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Monolith to (Micro)Services

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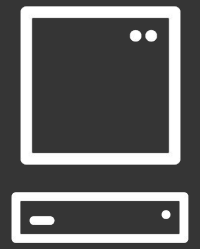

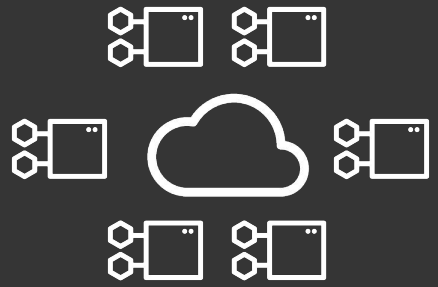

Monolith to (Micro)Services

The journey to the new normal

Madou Coulibaly
Senior Specialist Solution Architect

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“

A thing that has no value does not exist.

”

Robert M. Pirsig
American writer (1928-2017)

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Based in France, Nantes

Specialist Solution Architect, EMEA

Focus on Development Experience

+13 years in Software Development
+6 years in Business Intelligence

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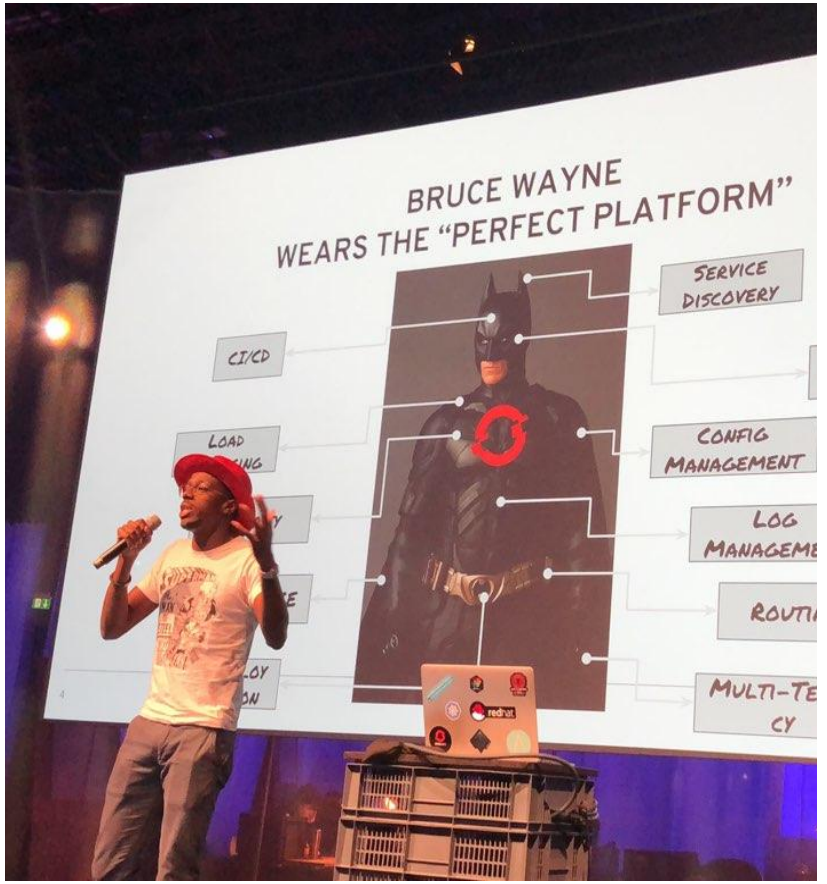

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Application is KING

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

Why Change

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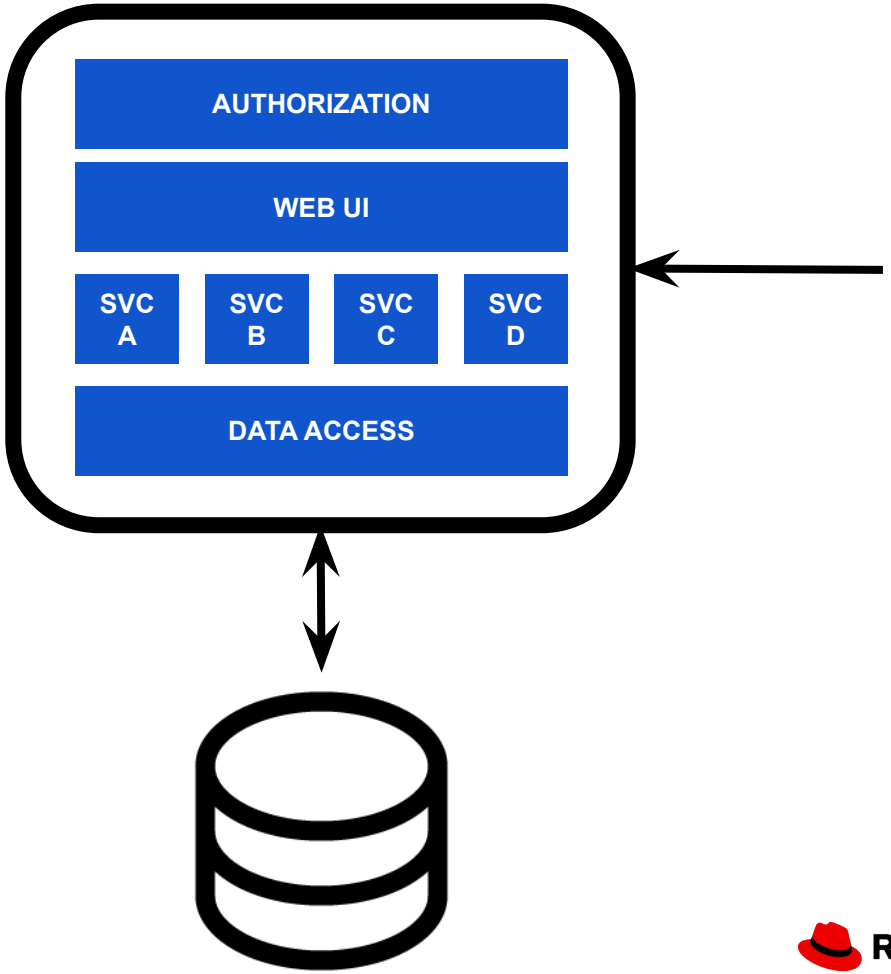
Monolithic Approach

How we used to build applications

The Monolithic application describes a single-tiered software application in which different components combined into a single program from a single platform



Source:
https://en.wikipedia.org/wiki/Monolithic_application

Monolithic Approach

Architecture of most of the big and successful applications existing today

- Simple to develop
- Simple to test
- Simple to deploy
- Simple to scale
- Direct communication

Then, Digital Transformation came

Business is changing

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

Business is changing

We have to change the way to build and deliver applications

Digital transformation is the integration of digital technology into all areas of a business, ***fundamentally changing how you operate and deliver value to customers***. It's also a cultural change that requires organizations to continually challenge the status quo, experiment, and get comfortable with failure.

Source:
"What is digital transformation?" The Enterprisers Project, Accessed June 2019. (https://enterprisersproject.com/what-is-digital-transformation)

And you do know what is going to happen if you do nothing...

Your competitor will take the throne

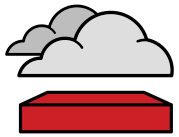
Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

Shifting investment to innovation

It’s about efficiency, agility, & speed

IT optimization

Gain greater efficiency while building a cloud-ready foundation

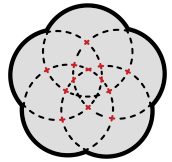


Hybrid cloud infrastructure

Enable data and application portability across cloud platforms

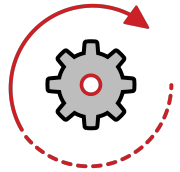
Cloud-native development

Quickly build and run scalable applications in dynamic environments



Agile integration

Integrate applications and data to identify and act on opportunities



Automation

Reduce costs, complexity, and errors deploying infrastructure and applications

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Monolithic Approach

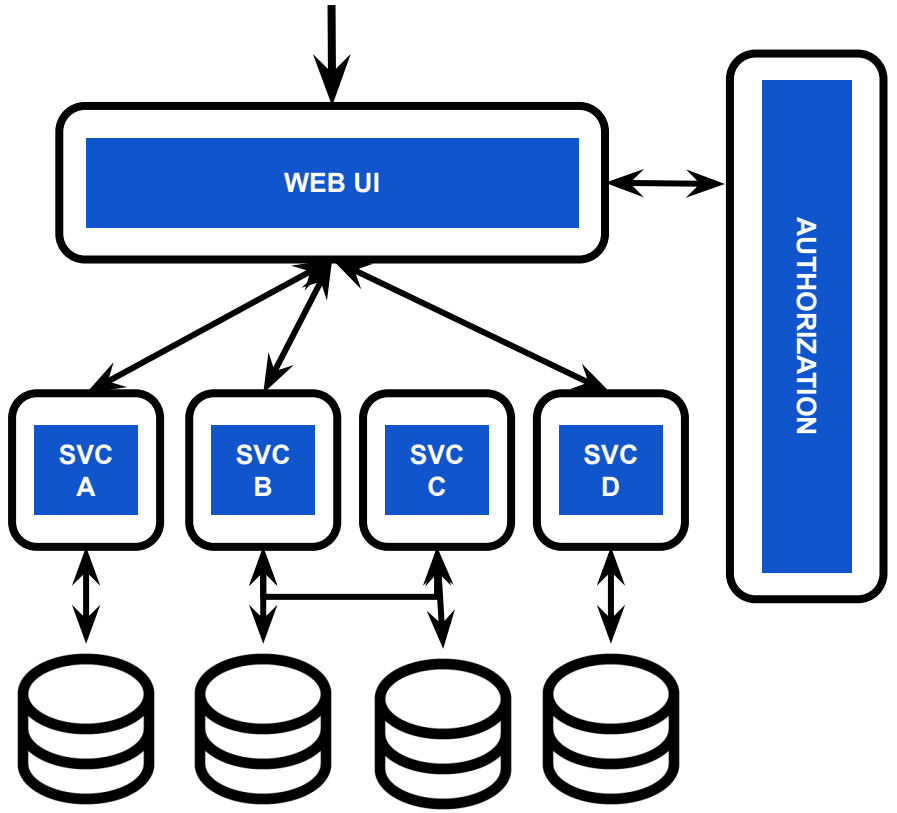
Do not COMPLETELY fit with the new requirements

- Too large and too complex
- One update to test and redeploy it entirely
- Slow start-up time
- One bug could impact the availability of the application
- Conflict resources between module when scaling
- Barrier to adopting new technologies

(Micro)Service Approach

How we are building applications

The term "Microservice Architecture" has sprung up over the last few years to describe a particular way of designing software applications as suites of independently deployable services.



Source:
https://martinfowler.com/articles/microservices.html

(Micro)Service Approach

Focus on reducing time to value

- Small and simple
- API Focused
- Smaller and faster to test
- Fast start-up time
- Deployed independently
- Design for failure
- Foster new technologies adoption

How to Modernize Your Application

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It’s time to get back on the Pride Rock

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

Three Software Development Patterns

Modernize your existing application

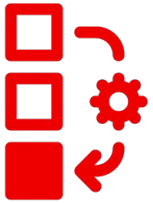
REHOST

Containerize existing workloads

Deploy them on a PaaS

Keep external integrations and data on legacy

Legacy applications have to be well written and suited



REPLATFORM

Similar to Rehost

Augment with new layers - new capabilities

Deploy on PaaS

New integration points between legacy and new layers

REFACTOR

Legacy is totally replaced

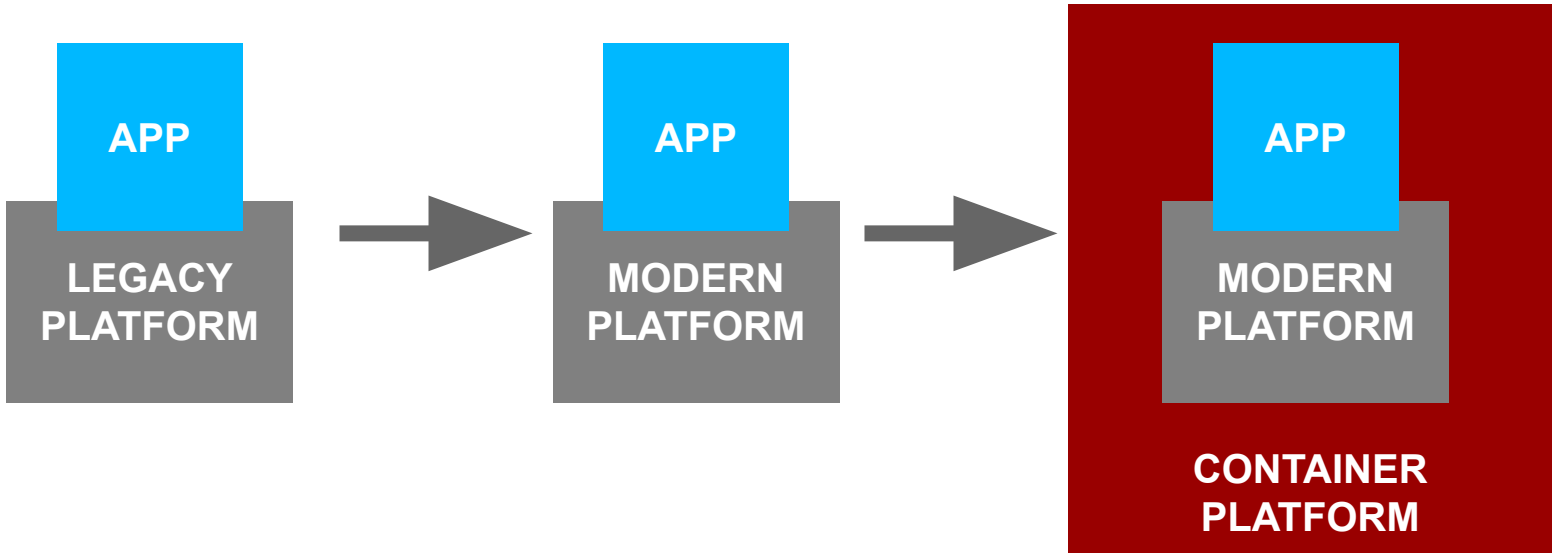
New interfaces and data

Use PaaS to run

Some data and features can be re-wrapped, but mostly are retired.

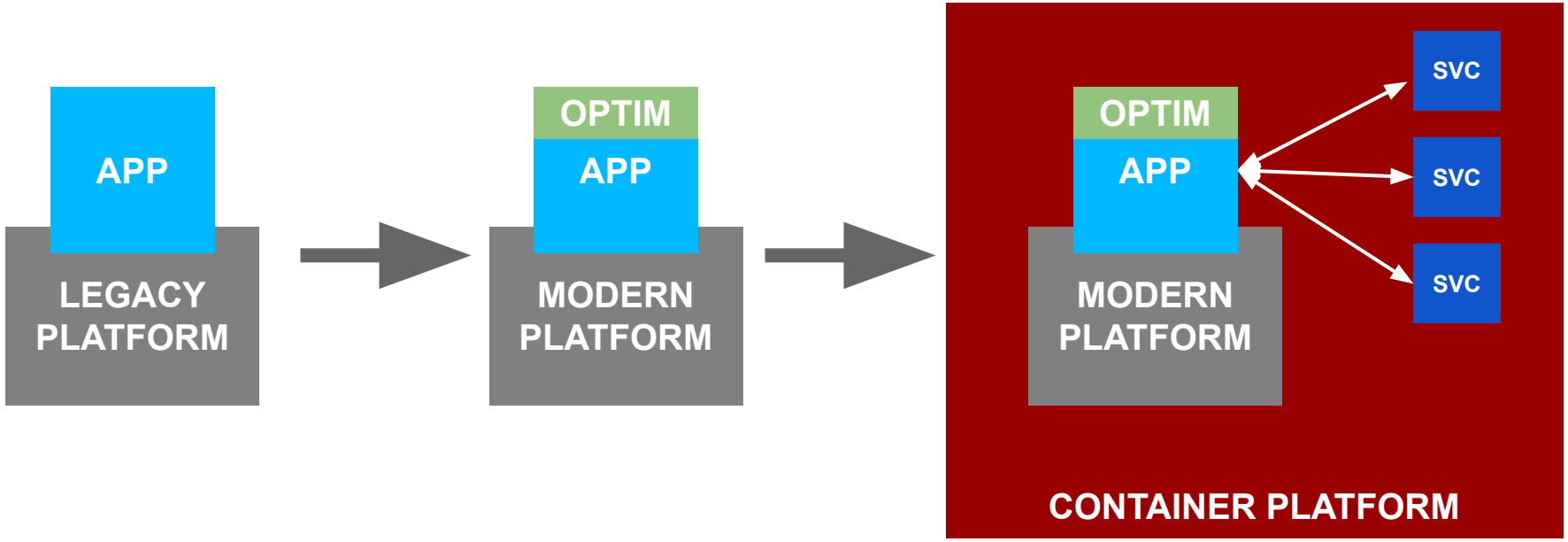
Rehost

Lift & Shift



Replatform

Augment with new layers



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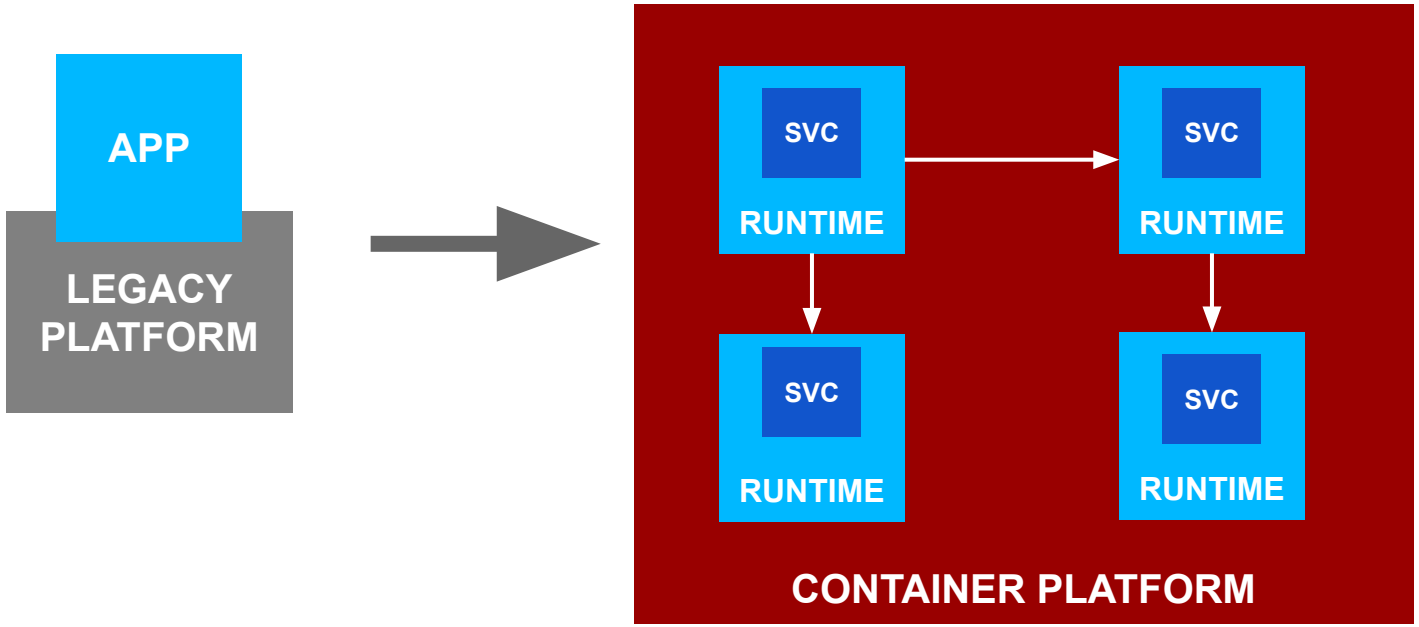
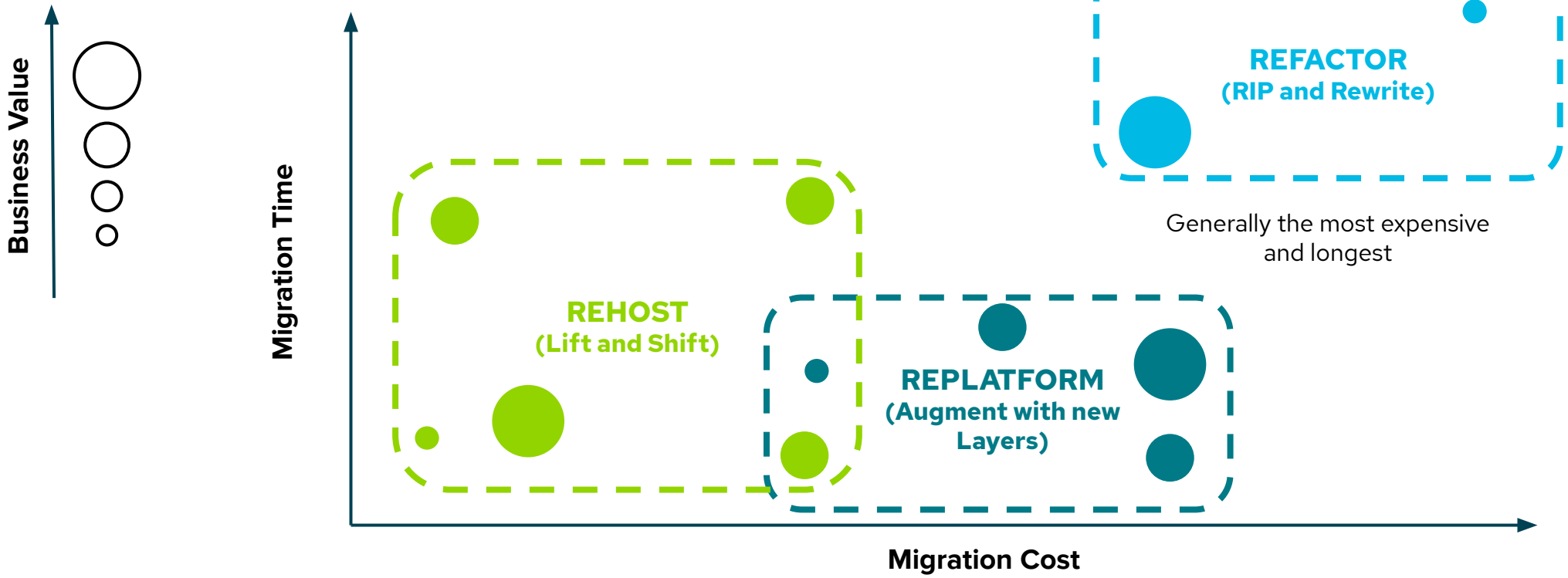
Refactor

RIP & Rewrite



Workload Migration Patterns

No single best pattern



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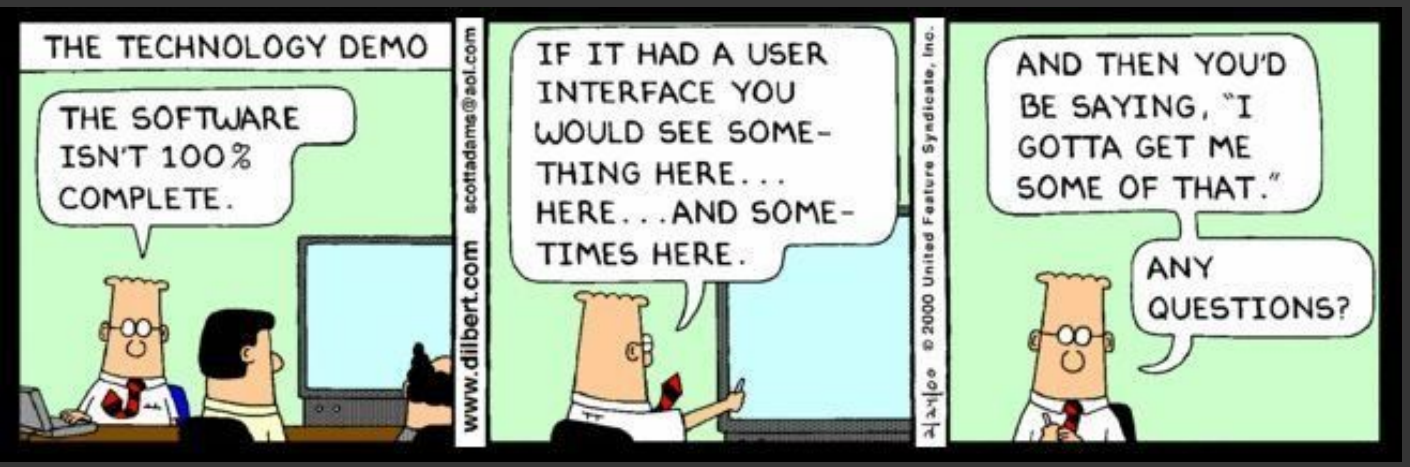
Demo


THE TECHNOLOGY DEMO
THE SOFTWARE ISN'T 100% COMPLETE.
IF IT HAD A USER INTERFACE YOU WOULD SEE SOMETHING HERE... HERE...AND SOMETIMES HERE.
AND THEN YOU'D BE SAYING, "I GOTTA GET ME SOME OF THAT."
ANY QUESTIONS?
www.dilbert.com scottadams@aol.com
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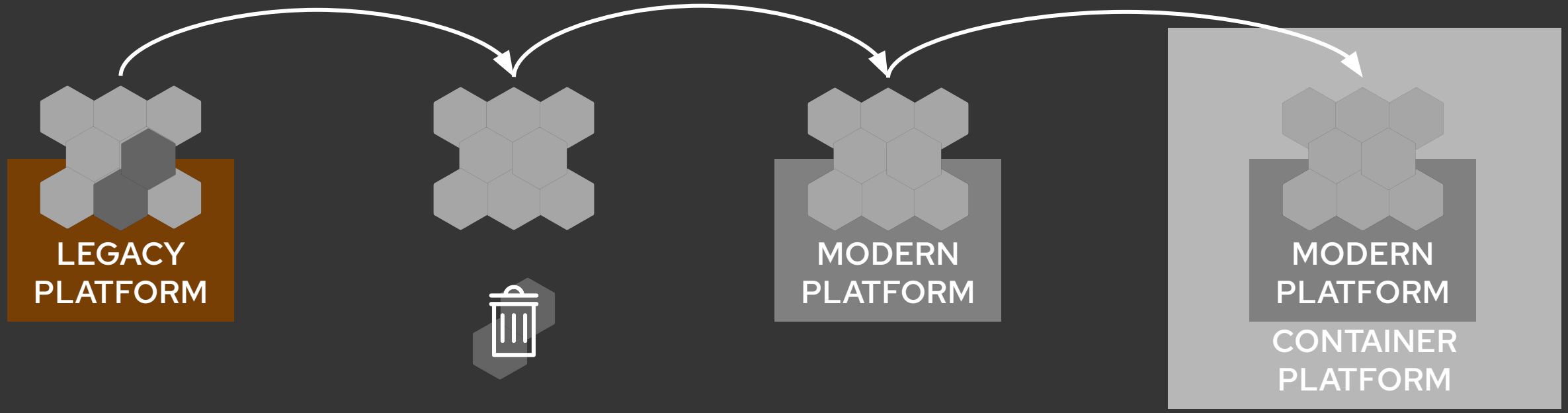
Demo Time!

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

End-to-End Story

Re-host (Lift & Shift)



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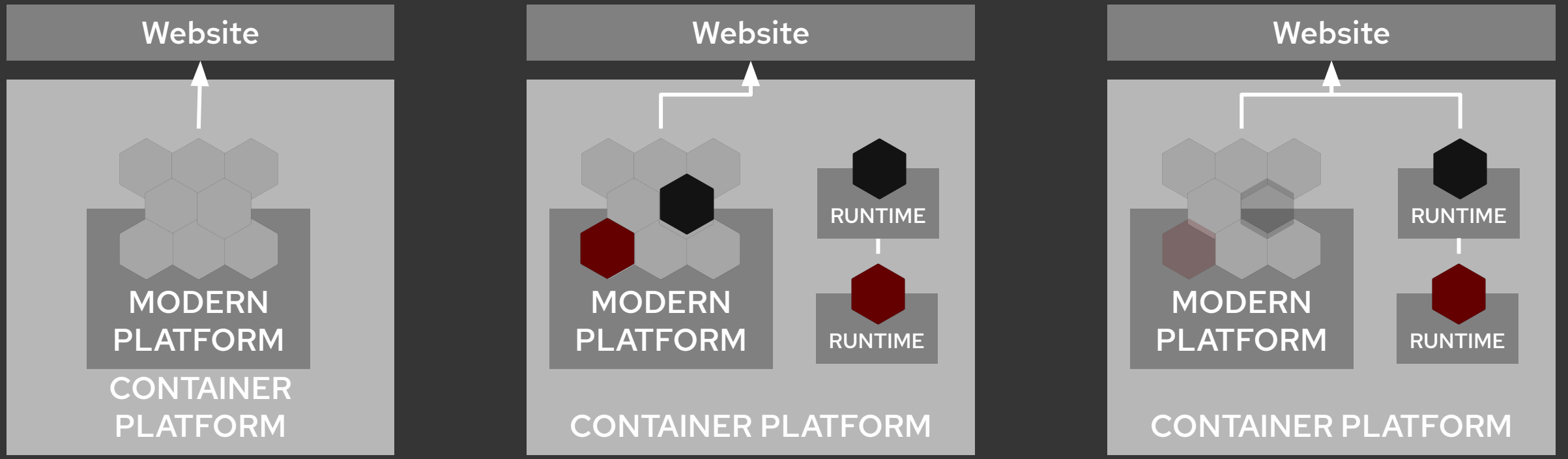
End-to-End Story

Strangling your Monolith



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bit.ly/m2m-demo

Wrap-up

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(Micro)Service Approach

It is the price to pay

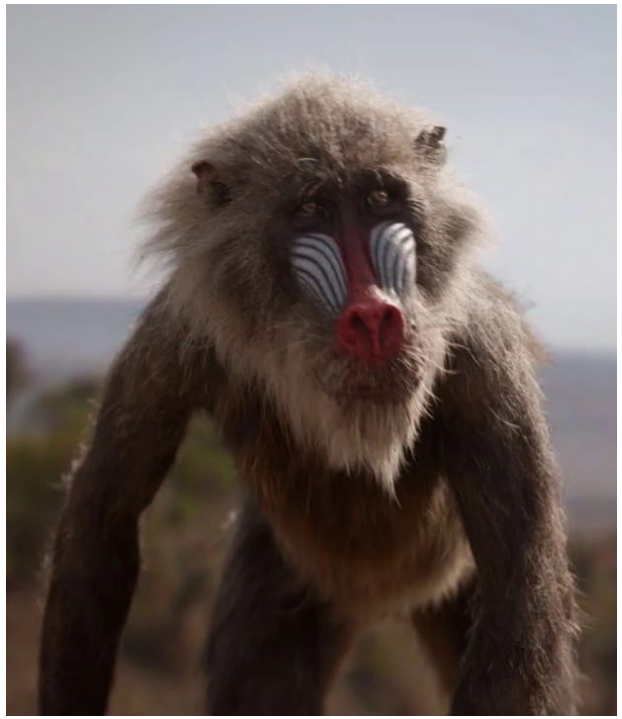
- Build a distributed system
- Take in account the fallacies of distributed computing
- Partitioned database architecture
- Testing becomes a challenge
- More difficult to implement a change across multiples services
- Deployment Complexity

Source:
fallacies of distributed computing - https://en.wikipedia.org/wiki/Fallacies_of_distributed_computing

Why not considering
a hybrid approach,
monolith AND (micro)services
for the same application
?

Key Takeaways

What you should remember



1. BUSINESS VALUE IS YOUR MAIN OBJECTIVE
2. BE CLEAR ON BUSINESS REASONS FOR CHANGE
3. IT IS NOT JUST A TECH REFRESH
4. YES, “MICRO-LITH” APPLICATIONS CAN EXIST

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

Call to Action

Resources and Information

Red Hat Modernization and Migration Solutions
https://www.redhat.com/en/solutions/modernization-and-migration-solutions

Interactive Learning Portal for OpenShift
https://learn.openshift.com

Red Hat Developer Portal
https://developers.redhat.com

Source:
The Lion King. 2019 (Walt Disney Studios Motion Pictures)

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May 11 | 10:00 CEST

Knative introduction for the curious Java developer

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