

**GET  
TOGETHER  
GO  
FASTER**  
EUROPE 18-20 MAY 2021

## DevOps Enterprise Summit Europe 2021

### Scaling Enterprise BizOps by automating DevOps practices

Praz, Akash, Ramesh



KLOUDLE



**BYJU'S**  
The Learning App





# EDUCATION FOR ALL

We believe in the democratisation of education to ensure that every child gets an opportunity to learn. Through our tech-driven learning programs, we are committed to empowering children in the most remote geographies and underserved communities.



# THIS MEANS MILLIONS OF STUDENTS BEING ONBOARDED

So we embarked on transforming how we delivered value by embracing the 3 pillars

## 3 PILLARS

### DATA SECURITY

#### DEVSECOPS

- Data Security
- No Prod Access
- Security Alerts
- Prepped for IR
- Automated Response
- Secure Defaults
- Compliance, Benchmarking

### CONTINUOUS DELIVERY

#### STANDARDIZED

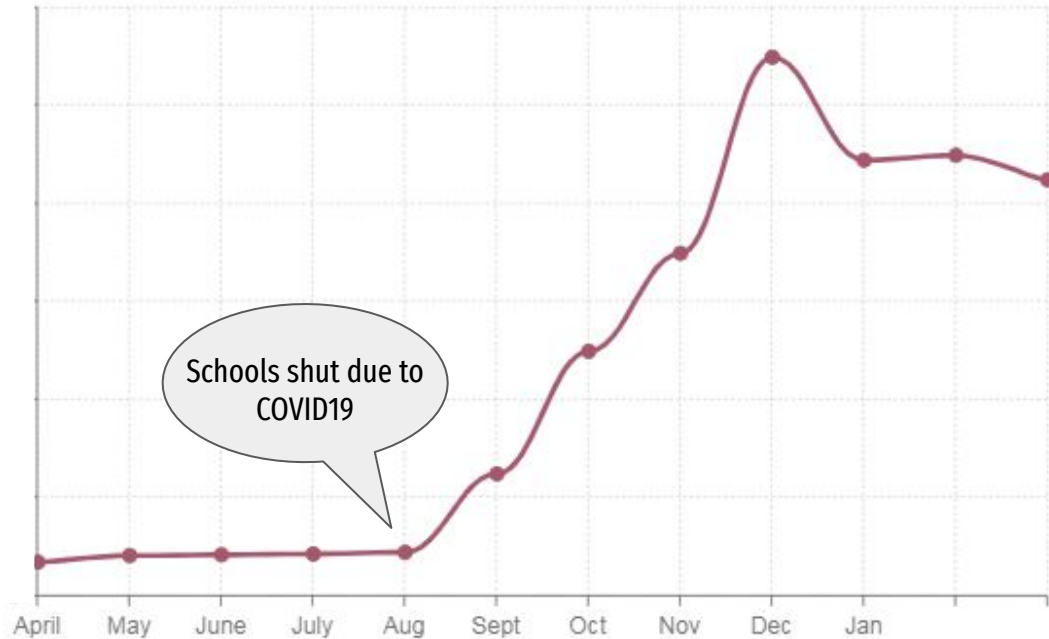
- Automated build
- Automated deploy
- No human intervention
- Centralized logging
- Dockerized

### CONTINUOUS INTEGRATION

#### AUTOMATED

- Staging secured
- Approval based merge
- Semantic versioning
- Artefact based deploy
- Verifiable release
- Performance monitoring

# RESULTS



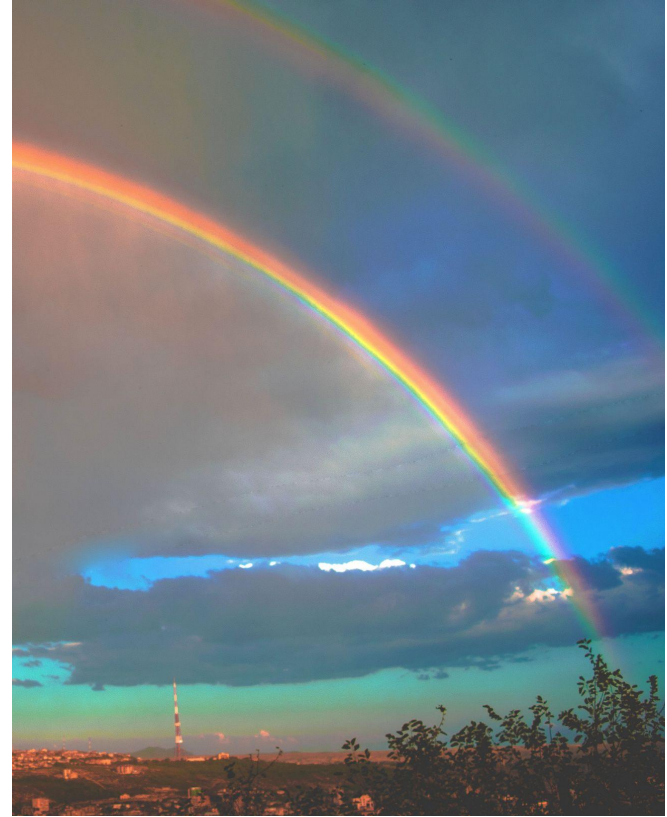
Live classes using video stream during the pandemic.

At its peak, simultaneously 12,000 students took advantage of Live classes

**WE WERE PREPARING FOR**



**WHEN THE WEATHER WAS**

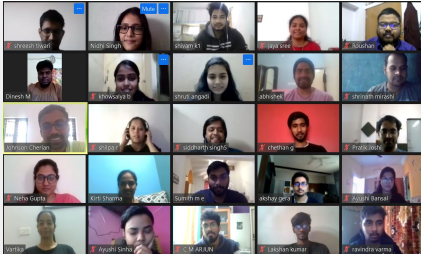




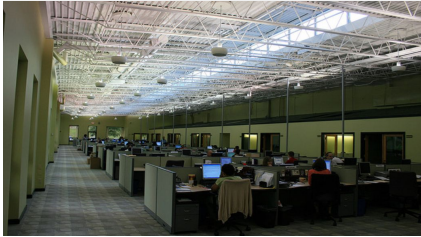
# BUT THIS HAPPENED



# WHAT WE WERE NOT PREPARED FOR



100+ Engineering team went fully remote



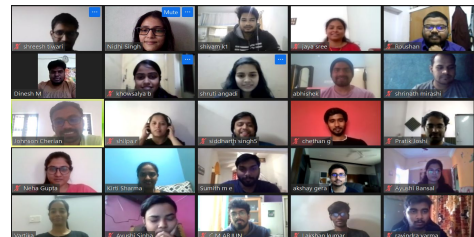
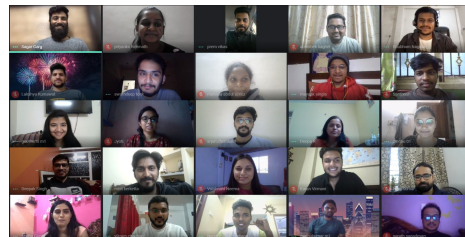
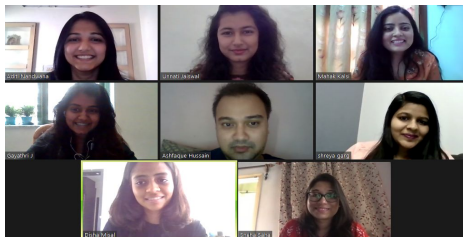
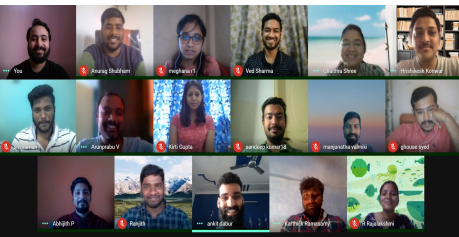
12,000+ Sales team went fully remote from feet on street model



2,000+ Operations team had to use digital means to manage Sales Operations

# NEW NORM FOR ENGINEERING : ONLINE ONBOARDING AND GETTING MENTORED

Avg Age 25 years





# PRINCIPLES FOR ENABLING DEVOPS TRANSFORMATION

1. Secure coding standards (OWASP)
2. Cloud configuration standards (AWS well architected framework, CIS)
3. Pipeline based approval process to push code to production
4. Hard boundary between production and the rest
  - For e.g, No prod access by default for human operator
5. Standard operating procedures documented in shared Knowledge base

# BALANCED INCREASING LOAD BY FOLLOWING CAMS

New business initiatives

Triumph of shared culture

Remote first

Automation first

Scale massively

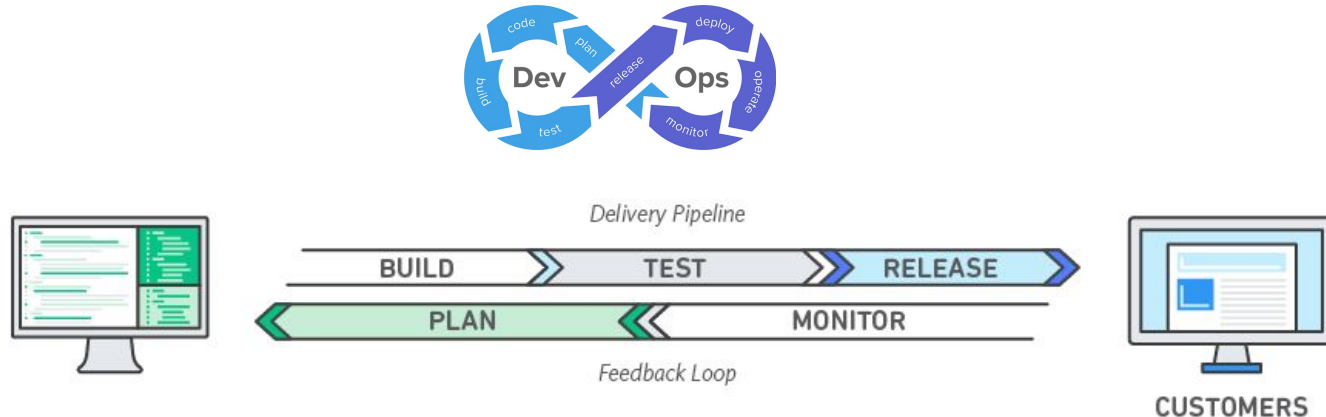
Built-in efficiency

Scaling Live classes

Continuous monitoring

Scores of new business applications

Enterprise wiki for KB



# EMPLOYEES EXPERIENCED HUGPS

Imagine 100+ engineers who are solving a higher purpose of education for all :

- Well rested
- Secure in their homes
- Enjoying building for the future
- Not getting bogged down by the toil usually introduced as security measures or half done DevOps transformations

# BUSINESS TEAM

- Education for all is our mantra
- Business went crazy huge because schools were shut, parents were worried...
- This meant, we had an opportunity which may occur as an obstacle to many to grow with the growing demand etc.
  - Giving an example with a number useful
- BizOps team was not only able rally around to make sure stuff was just running as usual, they became our x-factor in helping us tweak and release new product lines, as we saw the market demand better and more effective learning outcomes



# Cloud Transformation Secured

- Covid has been and continues to be a massively difficult time for everyone. This has stress tested the best of security focussed orgs
- While many due to working remote from insecure networks etc. fell prey to attackers, BYJU'S bizops was already matured in their cloud security transformation done as part of tech DevOps and DevSecOps



For example if someone logs into SSH on production, this triggers a RCA process



# WELL RESTED EMPLOYEES PERFORM BETTER

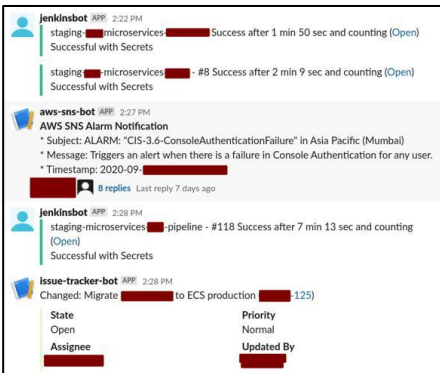
“ Kloudle monitored our entire cloud-native infrastructure and provided a full view of security; they enabled us with critical alerts that required our immediate attention. Our engineering team grew 10X, but we still follow the straightforward GitHub release patterns while the security magic happens natively.



Prashanth BN  
AVP, Technology, Byju's

*There is a correlation between staying secure and the amount of stress people responsible for data security may experience*

# SECURITY TEAM AS AN ENABLER



- Continuous monitoring and data security processes done with automation ensured that it didn't matter where the admins were sitting while doing the work

- By embracing the cloud-native world, the employees were not left struggling to deal with old fashioned jump hosts/VPNs that require proprietary software to run and consume massive bandwidth which can be a challenge for a staff from 25+ states in India

```
#] ip link add wg0 type wireguard
#] wg setconf wg0 /dev/null
#] ip -4 address add [redacted] dev wg0
#] ip -6 address add 2001:db8:[redacted] dev wg0
#] ip link set mtu 1420 up dev wg0
#] wg set wg0 fwmark 51820
#] ip -6 route add [redacted]
#] ip -6 rule add n [redacted]
#] ip -6 rule add t [redacted]
#] ip6tables-restore -n
#] ip -4 route add [redacted] dev wg0 table [redacted]
#] ip -4 rule add not fwmark 51820 table [redacted]
```

# OUR UNIQUE SITUATION

- Growing biz
- The massive scale
- DevOps and the way to work
- With automation first approach



# TRANSFORMATION DUE TO DEVOPS

*This has taught us that this is a movement that is truly transformational. We are able to support the incredible goal of education for all, while a lot of people are in need and crisis is around us.*



## Q&A

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