Using Kubernetes to Build a Microservices Cloud Native Network OS to Bring CI/CD to Networking

April 4, 2019
Agenda

• About Me
• The need for CI/CD in Networking...
• What is CI/CD?
• How does the network fit in? – Why is it special?
• What is the automation landscape today?
• Why isn’t this good enough for CI/CD?
• Maybe the network isn’t special?
• Tackling this from the network OS level...
• Why is Kubernetes perfect for the job?
• Steps you can take now...
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About me

• Glenn Sullivan, Co-Founder SnapRoute
• Former network engineer running global DC ops at Apple
• Using whitebox switches since the early days
• Started SnapRoute to build solutions for operators, by operators
The need for CI/CD in Networking...
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What is CI/CD?

Plan
Build
Test
Deploy
Operate
Monitor

CI/CD

Google Trends

2016  2016  December  January  June  2017  December  January  June  2018  December  January  April  2019


0  20  40  60  80  100  120

Plan
Deploy
Monitor
Dev
Test
Ops
What is CI/CD?
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CI/CD = Constant, Little Changes
What is CI/CD?

Source: codefresh.io
How does the network fit in – Why is it special?
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Source: Javier Santos Paniego, Scala Developer & Co-Founder of Scalera Blog
Tackling this from the network OS level...
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Why is Kubernetes perfect for the job?
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Source: thenewstack.io/ebooks/kubernetes/ci-cd-with-kubernetes
• Native embedded Kubernetes
• Yocto base
• Hardware abstraction
• KubeAPI / REST API Layer
• Cloud Native CLI
• Telemetry Layer
Steps you can take now...

- Use CI/CD to adopt CI/CD
- Get rid of the culture of “NO”
- Use SnapRoute CN-NOS in your environment ;)
- Define clear roles for each team
- Find manual, repetitive changes – get rid of them
- Change maintenance window times
- Networks are not sacred – don’t treat them as such
- Decrease time between upgrades – build the muscle
- Start small and build upon easy wins