



splunk>

Driving Software Quality and Delivery With Splunk

Ingmar Vis | Product Owner ABN AMRO BANK NV

October 2018



ABN Amro Bank N.V.

Trusted, Professional, Ambitious



ABN·AMRO

- ▶ Dutch bank HQ in Amsterdam
 - ▶ Relisted on Euronext in 2015
 - ▶ 6 million customers
 - ▶ 22000 employees
 - ▶ 2017 profit: 2.791 billion (+34%)

Embracing a culture of change

Who Are We?



INGMAR VIS

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Driving Software Quality and Delivery With Splunk

Bringing data together and making sense of a big application landscape



>3.000
Developers
in +- 400
(outsourced)
teams



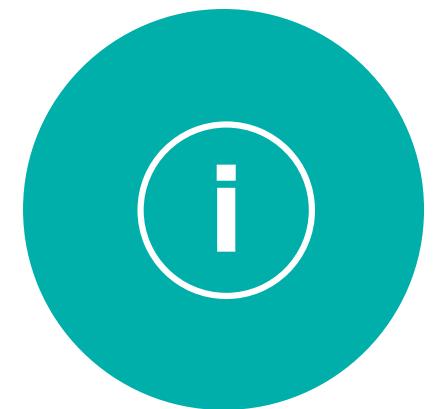
Variety in capability levels



Full stack
across
multiple
platforms



Lack of conventions



Segregation of information

IT4IT Value Chain



Enable fast IT delivery to the Business

- ▶ **Plan**
 - Portfolio, strategy, priority, distribution
- ▶ **Build**
 - Development, testing, releasing
- ▶ **Deliver**
 - Cost of service, fulfillment, infra ordering
- ▶ **Run**
 - Availability, performance, usability

Requirement to Deploy CI/CD

► Why CI/CD

- Long lead time for software delivery
 - Software quality issues found at late stage
 - Many manual handovers and approvals
 - Inefficient cooperation between Dev and Ops
 - Big non-frequent releases to production

Redefining the software delivery principle was vital

► IT4IT Value Chain

- Tool implementation & upgrades
 - CI/CD Pipeline implementation and upgrades
 - Supporting Agile teams
 - Incident & Problem management for IT4IT tooling

Code quality, Cooperation, TTM, SDLC all improved

► Takeaways

- Senior management commitment
 - Reduce Technical debt
 - Safe work environment where failing is okay
 - Don't focus on only tools
 - Journey is complex
 - Make small steps

Transformation to DevOps, hybrid cloud & WoW

**“If you cannot measure it,
you cannot control it.”**

Lord Kelvin (-273.15 degree Celsius or -459.67 degree Fahrenheit)

Software Lifecycle & Control Business Case

Creating value by creating insight

ROI on CI/CD

- ▶ Multi million \$ investment in CI/CD over 4 years
- ▶ CI/CD gap analysis based on framework coverage
- ▶ Strategic management by trend analysis & drill downs
- ▶ Informed partnership discussions
- ▶ Huge increase in insights on Code Quality, Secure Coding and Open Source Scanning

Team productivity

- ▶ Agile rituals assisted by holistic dashboards
- ▶ Alerting & wall displays for event driven action
- ▶ Simple to use self service MI solution enabling shift to DevOps
- ▶ Save up many hours/ sprint/ team for data gathering & reporting
- ▶ Transparency for all stakeholders

Software Delivery

Challenges in measuring throughput

- ▶ Data quality & accessibility
 - ▶ Standardization & tooling
 - ▶ Governance & ownership



Introducing the Software Lifecycle & Control framework

Software Lifecycle & Control Framework

Providing insights & registering accomplishments

► Requirements

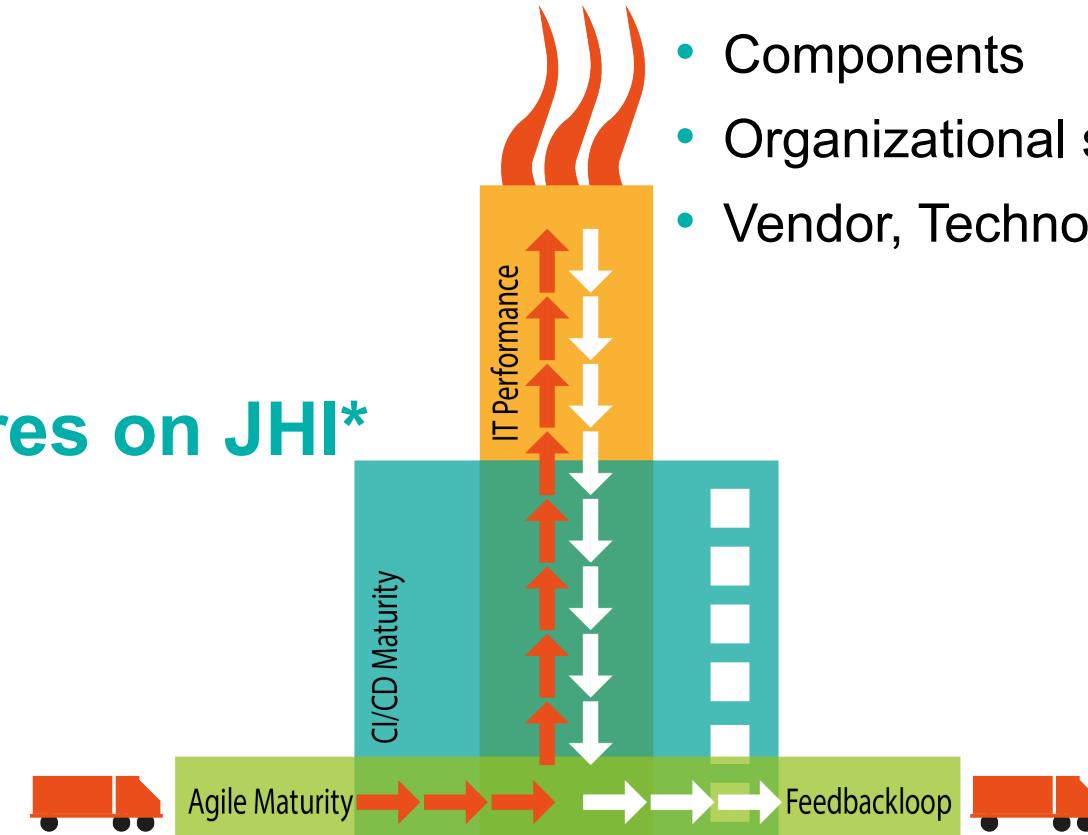
- Provide metrics on:
 - Agile maturity
 - CI/CD maturity
 - IT performance

► Cross-cuts

- Drill up and down on:
 - Components
 - Organizational structure
 - Vendor, Technology, Platform, etc.

Strive for high scores on JHI*

*Jez Humble Index



Building Blocks

Tool agnostic & generic metric definitions

► Agile maturity

- Predictability, velocity, consistency, impediments, engagement, burn down, resolution time



► CI/CD maturity

- Commit to build ratio, build success, pipeline recovery time, incidents, code quality, secure coding, open source component scanning, test automation, versioning, unit test coverage, build duration, shift left effectiveness, versioning



► IT performance

- Lead time for changes, mean time to recovery, change success rate, release frequency



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138 60 4 ~ [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=SD15LAFF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST_6&product_id=EST_5&category_id=EST_4&product_name=BUTTERCUP-SW-BLU" "Mozilla/5.0 (Windows NT 5.1; SV1; .NET CLR 1.1.4322; .NET CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR 3.5.30729; .NET4.0E; .NET4.0L; .NET4.0L1; .NET4.0L2; .NET4.0L3; .NET4.0L4; .NET4.0L5; .NET4.0L6; .NET4.0L7; .NET4.0L8; .NET4.0L9; .NET4.0L10; .NET4.0L11; .NET4.0L12; .NET4.0L13; .NET4.0L14; .NET4.0L15; .NET4.0L16; .NET4.0L17; .NET4.0L18; .NET4.0L19; .NET4.0L20; .NET4.0L21; .NET4.0L22; .NET4.0L23; .NET4.0L24; .NET4.0L25; .NET4.0L26; .NET4.0L27; .NET4.0L28; .NET4.0L29; .NET4.0L30; .NET4.0L31; .NET4.0L32; .NET4.0L33; .NET4.0L34; .NET4.0L35; .NET4.0L36; .NET4.0L37; .NET4.0L38; .NET4.0L39; .NET4.0L40; .NET4.0L41; .NET4.0L42; .NET4.0L43; .NET4.0L44; .NET4.0L45; .NET4.0L46; .NET4.0L47; .NET4.0L48; .NET4.0L49; .NET4.0L50; .NET4.0L51; .NET4.0L52; 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.NET4.0L981; .NET4.0L982; .NET4.0L983; .NET4.0L984; .NET4.0L985; .NET4.0L986; .NET4.0L987; .NET4.0L988; .NET4.0L989; .NET4.0L990; .NET4.0L991; .NET4.0L992; .NET4.0L993; .NET4.0L994; .NET4.0L995; .NET4.0L996; .NET4.0L997; .NET4.0L998; .NET4.0L999; .NET4.0L1000; .NET4.0L1001; .NET4.0L1002; .NET4.0L1003; .NET4.0L1004; .NET4.0L1005; .NET4.0L1006; .NET4.0L1007; .NET4.0L1008; .NET4.0L1009; .NET4.0L1010; .NET4.0L1011; .NET4.0L1012; .NET4.0L1013; .NET4.0L1014; .NET4.0L1015; .NET4.0L1016; .NET4.0L1017; .NET4.0L1018; .NET4.0L1019; .NET4.0L1020; .NET4.0L1021; .NET4.0L1022; .NET4.0L1023; .NET4.0
```

Sources for Metrics

A glimpse of our tool stack

Connected:

- ▶ Jira
 - ▶ ServiceNow Blue
 - ▶ ServiceNow Green
 - ▶ Bitbucket
 - ▶ Jenkins
 - ▶ SonarQube
 - ▶ HP Fortify
 - ▶ Nexus Lifecycle
 - ▶ XL Release
 - ▶ XL Deploy

In progress:

- ▶ VSTS on Azure
 - ▶ Ansible Tower
 - ▶ uDeploy
 - ▶ Topaz Workbench
 - ▶ COTS platforms
 - ▶ ...

Extraction methods:

- ▶ Logs
 - ▶ Modular input
 - ▶ Inputlookup
 - ▶ API
 - “CodeQualityData Retriever” (to be open sourced on Github)
 - ▶ ...

Approach & Set-up of Metrics

From POC & MVP to Enterprise Solution

► Requirements

- Contact CI/CD spec's
 - Define metrics
 - Evaluate with users
 - Form team

► Start small

- Easy to extract metrics first
 - Add a few teams to dashboards
 - Feedback loop
 - 2 week sprints, reviews
 - Monthly MT updates

► Scale up

- Complex metrics (IT Performance)
 - Increase coverage
 - Focus on data quality
 - Enterprise view

Defining Component Ownership

One-stop-correlation-shop for quality data

Component Ownership

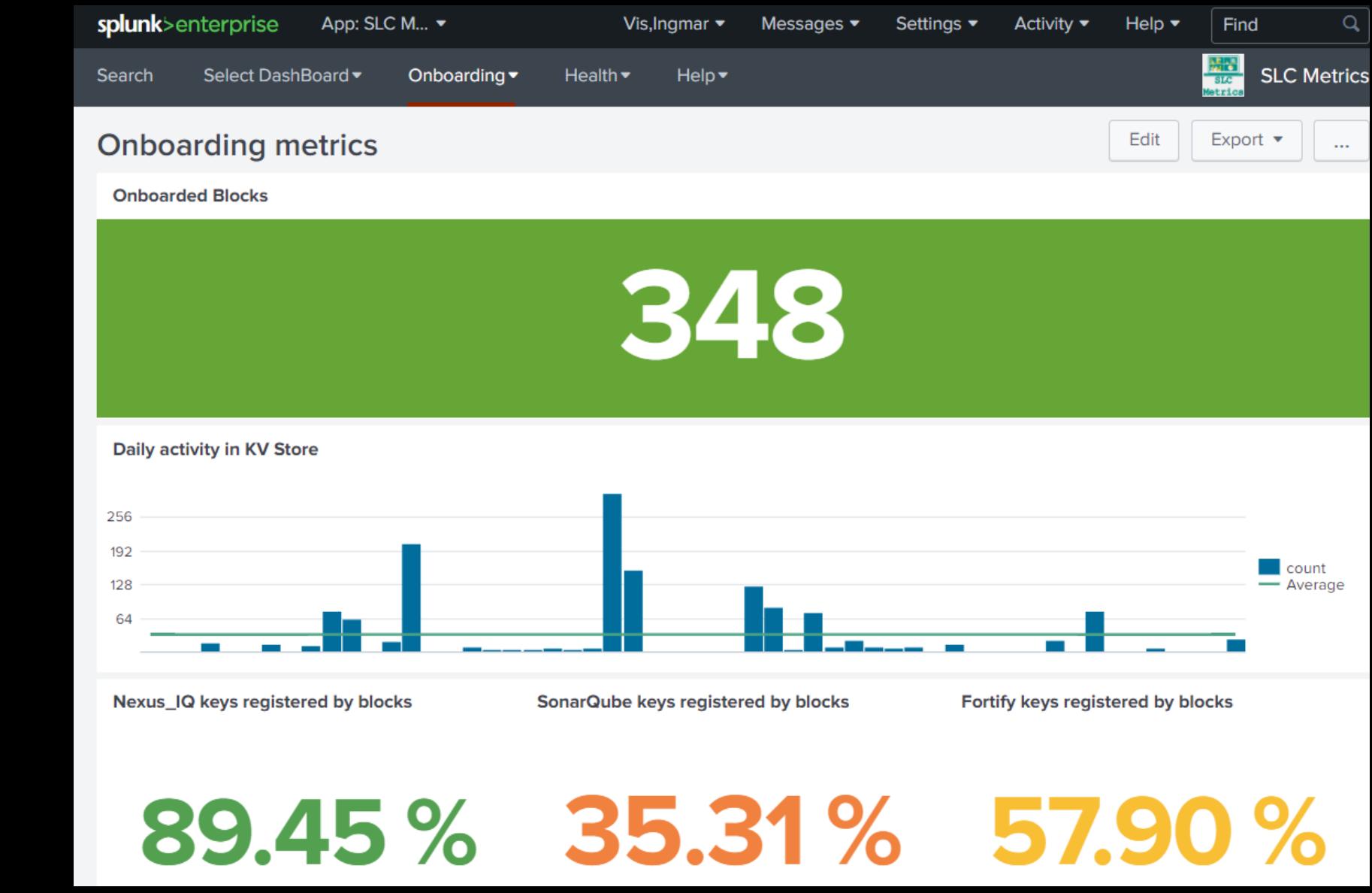
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IT Solutions NL	R&PB Content & PB	Investments	Insight & Overview ...	BLK0001386
Jira_board_url	OAR_ID	IT_product	Application_name	sonarKey
https://jira.aws.abn...	AAB.SYS.13539	TRIPLE A SYBASE ...	Triple A	com.abnamro.t
Full_project_name	Fortify_key	Nexus_iq_key	HP_UFT_repo	ALM_domain
RXP/RXP-MERGE-P...	ISD_BSI372_Trans...	mgb.MGBS101_BC...		
XLR_job	XLD_job	Vendor		
	crasprovisioningsy...	TCS		

KV Store collection

KeyID	Organizational_Unit	Domain	Grid	Vendor	Block_id	Block_name	Current_Date	Action	Jira_
5b44a0776876d2211f0bdac2	IT Solutions NL	R&PB Distribution	Mobile Internet and Design	TCS	BLK0001253	Securities 2	2018-07-10T13:55:44.545Z	Added	

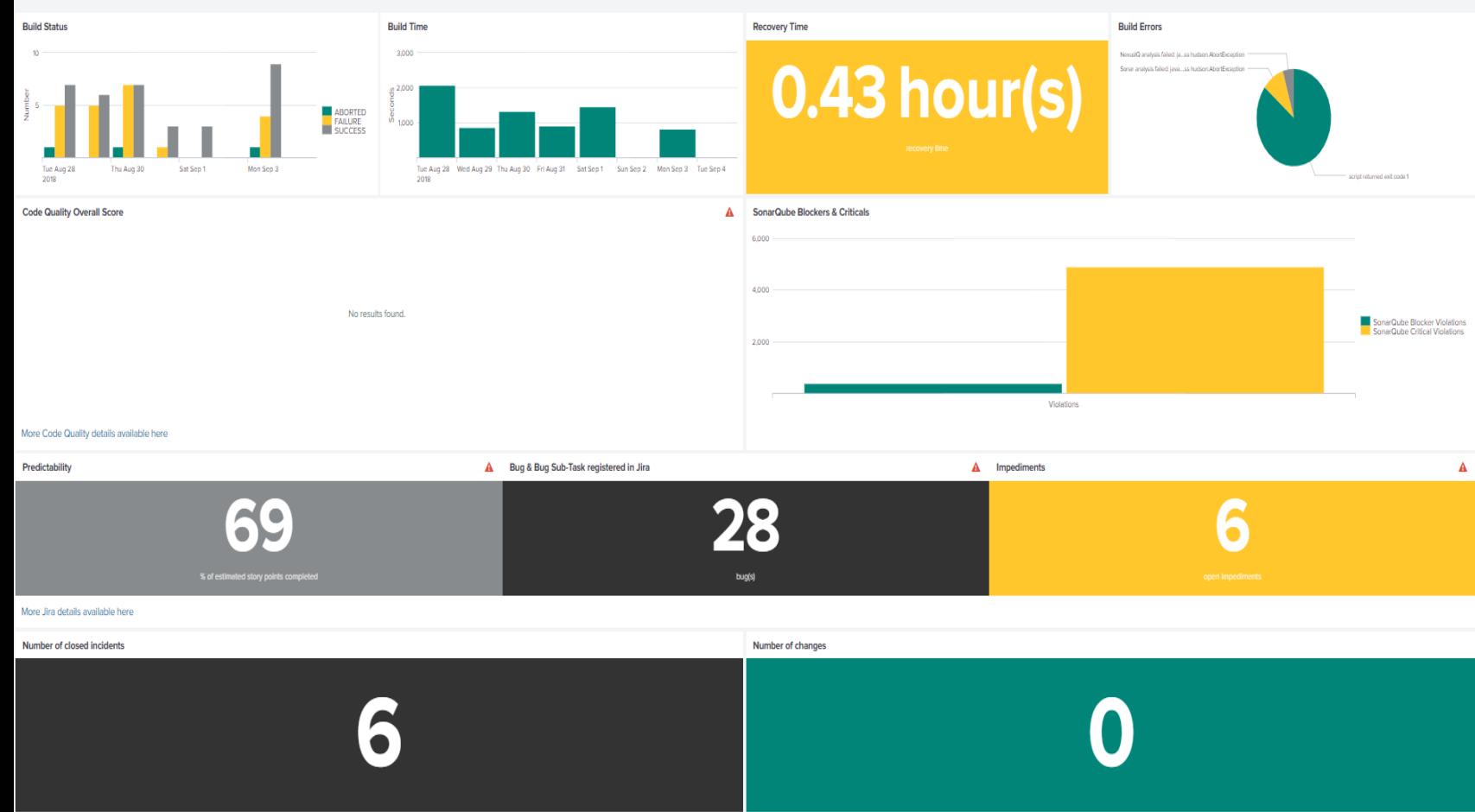
- ▶ SSO Self service onboarding portal
- ▶ Input validation via source systems
- ▶ Auto-backup of KV Store
- ▶ Immediate access to dashboards
- ▶ By the way: Splunk is open for all employees

Coverage Metrics on metrics



Component and Team Level Details

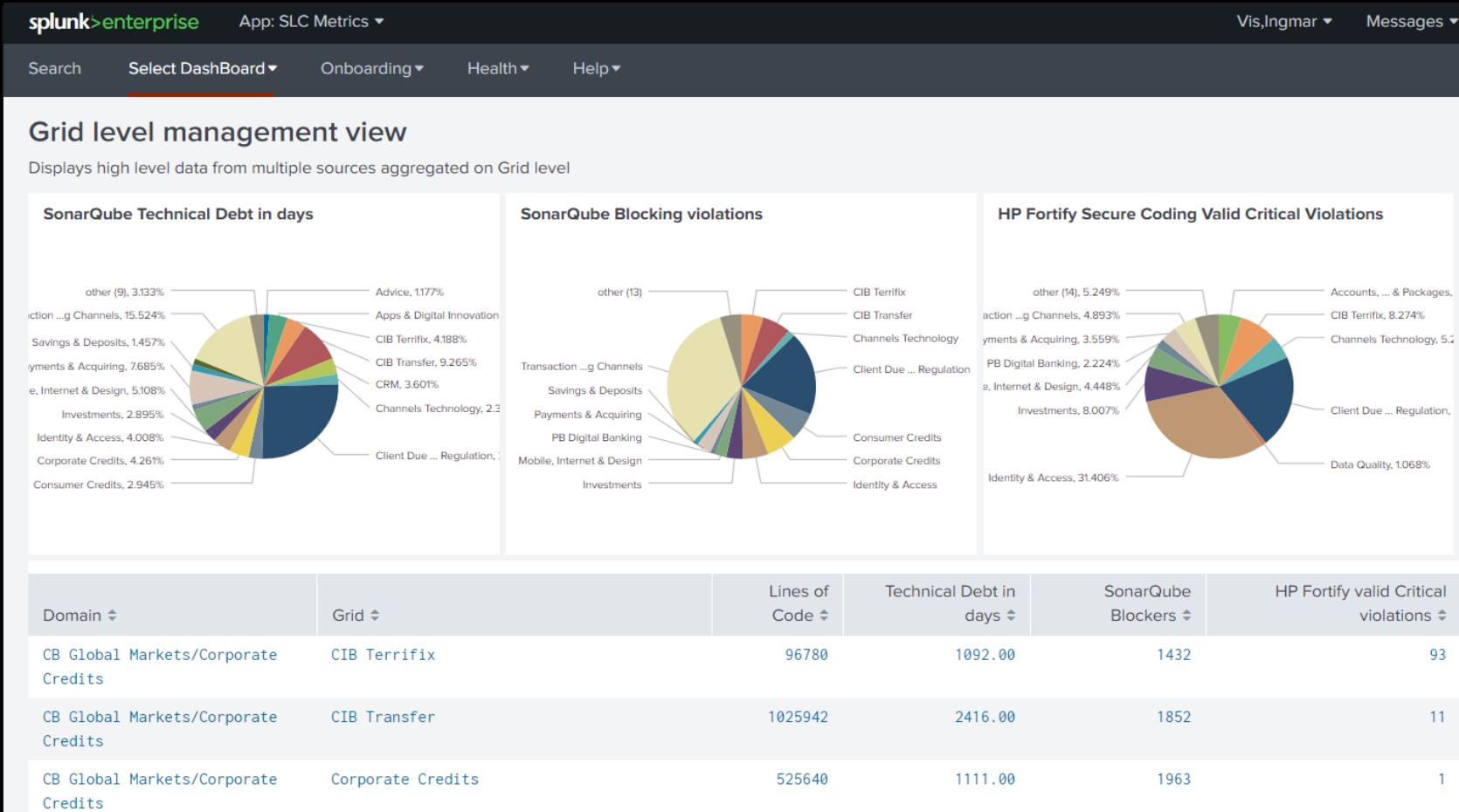
Holistic view on the SDLC



- ▶ Combined data
 - Jenkins
 - SonarQube
 - Jira
 - ServiceNow
- ▶ Aggregation possible by KV store mapping
- ▶ All data is open to all Splunk users

Management Views

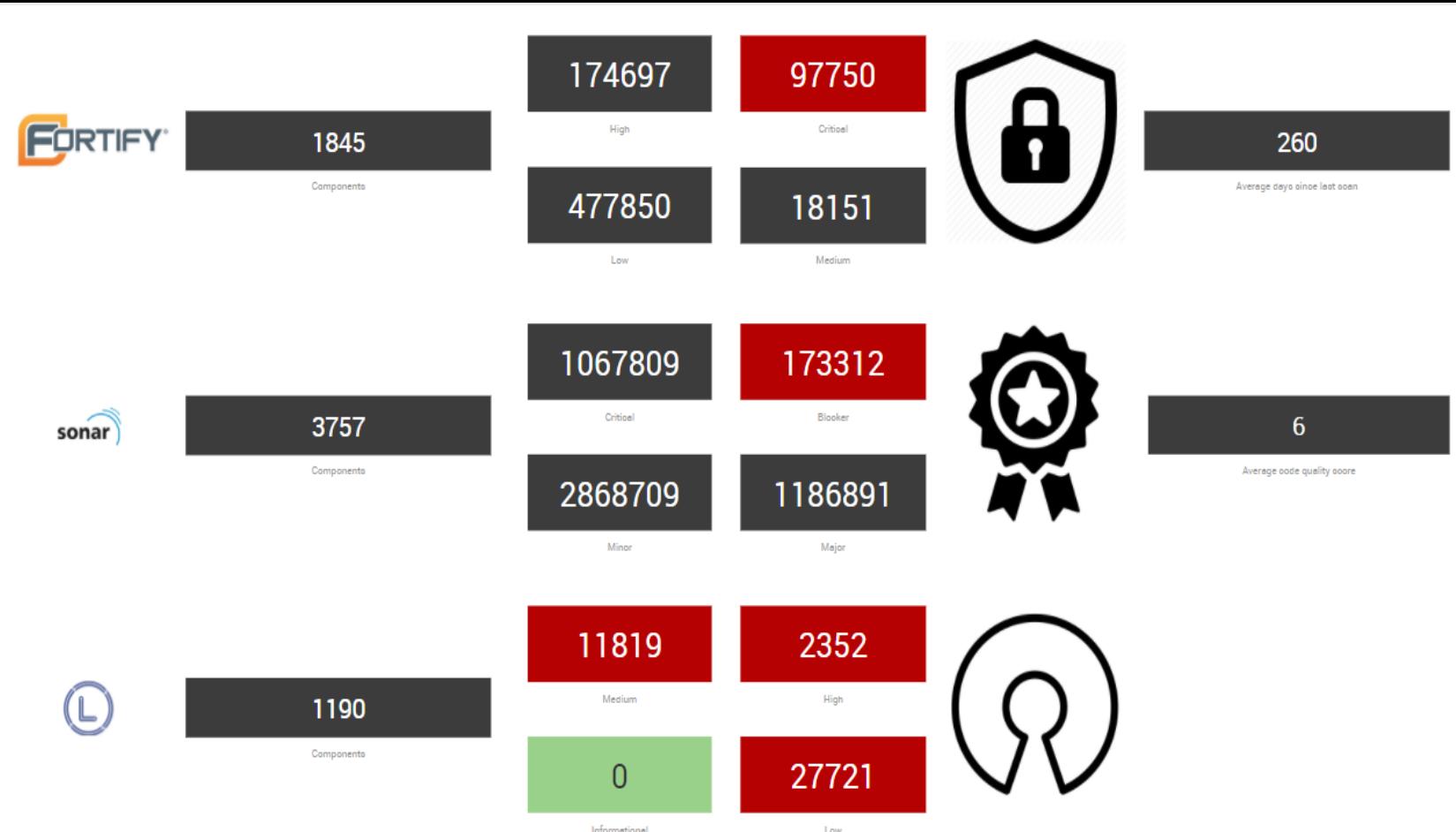
Enterprise wide overview



- ▶ Pin point soft spots
- ▶ Organizational aggregations:
 - Code quality analysis
 - Secure code scanning
 - Open source Component threats

Code Quality Dashboards

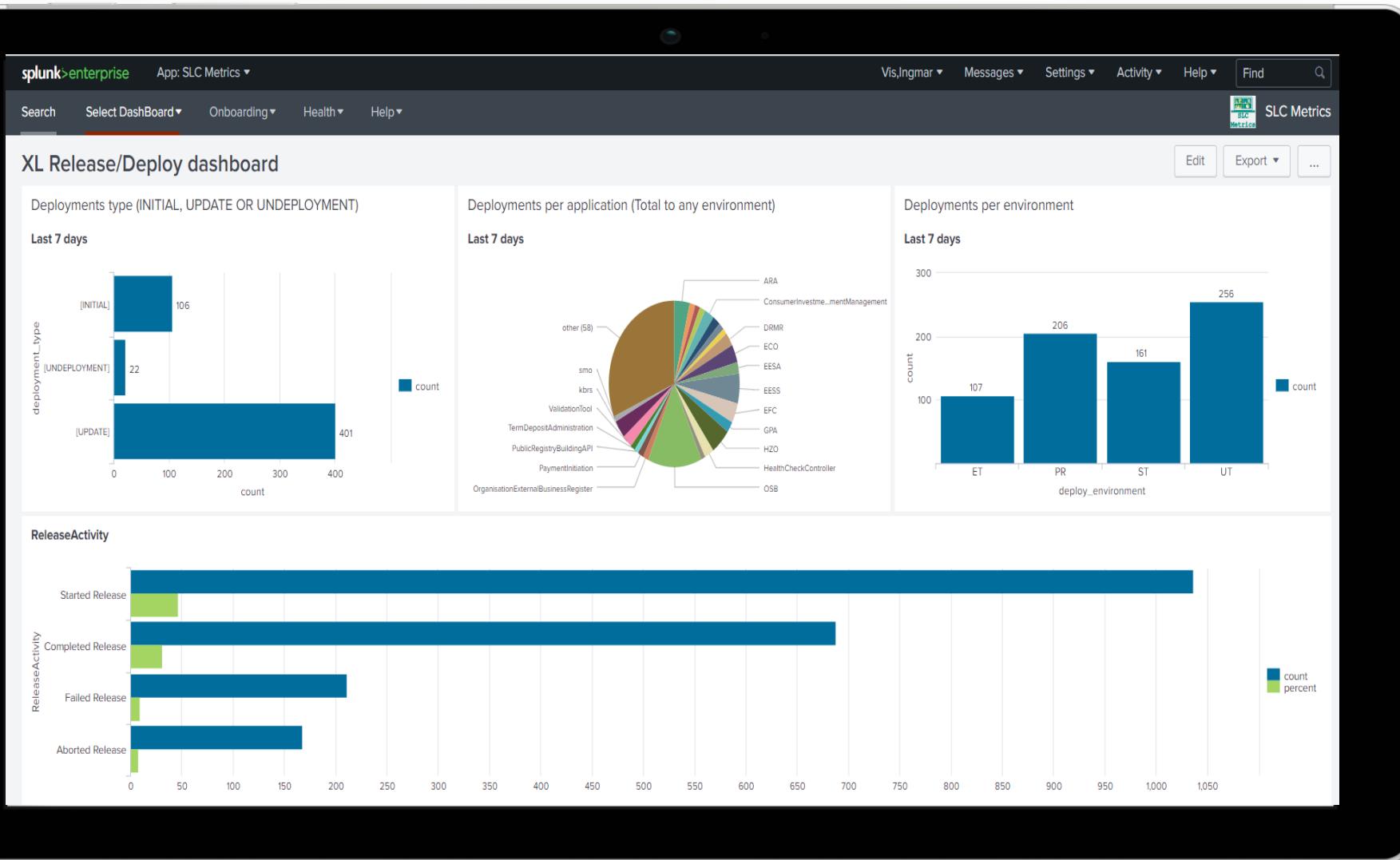
Combining data on quality measurements



- ▶ Totals per CI/CD quality reporting tool
- ▶ Drilldowns to component level
- ▶ Reverse engineering from component to ownership also possible

Release & Deploy Life Cycle

Insights into the time to market



- ▶ XL Release and XL Deploy data
- ▶ Deployments per type, application and environment
- ▶ Releases per status
- ▶ Available on component, team or organizational level

Key Challenges

What we faced

1. Logs insufficient across tool stack
2. Data quality, component ownership & tagging
3. Splunk performance (storage)
4. DevOps Mindset & behavior teams adolescent

Key Takeaways

What we gained

1. Management buy-in for metrics
2. Code quality dashboards add value from day 1
3. Ease of use & ease of implementation

Q&A

Ingmar Vis | Product Owner

Erik Meffert | Splunk Architect

Thank You

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