-type: none"> Port Selenium tests from Ruby to Node.js - task T139740

STATUS: OBJECTIVE ON TRACK

We will strive for a refreshed, performant core platform by bringing renewed focus on MediaWiki

MediaWiki



MEDIAWIKI

Outcome 1: Stakeholders in MediaWiki development will have sense of progress and direction in MediaWiki.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Milestone 1: Hire a product manager for MediaWiki by 2017-08-31 Objective 1: Develop a MediaWiki roadmap	LAST QUARTER	
	Talent & Culture	Product Manager hired, started July 24
	NEXT QUARTER	
	n/a	<ul style="list-style-type: none"> • Develop MediaWiki Platform Team roadmap • Develop a plan for simplifying the MediaWiki technology stack

STATUS: OBJECTIVE ON TRACK

2017-10

MediaWiki Platform**2. MediaWiki****Outcome 2: MediaWiki code quality will be improved.**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Outcome 2: MediaWiki code quality will be improved	LAST QUARTER	
	n/a	<ul style="list-style-type: none"> • Namespaceization (in progress) • MimeAnalyzer improvements (objective dropped)
	NEXT QUARTER	
		<ul style="list-style-type: none"> • Namespaceization

STATUS: AT RISK

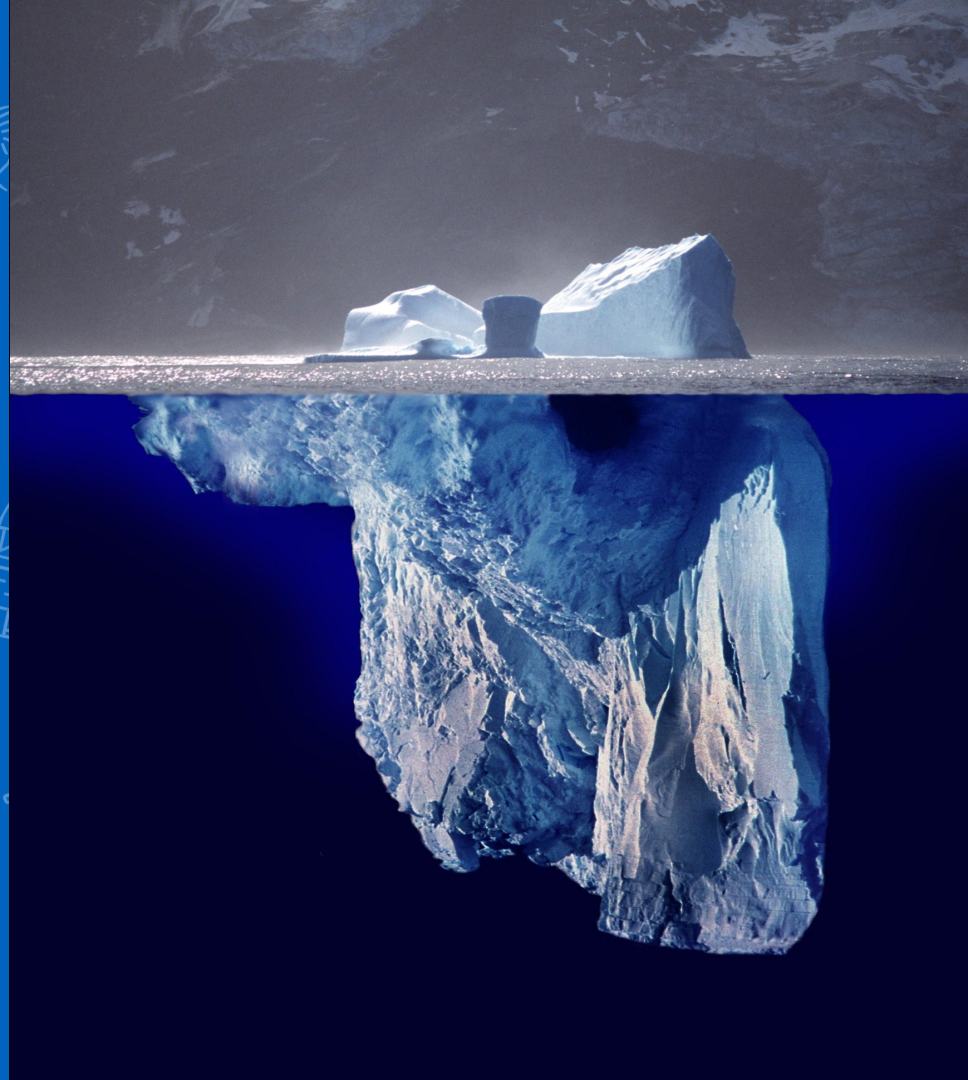
Outcome 3: MediaWiki security and stability will be improved

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Address the backlog of action items that arise from security and downtime post-mortems	LAST QUARTER	
	n/a	n/a
	NEXT QUARTER	
	Technical Operations	<ul style="list-style-type: none"> Support restricted execution of external commands (T173370) Cease using unserialize() for MediaWiki text storage (T161647)

STATUS: ON TRACK

Program 3: Addressing Technical Debt

We will lead an organization-wide effort to reduce technical debt



2017-10

Release Engineering

3. Tech Debt

Outcome 1: The amount of orphaned code that is running Wikimedia “production” services is reduced.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Define a set of code stewardship levels (from high to low expectations) - task T174090	LAST QUARTER	
	n/a	n/a
	NEXT QUARTER	
	Code Health Group	The code stewardship levels are published.

STATUS: OBJECTIVE ON TRACK

2017-10

Release Engineering

3. Tech Debt

Outcome 1: The amount of orphaned code that is running Wikimedia “production” services is reduced.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Identify and find stewards for high-priority/high use code segment orphans - task T174091	LAST QUARTER	
	n/a	n/a
	NEXT QUARTER	
	Code Health Group , Current and future code/product stewards	The number of orphaned high-priority code segments is reduced.

STATUS: OBJECTIVE ON TRACK

2017-10

Release Engineering

3. Tech Debt

Outcome 2: Organizational technical debt is reduced.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Define a “Technical Debt Project Manager” role that regularly communicates with all Foundation engineering teams regarding their technical debt	LAST QUARTER	
	n/a	n/a
	NEXT QUARTER	
	WMF Product Managers (or similar individuals)	A clearly scoped role for leading this effort is published.

STATUS: OBJECTIVE ON TRACK

2017-10

Release Engineering

3. Tech Debt

Outcome 2: Organizational technical debt is reduced.

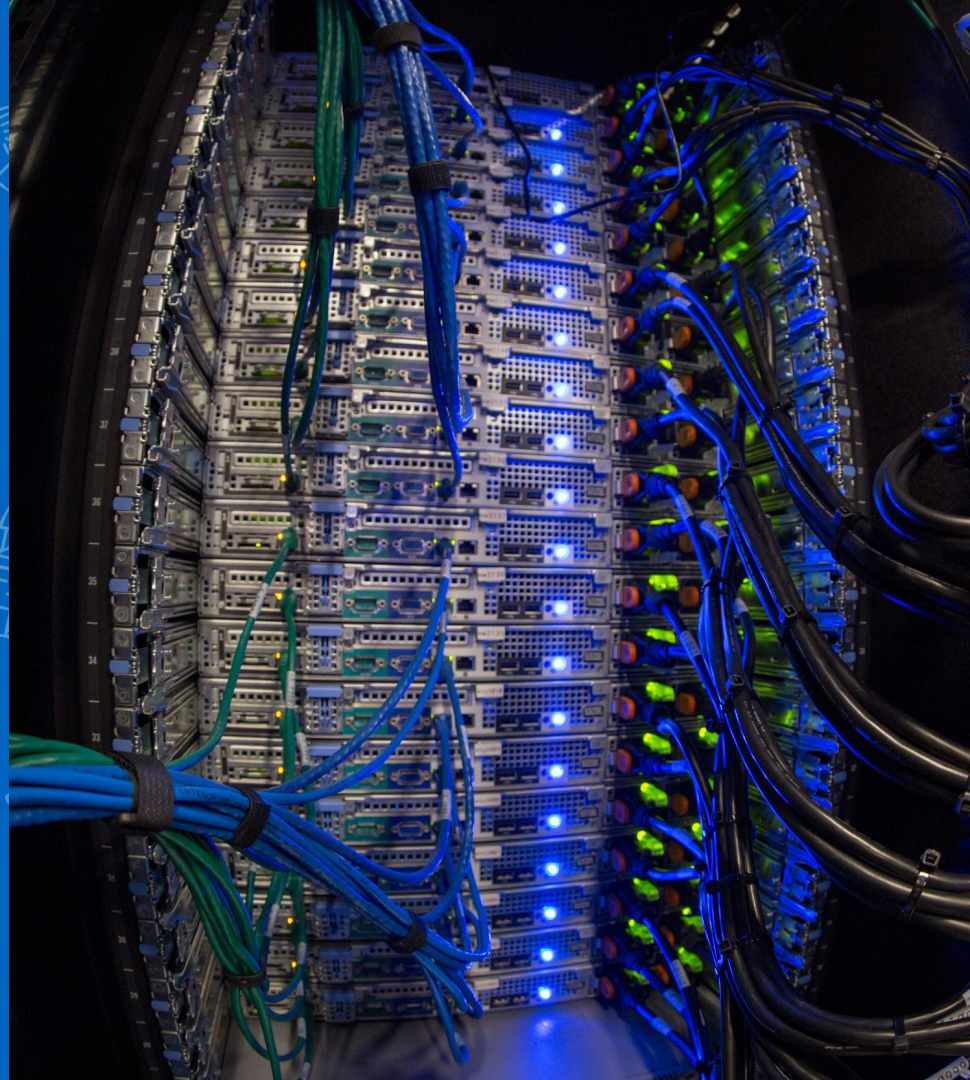
What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Define and implement a process to regularly address technical debt across the Foundation	LAST QUARTER	
	n/a	n/a
	NEXT QUARTER	
	Interested developers and leaders	A clear method to work through our organizational technical debt is shared and publicized.

STATUS: OBJECTIVE ON TRACK

Program 6: Streamlined Service Delivery



We will **streamline** and **integrate** the delivery of services, by building a **new production platform** for integrated development, testing, deployment and hosting of applications





**Yes, this is about
containers.**

2017-10

Technical Operations

6.1 [\[LINK\]](#)

Outcome 1: We have seamless productization and operation of (micro)services.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Set up production-ready Kubernetes cluster(s) with adequate capacity (C)	LAST QUARTER	
	<ul style="list-style-type: none"> • Release Engineering • Services 	<ul style="list-style-type: none"> • Upgrade to Kubernetes >= 1.5 • Experiment with ingress solutions (stretch)
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Release Engineering • Services 	<ul style="list-style-type: none"> • Implement authentication/authorization in Kubernetes clusters • Experiment with a TLS proxy/router for pods • Improve monitoring of the Kubernetes clusters

STATUS: OBJECTIVE ON TRACK

2017-10

Technical Operations

6.1 [\[LINK\]](#)

Outcome 1: We have seamless productization and operation of (micro)services

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Create a standardized application environment for running applications in Kubernetes (C)	LAST QUARTER	
	<ul style="list-style-type: none"> Release Engineering Services 	<ul style="list-style-type: none"> Implement a pod networking policy approach Standardize on a "default" pod setup
	NEXT QUARTER	
	<ul style="list-style-type: none"> Release Engineering Services 	<ul style="list-style-type: none"> Design pod-level monitoring and service-level alerting Create scaffolding of services templates for deployment in production/staging

STATUS: OBJECTIVE ON TRACK

2017-10

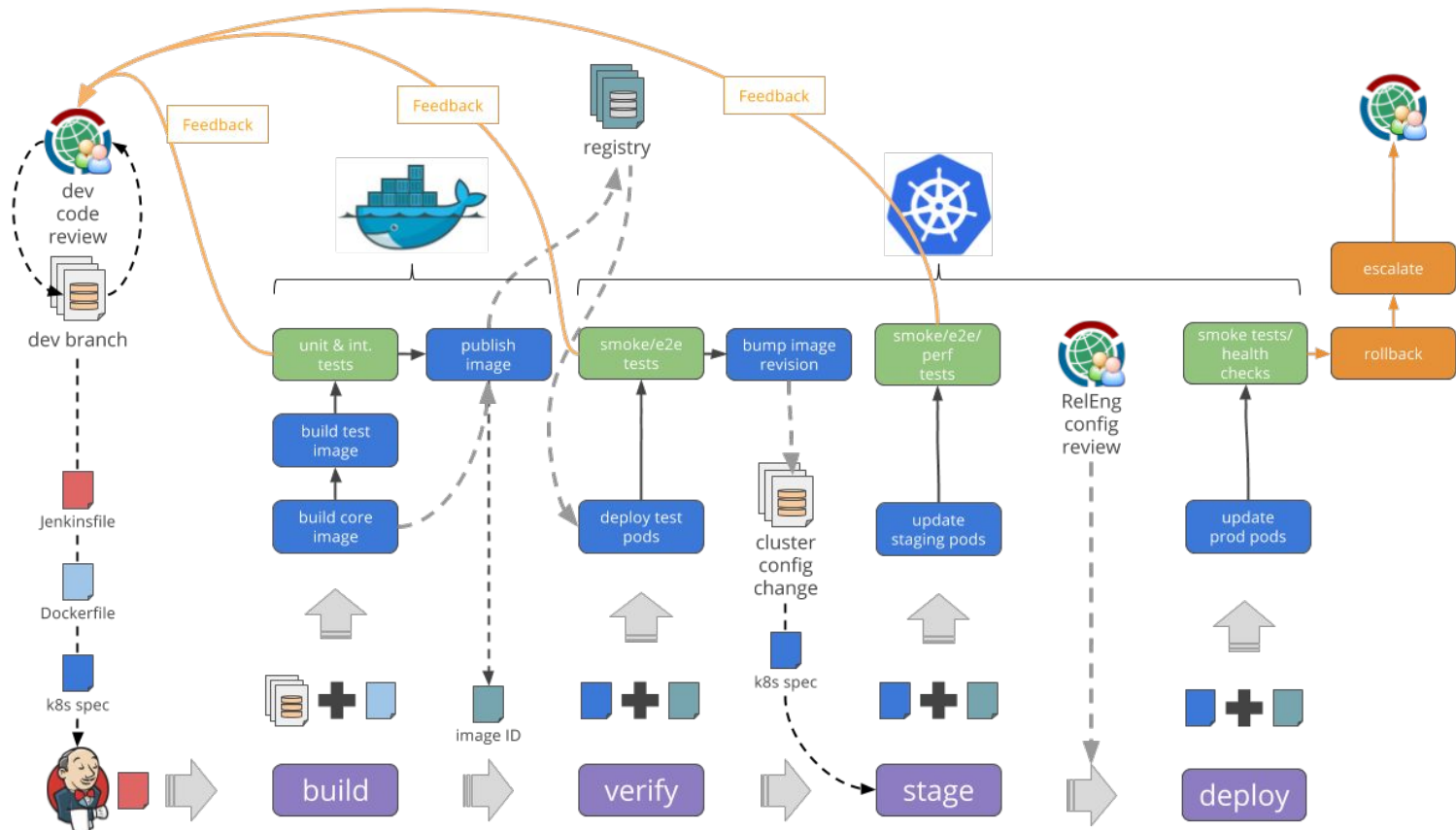
Release Engineering

6.2 [\[LINK\]](#)

Outcome 2: Developers are able to develop and test their applications through a unified pipeline towards production deployment

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Set up a continuous integration and deployment pipeline (C)	LAST QUARTER	
	<ul style="list-style-type: none"> • Technical Operations • Services 	<ul style="list-style-type: none"> • Define functional tests for Mathoid running on the staging Kubernetes cluster for use in future gating decisions • Define method for monitoring and reacting to the above functional tests
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Technical Operations • Services 	Complete build phase of release pipeline: <ul style="list-style-type: none"> • Build test variant • Run test entrypoint w/developer feedback • Build production variant w/developer feedback • Tag production container • Push to production docker registry - staging namespace

STATUS: OBJECTIVE AT RISK; Change of plan, last quarter deliverables postponed



Program 8 Multi-datacenter support

- 1. Faster primary datacenter switchover**
- 2. Dual primary data centers**

2017-10

Performance8.1 [\[LINK\]](#)**Outcome 1: Our audiences enjoy improved MediaWiki and REST API availability****Objective 1: MediaWiki support for having read-only "read" requests (GET/HEAD) be routed to other datacenters**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Groundwork for Mediawiki multi datacenter support (D)	LAST QUARTER	
	<ul style="list-style-type: none"> • Technical Operations 	<ul style="list-style-type: none"> • Enabled HTTPS for Swift clients (MediaWiki) <p>Unrelated Job Queue emergencies forced us to push back the goals listed below to next quarter</p>
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Technical Operations 	<ul style="list-style-type: none"> • Enable HTTPS for MariaDB clients (MediaWiki) • Install and use mcrouter in deployment-prep

STATUS: SOME OBJECTIVES PUSHED TO NEXT QUARTER

2017-10

MediaWiki Platform8.1 [\[LINK\]](#)**Outcome 1: Our audiences enjoy improved MediaWiki and REST API availability****Objective 3: Integrate MediaWiki with dynamic configuration or service discovery**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
etcd MW config (C)	LAST QUARTER	
	Technical Operations	<ul style="list-style-type: none"> • EtcdConfig development complete, tested, pending deployment
	NEXT QUARTER	

STATUS: OBJECTIVE ON TRACK

2017-10

Services Platform

8.2 [\[LINK\]](#)

Outcome 2: Backend infrastructure works reliably across data centers

Objective 1: Set up a robust multi-data center event & job processing infrastructure, and migrate all job queue use cases

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Begin migrating job queue processing to multi-DC enabled eventbus infrastructure. (D)	LAST QUARTER	<ul style="list-style-type: none"> • Implement ChangeProp deduplication and rate limiting. • Migrated the first four job queue use cases, and verified correct and reliable operation.
	<ul style="list-style-type: none"> • Technical Operations • Analytics 	
	NEXT QUARTER	<ul style="list-style-type: none"> • Migrate more complex jobs. • Identify and resolve issues.

STATUS: OBJECTIVE ON TRACK

**Product Program 1:
Make knowledge more easily
discoverable**

Through incremental search technology improvements, we will help readers more effectively discover and search for content.



Goal 1/Outcome 1: Through incremental search improvements, readers are better able to discover and search for content.

Objective 1: Improve search by researching and load testing machine learning to automatically re-rank search results

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Perform load and A/B tests on new models to make sure they can be safely deployed to production</p> <p>When ready, deploy newly automated models which match (at a minimum) current performance of manually-configured search result relevance (C)</p>	LAST QUARTER	
	<ul style="list-style-type: none"> • Analytics • Technical Operations • Community Engagement 	<ul style="list-style-type: none"> • Tested 20+ wikis, found 5-6% better ranking results on search • Deployed Machine Learning-to-Rank (MLR) plugin on English Wikipedia
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Analytics • Technical Operations • Community Engagement 	<ul style="list-style-type: none"> • Work on automating the machine learning pipeline • Target 8-10 language (non-English) Wikipedias and deploy models to them

STATUS: OBJECTIVE ON TRACK

Goal 1/Outcome 1: Through incremental search improvements, readers are better able to discover and search for content.

Objective 2: Improve support for multiple languages by researching and deploying new language analyzers

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Perform research spikes to find new analyzers for different languages Deploy analyzers in progress from last quarter (Hebrew) (C)	LAST QUARTER	
	<ul style="list-style-type: none"> • Analytics • Technical Operations • Community Engagement 	<ul style="list-style-type: none"> • Tested new analyzers to see if they are improvements (Japanese and Vietnamese) • Deployed Hebrew analyzer
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Analytics • Technical Operations • Community Engagement 	<ul style="list-style-type: none"> • Investigate open source language software that is available and see if it can be converted into Elasticsearch plugins. • Investigate usage of fallback languages and fuzzy (phonetic) matching.

Goal 1/Outcome 1: Through incremental search improvements, readers are better able to discover and search for content.

Objective 3: Expand and scale Wikidata Query Service (WDQS) to improve its ability to power features on-wiki for users

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Work on expanding category search in the Wikidata Query Service, while also collecting SPARQL statistics. (C)	LAST QUARTER	
	<ul style="list-style-type: none"> • Analysis team • Technical Operations • WMDE 	<ul style="list-style-type: none"> • Created RDF dumps of category data • Implemented prefix search
	NEXT QUARTER	
	<ul style="list-style-type: none"> • Analysis team • Technical Operations • WMDE 	<ul style="list-style-type: none"> • Work on sub-category filtering and searching within the Wikidata Query Service.

STATUS: OBJECTIVE ON TRACK

Cross-Department Programs

(Just the Technology Department portions)



WIKIMEDIA
FOUNDATION



Privacy, Security and Data Management

Segment 2: Technology

We will improve security, privacy and data management for the WMF and the community by understanding and mitigating our vulnerabilities and collecting and sharing data in a way that is consistent with the values of the movement.



Data Security Privacy

2017-10

SecurityX-PSDM [\[LINK\]](#)

Outcome 1: Through improvements to our organizational security posture, the Foundation ensures the high-quality protection and security of our infrastructure and data

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Update tools and processes to keep pace with industry-wide security developments (D)	LAST QUARTER	
	Release Engineering	Update MediaWiki security release process and tooling Implement continuous integration of security patches Transfer knowledge from Release Engineering Develop regular release regimen
	NEXT QUARTER	
	Release Engineering	Continue implementation work on as noted above

STATUS: OBJECTIVE ON TRACK

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kevin Smith (Google Slid.	Inbox	Tech Q check-in: Foundational/Sustaining 2017-10 - goal around phishing training doesn't have a slide here y	Open Discussion ↗	📧	Oct 10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kevin Smith (Google Slid.	Inbox	Q check-in Tech F... - +nuria@wikimedia.org : It looks like ... - goal around phishing training doesn't have a sli	Open Discussion ↗	📧	Oct 6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Darian .. me, Victoria (5)	Inbox	Re: Updated invitation: Phishing Training - Legal and Technology Goal @ Fri Oct 6, 2017... - >> Phishing Training - Legal and Technol			Oct 6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	me, Victoria, Aeryn (5)	Inbox	Touch point privacy, security data management program - . The phishing >> training, while largely being technical, has important legal			Sep 22
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Aeryn Palmer	wmfall	[Wmfall] IMPORTANT PSA: Phishing Emails to WMF Lists - have received phishing emails today purporting to be from Amazon c			Jul 31
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Jacob .. Brian, Tilman (6)	wmfall	[Wmfall] Security Audit and email information - > reporting phishing? > >>> > >>> It is not autocompleted by Gmail. I get security			Jun 17
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gergo, Nick (2)	wmfall	Re: [Wmfall] Don't click on Phishing Awareness - "report phishing" option (only on desktop IIRC) which > is more accurate and pr			Jun 16
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Aeryn .. Trey, Joe, Dan (15)	wmfall	[Wmfall] PSA: Warning re. Suspicious Email - recent successful phishing attack against members of >>> the WMF Staff, Wikimed			Jun 16
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nick Wilson (Quiddity)	wikitech-l	Re: [Wikitech-l] 🍷 I like it! - spam/phishing attempt. (In case it wasn't obvious to everyone :)			Jun 15
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Aeryn Palmer	wmfall	[Wmfall] PLEASE READ: Notice re. Phishing Emails - received a phishing email purporting to be from Katherine, requesting dono		📧	Jun 7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Byron Bogaert	wmfall	[Wmfall] [Urgent] Ransom Virus Software - rec'd a phishing email with ransomware infected many hundreds of machines in as m		📧	May 16
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Darian Patrick	Inbox	Fwd: [OTF-Talk] Collateral Freedom and Wordpress Plug-ins - 1) Phishing is a massive problem in Turkey. For every news site there a			May 8
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pine W	wikimedia-l	wikitech-l	[Wikitech-l] Security: phishing attack via Google Docs - sophisticated" phishing attack on Google Docs users toda		May 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Aeryn Palmer	wmfall	[Wmfall] PSA: Google Docs Phishing Scam - very clever phishing scam that spoofs Google docs and could catch sophisticated us			May 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Byron Bogaert	wmfall	[Wmfall] Phishy e-mails - , on phishing: https://office.wikimedia.org/w/img_auth.php/2/28/STH-Poster-DontGetHooked-Print.pdf The			Mar 24
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Aeryn, Max, Maria, Dan (5)	wmfall	[Wmfall] PSA: New Gmail Phishing Scam - type of phishing scam, which > has mostly targeted Gmail accounts so far. > > The att			Mar 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Darian .. Gergo, Anna (5)	wmfall	[Wmfall] Phishing attack against Gmail accounts making the rounds - worried about phishing attacks, you should use a Yubikey			Jan 13

2017-10

SecurityX-PSDM [\[LINK\]](#)

Segment 3: Office IT, Outcome 1: Through improvements to our organizational security posture, the Foundation ensures the high-quality protection and security of our infrastructure and data

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Evaluate current security practices and make changes and provide training as appropriate (D)	LAST QUARTER	
	NEXT QUARTER	
	OIT, Legal	<p>Evaluate and recommend an outside solution for ongoing WMF employee training on protection from phishing.</p> <p>Will lead to contractual engagement of vendor to assist in training</p>

STATUS: OBJECTIVE ON TRACK

Segment 2: Technology, Outcome 3: Maintain and enhance connection privacy and security.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Evolve edge connection security/privacy software stack vs evolving threats and changes to underlying traffic stack (D)</p> <p>Keep up with evolving public-facing TLS Standards and enhancements (e.g. HPKP, TLSv1.3, ciphersuites) (D)</p>	LAST QUARTER	
	<p>Technical Collaboration</p>	<p>Removing support for DES-CBC3-SHA TLS cipher (drops IE8-on-XP support) task T147199 Communicate dropping IE8-on-XP support (a security change) to affected editors and other community members task T163251</p>
	NEXT QUARTER	
	<p>Technical Collaboration</p>	<p>Continue the above on-schedule (project schedule is Aug 17 - Nov 17)</p>

STATUS: OBJECTIVE ON TRACK



About Internet Explorer



Windows®

Internet Explorer 7

Version: 7.0.6002.18005

Cipher Strength: 256-bit

Product ID: 89580-OEM-7332132-00152

Update Versions:0

Warning: This computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.



©2006 Microsoft Corporation

OK



Your Browser's Connection Security is Outdated

English: The Wikimedia wikis will soon not work with Internet Explorer 8 on Windows XP. Please use a new operating system or use [Firefox 52 ESR](#).

中文: 维基媒体的wiki将很快无法在Windows XP系统的IE8浏览器上工作。请使用新版操作系统或者使用[Firefox 52浏览器](#)。

Español: Pronto dejará de poderse acceder a los wikis de Wikimedia con Internet Explorer 8 en Windows XP. Actualiza a un sistema operativo más moderno o utiliza [Firefox 52 ESR](#).

العربية: كل مشاريع ويكي التابعة لويكيميديا لا تعمل قريبا مع إنترنت إكسبلورر 8 على نظام التشغيل ويندوز اكس بي .
الرجاء استخدام نظام تشغيل جديد أو استخدام فايرفوكس 52.

русский: Wikimedia вики скоро не будут работать с Internet Explorer 8 на Windows XP. Используйте новую операционную систему или используйте [Firefox 52 ESR](#).

বাংলা: উইকিমিডিয়া উইকিগুলি শীঘ্রই Windows XP তে Internet Explorer 8 এ কাজ করবে না। অনুগ্রহ করে কোনো নতুন অপারেটিং সিস্টেম বা [Firefox 52 ESR](#) ব্যবহার করুন।

Português: As wikis da Wikimedia tornar-se-ão incompatíveis com o Internet Explorer 8 no Windows XP em breve. Use um novo sistema operacional ou o [Firefox 52 ESR](#).

Français: Les wikis Wikimedia ne fonctionneront bientôt plus avec Internet Explorer 8 sur Windows XP. Utilisez un nouveau système d'exploitation ou utilisez [Firefox 52 ESR](#).

日本語: Windows XP上のInternet Explorer 8では、まもなく、ウィキメディアのサイトを閲覧できなくなります。あたらしいOSに移行していただくか、[Firefox 52 ESR](#)をご利用ください。

2017-10

AnalyticsX-PSDM [\[LINK\]](#)

Outcome 2: To protect user data and uphold movement values, the Wikimedia Foundation continues compliance with best practices for data management

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Better offboarding / onboarding for data access (D) Ensure retention guidelines are being followed (D)	LAST QUARTER	
	Technical Operations	Audit existing stat/analytics shell accounts and incorporate expiration dates, make all accounts compliant with "time restricted access" task T170878 Purge eventlogging data that is not in compliance task T156933
	NEXT QUARTER	
	Technical Operations	Continue to purge eventlogging data that is not in compliance task T156933

STATUS: OBJECTIVE DELAYED

Stop Spying on Wikipedia Users

By JIMMY WALES and LILA TRETIKOV MARCH 10, 2015

SAN FRANCISCO — TODAY, we're filing a lawsuit against the [National Security Agency](#) to protect the rights of the 500 million people who use [Wikipedia](#) every month. We're doing so because a fundamental pillar of democracy is at stake: the free exchange of knowledge and ideas.

[Our lawsuit](#) says that the N.S.A.'s mass surveillance of Internet traffic on American soil — often called “upstream” surveillance — violates the Fourth Amendment, which protects the right to privacy, as well as the First Amendment,

Investing a bunch of time on lawsuit related work that is not easily visible on goals. Not only for Analytics but also TechOps, Legal and others.





Structured Data on Commons

Segment 1: Database Integration

July 2017

MediaWikiStructured Data**Outcome 2: Introduce Multi-Content Revisions (MCR)**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<ul style="list-style-type: none"> Objective 1: Extend the MediaWiki storage layer for first-class support of content metadata. 	LAST QUARTER	
	Technical Operations (DBA), WMDE	<ul style="list-style-type: none"> Actor table (T167246) development substantially complete, ready for deployment (nearly complete) Comment table (T166732) development substantially complete, ready for deployment (complete)
	NEXT QUARTER	
	Technical Operations (DBA), WMDE	MCR sufficiently ready such that the Multimedia and Search Platform teams can start using it to test and prototype things

STATUS: OBJECTIVE ON TRACK

July 2017

MediaWikiStructured Data**Outcome 2: Introduce Multi-Content Revisions (MCR)**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<ul style="list-style-type: none"> Objective 2: Enable saving components to use the new backend. 	LAST QUARTER	
	n/a	<ul style="list-style-type: none"> De-globalize EditPage.php (complete) Narrow AbuseFilter interface (incomplete) EditPage backend (incomplete)
	NEXT QUARTER	



Structured Data on Commons

Segment 2: Search Integration and Exposure

We will help readers, editors, and content re-users find media on Commons using precise queries, in a language of their choice.



OUTCOME: Better advanced search on Commons

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<ul style="list-style-type: none"> Segment 2, Objective 1: Commons search extended to support search via structured data for media Segment 2, Objective 2: Advanced search will be updated to support more specific media search filters 	LAST QUARTER	
	N/A	<ul style="list-style-type: none"> N/A
	NEXT QUARTER	
	WMDE, Technical Operations, Analytics, Search Frontend	<ul style="list-style-type: none"> Explore and define the goals for Wikidata Query Service as it relates to Commons and the Structured Data project

Additional Work:
Reactive, one-offs, notable
achievements not mentioned earlier
and work that happens on top of our
goals.



WIKIMEDIA
FOUNDATION



Technical Operations

All content is © Wikimedia Foundation & available under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), unless noted otherwise.

A group of four men are gathered around a bicycle lying on its side on a paved surface at night. One man in a red and blue plaid shirt is bent over, working on the rear wheel. Another man in a light-colored t-shirt is kneeling and looking at the front wheel. A third man in a blue shirt is leaning over the bicycle. A fourth man in a dark t-shirt and shorts stands to the left, observing. The scene is illuminated by streetlights, and a motorcycle is visible in the background.

We fix things.



WIKIMEDIA
FOUNDATION

CC by SA 4.0, Mark Bergsma

Other achievements (1/3)

- Stabilized Varnish backend storage patterns
- Helped releng fix jobrunners started by scap in non-active DC issue
- Ganglia was moved behind LDAP authentication
- Migrated several misc servers to VMs
- Added cluster wide monitoring checks for free inodes
- Upgraded apertium MT infra (with Global Collaboration)
- Performed many system reboots for "stack clash" security issue
- Deployed new eqiad MediaWiki application servers
- Publishing librenms data into Graphite
- Added better OTRS operational statistics
- Debugged JobQueue issues [w/Perf/Services]
- Investigated Varnish cache purge issues
- Setup nginx metrics through Prometheus
- Deployed Varnish VSV00001 DoS workaround
- Tightened ferm firewall rules for many clusters
- Improved mail server configuration, policies and spam filtering
- Introduced rate-limiting of HTTP requests
- Made ext4 the default filesystem for non-data partitions
- Scanned and reviewed open network ports
- New debdeploy release with new features
- Upgraded video scaler cluster to Debian Jessie
- Assisted fr-tech with database lag/replication issues
- Reduced number of trusty installations to 76
- Wrote (Puppet) support for MariaDB 10.1 on Debian Stretch with systemd
- Upgraded hhvm-luasandbox to 2.0.14
- Added recursive DNS statistics
- Refreshed the parsoid cluster in eqiad

Other achievements (2/3)

- Deployed Prometheus blackbox exporter for network-level probing
- Refreshed ulsfo Varnish cache nodes
- Deployed new data center power usage monitoring dashboard
- Started migration of MediaWiki app servers to Debian Stretch
- Added internal DMARC handling infrastructure
- Performed security upgrades of ~90 packages (on average) across all servers
- Added Jenkins for automatic MediaWiki releases [w/RelEng]
- Exported puppet agent runs statistics to Prometheus
- Setup dedicated servers for releases [w/RelEng]
- Finished deployment of all shards on new Labs DBs
- Helped reduce OTRS volunteers workload by auto-merging bounce replies
- Upgraded codfw network switch stacks to recent software
- Investigated and mitigated WPO abuse issues
- Setup monitoring of OOB interfaces
- Stopped using puppet fileserv for private material
- Access to Zookeeper was restricted via ferm
- Migrated fundraising off of Ganglia and onto Prometheus
- Added BMC controllers monitoring
- Pooled new codfw DB servers in production
- Mitigated ParserCache disk space issues [w/MediaWiki]
- nodejs was upgraded to 6.11
- Upgraded OTRS to 5.0.21 to solve bugs and fix security issues

Other achievements (3/3)

- Moved wikibase.se web hosting to WMF
- Upgraded Varnish to 4.1.8, with addition of custom metrics
- Audited and remove unneeded Graphite metrics, recovering 22% disk space
- Migrated fundraising frack to new firewall infrastructure [w/fr-tech]
- Reimaged Gerrit2001 with Debian Stretch [w/RelEng]
- Migrated network monitoring tools to new hardware
- Packaged Varnish 5
- Started 3DES TLS cipher removal process [w/Community Liaisons]
- Decommissioned esams swift cluster
- Checksummed and fixed all data drifts on commonswiki
- Added primary keys to many tables on multiple db shards
- Released 6 Pybal versions preceding 1.14.0 with bugfixes and new features
- Migrated Puppet code tree to stringified facts and the Future Parser
- Dumped old redundant LVS configuration statements
- One-packet scheduling support added to Facebook's gnlpy library
- Resolved nasty Icinga issue losing (downtime) state
- Moved wikibase.se web hosting to WMF

2017-10

Technical Operations / Traffic

1.1 [[LINK](#)]

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Objective 1: Deploy, update, configure, and maintain production services (D)</p>	<p>NEXT QUARTER</p>	<p>Upgrade Varnish from v4 to v5 on at least one Traffic cluster</p> <ul style="list-style-type: none"> • Finish any trailing Debian packaging and/or forward-porting work on Varnish v5 • Test Varnish v5 under our production config using varnishtest and test queries • Upgrade to Varnish v5 in at least one cluster for all production traffic

STATUS: OBJECTIVE ON TRACK

2017-10

Technical Operations

1.1 [\[LINK\]](#)

Outcome 1: All production sites and services maintain current levels of availability or better

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
<p>Objective 1: Deploy, update, configure, and maintain production services (D)</p>	<p>NEXT QUARTER</p> <ul style="list-style-type: none"> Analytics Search backend 	<p>Increase porting of statsd/graphite metrics to Prometheus</p> <ul style="list-style-type: none"> Port non-deprecated Diamond collectors to Prometheus, making Diamond deprecated in production by EOQ Export Prometheus-compatible JVM metrics from JVMs in production (stretch) Add Prometheus client support for varnish/statsd metrics daemons

STATUS: OBJECTIVE ON TRACK



Performance

All content is © Wikimedia Foundation & available under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), unless noted otherwise.

2017-10

Performance1.1 [[LINK](#)]**Outcome 1: All production sites and services maintain current levels of availability or better**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Assist in the architectural design of new services and making them operate at scale (B)	LAST QUARTER	
	<ul style="list-style-type: none"> Technical Operations 	Follow-up bugfixes and improvements after Thumbor deployment to production Thumbor has been running smoothly since late June, serving all thumbnail traffic. All identified post-launch issues have been fixed.
	NEXT QUARTER	
		Write extensive on-wiki documentation about Thumbor - T175238

STATUS: OBJECTIVE ON TRACK

2017-10

Performance1.2 [[LINK](#)]**Outcome 2: All our users consistently experience systems that perform well.**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 1: Maintain a comprehensive toolset to measure the performance of our platforms. (C/D)	LAST QUARTER	
		Improve synthetic testing
	NEXT QUARTER	
		Run performance tests on Cloud VPS using local proxy - T176361

STATUS: OBJECTIVE ON TRACK



Analytics

Stop Spying on Wikipedia Users

By JIMMY WALES and LILA TRETIKOV MARCH 10, 2015



Sara Andreasson

SAN FRANCISCO — TODAY, we're filing a lawsuit against the [National Security Agency](#) to protect the rights of the 500 million people who use [Wikipedia](#) every month. We're doing so because a fundamental pillar of democracy is at stake: the free exchange of knowledge and ideas.

[Our lawsuit](#) says that the N.S.A.'s mass surveillance of Internet traffic on American soil — often called “upstream” surveillance — violates the Fourth Amendment, which protects the right to privacy, as well as the First Amendment,

Investing a bunch of time on lawsuit related work that is not easily visible on goals. Not only for Analytics but also TechOps, Legal and others.

Other achievements

- Removed outdated instrumentation of events from EventLogging that are now automatically available via eventbus, like “page create”.
- Gave talk at Strata about Analytics in Wikipedia in conjunction with Druid folks.
- Changing licenses for pageview data on API, this is kind of cumbersome to do, see mock:
<https://phabricator.wikimedia.org/F8806919>
- Upgraded Druid storage to 0.9.2 to be able to test metric calculation for edit metrics using data from Edit Data Lake
- Still supporting wikimetrics, fixing it when it breaks
- Decommission of remaining old stat node (stat1003/1002)
- Lots of work on auto SSL certificate generation and management. This now works with existing Puppet CA (this will make it easier for us to manage encryption of traffic between different services in production, e.g. MySQL, Cassandra, Kafka, etc.)

Other achievements: things that did NOT happen:

- No Downtime
- No Data Loss

2017-10

Analytics7.1 [\[LINK\]](#)**Outcome 1: Foundation staff and community have better tools to access data.****Objective 3: Experiments with real-time data and community support for new datasets available**

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Deprecate socket.IO RC feed and help clients migrate (by July 7th) (B)	LAST QUARTER	
	TechOps	We no longer need to maintain the older python RC feed.
	NEXT QUARTER	

STATUS: OBJECTIVE COMPLETED

Outcome 3: Scalable, reliable and secure systems for data transport.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 2: Maintenance and expansion of current Hadoop cluster to support new use cases that require more computational resources (D)	NEXT QUARTER	<ul style="list-style-type: none"> • Prep work to upgrade Hadoop cluster to Java 1.8

STATUS: OBJECTIVE ON TRACK

Outcome 3: Scalable, reliable and secure systems for data transport.

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Objective 3: Software, hardware upgrades, and maintenance on analytics stack to maintain current level of service (D)	LAST QUARTER	
	<ul style="list-style-type: none"> • Technical Operations 	<ul style="list-style-type: none"> • Hadoop health monitoring (add newer ones like default rack, corrupted blocks, etc..) • Prep work for Eventlogging databases refresh (OS install, racking..)
	NEXT QUARTER	

STATUS: OBJECTIVE ON TRACK



Search Platform

All content is © Wikimedia Foundation & available under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), unless noted otherwise.

Beyond our Goals: Q2 technical debt commitments

What is your objective / workflow?	Who are you working with?	What impact / deliverables are you expecting?
Address technical debt	NEXT QUARTER	
	<ul style="list-style-type: none"> • Technical Operations • Tech Managers 	<ul style="list-style-type: none"> • Convert existing Selenium tests to Node.js • Investigate ownership and maintenance of Logstash

STATUS: OBJECTIVE ON TRACK

Security

Other achievements

- Experimental security-centric static analysis plugin for Phan is producing useful findings resulting in vulnerability corrections (Brian)
- Improvements to captcha generation infrastructure lead to increased generation frequency and efficiencies in storage (Sam)



Services platform

All content is © Wikimedia Foundation & available under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), unless noted otherwise.

Other achievements

- Collaborated with Readers group to evolve summary endpoint in support for page preview feature roll-out. (Petr)
- Set up Prometheus monitoring & dashboards for Cassandra 3 (Eric, with TechOps).
- Helped investigate job queue growth issues. (Gabriel)
- Implemented basic flagged revision support for the REST API: [T169116](#) (Marko)
- Investigated Electron PDF render issues, and worked with Reading team towards a replacement of OCG & a more stable PDF render solution. (Gabriel, Marko)
- Started preparation for Node 8 upgrade by running unit tests against it. (Marko, Petr)
- Mentored the research team in the development of the recommendation service, and deployed an [experimental recommendation API end point](#). (Marko)
- Created an official content translation API. (Marko, with content translation team)
- Created a new lint errors API. (Marko and Petr, with Parsing team)



Fundraising Tech

(presenting with Advancement)

All content is © Wikimedia Foundation & available under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/), unless noted otherwise.

CHECK IN

TEAM/DEPT

PROGRAM

**WIKIMEDIA
FOUNDATION
ANNUAL PLAN**

October 2017 Fundraising Tech

n/a

Quarterly Goals:	Dependencies:	Status:
LAST QUARTER		
<ol style="list-style-type: none"> 1. Time box work on Civi duplicate records 2. Continue Ingenico reintegration 	<ol style="list-style-type: none"> 1. Major Gifts 2. Ingenico 	<ol style="list-style-type: none"> 1. Partially Done: impacted by email and Big English support 2. Time boxed to July and August. Will resume in January
NEXT QUARTER		
<ol style="list-style-type: none"> 1. Support Big English Campaign 2. Time box work on Civi duplicate records 3. Continue Ingenico reintegration 	<ol style="list-style-type: none"> 1. All Advancement 2. Major Gifts 3. Ingenico 	<ol style="list-style-type: none"> 1. Continuing from Q1 2. Continuing from Q1 3. Continuing from Q1
STATUS : Ahead of schedule		