



Utilizing Compliance As Code to Optimize Deployment Practices

Markus Backman – Technology Enterprise Domain Architect
Christian Edström – Development Platforms Chief Product Owner

Swedbank

Sweden

Population	10.5 million
Private customers	3.7 million
Corporate customers	267 000
Organisations	66 000
Branches	145
Employees	9 414

Estonia

Population	1.3 million
Private customers	0.86 million
Corporate customers	131 000
Branches	13
Employees	2 541



Latvia

Population	1.9 million
Private customers	0.9 million
Corporate customers	74 000
Branches	18
Employees	1 952

Lithuania

Population	2.8 million
Private customers	1.6 million
Corporate customers	82 000
Branches	40
Employees	2 576

Who we are | The untold story

Christian Edström

Chief Product Owner Developer Platforms

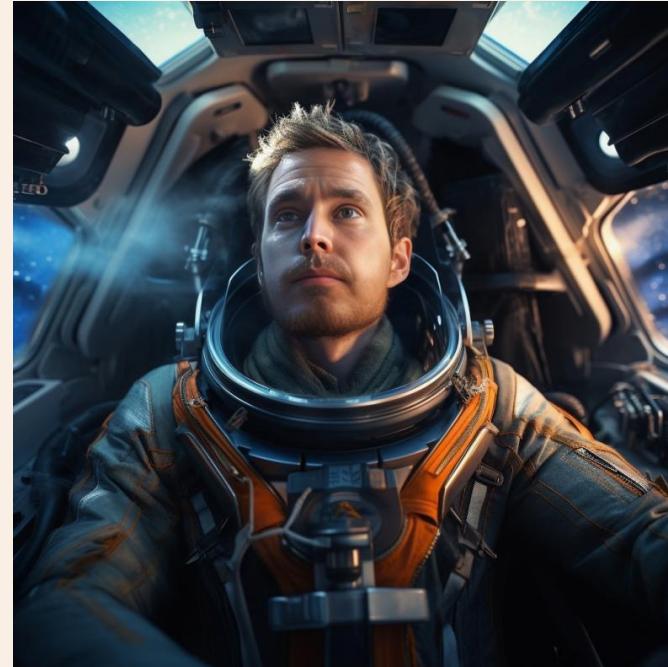


Developer turned
manager

Cobol -> Java ->
PPT/Excel

Markus Backman

Technology Enterprise Domain Architect



Developer turned
architect

SQL -> Java -> PPT

IoT geek

A massive, futuristic mothership with a large circular hangar bay dominates the left side of the frame. The ship is metallic and angular, with glowing blue lights along its hull. In the background, a large planet resembling Earth is visible, showing continents and clouds. The foreground features smaller, sleek spaceships flying towards the viewer.

Our story

A dramatic scene of a rocket launching from a desolate, rocky planet. The rocket's engines glow intensely at the base, sending a massive plume of orange and yellow fire and smoke billowing upwards. In the background, a massive, partially illuminated moon hangs in the sky, casting a warm glow over the landscape. The foreground shows the sandy, rocky terrain of the planet.

Movie

< 2min

**From the decision to establish the platform
The successful adoption
End with cliff hanger about change control failure**

It's called Andromeda

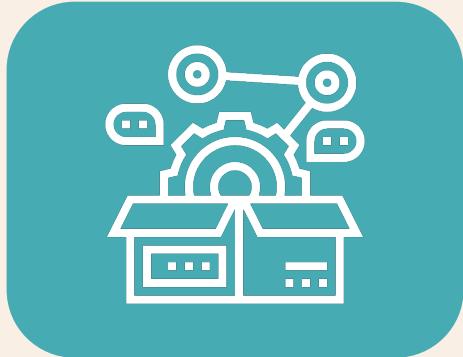
A **developer-friendly** application development **platform** based on **micro services architecture** with **managed services** for developing, deploying and operating cloud native applications

What are we aiming for?

Team independency



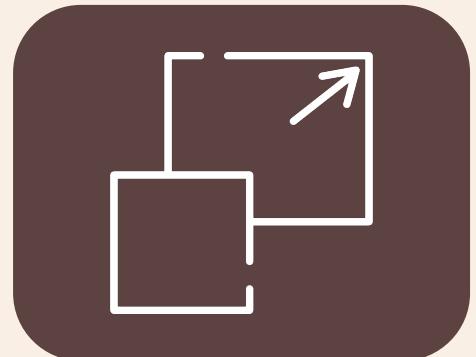
Daily deployments



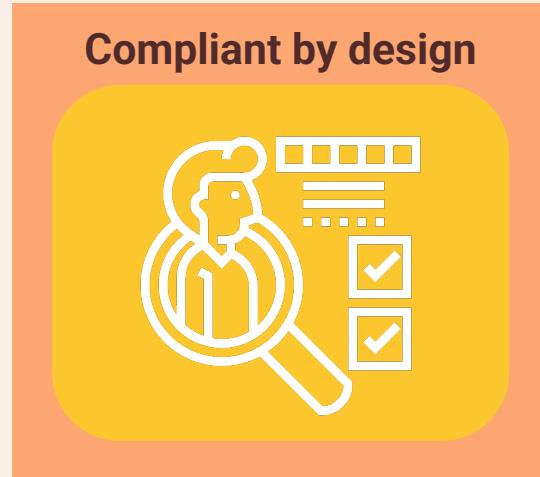
Developer experience



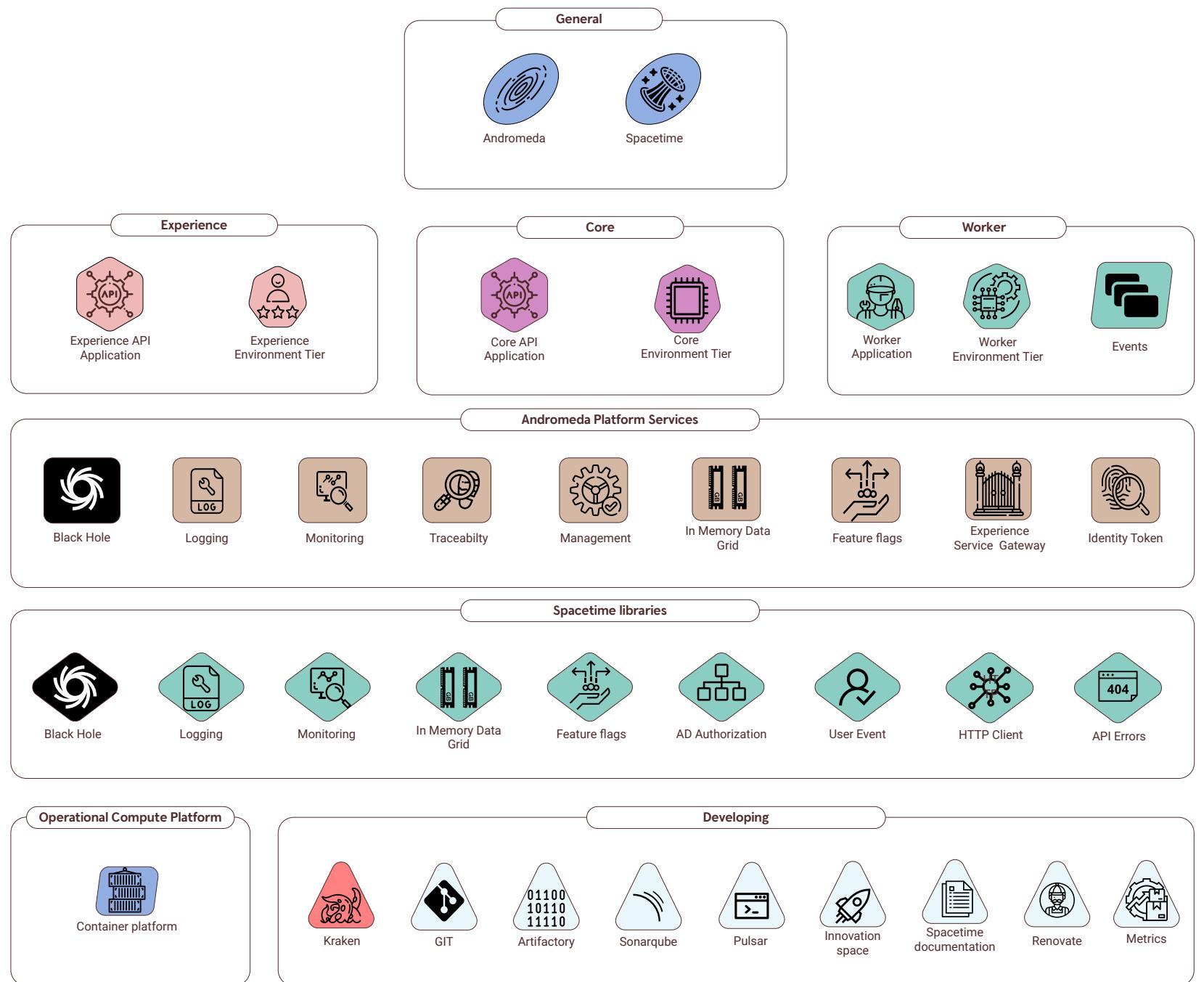
Ability to scale



Compliant by design

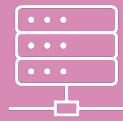


The platform – Technology



But it doesn't come without challenges

Technology



1010
1010

Process



People





Processes

Sub-heading

Change process

- We wanted to help teams to deploy daily.
- To be allowed to deploy to production an Change request needs to be created manually.
 - What does the change include?
 - Have you tested, where is your test protocol?
 - Can this change impact large number of customers?
 - Does this change depend on other changes?
- Worked with process office to define a new change type – Automated change.
- Automated changes are allowed to be created by approved pipelines.
 - PR approval, automated testing, scanning requirements

Automated change

- Service owner is allowed to press the deploy button
- Service owner is responsible to perform a risk and impact evaluation before deploying to production.
- Ok if Impact is Minor or Limited (not Major or Critical)
- The pipeline ensure QA and creates a Automated Change request for audit trace
 - What commits, PR comments, Test stage outcomes, etc



Culture

Sub-heading

Update with screenshot
from the day before the
presentation

Andromeda Spacetime

latest

An Application Development Platform built on modern principles.

Microservice architecture patterns

MacOS or Windows!

Kubernetes, Spring Boot 3, Java 20

Join the community!

Join 822 other developers currently
working on Andromeda.

Build a microservice

So far, there are 531 repositories
labeled with spacetime in Bitbucket!

Ready for production

72 teams are together running 226
apps in production!

Deploy when you want

2 deploys to prod today, 5553 this year,
the team decides when to deploy!

Latest deploy

exp-mbbl-customer was deployed 19
minutes ago by iBusiness (CompReg,
MultiBanklink)

Leaderboard

Well done Digital Security for
deploying to prod 63 times this month!

Teams

Get started now

Gamify deployment...

 <p>Microservices! 2000 XP Four apps in production! One for each developer? <i>P & C insurance adv & dist., yesterday</i></p>	 <p>We bet our weekend plans! 1 XP Deploy on a Friday after 15:00 <i>Swedbank Gateway (SGW), yesterday</i></p>	 <p>My little cluster 2000 XP Three apps in production! Easy peasy by now! <i>P & C insurance adv & dist., yesterday</i></p>
 <p>Like it's nothing 5000 XP 100 successful deploys to production! <i>Online Savings, yesterday</i></p>	 <p>Happy APO 1000 XP 50 JIRAs shipped to production! <i>P & C insurance adv & dist., 2 days ago</i></p>	 <p>A regular schedule 2500 XP Monthly deploy streak of 5 months! <i>Online Pension Private, 2 days ago</i></p>
 <p>No pain, no gain 1 XP We're only human, that's 10 failed deploys. Thank you auto-rollback pipeline! <i>P & C insurance adv & dist., 2 days ago</i></p>	 <p>Could you have a look at my PR? 1000 XP Code reviewed and approved by 5 different people <i>Common Inforum, 2 days ago</i></p>	 <p>Same procedure as every year, James 10000 XP Deploy at least once every month for 12 months in a row! <i>Kundportalen, 2 days ago</i></p>
 <p>Same procedure as every year, James 10000 XP Deploy at least once every month for 12 months in a row! <i>Digital Security, 3 days ago</i></p>	 <p>Today again 500 XP Again today? You deployed yesterday! <i>Finance Company Sweden, 3 days ago</i></p>	 <p>Market opening! 500 XP Deploy during the stock market opening <i>Finance Company Sweden, 3 days ago</i></p>

Communicate successes...

Your metrics



Position 71 out of 127



Position 16 out of 127



Position 26 out of 127

We have a strong belief that deploying often leads to amazing results like code quality, resilient applications, lower risk, fewer incidents, happier and much more.

Team of the month!

Team Digital Corporate Banking is the best team within your area this month. They deployed 37 times to production last month. Please make sure that the team is rewarded for their hard work on changing the way Swedbank develop software!



Weekly reminder

Summary

Name	Java version	Helm chart	Spring version	Pending updates
exp-corporate-services	20.0.1+9	12.9.1	3.1.1	Yes
core-entitlement	20.0.2+9	12.9.3	3.1.2	No
worker-entitlement	20.0.2+9	12.9.3	3.1.2	No

exp-corporate-services

Deployment Frequency
WEEKLY

Lead Time For Change
ONE MONTH

Active Developers
4

Java upgrade

Upgrade the applications Java version to **20.0.2+9** from 20.0.1+9 as that is the latest supported [explorer](#) version.

Helm upgrade

Upgrade the applications Helm version to **12.10.0** from 12.9.1.

Spring boot upgrade

Upgrade the applications Spring boot version to **3.1.2** from 3.1.1.

Pending updates

The latest version that hasn't been deployed is 4.26.3.

This unreleased version contains [1 changes \(0 feature, 0 bug fixes, 1 renovates upgrades, 0 other\)](#).

There are [7 open pull requests](#) that has not yet been approved.

Unscheduled rapid disassembly



Back on earth...

Swedish bank's IT fault puts customer accounts in the red



The Local - news@thelocal.se

Published: 29 Apr, 2022 CET. Updated: Fri 29 Apr 2022 10:38 CET

f t in



Swedbank's headquarters in Sundbyberg, Stockholm. Photo: Henrik Montgomery/TT

A technical problem at Sweden's Swedbank on Thursday night gave customers a nasty surprise, with their account balances inexplicably going negative, payments impossible, and Swish payments no longer working.



on/SvD/TT

bank drabbat av problem – ön står på minus

9 APRIL 2022 PUBLICERAD 28 APRIL 2022

skvällen möttes många av Swedbanks kunder av en överraskning när de kontrollerade sitt saldo – kontot stod på minus. Kunderna kunde inte göra betalningar och även Swish fungerade inte. Problemen fortsatte även under fredagen. Enligt banken uppstod problemet i samband med en uppdatering av system.

Swedbank receives \$82 mln administrative fine over lack of IT control

By Louise Rasmussen

March 15, 2023 10:14 AM GMT+1 · Updated 5 months ago



The Swedbank logo is pictured on its branch in Riga October 21, 2014. REUTERS/Ints Kalnins/File Photo

COPENHAGEN, March 15 (Reuters) - Swedbank ([SWEDa.ST](#)) has received an administrative fine of 850 million Swedish crowns (\$81.52 million) due to a "lack of internal control" after changing its IT systems last year, Sweden's bank regulator said in a statement on Wednesday.

Finansinspektionen (FSA) said its investigation showed that Swedbank did not follow internal procedures when changing its system, and that it did not have suitable control mechanisms in place to ensure it followed internal procedures.

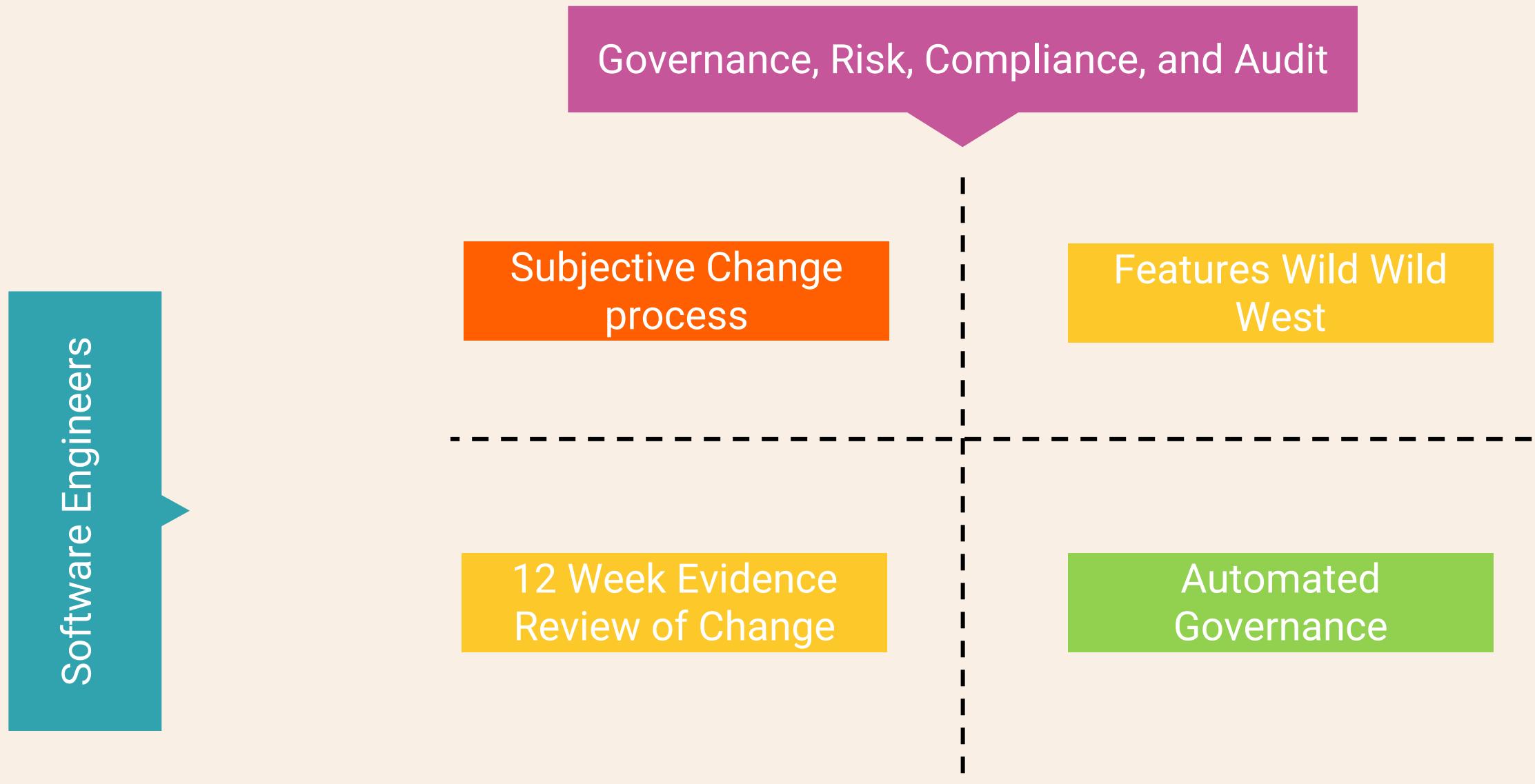
- FSA said its investigation showed that Swedbank **did not follow internal procedures** when changing its system and that it **did not have suitable control mechanisms** in place to ensure it followed internal procedures

A dark, atmospheric image of a server room. The floor and walls are covered in shards of broken glass and debris, suggesting a recent break-in or a catastrophic failure. The lighting is dim, with some light reflecting off the metallic surfaces of the servers and the floor. In the background, there are rows of server racks, their screens glowing with data. The overall mood is one of chaos and destruction.

Change freeze

And more strict controls

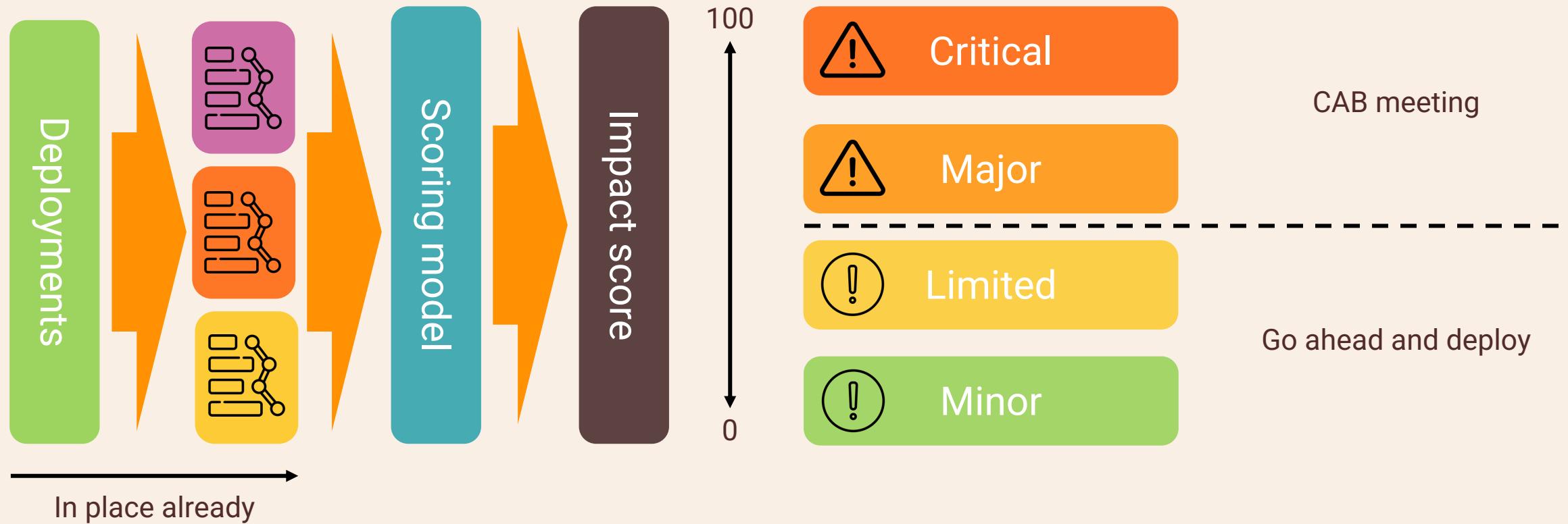
The conflict



The impacts on Andromeda

- Controls in place
 - No one have production access (emergency access during incident exists).
 - All changes recorded with automated changes.
- The missing control
 - Service owners are responsible to do a risk and impact assessment.
 - If the change is deemed to be Major or Critical the Service owner need to go to CAB meeting with a Normal Change.
- Reality
 - Out of 3.500 deployments in 2022 not a single Normal Change was raised by the Service owners.

The foundation of Automated Governance was already in place



A futuristic scene featuring several metallic, humanoid robots in a high-tech control room. The robots are arranged around a large, curved, illuminated control panel with numerous buttons and screens. The room has a dark, metallic aesthetic with glowing blue and orange lights. In the background, there are more robots and a large, transparent, dome-like structure. The overall atmosphere is one of advanced technology and automation.

Impact scoring model

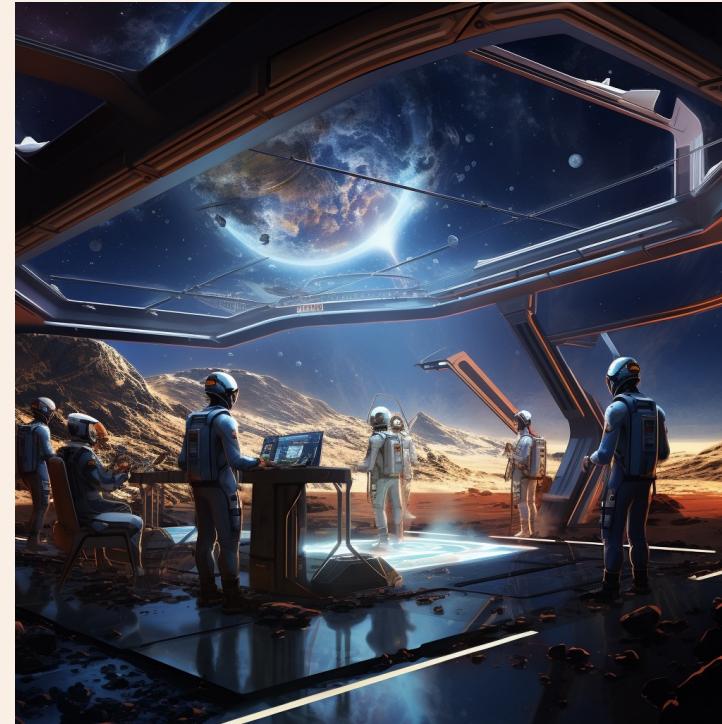
The two sides of the metrics

The application version to be deployed



Looking for high risk changes for this deployment

The team owning the application



Looking for good practices the team have embraced to reduce the risk

What metrics are we using

The application and the version to be deployed

- Business Critically.
- Number of commits.
- Time since the last deployment.
- The complexity of the deployment.
 - chores, fixes, features, breaking changes, cognitive complexity
- Application leverages all test stages and is over the agreed coverage limit.
- No known critical vulnerabilities.

The team owning the application

- Has the team actively used feature flags rollout.
- > 3 active code contributors and approvers.
- The teams secure coding score.
- The team has performed a successful rollback.
- The teams number of successful deployments in a row.

How it looks

What your team is doing good to reduce impact is

You deployed only commits with low risk (CHORES, FIX, etc.).

You have more than 3 developers that are actively working with the application.

You have at least 10 successful deployments in a row for this application!

What your team can do to reduce impact in the future

Your application doesn't leverage the test stages: Service tests, Baseline tests

Consider using Feature Flags to reduce the risk of the deployments.

The developers could improve their application security training scores in Secure Code Warrior.

Try to deploy more often so the number of commits is kept low.

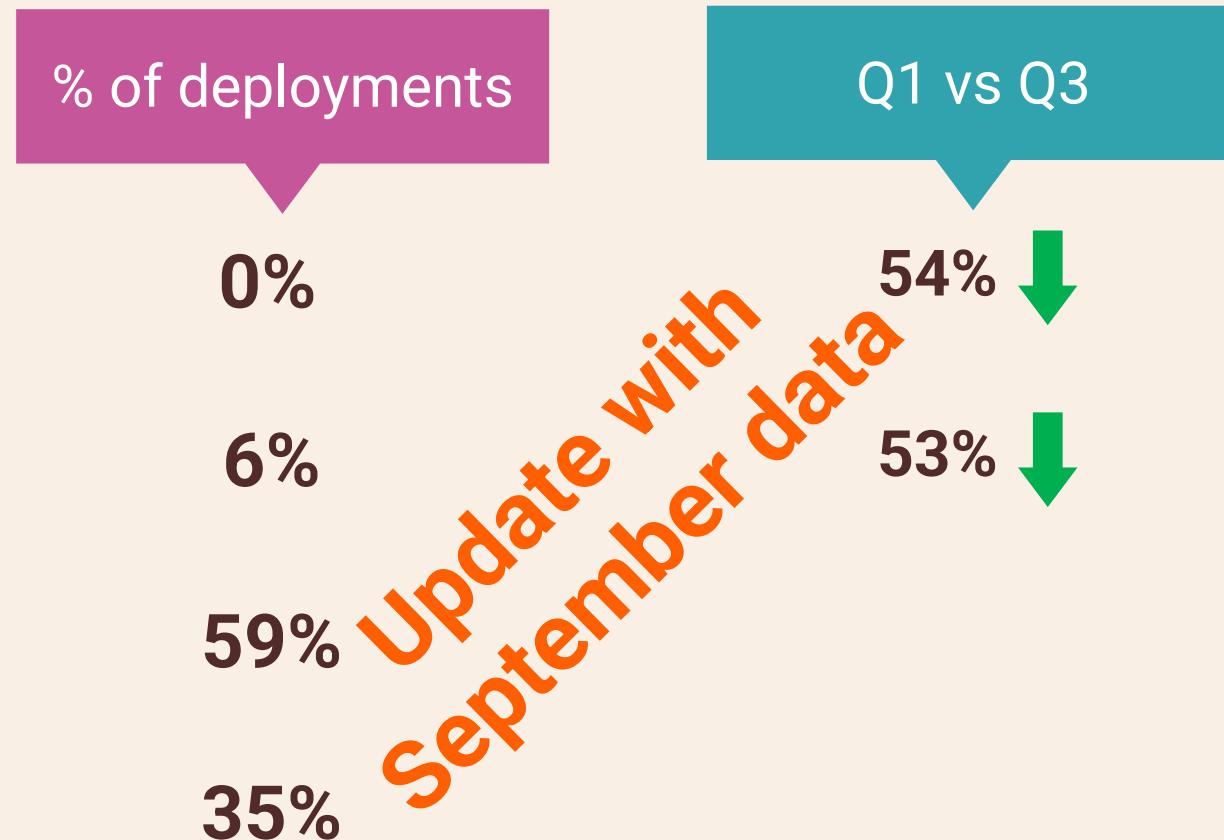
You should ensure that your team has experience performing a rollback of an application.

The impact is calculated based on the content of the deployed changes and how you and your team is working to reduce impact.

What your team is doing good to reduce impact is

The change we seen

- ! Critical
- ! Major
- ! Limited
- ! Minor



A large, multi-tiered space station with glowing orange and yellow lights against a dark blue background. A bright blue light beam originates from the left side of the station. In the background, there's a large, hazy blue planet or nebula and a smaller, darker planet at the top.

What is next?

Sub-heading

What is next?

- Calculate before deployment and stop teams from deploying if Major or Critical
 - CAB approval needed
- Tweak the scoring models
 - Different models that can be based on a team's experience of the platform.
 - Learn from incidents.
- Including more measurements.
- As teams on the platform mature lower the threshold of Major or Critical



Andromeda rocket

Breaking the glass to reach the physical world

**rocket –
deploy.mo
ve**

**rocket –
feature
flag.mp4**

Questions?

Sub-heading

Swedbank

