



You make **possible**



# DevOps, but Why?

DevOps for Network Engineers

Quintessence Anx, Technical Evangelist  
@AppDynamics  
@QuintessenceAnx

DEVLIT-4007

**CISCO** *Live!*

Barcelona | January 27-31, 2020



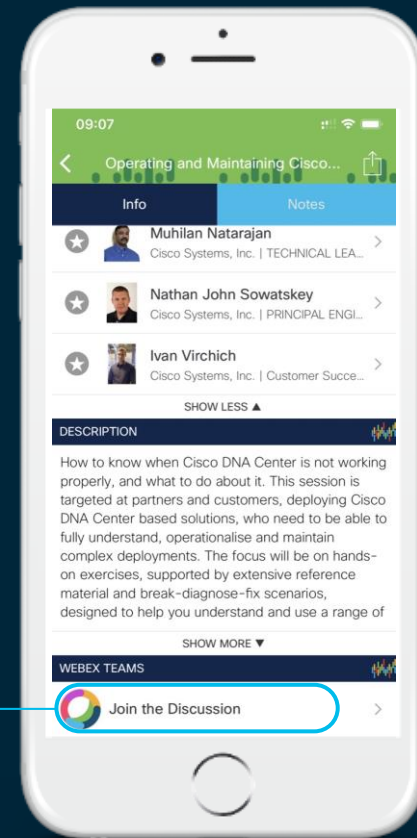
# Cisco Webex Teams

## Questions?

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”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



# 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 Team

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

DjangoStars Team

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

DjangoStars Team

That's great, but what  
does that mean?



# 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

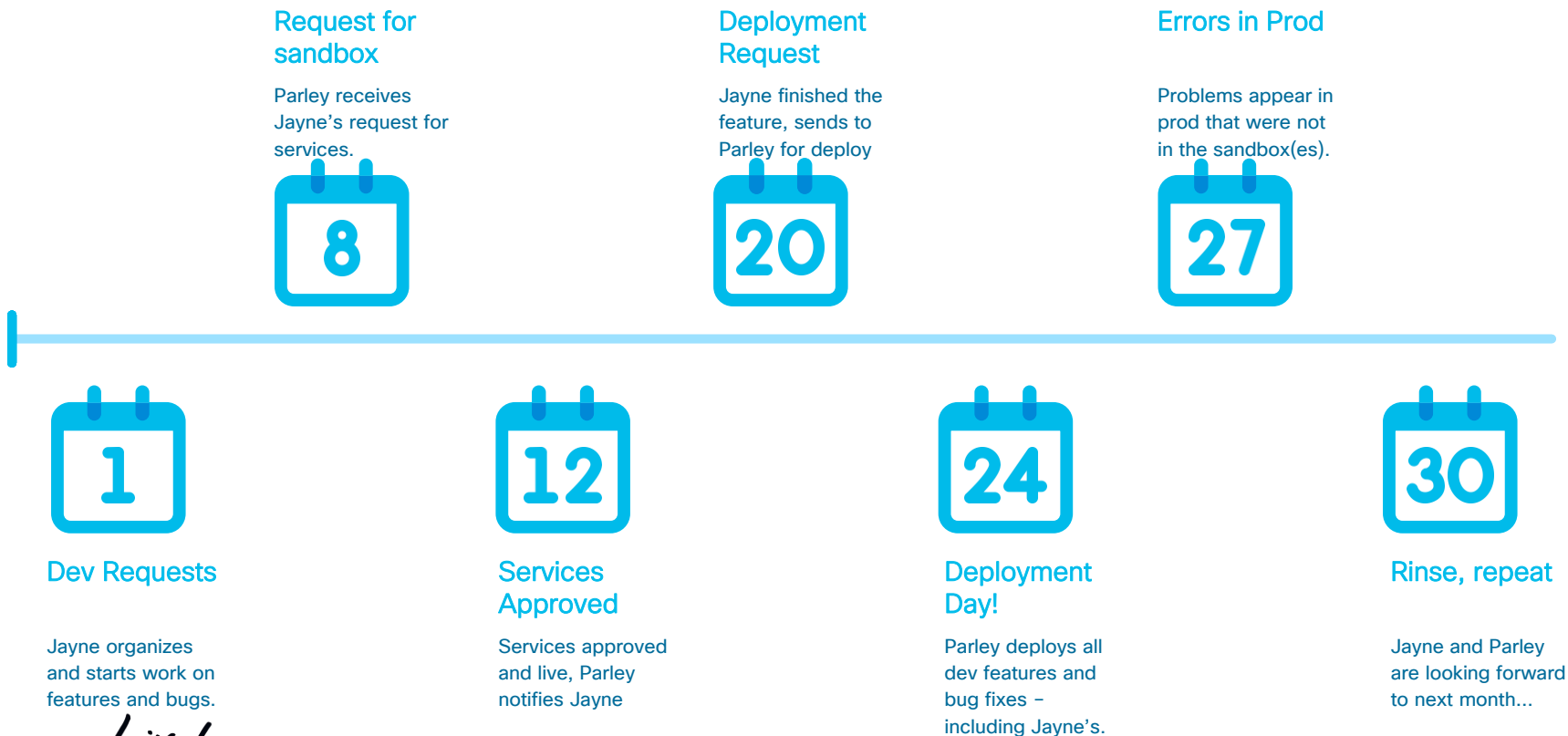
Jayne: Let's deploy some software.

Parley: 😊💧

Theo: 



# And so it begins...



Why does it look like this?

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...

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

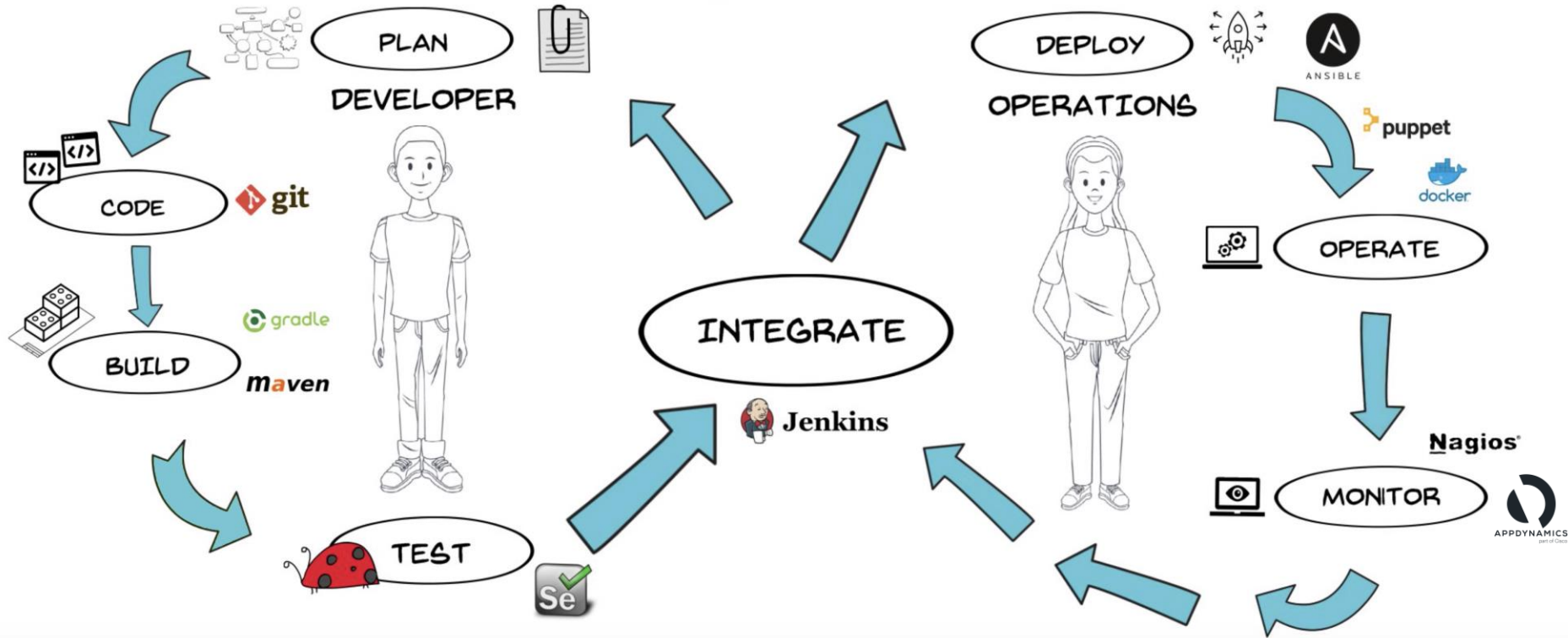
5. ...both are  
causing delays /  
bottlenecks.

There must be a  
better way.



DevOps = Dev + Ops

# DevOps Lifecycle



DevOps Allows  
Teams To ...

# #1 Get Feedback Faster

## #2 Respond to That Feedback Faster

# #3 Reduce Risk

# #4 Improve Communication

# #5 Adapt to Scale



All of which yields ...

... faster release cycles

... faster detection  
of issues (MTTD)

... faster resolution  
of issues (MTTR)

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

And now for Theo

(Did you think I  
forgot Theo?)



Photo by Jordan Whitfield on Unsplash



ITSM  
Service desk project

Queues
 Customers
 Reports
 Customer portal
 Knowledge base
 Settings

ITSM-5
Return to queue

## Network is Slow

Edit
 Comment
 Assign
 Resolve this issue
 Respond to customer

Type: Incident
 Status: **WORK IN PROGRESS** [\(View workflow\)](#)

Priority: High
 Resolution: Unresolved

Component/s: [Public website](#)

-45:36 Time to resolution within 4h

Assignee: Developer  
[Assign to me](#)

Reporter: IT Agent

Votes: 0 [Vote for this issue](#)

Watchers: 0 [Start watching this issue](#)

### Description

Customers cannot complete transactions due to slow network.

### Attachments

Drop files to attach, or [browse](#).

### Issue links

**WORK IN PROGRESS**

### Activity

All Comments Work log History Activity

### Service Desk Request

Request type: Report a problem  
Request type: Work in progress  
Channel: Portal  
[View customer request](#)  
Created: 15/Jul/17 9:20 PM  
Updated: 16/Jul/17 8:15 AM

### Development

[Create branch](#)



Archived Configurations (Total available archives: 31)

1 items selected, Showing 1-10 of 10 10 per page Go

Filter Configuration Type equals All  
And Recently changed archive equals 10 Go Reset

<input type="checkbox"/>	Device Name	IP Address	Element Type	Version	Type	Commit Id	Date Changed	Labels	Comments	Cont
<input type="checkbox"/>	crs1	172.18.143.236	Cisco CRS16S	2	running	1000000068	Wed Sep 14 13:18:25 PDT 2011	Temporary	(add a comment)	N/A
<input type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	14	running	N/A	Thu Sep 15 17:55:19 PDT 2011	(add a label)	(add a comment)	Nexu
<input checked="" type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	13	running	N/A	Thu Sep 15 12:01:27 PDT 2011	(add a label)	(add a comment)	Nexu
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	12	running	N/A	Thu Sep 15 05:42:54 PDT 2011	(add a label)	(add a comment)	Nexu
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	5	startup	N/A	Wed Sep 14 17:41:27 PDT 2011	(add a label)	(add a comment)	Nexu
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	7	startup	N/A	Wed Sep 14 17:41:27 PDT 2011	(add a label)	(add a comment)	Nexu
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	6	startup	N/A	Wed Sep 14 17:41:27 PDT 2011	(add a label)	(add a comment)	Nexu
<input type="checkbox"/>	Nexus7K	10.77.212.212	Cisco Nexus 70...	4	startup	N/A	Wed Sep 14 17:41:27 PDT 2011	(add a label)	(add a comment)	Nexu



All of which leads to ...

... slower resolution times

... slower deploy times





*“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)

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.

# 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!



Slides, Live Streaming, and  
Recordings Available on Cisco Live

<https://www.ciscolive.com/online>

References & Reading  
Available on Notist

<https://noti.st/quintessence>



Barcelona | January 27-31, 2020



# 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**

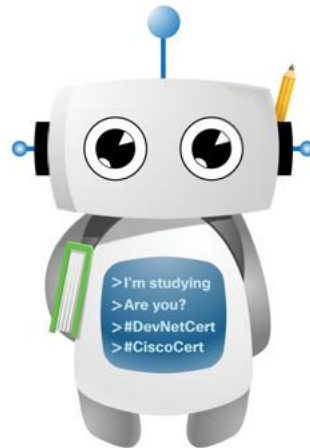
DEVNET-4099: DevNet Certifications: Bringing software practices & software skills to networking

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>

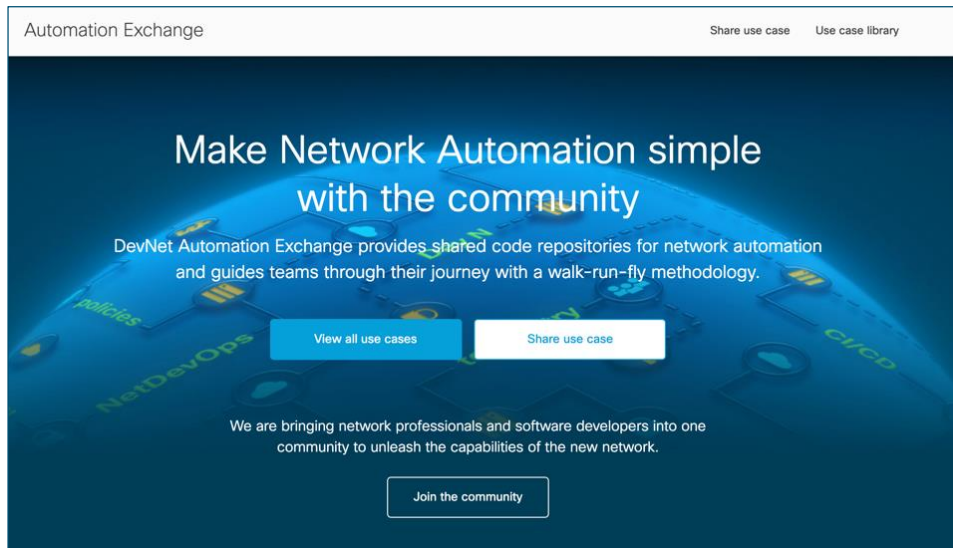


**cisco** *Live!*



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

Don't miss our 5  
Automate Infrastructure  
demos in the  
DevNet Zone!



## 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

**cisco** *Live!*

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



<http://cs.co/20eur01>

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

	Associate Level	Specialist Level	Professional Level	Expert Level
Engineering				
Software				



# Complete your online session survey



- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (starting on Thursday) to receive your Cisco Live t-shirt.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Content Catalog on [ciscolive.com/emea](https://ciscolive.com/emea).

Cisco Live sessions will be available for viewing on demand after the event at [ciscolive.com](https://ciscolive.com).



# Continue your education



Demos in the  
Cisco Showcase



Walk-In Labs



Meet the Engineer  
1:1 meetings



Related sessions



Thank you





You make **possible**