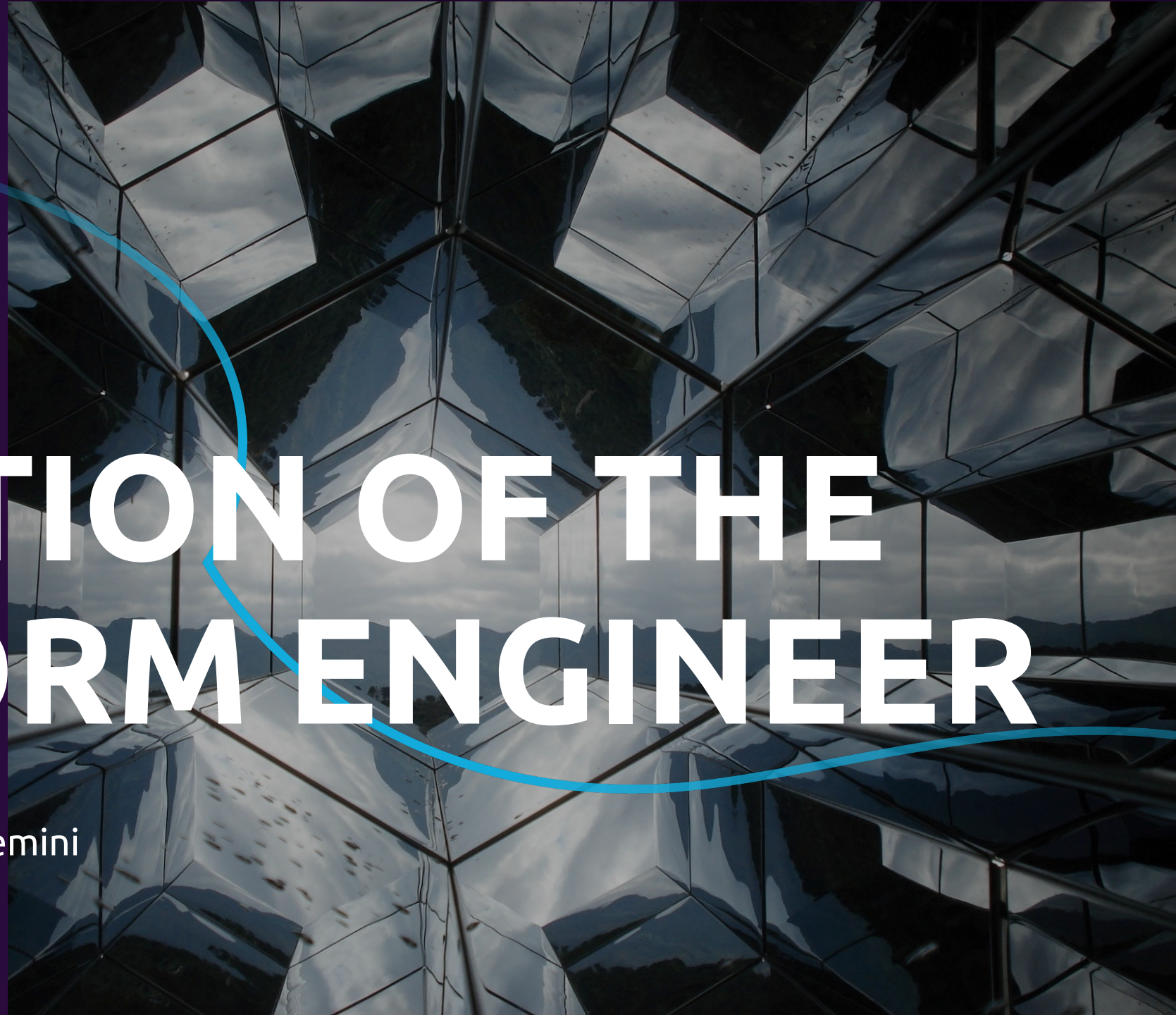
C&CA CLOUD & CUSTOM APPLICATIONS



EVOLUTION OF THE PLATFORM ENGINEER

Sarah Saunders

Staff Software Engineer @ Capgemini

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WHAT IS PLATFORM ENGINEERING?

Platform Engineering is the discipline of designing and building toolchains and workflows that enable service capabilities for software engineering organisations in the cloud-native era. Platform engineers provide an integrated product most often referred to as an “Internal Development Platform” covering the operational necessities of the entire lifecycle of an application.

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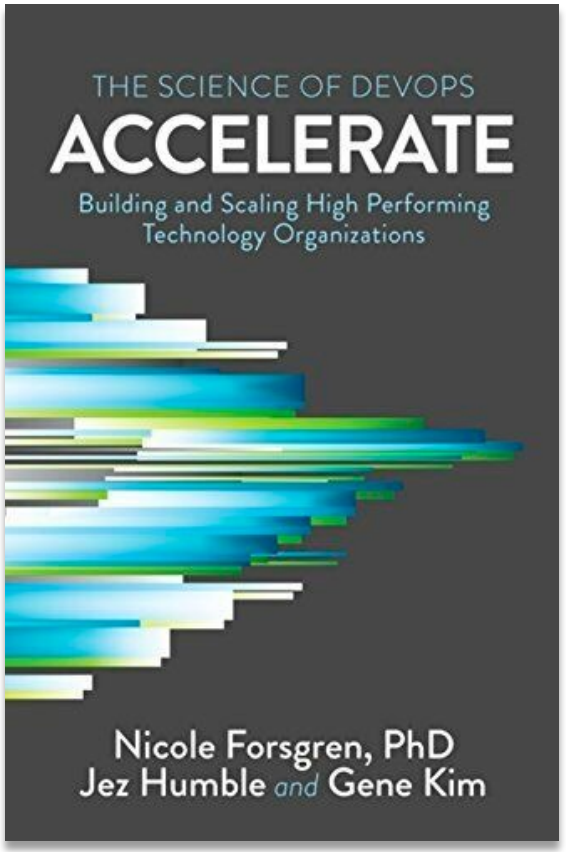
EVOLUTION DEFINITION

- Divergent
- Constant
- Multi-branched
- Driven by Environmental Change

WHAT'S CHANGED?

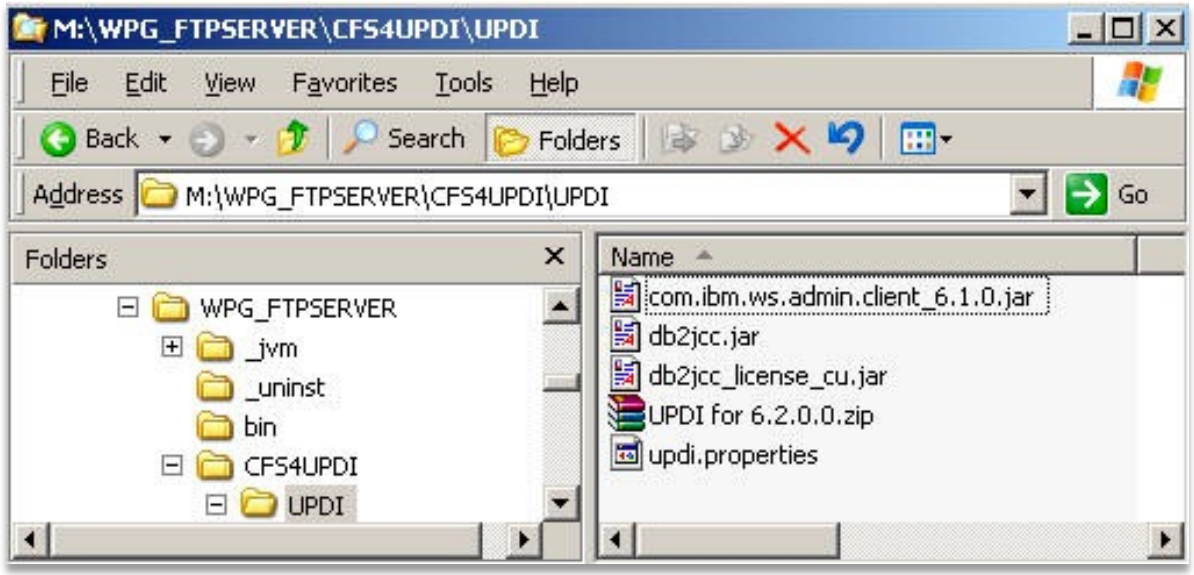
HYPERSCALERS

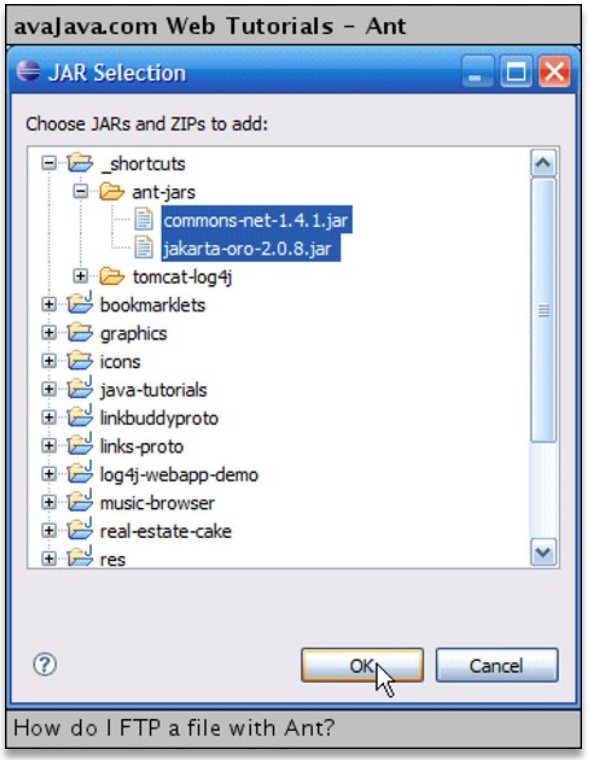
DEVOPS RESEARCH AND ASSESSMENT



OPEN SOURCE DEVELOPMENT

DEPLOYMENT PIPELINE HISTORY

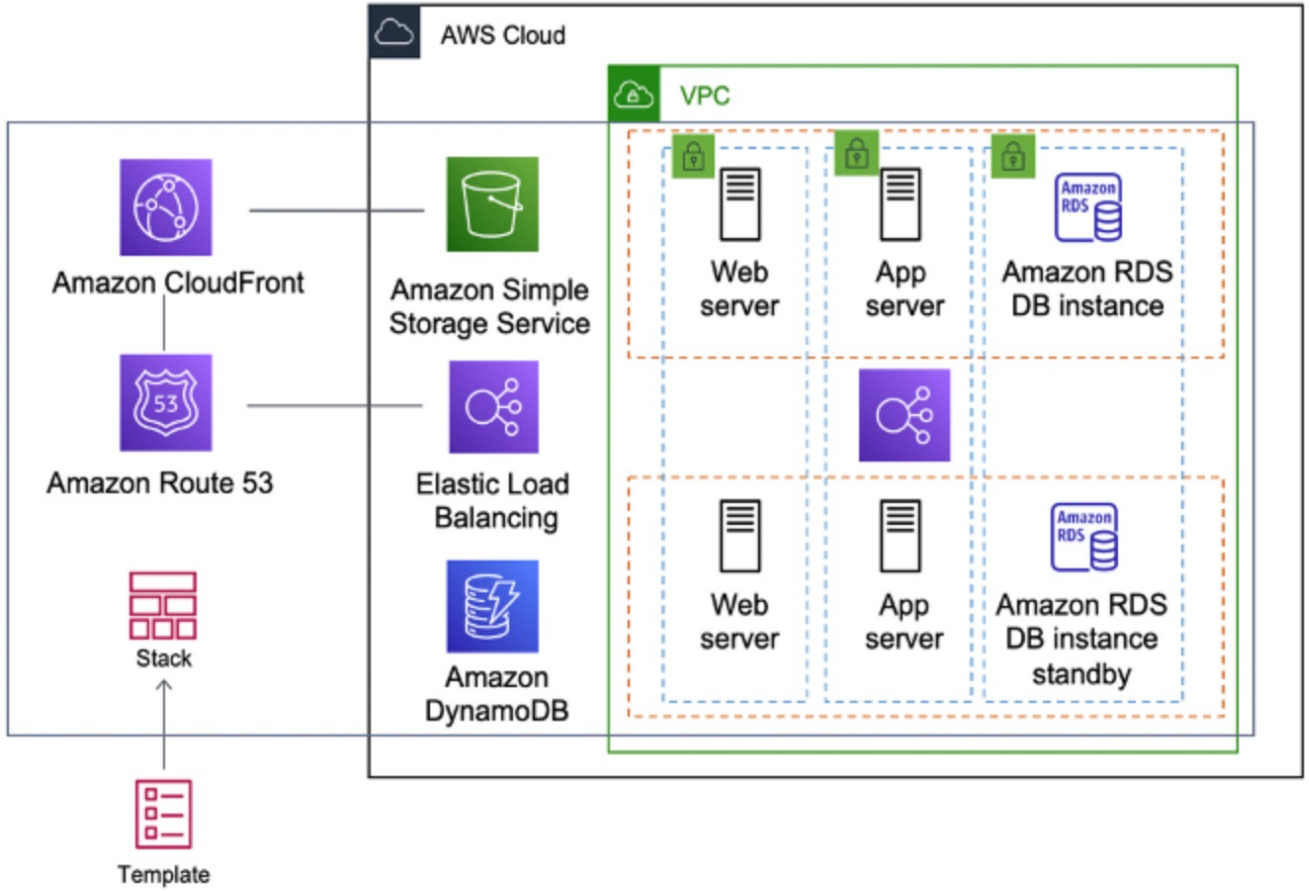




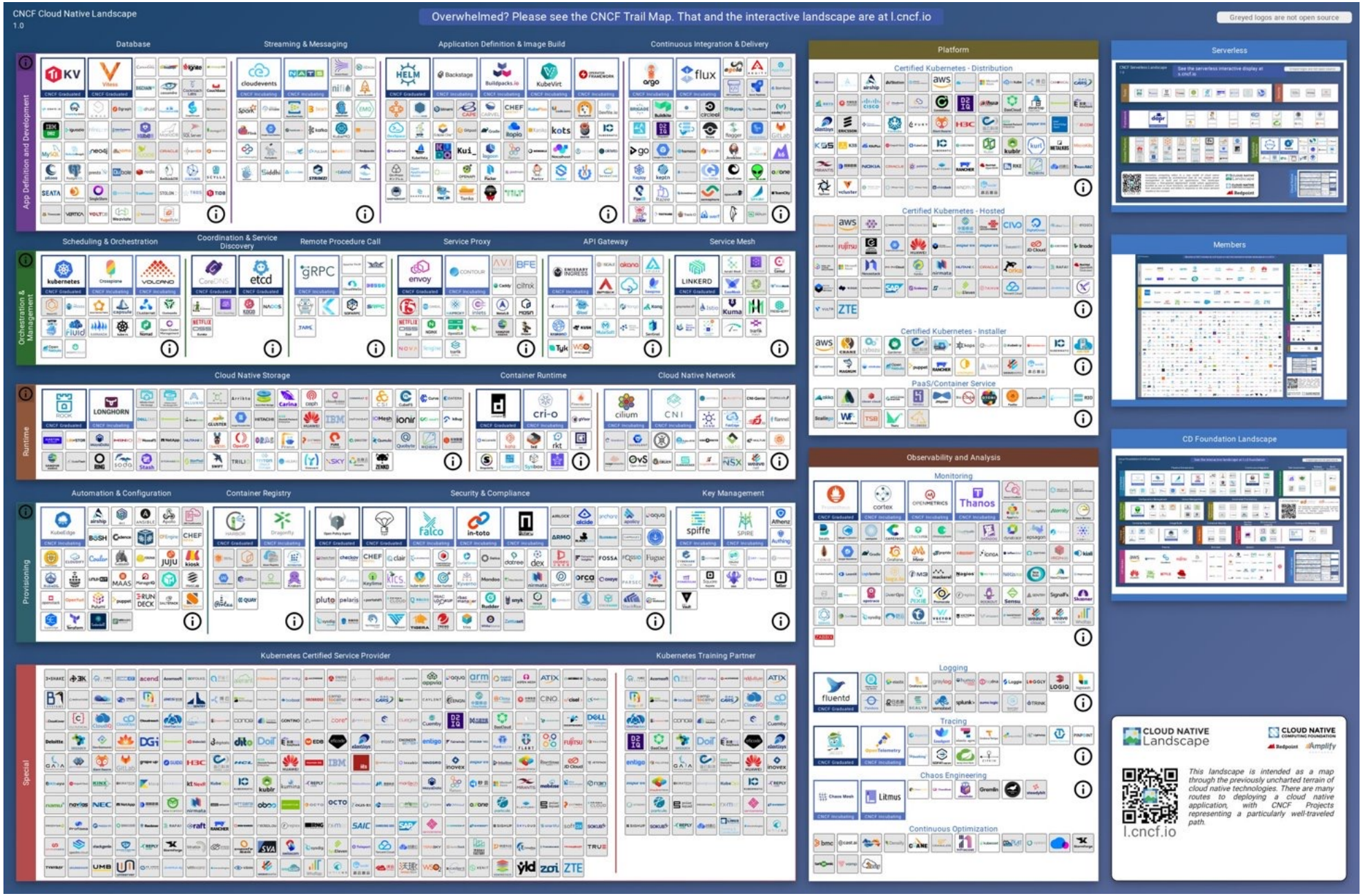

```
> imcl install com.ibm.websphere.ND.v85 -repositories /home/ND -installationDir
  ectory /QIBM/Proddata/WebSphere/AppServer/V85/ND -properties was.install.os40
  0.profile.location=/QIBM/userdata/WebSphere/AppServer/V85/ND -sharedResources
  Directory /QIBM/userdata/installationmanager/IMShared -acceptLicense -showPro
  gress
                  25%                   50%                   75%                  100
  %
  ------------------|-------------------|-------------------|------------------|
  ..................................................................................
  Installed com.ibm.websphere.ND.v85_8.5.0.20120501_1108 to the /QIBM/Proddata/
  WebSphere/AppServer/V85/ND directory.
  $
```

THE ARRIVAL OF THE CLOUD

DEFINITION OF "ENVIRONMENT" CHANGES



AWS CloudFormation creating an entire environment (stack) from one template



PRINCIPLES OF THE MODERN PLATFORM

- EPHEMERAL
- ZERO TRUST
- PLUGGABLE
- SELF-SERVICE
- ATTESTABLE

PLATFORM PROBLEMS OVERVIEW

- Cognitive Overload
- Goldilocks Problem
- Should vs Could
- Unicorn Problem

COGNITIVE OVERLOAD

Process complexity induces cognitive overload and prevents fast flow of releases.

You need to pick an abstraction level over technologies such as Kubernetes, Kafka so that developers can use them without getting mired down in the “how”

GOLDILOCKS – THE GAP

Gap between platform functionality and developer expectations

Platform team don’t appreciate the gap in developer skills / knowledge

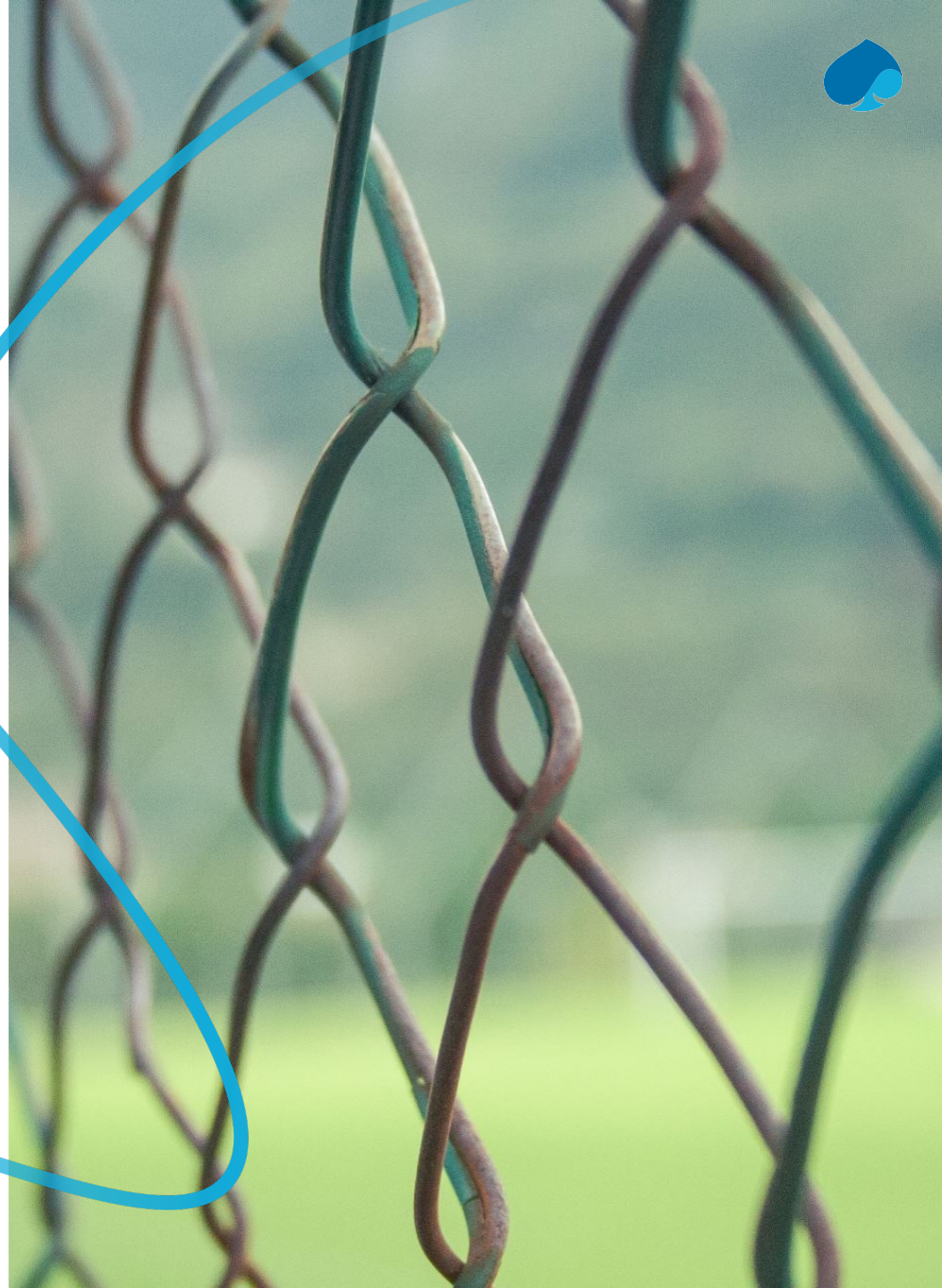
SHOULD VS COULD

Ongoing lack of communication or poor communication routes between platform team and dev team can result in monstrous platforms which operate far outside their requirements.

GOLDILOCKS – BABY BEAR

If a platform is too restrictive and tries to hand-hold and corral developers too much, they will not use it.

And they can be incredibly inventive to get round restrictions….



THE UNICORN PROBLEM

Who has the breadth of skills to keep a handle on all this stuff and decide what's important?

Who writes the job specs?

Who can translate developer requirements?

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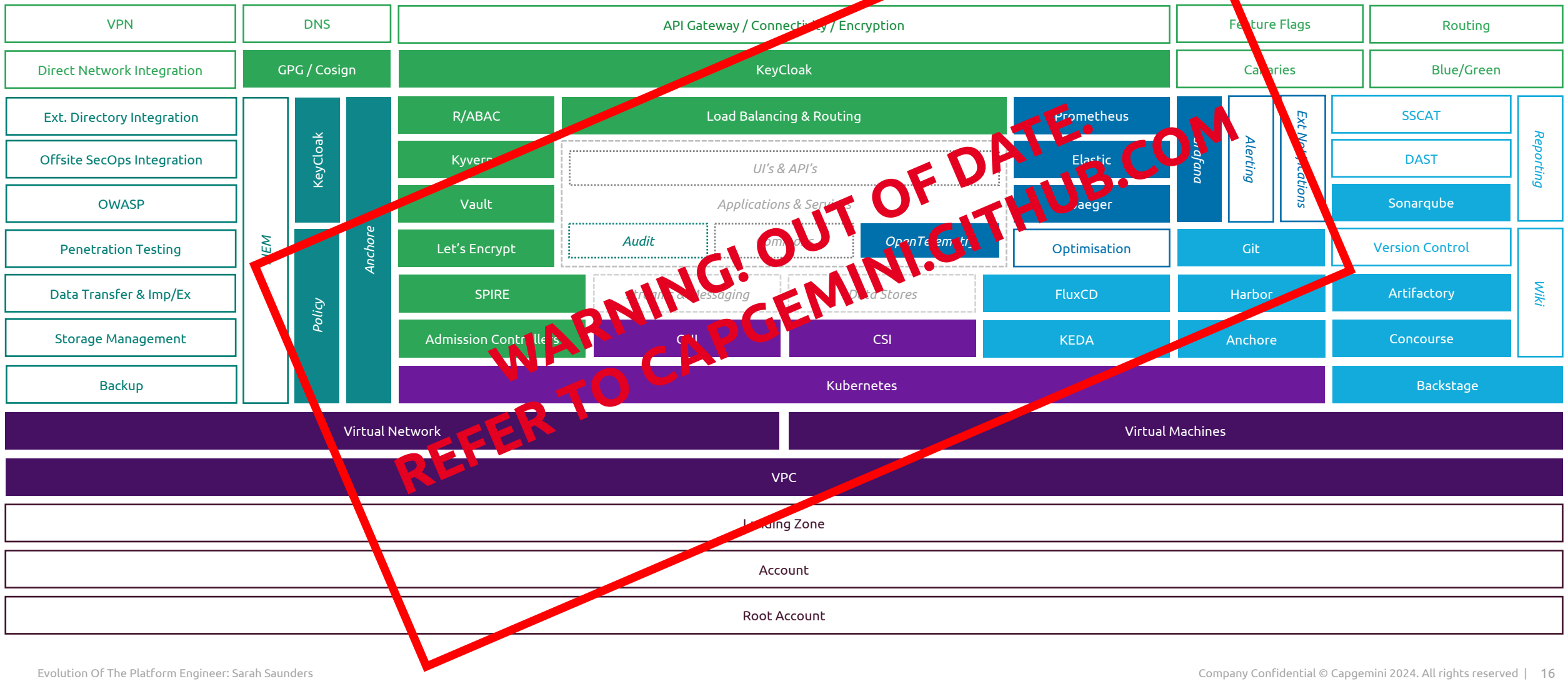
SOLUTION: THE PAVED ROAD

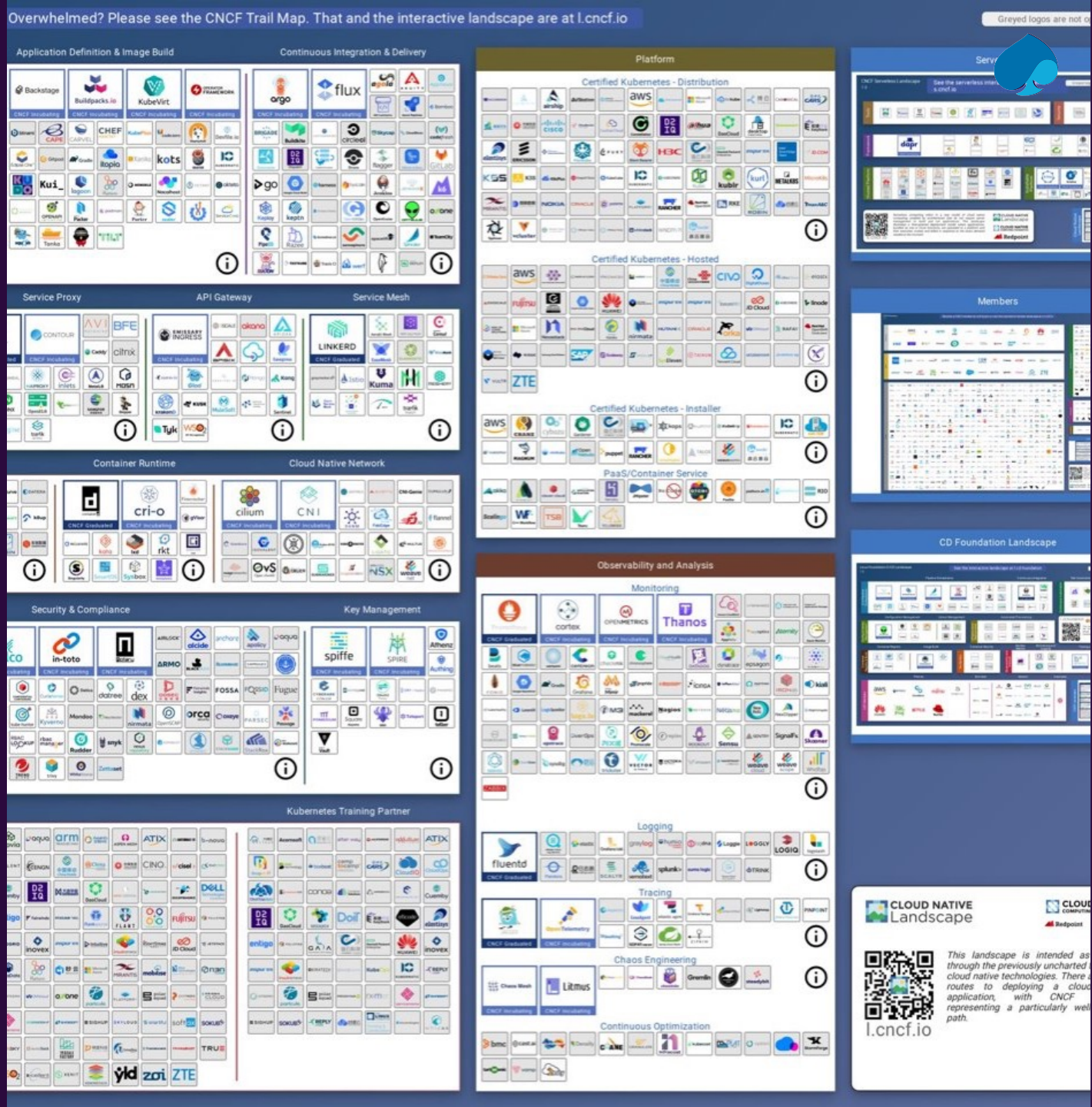
Developer Platform Product

CAPGEMINI "CREATE" - THE PAVED ROAD



SO, DO WE NEED PLATFORM ENGINEERS?

YES!



TODAY'S PLATFORM ENGINEER

- Customer facing
- Agile principles
- Metrics oriented

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SOLUTION PLATFORM AS A PRODUCT

Agile Practices to create a Usable Platform

TODAY'S PLATFORM ENGINEER

PSYCHOLOGICAL SAFETY

- Creating a high-trust, low-blame culture
- Teams that feel supported through funding and leadership sponsorships
- Flexible work arrangements

-40%	+40%	-30%
Fewer safety incidents	Productivity	Attrition

YOU CAN:

- Lead by example
  - Fail publicly!
- Take Ownership
  - RACI matrixes

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IS IT WORTH IT?

"THE BEST TEAMS DEPLOY 973X MORE FREQUENTLY AND HAVE LEAD TIMES 6750X FASTER WHEN COMPARED TO LOW PERFORMERS."

JUSTIFYING PLATFORM INVESTMENT – THE FIGURES

Software delivery performance metric	Low	Medium	High
Deployment frequency For the primary application or service you work on, how often does your organization deploy code to production or release it to end users?	Between once per month and once every 6 months	Between once per week and once per month	On-demand (multiple deploys per day)
Lead time for changes For the primary application or service you work on, what is your lead time for changes (i.e., how long does it take to go from code committed to code successfully running in production)?	Between one month and six months	Between one week and one month	Between one day and one week
Time to restore service For the primary application or service you work on, how long does it generally take to restore service when a service incident or a defect that impacts users occurs (e.g., unplanned outage or service impairment)?	Between one week and one month	Between one day and one week	Less than one day
Change failure rate For the primary application or service you work on, what percentage of changes to production or released to users result in degraded service (e.g., lead to service impairment or service outage) and subsequently require remediation (e.g., require a hotfix, rollback, fix forward, patch)?	46%-60%	16%-30%	0%-15%

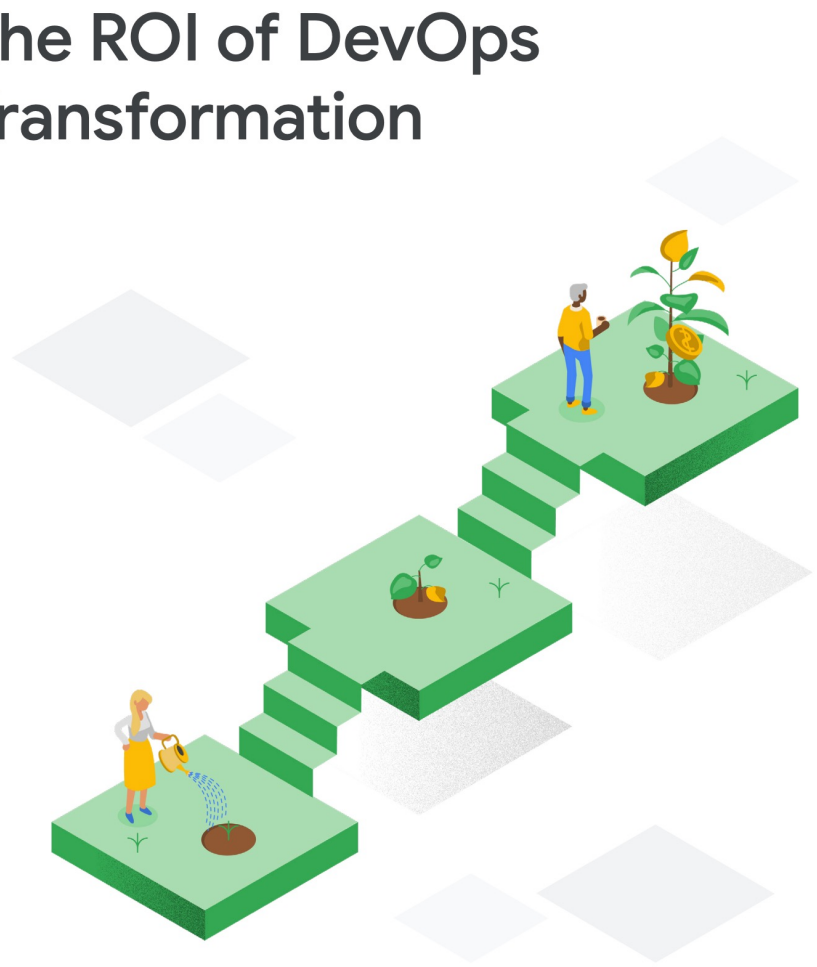
"HIGH PERFORMERS SPEND 50% LESS TIME FIXING SECURITY ISSUES COMPARED TO LOW PERFORMERS."

JUSTIFYING PLATFORM INVESTMENT – THE METHOD

"COSTS A BUSINESS AVOIDS ARE SEEN AS RETURNS TO THE BUSINESS"

VALUE TYPES:

- Value gained from reducing inefficiencies in work
- Value gained from new development work that contributes to revenue



JUSTIFYING PLATFORM INVESTMENT – THE METHOD

JUSTIFYING PLATFORM INVESTMENT – THE METHOD

POTENTIAL REVENUE FROM REINVESTMENT = TIME RECOVERED & REINVESTED IN NEW FEATURES X REVENUE GENERATING FEATURES

WHERE?

REVENUE GENERATING FEATURES = FREQUENCY OF EXPERIMENTS PER LINE OF BUSINESS X LINES OF THE BUSINESS ORGANIZATION X IDEA SUCCESS RATE X IDEA IMPACT X PRODUCT BUSINESS SIZE

JUSTIFYING PLATFORM INVESTMENT – THE METHOD

JUSTIFYING PLATFORM INVESTMENT – THE METHOD

$100M product portfolio business size	Elite IT performers	High IT performers	Medium IT performers	Low IT performers
Large organization that relies on in-house software (8,500 engineers)	$18.2M value of rework recovered + $48.7M value lost from new features + $13.7M cost of downtime = $80.6M return	$27.3M value of rework recovered + $5.2M value lost from new features + $31.4M cost of downtime = $63.9M return	$36.5M value of rework recovered+ $1.6M value lost from new features + $9.6M cost of downtime = $47.7M return	$36.5M value of rework recovered + $267K value lost from new features + $222.6M cost of downtime = $259.3M return
Medium-to-large technical organization (2,000 engineers)	$4.3M value of rework recovered + $19.5M value lost from new features + $13.7M cost of downtime = $37.4M return	$6.4 cost of rework + $2M value lost from new features + $31.4M cost of downtime = $39.9M return	$8.6M cost of rework + $640K value lost from new features + $9.6M cost of downtime = $18.8M return	$8.6M cost of rework + $107K value lost from new features + $222.6M cost of downtime = $231.3M return
Small to medium businesses and non-technical enterprises (250 engineers)	$536K value of rework recovered + $2.4M value lost from new features + $13.7M cost of downtime = $16.7M return	$804K value of rework recovered + $260K value lost from new features + $31.4M cost of downtime = $32.4M return	$1M value of rework recovered+ $80K value lost from new features + $9.6M cost of downtime = $10.8M return	$1M value of rework recovered+ $13.3K value lost from new features + $222.6M cost of downtime = $223.7M return

SUMMARY

1

PLATFORM ENGINEERS HAVE EVOLVED

Environmental changes mean the role has moved on from the old world of Puppet and Chef scripts to create bespoke project environments and pipelines

Cloud Native platform engineers have a much wider remit

2

BE CUSTOMER FACING

To succeed, platforms must be developed in an agile way

Long-running teams allow positive environments

3

INVESTMENT IS JUSTIFIED

You can put a monetary value on the outcomes

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GET THE FUTURE YOU WANT

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