DevOps, but Why?

DevOps for Network Engineers

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DEVLIT-4007

Agenda

- Introduction

- What is DevOps
  - Philosophy
  - How it is Implemented

- Implications of DevOps for Network Engineers

- Conclusion

"The cornerstone of DevOps is its philosophy: to create an agile and scalable system by involving both operational and development engineers in all stages of product creation, from idea to release."

DjangoStars

By FixMe

"To integrate this philosophy into the workflow, you use certain practices – CI/CD, automation, infrastructure as code, microservice architecture, etc."

DjangoStars

By FixMe

"And, finally, there is a bunch of tools to implement those practices: Docker, Jenkins, CircleCI and much, much more."

DjangoStars

By FixMe

That's great, but what
does that mean?

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By Way of Example, a DevOps Tale

Our Characters

Let's talk about Jayne (Cobb)

- Software Developer

- Responsible for writing and maintaining only The Coolest Things

- Needs to work quickly so his employer can keep up with the competition

And (George) Parley

- Operations / IT specialist

- Responsible for maintaining the infrastructure that runs The Coolest Things

- (Not so secretly thinks that *this* is the coolest thing.)

- Also needs to work quickly so her employer can keep up with the competition.

And Theo Putnam

- Network Engineer

- Makes sure that Jayne's "Coolest Things" and George's "Coolest Things" can actually communicate

- Knows that there's no point in Being Cool if you can't communicate ...
  - ... and that the same goes for software and infrastructure

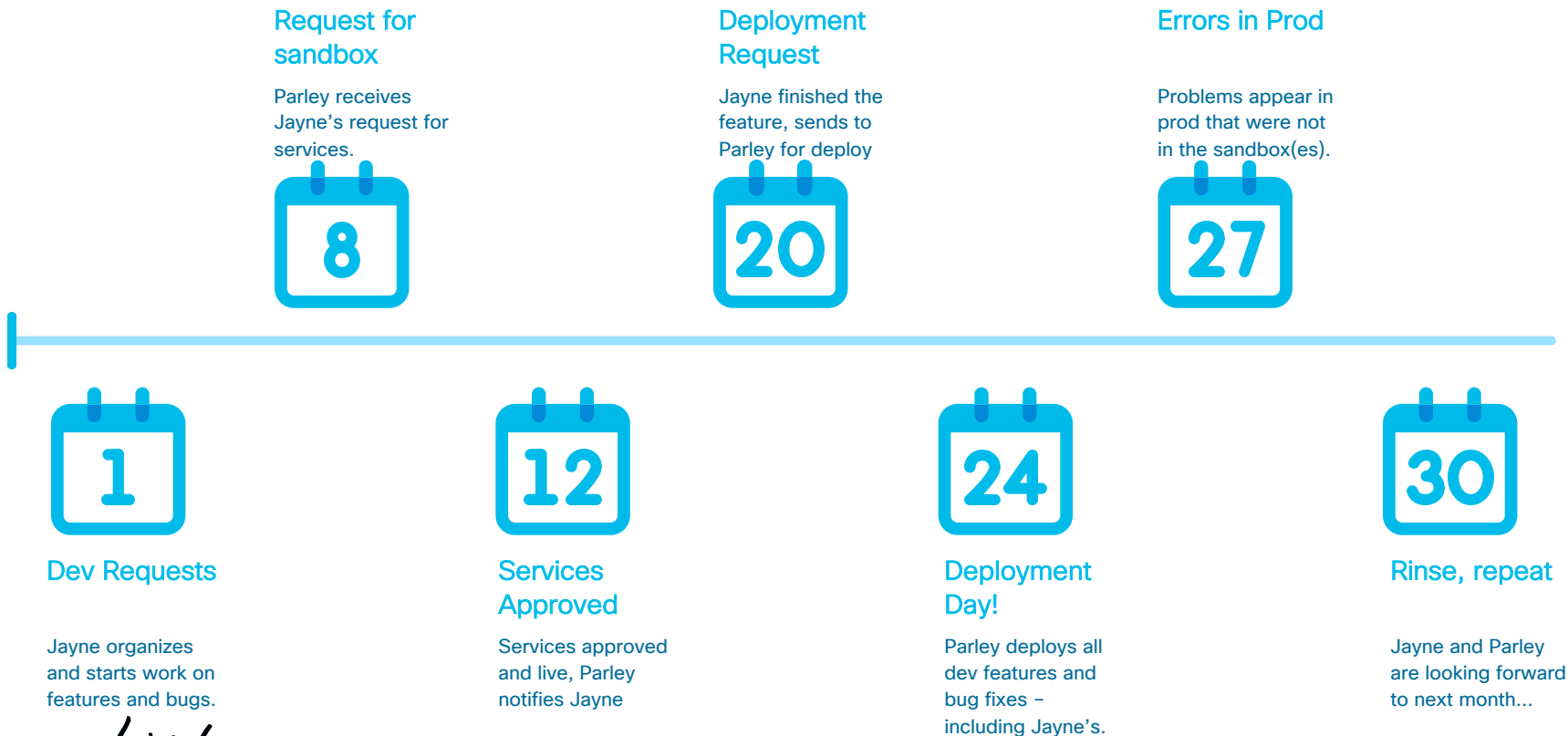- Also, you guessed it, needs to work quickly so his employer can keep up with the competition

Jayne: Let's deploy some software.

Parley: 😅

Theo: 🍿

And so it begins...

Request for sandbox

Parley receives Jayne's request for services.

8

Deployment Request

Jayne finished the feature, sends to Parley for deploy

20

Errors in Prod

Problems appear in prod that were not in the sandbox(es).

27

1

Dev Requests

Jayne organizes and starts work on features and bugs.

12

Services Approved

Services approved and live, Parley notifies Jayne

24

Deployment Day!

Parley deploys all dev features and bug fixes – including Jayne's.

30

Rinse, repeat

Jayne and Parley are looking forward to next month...

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Why does it look like this?

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1. Jayne is not the only developer, Parley has other requests from that team.

2. Parley also has other teams sending requests besides dev.

3. Both Jayne and Parley are doing things manually; therefore...

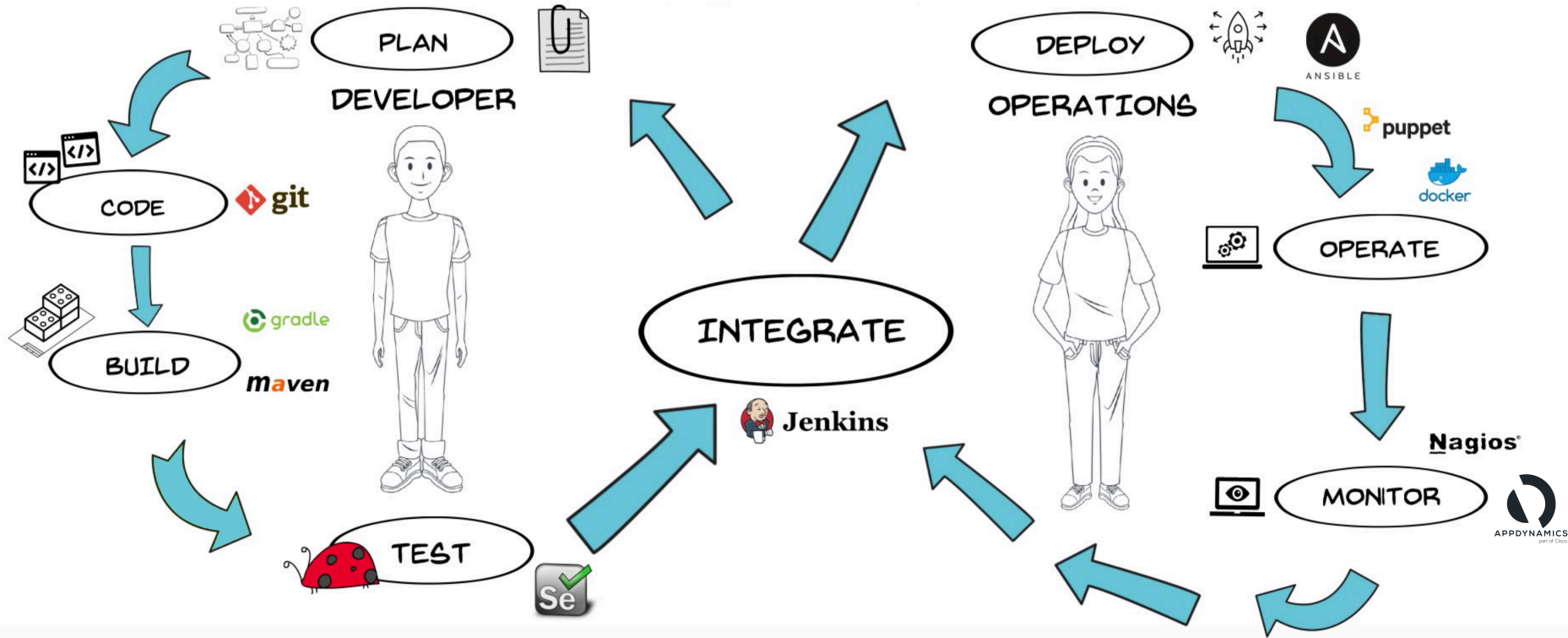cisco *Live!*

4. ...both Jayne and Parley are blocking each other and...

5. ...both are causing delays / bottlenecks.

There must be a
better way.

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DevOps = Dev + Ops

DevOps Lifecycle

DevOps Allows Teams To ...

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#1 Get Feedback Faster

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#2 Respond to That Feedback Faster

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#3 Reduce Risk

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#4 Improve Communication

#5 Adapt to Scale

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All of which yields ...

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... faster release cycles

... faster detection
of issues (MTTD)

... faster resolution
of issues (MTTR)

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... and improved service level agreements and objectives (SLA, SLO)

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And now for Theo

(Did you think I forgot Theo?)

Photo by Jordan Whitfield on Unsplash

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Cisco Prime Network
Change and Configuration Management

Dashboard | Configurations ▼ | Images ▼ | Device Groups

Archived Configurations (Total available archives: 31)

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	Device Name ▲	IP Address	Element Type	Version	Type	Commit Id	Date Changed	Labels	Comments	Cont
☐	crs1	172.18.143.236	Cisco CRS16S	2	running	1000000068	Wed Sep 14 13:18:25 PDT 2011	Temporary	(add a comment)	N/A
☐	Nexus7K	10.77.212.212	Cisco Nexus 70...	16	running	N/A	Thu Sep 15 18:34:44 PDT 2011	New	(add a comment)	Nexu
☐	Nexus7K	10.77.212.212	Cisco Nexus 70...	15	running	N/A	Thu Sep 15 18:20:49 PDT 2011	(add a label)	(add a comment)	Nexu
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All of which leads to ...

... slower resolution times

... slower deploy times

... manual errors

Essentially

"If a team is not operating in the same way as the rest of the business, then all other departments will be slowed down as the siloed department is not agile enough."

-- Steven Armstrong, Bringing DevOps to Network Operations (Packt)

So what can Theo do?

Bring DevOps to Networking!

(NetOps? DevNetOps?) 🤔

Clarification!

This does not mean "just switch to public cloud".

That will hide problems,
not fix them.

Onward to change!

Automate where possible

(e.g. Did you know you can use Ansible with Cisco IOS?)*

* Link in resources

Improve measurements

And Monitor!

What are the results of change?

Faster response to changes

Lower mean time to resolve (MTTR)

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Increased uptime

(and) Higher number of deployments

(Note that these are 4 of the DevOps KPIs 😉)

For even more info about how you too can DevOps, please take a look at my Resources.

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Before you go...

- DevOps is a philosophy that helps traditional "dev" and "ops" teams work together

- DevOps practices can also be applied to other areas, like networking

- Applying DevOps practices will yield improvements in response time, reduced errors, and reduced risk.

Before you go…

- *DevOps is a philosophy that helps traditional "dev" and "ops" teams work together*

- *DevOps practices can also be applied to other areas, like networking*

- *Applying DevOps practices will yield improvements in response time, reduced errors, and reduced risk.*

- For more questions: please join the WebEx room DEVLIT-4007

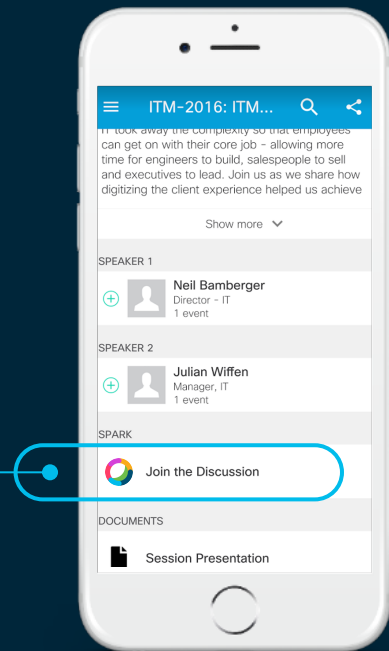- Help me iterate – complete the survey and tell me your thoughts!

Cisco Webex Teams

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Use Cisco Webex Teams to chat
with the speaker after the session

How

1. Find this session in the Cisco Events Mobile App

2. Click "Join the Discussion"

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Related sessions

Start Here | Upcoming Cisco DevNet Certifications

- Start at **Meet DevNet**

  DEVNET-2864: Getting ready for Cisco DevNet Certifications
  Offered daily at 9am, 1pm & 4pm at Meet DevNet

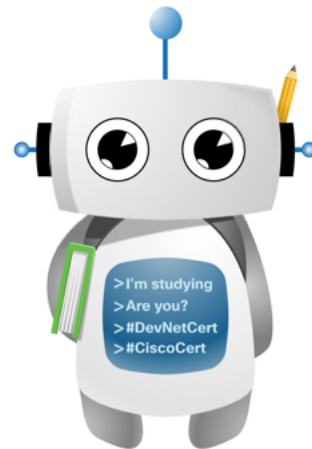- Attend a **brownbag session**

  DEVNET-4099: DevNet Certifications: Bringing software practices & software skills to networking
  Offered daily 12:15-12:45 in the DevNet Zone Theater

- Visit the **Learning@Cisco** booth

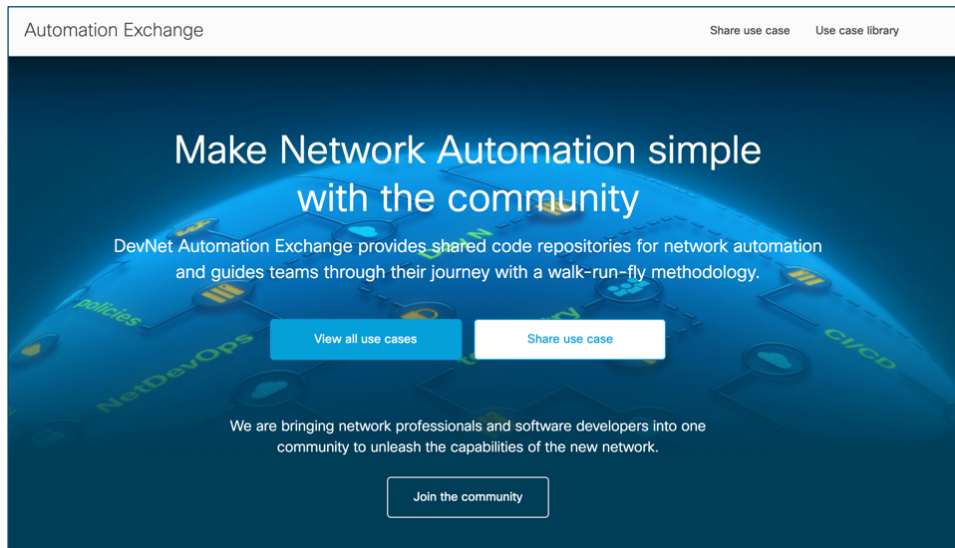- Scan this code to **sign up** for the latest updates or go to
  http://cs.co/20eur02

Find shared code repositories of use cases for network automation & more!

Automation Exchange   Share use case   Use case library

Make Network Automation simple with the community

DevNet Automation Exchange provides shared code repositories for network automation and guides teams through their journey with a walk-run-fly methodology.

View all use cases   Share use case

We are bringing network professionals and software developers into one community to unleash the capabilities of the new network.
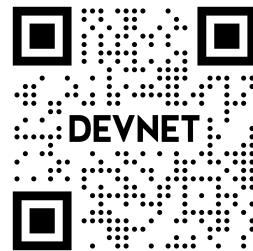
Join the community

Start at **Meet DevNet**

DEVNET-3010 [a-j] Learn how to make Network Automation Simple with the Community
Offered Monday 2pm & 5pm, Tuesday & Wednesday 10am, 2pm & 5pm, and Thursday 10am & 5pm at Meet DevNet

Scan this code or go to the URL to **learn more**

DEVNET

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Learn more about the new DevNet Certifications and how you can prepare now!

	Associate Level	Specialist Level	Professional Level	Expert Level
Engineering	CISCO CERTIFIED CCNA	CISCO CERTIFIED SPECIALIST	CISCO CERTIFIED CCNP	CISCO CERTIFIED CCIE
Software	CISCO CERTIFIED DEVNET Associate	CISCO CERTIFIED DEVNET SPECIALIST	CISCO CERTIFIED DEVNET Professional	CISCO CERTIFIED DEVNET Expert (Future Offering)

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Thank you

You make **possible**