

Project Name	Backup Cluster Manager SEP
Online team meeting	https://tu-berlin.zoom-x.de/j/66460442542?pwd=6JDdHFzvrTj3bJokdNJSYxHA3b8F6r.1
Production system (if any)	TBD
Test system (if any)	TBD
GitHub repository	https://github.com/amosproj/amos2025ws02-backup-cluster-manager
GitHub feature board	https://github.com/orgs/amosproj/projects/90
GitHub imp-squared backlog	https://github.com/orgs/amosproj/projects/94
Team T-shirt (white)	https://www.shirtinator.de/s/WGBu8LkSRqOJZe-LDXqisw
Team T-shirt (black)	https://www.shirtinator.de/s/J2py-QWSDeg3IraRTb-bQ
Additional materials	
Discord	https://discord.gg/mhFBrsTx
Figma Link Website	https://www.figma.com/design/kLihICBMvBVKCodv1OIY4Y/Website-Design?m=auto&t=UItPz3hhwCtSgsc5-1
Team mailing list	oss-amos-proj2@lists.fau.de

#	Meeting Day	Product Owner		Software Developer	Release Manager	Scrum Master	Comment
		Review	Planning				
0	2025-10-15	-	-	Everyone else	-	Xemena Wysokinska	First Meeting
1	2025-10-22	Jan Ostrizki	Levin Schulze	Everyone else	-	Xemena Wysokinska	
2	2025-10-29	Levin Schulze	Jan Ostrizki	Everyone else	Nicolas Tröger	Xemena Wysokinska	
3	2025-11-05	Jan Ostrizki	Levin Schulze	Everyone else	Hans Killer	Xemena Wysokinska	Build Process Review
4	2025-11-12	Levin Schulze	Jan Ostrizki	Everyone else	Robin Rose Raju	Xemena Wysokinska	
5	2025-11-19	Jan Ostrizki	Levin Schulze	Everyone else	Ervin Nogu	Xemena Wysokinska	
6	2025-11-26	Levin Schulze	Jan Ostrizki	Everyone else	Landolf Krüger	Xemena Wysokinska	Mid-term due
7	2025-12-03	Jan Ostrizki	Levin Schulze	Everyone else	Nicolas Tröger	Xemena Wysokinska	
8	2025-12-10	Levin Schulze	Jan Ostrizki	Everyone else	Hans Killer	Xemena Wysokinska	
9	2025-12-17	Jan Ostrizki	Levin Schulze	Everyone else	Robin Rose Raju	Xemena Wysokinska	
10	2026-01-07	Jan Ostrizki	Jan Ostrizki	Everyone else	Ervin Nogu	Xemena Wysokinska	
11	2026-01-14	Jan Ostrizki	Levin Schulze	Everyone else	Landolf Krüger	Xemena Wysokinska	
12	2026-01-21	Levin Schulze	Jan Ostrizki	Everyone else	Nicolas Tröger	Xemena Wysokinska	
13	2026-01-28	Jan Ostrizki	Levin Schulze	Everyone else	Hans Killer	Xemena Wysokinska	
14	2026-02-04	Levin Schulze	Jan Ostrizki	Everyone else	Robin Rose Raju	Xemena Wysokinska	Demo day!
Product owners, software developers, and Scurm Master are set and ideally don't change over time; the critical part is the Release Manager role you need to define here							

Goals	Fulfill the needs of our customer (SEP) Working Prototype Good team experience Learn more/Gaining experience about working agile Sharing knowledge among each other Transparent culture & good communication Learn how to open-source
Meeting norms	Weeklies: At 12:30 on Wednesday on Zoom (https://tu-berlin.zoom-x.de/j/66460442542?pwd=6JDdHFzvrTj3bJokdNJSYxHA3b8F6r.1) 90 mins. Weekly/Bi-Weekly Sync with SEP On time, give notice if someone can't make/with delay Raising hands for better communication flow in bigger meetings like e.g. weekly
Working norms	Working norms
	Developers have a cutoff day a before at noon Revert if MR if it breaks other code and if there is no time for a fix Use a CI build/test pipeline MR with random reviewer (preferably a nominated one)
Coordination norms	Coordination over Discord (https://discord.gg/mhFBrsTx) Inform others if you can't work temporarily
Communication norms	Communication over mainly on Discord, Email as emergency/backup option Weekly meeting over Zoom Use webcams as possible Special channels for different groups and topics
Consideration norms	Polite, supportive, respectful, forward, formal & constructive communication English if at least one nonnative speaker present
Cont. improvement norms	Try to help each other Actional item in retro to improve the team Adapt CI and work along it. Do not try to bypass it. Additional channel on Discord if someone needs help
Rewards	Filters on Zoom (SFW!!) Small tokens
Sanctions	

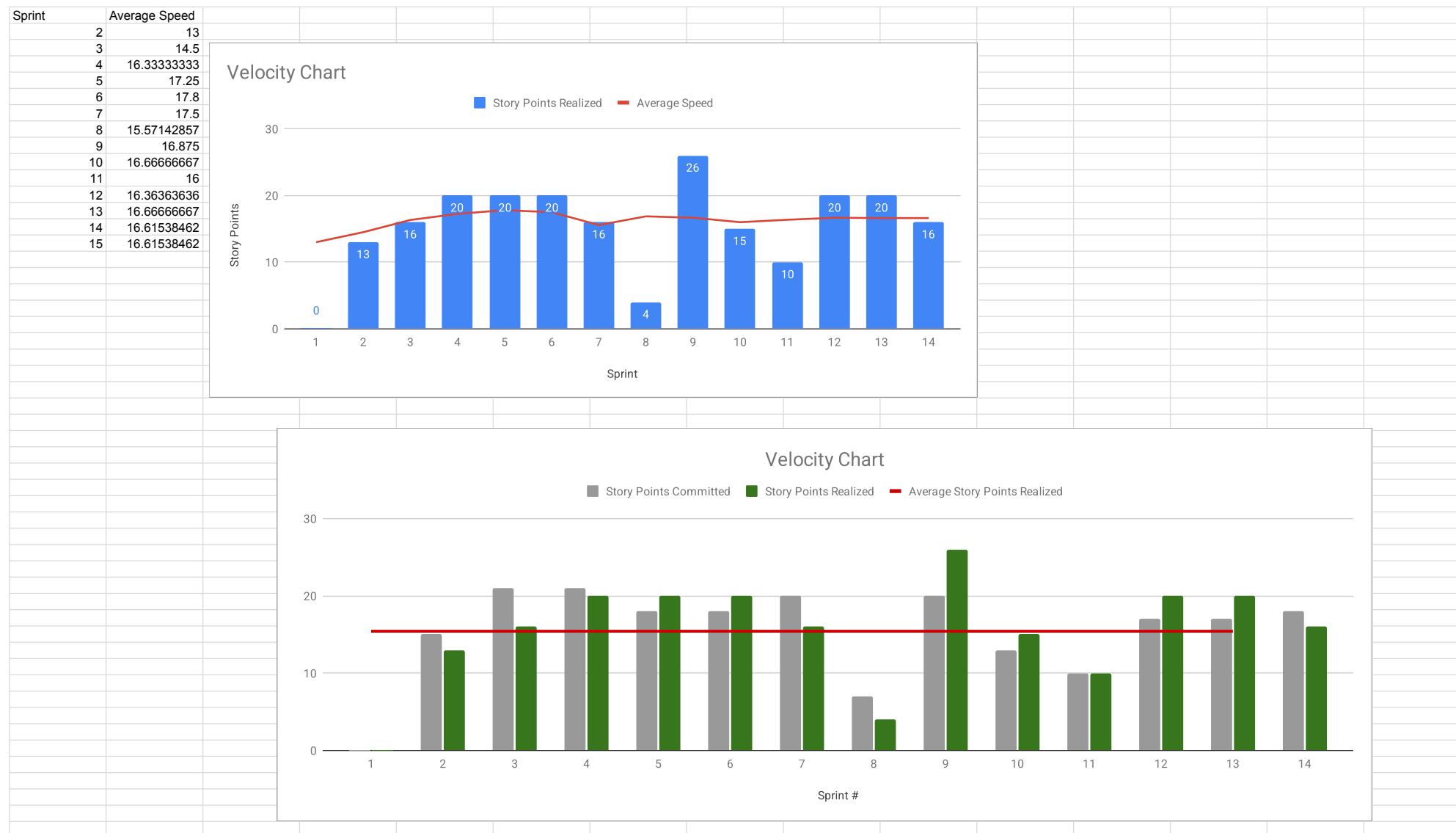
	Not allowed to use video filters or wear a weird hat Review one additional PR Problems require intervention worst case with professor
Signatures	
Scrum Master	Xemena Wysokinska
Product owner	Levin Schulze
Product owner	Jan Ostrizki
Software developer	Robin Jose Raju
Software developer	Ervin Nogu
Software developer	Landolf Krüger
Software developer	Nicolas Tröger
Software developer	Hans Killer
Software developer	

Product Vision	Project Mission
<p>The Backup Cluster Manager software introduces a distributed approach into a system currently consisting of unconnected nodes . The software should demonstrate the benefits of a distributed approach, and should mirror real life use-cases and scenarios, and the effectiveness of using this approach. By using springboot, it can be easily integrated, and used as basis for enterprise projects while offering a user friendly UI built with Angular & TailwindCSS.</p>	<p>Creating an MVP for our industry partner which implements an alternative approach for managing distributed nodes. It offers an UI for editing and overview data from nodes as well as users and their permissions. The backend simulates backup nodes and how nodes will interact with each other. Frontend communicates with the backend to get/edit/delete data such as users, permissions as well as backups & cluster information.</p>

Term	Definition
Cluster Manager	Supervisor instance that manages a set of SEP Sesam server nodes, handles registration of nodes, manipulation and synchronization of e.g. users, groups, and permissions or other meta data. Provides a REST interface for the Frontend and proxies requests to other nodes
SEP Sesam	SEP's Backup and Recovery software product, backups and restores are managed by a SEP Sesam Server
SEP Sesam Server Node, Node	Instance of SEP Sesam Server which shall be part of the cluster
Cluster Mode	Configuration flag on a node, indicating the node should join a cluster. In this mode, permissions and users shall be managed by the cluster manager
Supervisor Instance	Synonymous with Cluster Manager
Node Registration	Process of adding a node to a cluster
User / Group	Authenticated principals that can be created, modified and assigned permissions.
Client	A system that should be backed up by an SEP Sesam Server (e.g. a person's laptop computer)
Frontend, FE	The primary web UI, which runs in the browser and communicates with the CM's REST endpoints (directly, or via proxy, LB, etc TBD)
Synchronization Process	The mechanism of propagating information, such as users, groups, or permissions to downstream nodes
Proxy Functionality	The ability of issuing requests or listing data from a node via the CM's REST API
Backend, BE	Application / Code for the Cluster Manager and Simulated Server Node
Superuser	System user who has all permissions and can create new admins
Administrator	System users who can do and see everything except create/remove admins
Operator	System users who can see backups in the FE but not modify anything (read-only user)
Restore User	System users who can restore backups, no access to user management
Backup User	System users who can create backups, no access to user management

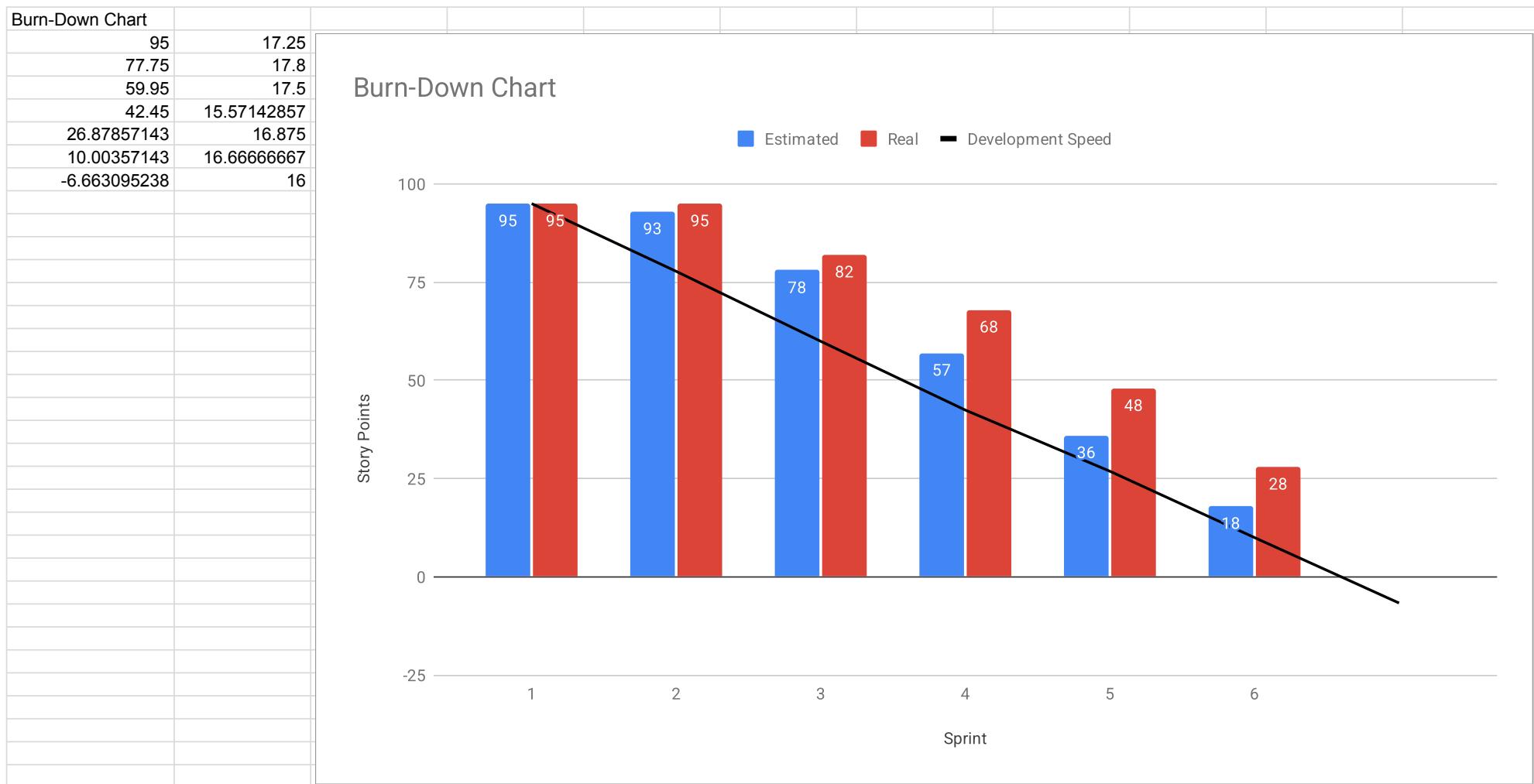
Sprint #	Sprint goal
1	None
2	None
3	None
4	Working MVP with FE, CM and 2 Nodes
5	Working MVP with FE, CM and 2 Nodes
6	Mid-Project Release
7	Working Backup Schedules and Mock Tasks
8	Working Permissions / User Groups + Bulk Data
9	Advanced Cluster Management
10	Advanced Cluster Management Pt2
11	Groups/Permissions + Webflux
12	Polishing + Metrics
13	QA/Fixing
14	Final Project Release

Sprint #	Story Points Realized	Story Points Committed	Average Story Points Realized
1	0	0	15.42857143
2	13	15	15.42857143
3	16	21	15.42857143
4	20	21	15.42857143
5	20	18	15.42857143
6	20	18	15.42857143
7	16	20	15.42857143
8	4	7	15.42857143
9	26	20	15.42857143
10	15	13	15.42857143
11	10	10	15.42857143
12	20	17	15.42857143
13	20	17	15.42857143
14	16	18	15.42857143
	PLEASE CREATE THE VELOCITY CHART ON A NEW TAB USING THE DATA FROM THIS TAB		



Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
Release						
Total			95	95		
Sprints						
1	None		2	95	0	95
2	None		15	93	13	95
3	None		21	78	14	82
4	Working MVP with FE, CM and 2 Nodes		21	57	20	68
5	Working MVP with FE, CM and 2 Nodes		18	36	20	48
6	Mid-Project Release		18	18	20	28
Features						
1	None					
		Deciding our Tshirt design	1		0	
		Deciding our team logo	1		0	
2	None					
		Deciding our Tshirt design	1		1	
		Setup Build Process for Backend	3		2	
		Setup Basic Angular Project (Frontend)	2		2	
		Create first architecture draft	3		3	
		Setup Build Process For Frontend	3		2	
		Create Basic Spring Boot Project	2		2	
		Deciding our team logo	1		1	
3	None					
		Define entities for DBs	3		3	
		Create Docker Compose Configuration	3		2	
		Setup Database and Integrate it	2		1	
		Setup Dockerfile (Backend)	3		2	
		Create Basic UI Layout	3		2	
		Create Overview page	3		3	
		Add functionality to sidebar	1		1	

Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
		Create multiple pages for Router Outlet	3		2	
4	Working MVP with FE, CM and 2 Nodes					
		Backend: Create Cluster Manager	3		3	
		Frontend: Create Node Tab	3		3	
		Backend: Get Nodes API	3		3	
		Backend: Get Backups API	3		3	
		Frontend: Create Backups Tab	3		3	
		Frontend: Header moving while scrolling	0		0	
		Add Jacoco To Build And Integrate As Badge	3		2	
		Backend: Create User Node	3		3	
		Create Documentation	0		0	
		Create a test setup with 3 nodes	0		0	
		Backend: Create Database	0		0	
5	Working MVP with FE, CM and 2 Nodes					
		Create Documentation	0		0	
		Create a test setup with 3 nodes	3		2	
		Backend: Create Database	3		1	
		Backend: Add Pagination To APIs	0		0	
		Implement functions for DB	3		5	
		List Users	0		0	
		Create / Update / Delete User	0		0	
		Filter / Sort Backups	0		0	
		Bug: Main is not building	2		2	
		Backend: Implement node (un)registration process	5		8	
		Create Backup	0		0	
		Delete Backup	0		0	
		Filter / Sort Nodes	0		0	
		Create Build Process Video	2		2	
6	Mid-Project Release					
		Create Documentation	0		0	
		Create / Update / Delete User	3		3	
		Filter / Sort Nodes	3		3	
		Filter / Sort Backups	0		0	
		Create Backup	5		5	
		Delete Backup	2		3	
		Basic Backup Schedules	0		0	
		Mock Backup Tasks	0		0	



Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
Release						
Total			215	215		
Sprints						
1	None		0	215	0	215
2	None		15	215	13	215
3	None		21	200	16	202
4	Working MVP with FE, CM and 2 Nodes		21	179	20	186
5	Working MVP with FE, CM and 2 Nodes		18	158	20	166
6	Mid-Project Release		18	140	20	146
7	Working Backup Schedules and Mock Tasks		20	122	16	126
8	Working Permissions / User Groups + Bulk Data		7	102	4	110
9	Advanced Cluster Management		20	95	26	106
10	Advanced Cluster Management Pt2		13	75	15	80
11	Groups/Permissions + Webflux		10	62	10	65
12	Polishing + Metrics		17	52	20	55
13	QA/Fixing		17	35	20	35
14	Final Project Release		18	18	16	15
Features						
1	None	Deciding our Tshirt design	0	0	0	0
		Deciding our team logo	0	0	0	0
2	None	Deciding our Tshirt design	1	1	1	1
		Setup Build Process for Backend	3	2	2	2
		Setup Basic Angular Project (Frontend)	2	2	2	2
		Create first architecture draft	3	3	3	3
		Setup Build Process For Frontend	3	2	2	2
		Create Basic Spring Boot Project	2	2	2	2
		Deciding our team logo	1	1	1	1
3	None	Define entities for DBs	3	3	3	3

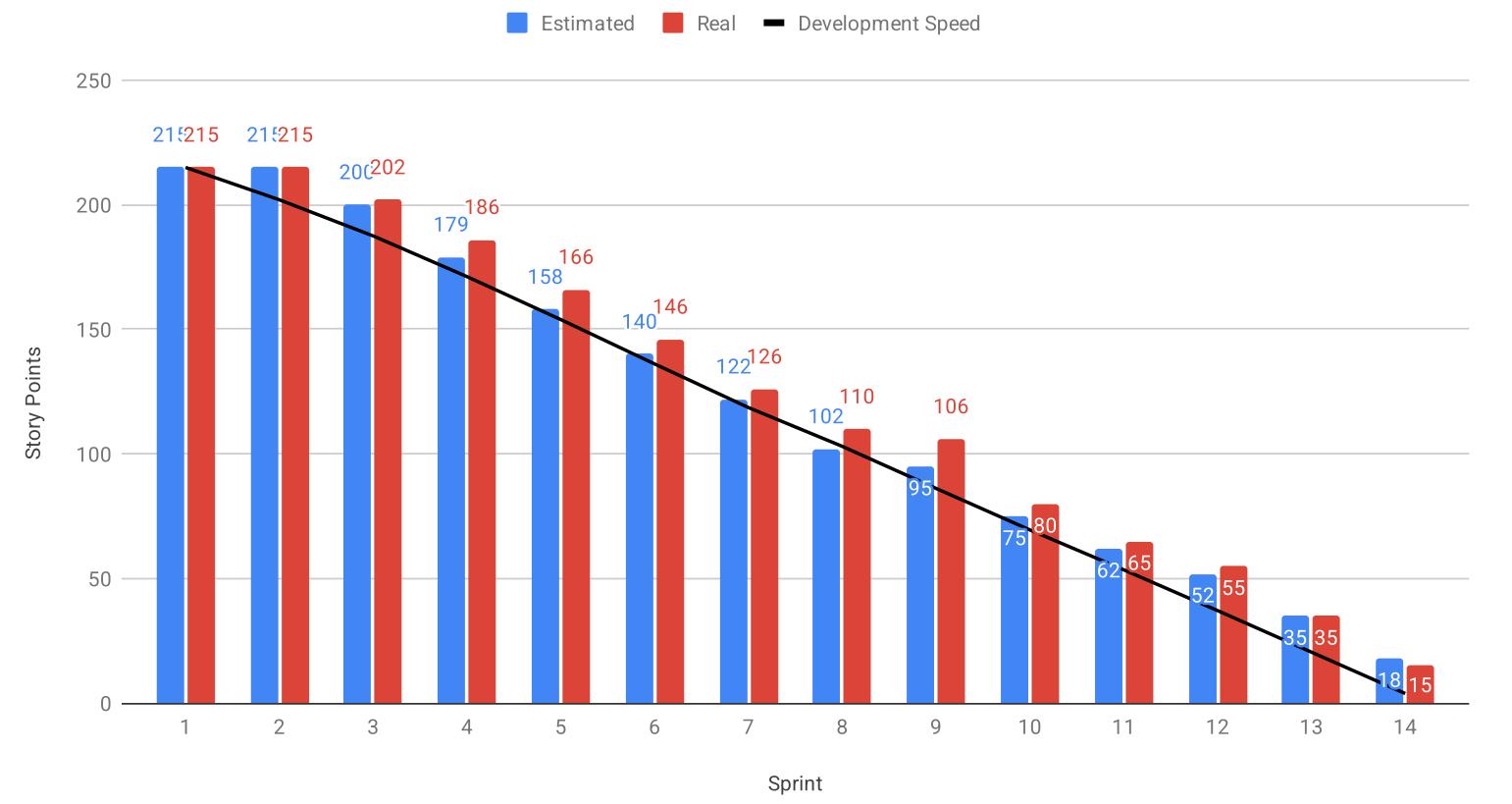
Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
		Create Docker Compose Configuration	3		2	
		Setup Database and Integrate it	2		1	
		Setup Dockerfile (Backend)	3		2	
		Create Basic UI Layout	3		2	
		Create Overview page	3		3	
		Add functionality to sidebar	1		1	
		Create multiple pages for Router Outlet	3		2	
4	Working MVP with FE, CM and 2 Nodes					
		Backend: Create Cluster Manager	3		3	
		Frontend: Create Node Tab	3		3	
		Backend: Get Nodes API	3		3	
		Backend: Get Backups API	3		3	
		Frontend: Create Backups Tab	3		3	
		Frontend: Header moving while scrolling	0		0	
		Add Jacoco To Build And Integrate As Badge	3		2	
		Backend: Create User Node	3		3	
		Create Documentation	0		0	
		Create a test setup with 3 nodes	0		0	
		Backend: Create Database	0		0	
5	Working MVP with FE, CM and 2 Nodes					
		Create Documentation	0		0	
		Create a test setup with 3 nodes	3		2	
		Backend: Create Database	3		1	
		Backend: Add Pagination To APIs	0		0	
		Implement functions for DB	3		5	
		List Users	0		0	
		Create / Update / Delete User	0		0	
		Filter / Sort Backups	0		0	
		Bug: Main is not building	2		2	
		Backend: Implement node (un)registration process	5		8	
		Create Backup	0		0	
		Delete Backup	0		0	
		Filter / Sort Nodes	0		0	
		Create Build Process Video	2		2	
6	Mid-Project Release					
		Create Documentation	0		0	
		Create / Update / Delete User	3		3	
		Filter / Sort Nodes	3		3	

Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
		Filter / Sort Backups	0		0	
		Create Backup	5		5	
		Delete Backup	2		3	
		Basic Backup Schedules	0		0	
		Mock Backup Tasks	0		0	
		Backend: Add Pagination To APIs	3		3	
		List Users	2		3	
7	Working Backup Schedules and Mock Tasks					
		Basic Backup Schedules	5		5	
		Mock Backup Tasks	5		3	
		Create Documentation	2		2	
		Filter / Sort Backups	3		1	
		Authentication	5		5	
8	Working Permissions / User Groups + Bulk Data					
		Bug: Nodes Cannot Register (Auth)	2		2	
		Permission handling (Authorization)	0		0	
		Dynamic Page/Content Updates	0		0	
		Cluster Manager is a Node	5		2	
		Architecture Review / Revisit	0		0	
		Bulk Data Insertion / Preparation	0		0	
9	Advanced Cluster Management					
		Bulk Data Insertion / Preparation	3		3	
		Permission handling (Authorization)	5		8	
		Architecture Review / Revisit	5		8	
		Dynamic Page/Content Updates	2		2	
		Architecture Review: Proper Operation Foward	5		5	
10	Advanced Cluster Management Pt2					
	#146	Updated Join Behavior	5		5	
	#147	Managed/Unmanaged Mode	5		5	
	#148	Shutdown, Restart and Remove	3		5	
11	Groups/Permissions + Webflux					
	#164	Webflux Refresh	0		0	
	#165	Update UI	3		5	
	#77	Permissions/Groups Tab	5		3	
	#145	Improve Data Caching	0		0	
	#173	Tunneling Research	2		2	
	#183	BUG: Not able to re-add node after shutdown	0		0	
	#184	BUG: Shutdowned node should not be removed #184	0		0	

Sprint	Goal	Feature Name	Est. size	Est. remaining	Real size	Real remaining
	#185	BUG: Automatic refresh doesn't work for nodes page	0		0	
12	Polishing + Metrics					
	#164	Webflux Refresh	5		8	
	#145	Improve Data Caching	5		5	
	#163	Expose Metrics via Actuator/Prometheus	5		3	
	#194	Stress Testing Research	0		0	
	#183	BUG: Not able to re-add node after shutdown	0		0	
	#184	BUG: Shutdowned node should not be removed #184	1		2	
	#185	BUG: Automatic refresh doesn't work for nodes page	1		2	
13	QA/Fixing					
	#194	Stress Testing Research	2		2	
	#183	BUG: Not able to re-add node after shutdown	2		2	
	#132	Update Dashboard	3		2	
	#189	Add Stress Testing Profiles	0		0	
	#200	BUG: Backup Modal Window	2		3	
	#190	Update UI #2	3		3	
	#201	Grafana Setup	3		3	
	#205	Reactivate Backend testing	2		5	
14	Final Project Release					
	#189	Add Stress Testing Profiles	5		5	
	#218	Update Documentation	3		3	
	#215	Update SBOM	2		2	
	#214	Create Stress Testing Benchmarks & Documentation	2		2	
	#216	Comment code	3		1	
	#217	Reenable Frontend Test	3		3	

Burn-Down Chart	
215	13
202	14.5
187.5	16.33333333
171.1666667	17.25
153.9166667	17.8
136.1166667	17.5
118.6166667	15.57142857
103.0452381	16.875
86.1702381	16.66666667
69.50357143	16
53.50357143	16.36363636
37.13993506	16.66666667
20.4732684	16.61538462
3.857883783	16.61538462

Burn-Down Chart



#	Context	Name	Version	License	Comment
1	Frontend	Tailwindcss	4.1.16	MIT License	Utility-first CSS Framework
2	Frontend	Flowbite	4.0.0	MIT License	Component library built on Tailwind CSS.
3	Frontend	Angular	20.3.7	MIT License	Web application framework
4	Frontend	Angular Material	20.2.13	MIT	Material Design component library for Angular
5	Frontend	typescript	5.9.3	Apache-2.0	Superset of JavaScript
6	Frontend	zonejs	0.15.1	MIT License	Execution context library for Angular
7	Frontend	tslib	2.8.1	MIT License	Runtime library for TypeScript
8	Frontend	karma	6.4.4	MIT License	Test runner
9	Frontend	karma-chrome-launcher	3.2.0	MIT License	Launcher for Chrome browser in tests
10	Frontend	karma-coverage	2.2.1	MIT License	Code coverage tool
11	Frontend	karma-jasmine	5.1.0	MIT License	Adapter for Jasmine testing framework
12	Frontend	karma-jasmine-html-reporter	2.1.0	MIT License	HTML reporter for test results
13	Frontend	postcss	8.5.6	MIT License	Tool for transforming CSS with JavaScript
14	Frontend	rxjs	7.8.2	Apache-2.0	Library for reactive programming
15	Frontend	Vite	7.1.11	MIT	Frontend build tool and bundler
16	Frontend	Socket.io	4.8.1	MIT	Real-time bidirectional event-based communication
17	Frontend	Algolia Search	5.35.0	MIT	Hosted search engine API client
18	Frontend	Zod	3.25.76	MIT	TypeScript schema validation
19	Frontend	Sass	1.90.0	MIT	CSS extension language
20	Backend	postgresql(-docker)	latest	MIT	Relational database system
21	Backend	PostgreSQL JDBC Driver	42.7.7	BSD-2	Java Database Connectivity driver
22	Backend	H2	2.3.232	MLP 2.0	In-memory database
23	Backend	spring-boot	3.5.6	Apache-2.0	Framework for creating production-grade Spring applications
24	Backend	Flyway	11.7.2	Apache-2.0	Database migration tool
25	Backend	Spring WebFlux	6.2.11	Apache-2.0	Reactive web framework
26	Backend	Spring Data R2DBC	3.5.4	Apache-2.0	Reactive relational database connectivity
27	Backend	Spring Security	6.5.5	Apache-2.0	Authentication and access control framework
28	Backend	Spring Boot Actuator	3.5.6	Apache-2.0	Production-ready features (metrics, health checks)
29	Backend	Reactor Netty	1.2.10	Apache-2.0	Asynchronous event-driven network application framework
30	Backend	Reactor Core	3.7.11	Apache-2.0	Reactive foundation for WebFlux
31	Backend	HikariCP	6.3.3	Apache-2.0	High-performance JDBC connection pool
32	Backend	Apache Commons Lang	3.18.0	Apache-2.0	Java utility library
33	Backend	Apache Commons IO	2.16.1	Apache-2.0	IO utility library
34	Backend	SnakeYAML	2.4	Apache-2.0	YAML parsing library
35	Backend	Testcontainers	1.21.3	MIT	Java library for integration testing with Docker containers
36	Backend	Micrometer	1.15.4	Apache-2.0	Application metrics facade
37	Backend	Lombok	1.18.40	MIT	Java library to reduce boilerplate code

#	Context	Name	Version	License	Comment
38	Backend	Logback	1.5.19	EPL-1.0/LGPL-2.1	Default logging framework
39	Backend	Jackson Databind	2.19.2	Apache-2.0	JSON processor for REST APIs
40	Backend	Hibernate Validator	8.0.3.Final	Apache-2.0	Bean validation provider (JSR 380)
41	Backend	JUnit 5	5.12.2	EPL-2.0	Backend unit testing framework
42	Backend	Mockito	5.17.0	MIT	Test mocking framework
43	Backend	AssertJ	3.27.4	Apache-2.0	Fluent assertions for testing
44	Backend	Awaitility	4.2.2	Apache-2.0	Testing for asynchronous systems
45	Backend	Caffeine	3.2.2	Apache-2.0	High-performance Java caching library
46	Backend	Grafana	latest	AGPL-3.0	Observability and data visualization platform
47	Backend	k6	latest	AGPL-3.0	Open source load testing tool
48	Backend	k6-reporter	latest	MIT	Open source tool for creating HTML test report

Last Name	First Name	Value			
Wysokinska	Xemena				
Ostrizki	Jan				
Raju	Robin Jose	2			
Nogu	Ervin	2			
Krüger	Landolf	2		0	No size
Tröger	Nicolas	2		1	Trivial size
#REF!	#REF!			2	Small size
Killer	Hans	2		3	Medium size
Schulze	Levin			5	Large size
				8	Very large size
				13	Too large (size)
How to play planning poker					
1. Everyone type their number into their value field, don't hit return yet					
2. Someone, perhaps a product owner, count down 3.. 2.. 1..					
3. Then, everyone hit return to submit their value					