DevOps @ Fidelity

Investing in Inner Source & Engineering Excellence

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Disclaimer

This presentation is a case study of the Fidelity Investments experience.
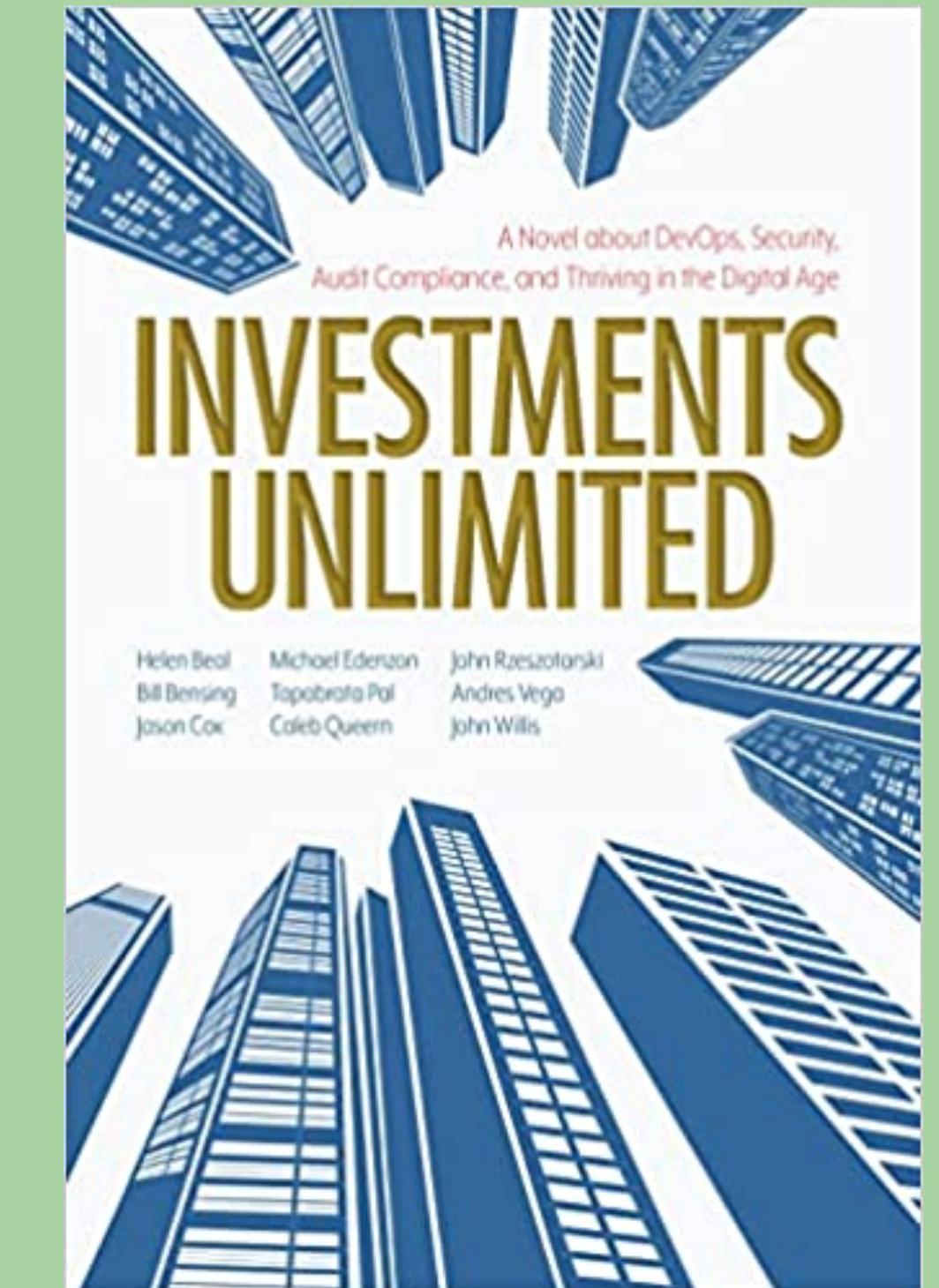
It is not an endorsement or recommendation of any vendor, product or service.

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About me…

Tapabrata "Topo" Pal

Fidelity Investments, VP, Enterprise Architecture

DevOps domain, Open Source Program Office

Developer - Engineer - Open Source contributor - DevOps Enthusiast

- Author

Fidelity Culture Code

Culture portrays who we are and what we aspire to be. We know that happy people are more productive, creative and produce better customer outcomes.

We are here to make difference by delivering quality to our customers, daily.

We believe in leadership at all levels and that titles don't determine what you can and cannot do.

No roles, only role models.

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About Fidelity Investments…
… world's largest and most diversified financial service provider

1946

2022

25 K	~40M	$9.9 T	$3.7 T	2.8 M
Businesses	Individual Investors	Under administration	Discretionary assets	Avg. daily trades

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About Fidelity Investments…

… technologists with a mission to help people

- 1979: *Fidelity Information Phone*
- 1983: *Fidelity Automated Service Telephone (FAST)*
- 1992: *Fidelity On-Line Xpress (FOX)*
- 1995: *Fidelity homepage on the Internet*
- 1996: *401(k) access and transactions over the internet*
- 1999: *FCAT - Fidelity Center for Applied Technology*
- 2005: *Fidelity Labs*
- 2018: *Fidelity Digital Assets*
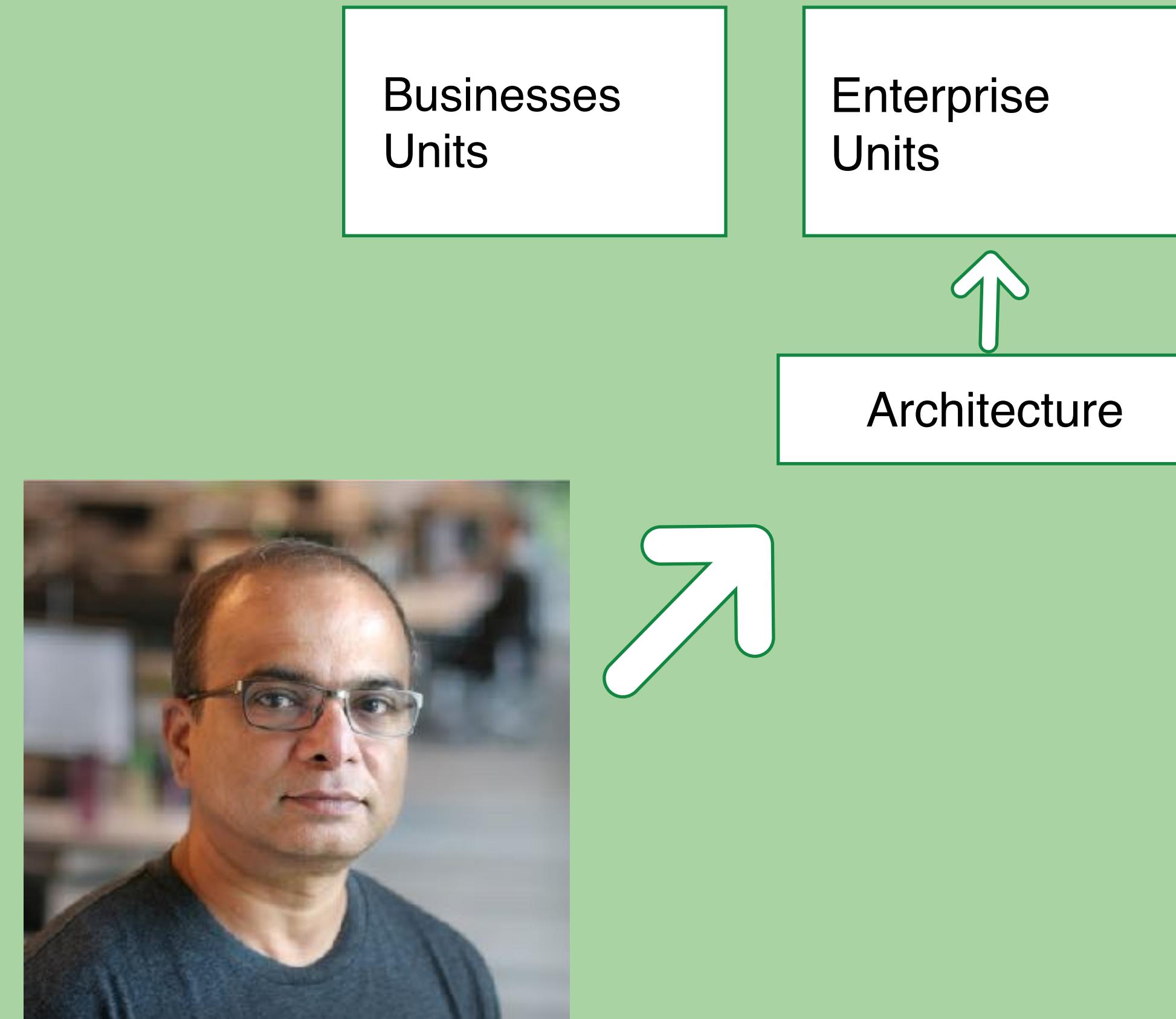
18 K	9	$2.5 B
Tech Associates	Countries	Annual Tech Budget

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Fidelity is a complex organization

… and where I belong in there

Businesses Units

Enterprise Units

Architecture

Fidelity Agile, DevOps, Cloud Journey

… multi public cloud and hybrid

2016
First Cloud Deployment

2017
Enterprise Agile Kickoff

2022
50% App on Cloud

2024
70% App on Cloud

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Fidelity Agile, DevOps, Cloud Journey

... a success story
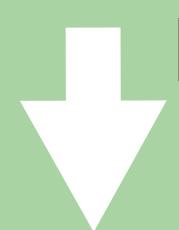
2022
50% App on Cloud

~1,600 Squads   ~18,000 Developers

Oct 2019 — Sept 2022

↓ **Business Impacted Incidents**   ↓ **Change Induced Incidents**   ↓ **MTTR**   ↑ **Changes**

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How do we go to the next level?

… what are our challenges?
… what are we doing?
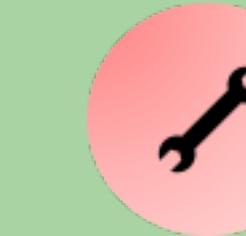
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Challenges

… to get to the next level

Developer Experience

- Onboarding
- Documentation
- Context switching

Tool Sprawl

- Tools, Technologies, Platforms
- Variations
- Modernization

Security, Audit Compliance

- Shifted right
- Late feedback
- Time consuming audit
- Ownership

Metrics

- Lots of metrics
- Lots of techniques
- Many maturity models

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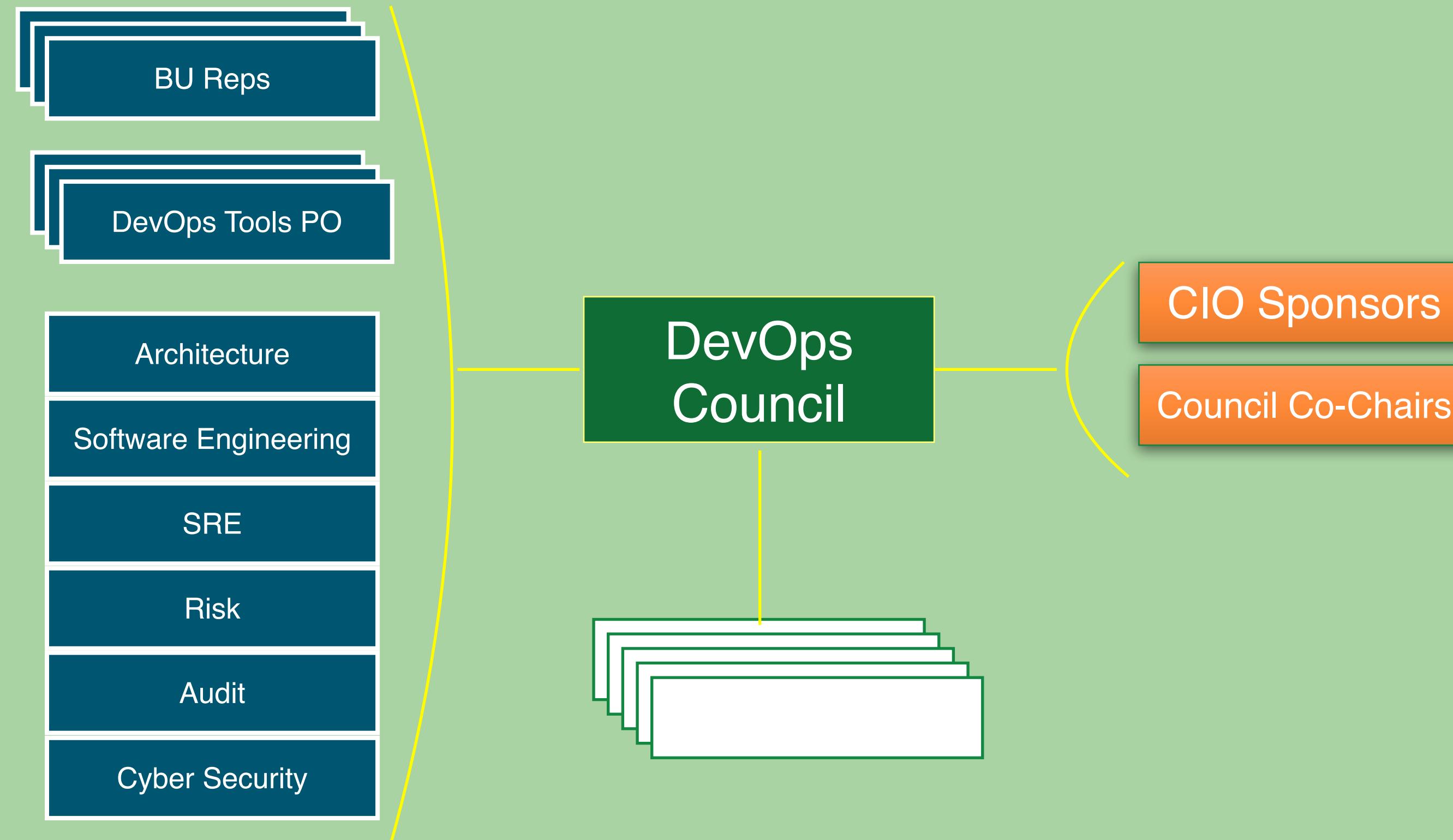
Getting everyone together
… taking benefit of collaborative culture

BU Reps

DevOps Tools PO

Architecture

Software Engineering

SRE

Risk

Audit

Cyber Security

DevOps Council

CIO Sponsors

Council Co-Chairs

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Challenges

… to get to the next level

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Metrics
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… our path to the next level

Unified Developer Experience

Tool Standardization
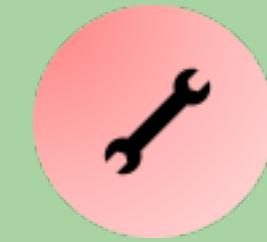
Continuous Compliance

Contextual Metrics

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… our path to the next level

Tool Standardization

Continuous Compliance

Contextual Metrics

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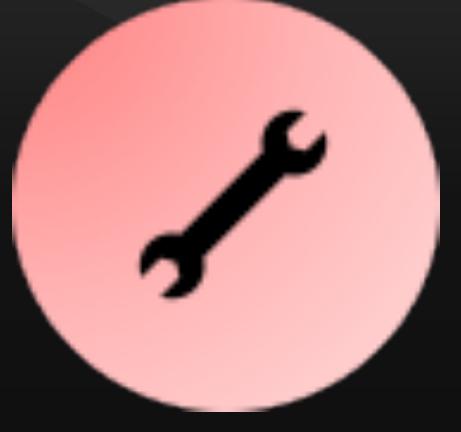
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Tool sprawl is the biggest challenge for all of us

… there are just too many in number and variations

- Standardized Tools

- Standard Pipeline(s)

- Automated Onboarding and Setup

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Security, Audit Compliance must be embedded

… aiming for continuous compliance
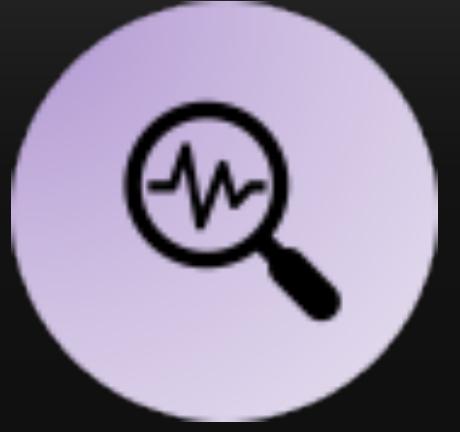
- Security Shift-Left

- Preconfigured, mandated gates in Standard Pipeline

- Pipeline execution data collection as evidence

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Security, Audit Compliance must be embedded
... aiming for continuous compliance

- No persisted production access to *anyone*

- Changes *only* via pipeline: *everything* as source code

- *Every* change is peer reviewed

- *Real time* audit of every change via pipeline evidence

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Contextual Metrics

… Measure what matters

- "Evidence data" to generate metrics

- Measurement: Why, Who, When, What and How

- Avoid "observer effect"

- Measure to improve something

Contextual Metrics

… Measure what matters

As a _____
I want to measure _____
so that _____

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Contextual Metrics

… Measure what matters

As a *Product Owner*
I want to measure *Team's Production Access Frequency*
so that *I can understand Team's Technical Maturity and help improve it*

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Investing in Inner Source

… bringing in open source culture to scale up

Fidelity Inner Source Model

Incubate - Fund - Govern - Manage - Promote - Operate

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Investing in Inner Source

… bringing in open source culture to scale up

2021 - 2022

5

Total Projects

Stats for 1 such project

174	3500	12	~50
Features	**Commits**	**Business Units**	**Active Contributors**

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Help

- If you are using any "DevOps Metrics", I want to learn about what metrics you are using and how they are helping you

- If you are invested in Inner Sourcing, I want to learn about your model, process and any challenges faced

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