amos2024ws03-planning-document Project Data

<	
Online team meeting	https://fau.zoom-x.de/j/9776061710?pwd=9BPbcHYQaVEf6L0IH3xbsSeNzajvJ0.1
Production system (if any)	
Test system (if any)	
GitHub repository	https://github.com/amosproj/amos2024ws03-android-zero-instrumentation
GitHub feature board	https://github.com/orgs/amosproj/projects/72/views/2
GitHub imp-squared backlog	https://github.com/orgs/amosproj/projects/76
Team T-shirt (white)	https://www.shirtinator.de/s/7TKe0UJeS-O8AjdcoWldFA
Team T-shirt (black)	https://www.shirtinator.de/s/4GNRKpvlQVWlYNAkMCx-4A
Additional materials	
Team maling list	oss-amos-proj3@lists.fau.de

amos2024ws03-planning-document Project Team

Last Name	First Name	GitHub User Name	Email Address
Krug	Maximilian	HaruspexSan	krugm03@gmail.com
Ayach	Mohammed Tamim	Tamemo99	Tamemayash@gmail.com / Ayachmoh@hu
Bretting	Luca	luca-dot-sh	luca.bretting@fau.de
Seidl	Robin	mr-kanister	robin.seidl@fau.de (main) / 68117355+Mr-ł
Labroussis	Christos	clabrous	c.labroussis1@gmail.com
Hilgers	Felix	fhilgers	felix.hilgers@fau.de
Weisshuhn	Tom	der-whity	tom.weisshuhn@fau.de
Schlicht	Franz	ffranzgitHub	franz.schlicht@fau.de
Nawlo	Ali	alinawlo	ali.nawlo@campus.tu-berlin.de
Zinn	Benedikt	BenediktZinn	benedikt.wh.zinn@gmail.com

amos2024ws03-planning-document Role Assignments

Meeting Day	Product Owners	Software Developer	Release Manager	Scrum Master	Comment
2022-10-16	Mohammed Tamim Ayach	Everyone else		Maximilian Krug	
2022-10-23	Ali Nawlo	Everyone else	Maximlian Krug	Maximilian Krug	
2022-10-30	Mohammed Tamim Ayach	Everyone else	Benedikt Zinn	Maximilian Krug	
2022-11-06	Ali Nawlo	Everyone else	Tom Weißhuhn	Maximilian Krug	
2022-11-13	Mohammed Tamim Ayach	Everyone else	Robin Seidl	Maximilian Krug	
2022-11-20	Ali Nawlo	Everyone else	Franz Schlicht	Maximilian Krug	
2022-11-27	Mohammed Tamim Ayach	Everyone else	Benedikt Zinn	Maximilian Krug	Mid-term due
2022-12-04	Ali Nawlo	Everyone else		Maximilian Krug	
2022-12-11	Mohammed Tamim Ayach	Everyone else		Maximilian Krug	
2023-01-11	Ali Nawlo	Everyone else		Maximilian Krug	
2023-01-18	Mohammed Tamim Ayach	Everyone else		Maximilian Krug	
2023-01-25	Ali Nawlo	Everyone else		Maximilian Krug	
2023-02-01	Mohammed Tamim Ayach	Everyone else		Maximilian Krug	
2023-02-08	Ali Nawlo	Everyone else		Maximilian Krug	Demo day!
2023-02-15	Mohammed Tamim Ayach	Everyone else		Maximilian Krug	Retrospective
owners, software	developers, and Scurm Master	r are set and ideally don't change	over time; the critical part is the F	Release Manager role you need to	define here
	2022-10-16 2022-10-23 2022-10-30 2022-11-06 2022-11-13 2022-11-27 2022-12-04 2022-12-11 2023-01-11 2023-01-18 2023-02-01 2023-02-01 2023-02-08 2023-02-15	2022-10-16 2022-10-23 Ali Nawlo 2022-10-30 Mohammed Tamim Ayach 2022-11-06 Ali Nawlo 2022-11-13 Mohammed Tamim Ayach 2022-11-20 Ali Nawlo 2022-11-27 Mohammed Tamim Ayach 2022-12-04 Ali Nawlo 2022-12-11 2023-01-11 2023-01-18 2023-01-25 Ali Nawlo Mohammed Tamim Ayach	2022-10-16 Mohammed Tamim Ayach Everyone else 2022-10-23 Ali Nawlo Everyone else 2022-10-30 Mohammed Tamim Ayach Everyone else 2022-11-06 Ali Nawlo Everyone else 2022-11-13 Mohammed Tamim Ayach Everyone else 2022-11-20 Ali Nawlo Everyone else 2022-12-14 Ali Nawlo Everyone else 2022-12-11 Mohammed Tamim Ayach Everyone else 2023-01-11 Ali Nawlo Everyone else 2023-01-18 Mohammed Tamim Ayach Everyone else 2023-02-01 Ali Nawlo Everyone else 2023-02-03 Ali Nawlo Everyone else 2023-02-08 Ali Nawlo Everyone else 2023-02-15 Mohammed Tamim Ayach Everyone else	2022-10-16 2022-10-23 Ali Nawlo Everyone else Maximlian Krug 2022-10-30 Mohammed Tamim Ayach Everyone else Benedikt Zinn 2022-11-06 Ali Nawlo Everyone else Tom Weißhuhn 2022-11-13 Mohammed Tamim Ayach Everyone else Robin Seidl Everyone else Franz Schlicht 2022-11-27 Mohammed Tamim Ayach Everyone else Benedikt Zinn Everyone else Franz Schlicht Everyone else Benedikt Zinn Everyone else	2022-10-16 Mohammed Tamim Ayach Everyone else Maximlian Krug Maximilian Krug 2022-10-23 Ali Nawlo Everyone else Maximlian Krug Maximilian Krug Maximilian Krug 2022-10-30 Mohammed Tamim Ayach Everyone else Benedikt Zinn Maximilian Krug 2022-11-06 Ali Nawlo Everyone else Tom Weißhuhn Maximilian Krug 2022-11-13 Mohammed Tamim Ayach Everyone else Robin Seidl Maximilian Krug 2022-11-20 Ali Nawlo Everyone else Franz Schlicht Maximilian Krug 2022-11-27 Mohammed Tamim Ayach Everyone else Benedikt Zinn Maximilian Krug 2022-12-04 Ali Nawlo Everyone else Benedikt Zinn Maximilian Krug 2022-12-11 Mohammed Tamim Ayach Everyone else Maximilian Krug 2023-01-11 Ali Nawlo Everyone else Maximilian Krug 2023-01-18 Mohammed Tamim Ayach Everyone else Maximilian Krug 2023-01-25 Ali Nawlo Everyone else Maximilian Krug Maximilian Krug 2023-02-01 Mohammed Tamim Ayach Everyone else Maximilian Krug 2023-02-01 Mohammed Tamim Ayach Everyone else Maximilian Krug 2023-02-08 Ali Nawlo Everyone else Maximilian Krug

Goals 1	
	Completing the objective and task given by our IP, becoming a well rounded team in the meantime
Meeting norms 2	Be punctual (with a 5min pardon time)
-	Max. two times missing from IP meeting
	not having the camera off two consecutive times
Working norms 2	Don't push to main, keep main in working order
	Dependencies are a team effort
	all tests must pass
	criticism via pull/merge requests
Coordination norms 2	PR with one other member
	max keeps meetings on track
Communication norms 2	communication via discord - team meeting via zoom
	document major changes
Consideration norms 2	be repectfull
	small disagreement, discuss and vote
Cont. improvement norms 2	team meeting for tracking team's progress -> standup emails for gathering intel
	pushing non functional changes will trigger a workshop
Rewards 1	have cake together
Sanctions 1	Otheres choose a random virtual background
Signatures	
Scrum Master	Maximilian Krug
Product owner	Mohammed Tamim Ayach
Product owner	Ali Nawlo
Software developer	Luca Bretting
Software developer	Benedikt Zinn
Software developer	Christos Labroussis
Software developer	Robin Seidl
Software developer	Franz Schlicht
Software developer	Felix Hilgers
Software developer	Tom Weißhuhn
	https://oss.cs.fau.de/wp-content/uploads/2014/04/Team-Contract-Explanation-and-Examples.pdf

Product Vision Project Mission ZIOFA (Zero Instrumentation Observability for Android) aims to implement In systems with a high frequency of component changes, it is difficult to determine which component might be causing performance issues and affecting the entire observability use cases relevant to performance specified by our industry partner system negatively. This is especially hard if the source code and/or build environment using eBPF. Examples include tracing long-running blocking calls, leaking JNI indirect for the components is not present as they might be coming from external suppliers, references or signals like SIGKILL sent to processes, all without instrumenting the which means they cannot easily be instrumented. This can result in a lot of observed application itself. communication and extra work. The eBPF programs are loaded and unloaded using a backend daemon running as Using eBPF allows for tracking some of these issues at the kernel level, where for root that will collect metrics and send them to a client. For displaying these metrics to example blocking calls are made and can be tracked. It allows for hooking into Systhe user, we are implementing an on-device UI that can display visualizations for these use cases and allow for configuration of the enabled use cases, but using a Calls as well as calls to other userspace or kernel-level functions (uprobes and kprobes), all without needing to modify application code. This makes it possible to decoupled Client SDK so that future work may easily make the data accessible the track down cross-cutting performance issues without needing additional support from external processing. the vendor of the component. The information about, for example the length of a blocking calls, can then be passed to various frontends, such as an Android application running on the target hardware or an external sink for displaying the data in visualization software like Grafana.

amos2024ws03-planning-document Product Glossary

Term	Definition

amos2024ws03-planning-document Sprint Goals

Sprint #	Sprint goal
1	None
2	None
3	None
4	Optional
5	Working, loading, and unloading of eBPF Programs from UI all the way to eBPF
6	Analyzing traffic over Unix Domain Sockets
7	
8	
9	
10	
11	
12	
13	
14	
15	

amos2024ws03-planning-document Mid-Project Release plan

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Releas	3					
Total			68	68		
prints						
	Get to know the Team		8	68	6	6
	Get familiar with eBPF and other required technologies.		8		6	
	Start Developing, have a UI blueprint and a Backend beginning		13			
	Build a UI and work with Ebpf		12			
; ;	Working, loading, and unloading of eBPF Programs from UI all the way to eBPF		13		12	
)	Analysing traffic over Unix Domain Socket		14		0	
eature			14	14	U	2
	Get to know the Team					
		Brain-storm Architecture	3		1	
		Preperation of Kotlin	3		3	
		Brain-storm ebpf use cases	2		2	
2	Get familiar with eBPF and other required technologies.					
		Docker Container	3		3	
		get information about android processes to list them	3		1	
		set aarch64 als target	1		1	
		use android 13 instead of 15	1		1	
3	Start Developing, have a UI blueprint and a Backend beginning					
		Preparation of CI	3		3	
		find timeseries visualization library	2		2	
		Sbom generation	2		1	
		Generation of sboms doesn't include kotlin	1		1	
		Communcation between Android side and Rust side	5		5	
	Build a UI and work with Ebpf		_		2	
		unix domain socket traffic analysis (research)	5 2		3	
		Home Screen and Navigation Drawer EBPF Program extension to load kProbes	3		3	
		Implement frontend load and list programs	2		2	
5	Working, loading, and unloading of eBPF Programs from UI all the way to eBPF					
	•	kotlin interface for frontend loading and listing programs	1		1	
		test cli client: load and list programs	3		2	
		client library exported to kotlin	2		1	
		Running processes List	3 2		3	
		loading/unloading of ebpf functions in daemon Display Installed Procceses in UI	2		2	
3	Analysing traffic over Unix Domain Socket					
	rainging dame over only bondin cooker	Analyze Unix Domain Sockets	5			
		collecting unix domain sockets events	2			

amos2024ws03-planning-document Mid-Project Release plan

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
_		configuring unix domain socket tracing	2			
		visualizing traffic from unix domain socket	3			
		setting tracepoint for sendmsg syscalls	2			

amos2024ws03-planning-document Final Project Release plan

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Release)					
Total			0	0		
Sprints						
7	Analyzing user space function calls		0		0	
8			0		0	
9			0		0	0
				0		0
Feature	es .					
7						
8						
•						
9						

amos2024ws03-planning-document Definition of Done

#	Feature Definition of Done	Sprint Release Definition of Done	Project Release Definition of Done
	1. Code for Components has been written. a. The code does comply to the naming conventions of the used programming language b. Code has been completed c. Unclear code parts are provided with a short comment, to explain what this part is supposed to do. 2. Developers submit a screenshots of the finished feature as a comment to the related issue 3. Feature has been reviewed by another team member 4. Feature has been merged and closed	1. Finished issues are marked as done 2. Code is tested and deployed 3. A short demo is available for each sprint (this is compliant with point 3 in DoD for Feature) so it can be the screenshots or a small video or even a short-live presentation 4. Bill of Material is kept in a current state	Team agrees on which features to be released Features have been tested and reviewed by other team member Documentations are kept updated A short demo featuring major features is provided

Type	Link / reference

Context	Name	Version	License	Comment
1 Gradle Plugin	org.cyclonedx.bom	1.10.0	APACHE-2.0	https://github.com/CycloneDX/cyclonedx-gradle-plugin
2 Gradle Plugin	nl.littlerobots.version-catalog-update	0.8.5	APACHE-2.0	https://github.com/littlerobots/version-catalog-update-plugin
3 Gradle Plugin	com.github.ben-manes.versions	0.51.0	APACHE-2.0	https://github.com/ben-manes/gradle-versions-plugin
4 Gradle Plugin	com.android.application	8.6.0	APACHE-2.0	https://maven.google.com/web/index.html?g=com.android.applicat#com.android.application.com.android.application.gradle.pluqin:8.6.0
5 Gradle Plugin	com.ncorti.ktfmt.gradle	0.20.1	MIT	https://github.com/cortinico/ktfmt-gradle
6 Gradle Plugin	org.jetbrains.kotlin.plugin.compose	2.0.21	APACHE-2.0	https://qithub.com/JetBrains/compose-multiplatform
7 Gradle Plugin	org.jetbrains.kotlin.android	2.0.21	APACHE-2.0	https://github.com/JetBrains/kotlin
8 Android UI	androidx.activity:activity-compose	1.9.3	APACHE-2.0	https://march.google.com/web/index.html?q=androidx.activity#androidx.activity-activity-compose:1.9.3
9 Android UI	androidx.activity.activity-compose androidx.compose:compose-bom	2024.10.01	APACHE-2.0	https://maven.google.com/web/index.html?q=analoridx.adminyamintoxa
10 Android UI	androidx.compose.compose-born androidx.core:core-ktx	1.15.0	APACHE-2.0	https://maven.google.com/web/index.html?q=androidx.core/androidx.core/standroi
11 Android UI	androidx.core.core-ktx androidx.lifecycle:lifecycle-runtime-ktx	2.8.7	APACHE-2.0	https://maven.google.com/web/index.html?q=androidx.life#fandroidx.lifecycle:ffecycle-runtime-ktx:2.8.7
12 Android DI	io.insert-koin:koin-android		APACHE-2.0	
		4.0.0		https://github.com/InsertKoinIO/koin
13 Android DI	io.insert-koin:koin-androidx-compose	4.0.0	APACHE-2.0	https://github.com/InsertKoinIO/koin
14 Android DI	io.insert-koin:koin-core	4.0.0	APACHE-2.0	https://github.com/InsertKoinIO/koin
15 Android Test	io.insert-koin:koin-test-junit4	4.0.0	APACHE-2.0	https://github.com/InsertKoinIO/koin
16 Android Test	androidx.test.espresso:espresso-core	3.6.1	APACHE-2.0	https://maven.google.com/web/index.html?q=androidx.test.es#androidx.test.espresso:espresso-core:3.6.1
17 Android Test	androidx.test.ext:junit	1.2.1	APACHE-2.0	https://maven.google.com/web/index.html?q=androidx.test.ext#androidx.test.ext.junit:1.2.1
18 Android Test	junit:junit	4.13.2	EPL-1.0	https://github.com/junit-team/junit4
19 Rust Ebpf	aya	0.13.0	MIT OR APACHE-2.0	https://github.com/aya-rs/aya
20 Rust Ebpf	aya-ebpf	0.1.1	MIT OR APACHE-2.0	https://github.com/aya-rs/aya
21 Rust Ebpf	aya-log	0.2.1	MIT OR APACHE-2.0	https://github.com/aya-rs/aya
22 Rust Ebpf	aya-log-ebpf	0.1.1	MIT OR APACHE-2.0	https://github.com/aya-rs/aya
23 Rust Ebpf	libc	0.2.159	MIT OR APACHE-2.0	https://github.com/rust-lang/libc
24 Rust Errors	anyhow	1.0.0	MIT OR APACHE-2.0	https://github.com/dtolnav/anyhow
25 Rust Build	cargo_metadata	0.18.0	MIT	https://dithub.com/oil-bok/caroo.metadata
26 Rust Build	clap	4.5.20	MIT OR APACHE-2.0	https://github.com/clap-ris/clap
27 Rust Build	which	6.0.0	MIT	https://github.com/naryfei/which-rs
28 Rust Logging	env-logger	0.11.5	MIT OR APACHE-2.0	nups/rigitub.com/rust-cil/env loager https://cilitub.com/rust-cil/env loager
			MIT OR APACHE-2.0	Intus://gintus.com/ust-careny logger https://github.com/ust-lang/log
29 Rust Logging	log	0.4.22		
30 Rust Async	tokio	1.40.0	MIT	https://github.com/tokio-rs/tokio
31 Rust Async	tokio-stream	0.1.16	MIT	https://github.com/tokio-rs/tokio
32 Rust API	prost	0.13.3	APACHE-2.0	https://github.com/tokio-rs/prost
33 Rust API	tonic	0.12.3	MIT	https://github.com/hyperium/tonic
34 Rust API	tonic-build	0.12.3	MIT	https://github.com/hyperium/tonic
35 Toolchain	python3	3.12.6	PSF-2.0	https://docs.python.org/3/license.html
36 Toolchain	rust	1.84.0-nightly	MIT OR APACHE-2.0	https://www.rust-lang.org/policies/licenses
37 Toolchain	cargo-ndk	3.5.7	MIT OR APACHE-2.0	https://qithub.com/bbqsrc/cargo-ndk
38 Toolchain	protoc	28.2	BSD-3-Clause	https://qithub.com/protocolbuffers/protobuf
39 Toolchain	bpf-linker	0.9.13	MIT OR APACHE-2.0	https://github.com/aya-rs/bpf-linker
40 Toolchain	nix	2.18.7	LGPL-2.1	https://github.com/NixOS/nix
41 Toolchain	cyclonedx-cli	0.25.1	APACHE-2.0	https://github.com/CycloneDX/cyclonedx-cli
42 Toolchain	gradle	8.10.2	APACHE-2.0	https://qithub.com/gradle/gradle
43 Toolchain	openidk	21.0.3	GPL-2.0-with-classpath-exception	https://openidk.org/legal/qplv2+ce.html
44 Toolchain	android-cmdline-tools	16	android-sdk-license	https://developer.android.com/studio/ferms
45 Toolchain	android-emulator	35.3.6.0	android-sdk-license	Intps://developer.antoric.com/studio/terms https://developer.antoric.com/studio/terms https://developer.antoric.com/studio/terms
46 Toolchain	android-entitiator	28.0.12433566		Intus://developer.antoid.com/studio/terms https://developer.antoid.com/studio/terms
47 Toolchain	android-tools	35.0.0	android-sdk-license	https://developer.android.com/studio/terms
48 Toolchain	platform-tools	35.0.2	android-sdk-license	https://developer.android.com/studio/terms
49 Toolchain	platforms-android	35	android-sdk-license	https://developer.android.com/studio/terms
50 Rust API	uniffi	0.28.2	MPL-2.0	https://github.com/mozilla/uniffi-rs
51 Rust API	thiserror	1.0.68	MIT OR APACHE-2.0	https://github.com/dtolnay/thiserror
52 Gradle Plugin	com.android.library	8.6.0	APACHE-2.0	https://maven.google.com/web/index.html?q=com.android.libr#com.android.library:com.android.library.gradle.plugin:8.6.0
53 Gradle Plugin	org.mozilla.rust-android-gradle.rust-android	0.9.4	APACHE-2.0	https://github.com/mozilla/rust-android-gradle
54 Android Rust	net.java.dev.jna	5.15.0	Apache-2.0 OR LGPL-2.1	https://github.com/java-native-access/jna
55 Android Navigation	androidx.navigation:navigation-compose	2.8.0	Apache-2.0	https://maven.google.com/web/index.html?q=androidx.navigation#androidx.navigation:navigation-compose:2.8.0
56 Android Logging	com.jakewharton.timber:timber	2.8.0	Apache-2.0	https://github.com/JakeWhartor/timber
57 Android Visualizatio		2.0.0-beta.2	Apache-2.0	https://qithub.com/patrykandpatrick/vico
58 Android Visualizatio		2.0.0-beta.2	Apache-2.0	https://qithub.com/patrykandpatrick/vico
59 Android Visualizatio		2.0.0-beta.2	Apache-2.0	https://qithub.com/patrykandpatrick/vico
60 Android Visualizatio		2.0.0-beta.2	Apache-2.0	https://github.com/patrykandpatrick/vico
61 Rust Serialization	serde	1.0.214	MIT OR APACHE-2.0	Intps://github.com/party-antipatura-vivo
62 Rust Serialization	serde serde-ison	1.0.214	MIT OR APACHE-2.0	nups/riginto.com/serice-is/serice https://diablo.com/serice-is/seri
			MIT OR APACHE-2.0	
63 Rust Tracing	tracing	0.1.40		https://github.com/tokio-rs/tracing
64 Rust Tracing	tracing-subscriber	0.3.18	MIT	https://github.com/tokio-rs/tracing
65 Rust System	procfs	0.17.0	MIT OR APACHE-2.0	https://github.com/eminence/procfs
	com.google.accompanist:accompanist-			L
	n drawablepainter	0.15.0	Apache 2.0	https://github.com/google/accompanist/tree/main/drawablepainter
66 Android Visualizatio				
67 Rust Async	async-broadcast	0.7.1	MIT OR APACHE-2.0	https://github.com/smol-rs/async-broadcast
67 Rust Async 68 Rust TUI	async-broadcast console	0.15.8	MIT	https://github.com/console-rs/console
67 Rust Async	async-broadcast		MIT MIT	
67 Rust Async 68 Rust TUI	async-broadcast console	0.15.8	MIT	https://github.com/console-rs/console
67 Rust Async 68 Rust TUI 69 Rust TUI	async-broadcast console dialoguer indicatif	0.15.8 0.11.0	MIT MIT	https://github.com/console-rs/console https://github.com/console-rs/dialoguer

amos2024ws03-planning-document Planning Poker

Last Name	First Name	Value			
Krug	Maximilian				
Ayach	Mohammed Tamim		3.00	OK	
Bretting	Luca	3		— • • • • • • • • • • • • • • • • • • •	
Seidl	Robin	?			
Hilgers	Felix	3	0	No size	
Weisshuhn	Tom	?	1	Trivial size	
Schlicht	Franz	?	2	Small size	
Nawlo	Ali		3	Medium size	
Zinn	Benedikt	3	5	Large size	
			8	Very large size	
			13	Too large (size)	
Team members left					
Labroussis	Christos				
How to play planning poker					
Everyone type their number in	to their value field, don't hit return yet				
2. Someone, perhaps a product					
3. Then, everyone hit return to si					
•					