

Future of Azure PaaS...

Magnus Mårtensson, @noopman
LOFTYSOFT



History of PaaS

PaaS now

=>

Future of PaaS

What is PaaS really and how is service X PaaS?

Magnus rants and tries to remember...

INSTALLING THE XKCD DEVELOPMENT ENVIRONMENT

1. SPIN UP A VM
2. SPIN UP A VM INSIDE THAT VM
3. CONTINUE SPINNING UP NESTED VMs
AND CONTAINERS UNTIL YOU GET FIRED

You!



Thank you to our sponsors!

Gold Sponsors

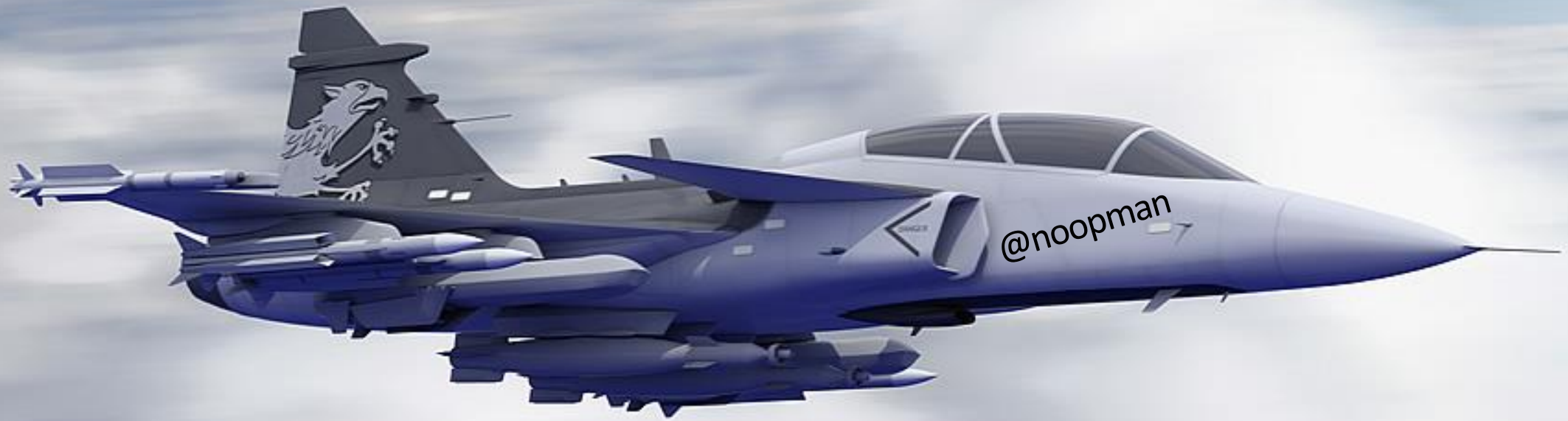


Silver Sponsors



Community Sponsors





Microsoft
Regional Director

magnus@loftysoft.com



Global Azure Bootcamp

A world map with a light gray background. Overlaid on the map are several concentric circles in shades of blue and white, centered on the African continent. The circles expand outwards towards the Americas, Europe, and Asia.

2019
Global **Azure**
BOOTCAMP

To participate in the 2019 event, consider organizing a local Global Azure Bootcamp yourself.
Learn more at <https://global.azurebootcamp.net>.
#GlobalAzure on April 27



Looking at PaaS in the rear view!



"Don't distribute your objects."

Martin Fowler

In the Cloud beginning...



March 2006

No PaaS!

Ray Ozzie "... so I'd like to announce a new service in the Cloud - Windows Azure!"



My first presentation on "Windows" Azure from 2008



Please notice the added clouds ;~)

Utveckla lösningar på Windows Azure med ASP.NET

Foto: Kristian Hedberg

Magnus Mårtensson - Senior Consultant, Nnnnnn AB
blog.noop.se
twitter: @noopman
magnus.martensson@nnnnnn.se



My first presentation on "Windows" Azure from 2008



*Windows Azure
is the foundation
of Microsoft's Cloud Platform*

My first presentation on “Windows” Azure from 2008



“Operating System for the Cloud”

My first presentation on "Windows" Azure from 2008

azure.noop.se

Description

Edit

Magnus Mårtenssons Windows Azure project site. Read more: <http://blog.noop.se>. URL: <http://azure.noop.se>

Delete Service

Hosted Service

Production



Staging

Sommarkollo Demo



Suspend

Configure...

Delete

| Azure.Workshop_WorkerRole: | | Azure.Workshop_WebRole: | |
|----------------------------|---|-------------------------|---|
| ✓ Started | 1 | ✓ Started | 1 |

Web Site URL:

<http://572452eb9f5240c3a555b87e95d686ce.cloudapp.net/>

Private Deployment ID:

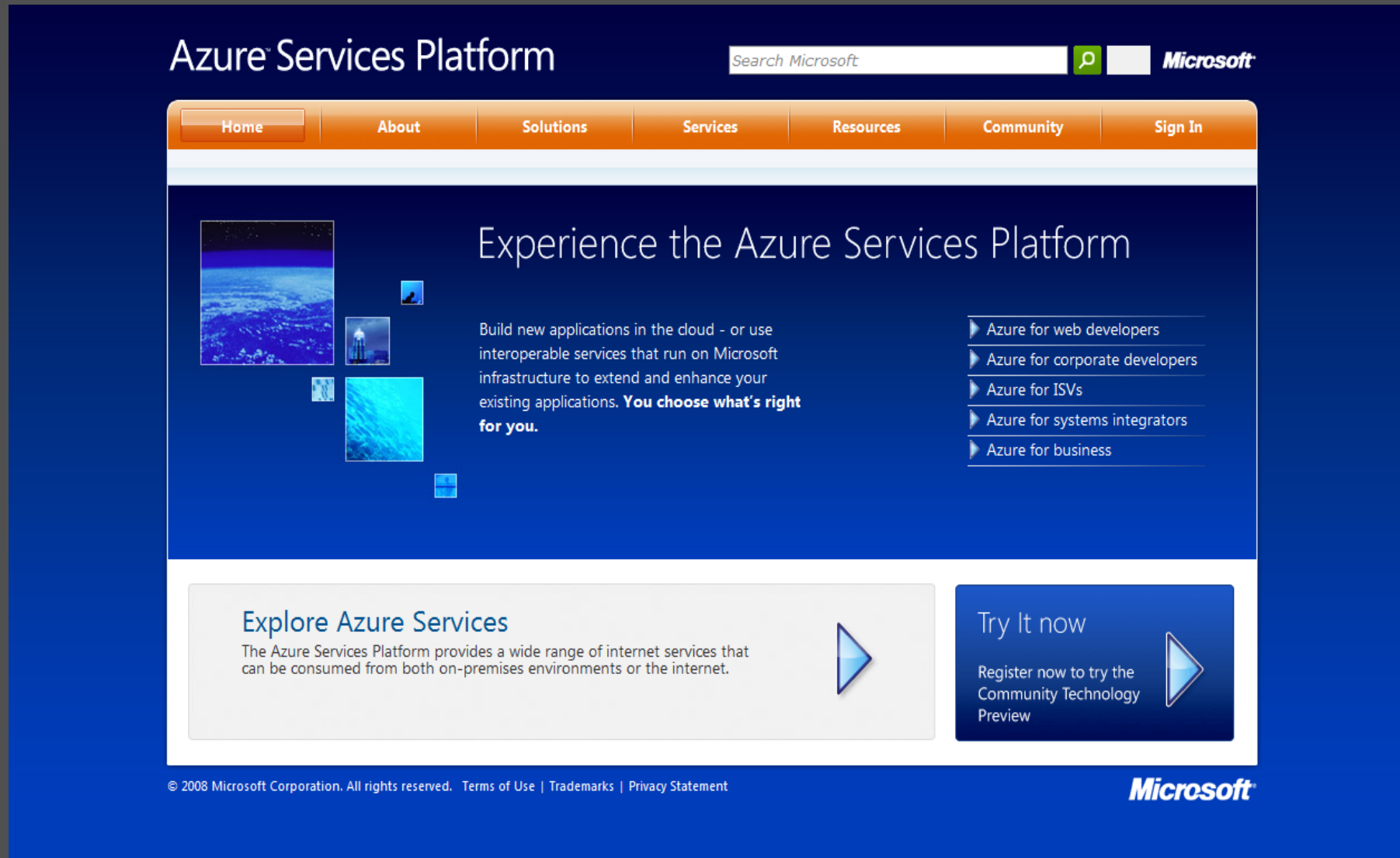
572452eb9f5240c3a555b87e95d686ce

Affinity Group

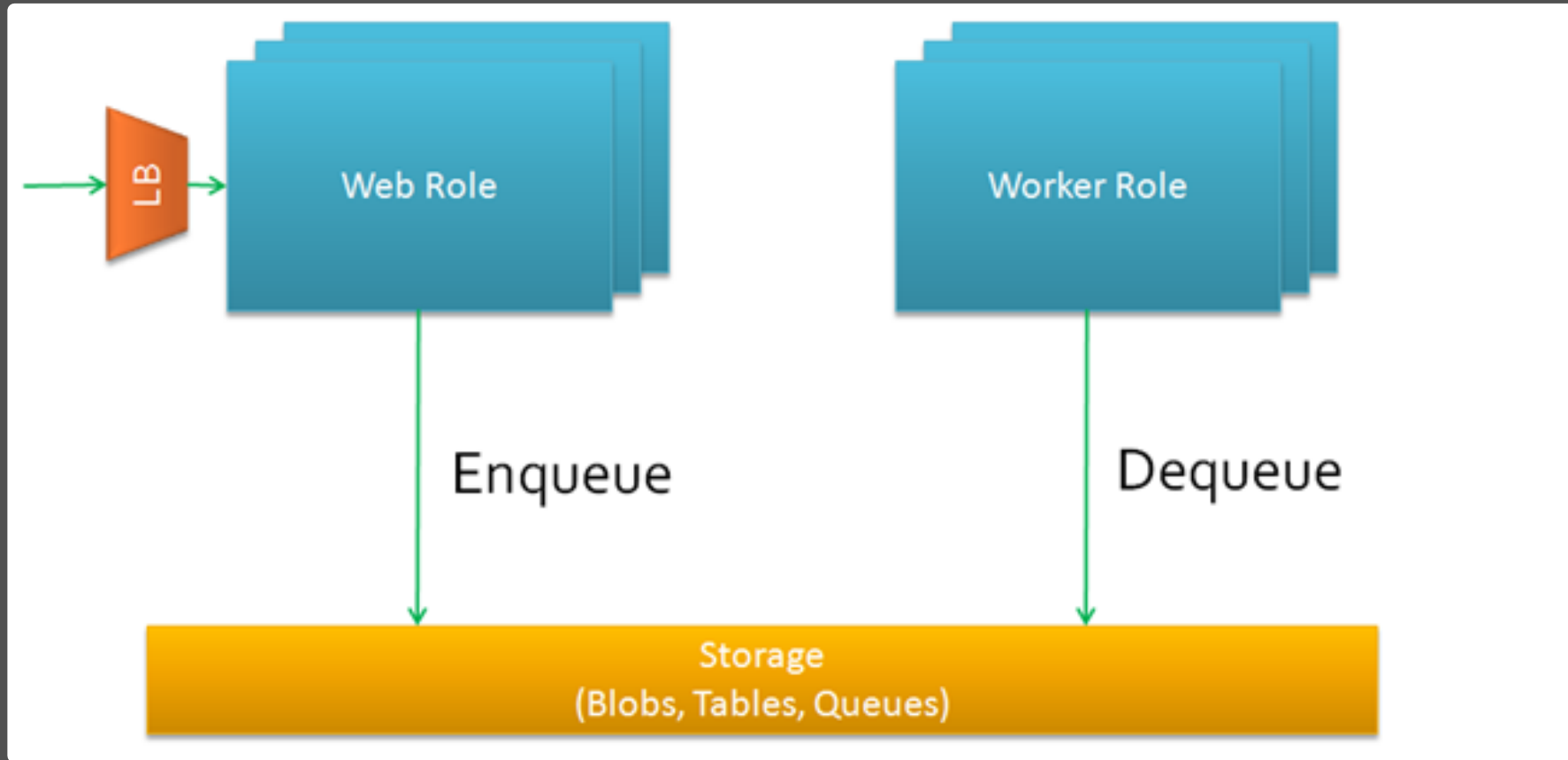
Edit

Affinity Group Name: noopman Affinity Group
Geographic Location: USA - Northwest

The Azure Services Platform looked like this!



First Windows Azure Hosted Service Architecture – “The worlds first PaaS”?



Why
These
3?



Where did “microservices” come from?

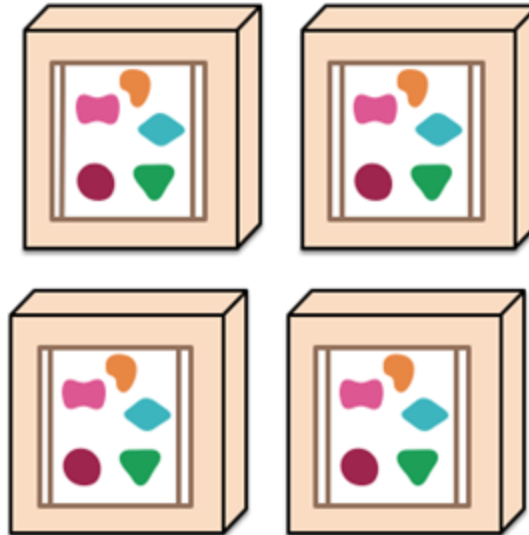
“Microservices” was first discussed
and the term coined
in Venice in May, 2011.

"Microservices" 2014

A monolithic application puts all its functionality into a single process...



... and scales by replicating the monolith on multiple servers

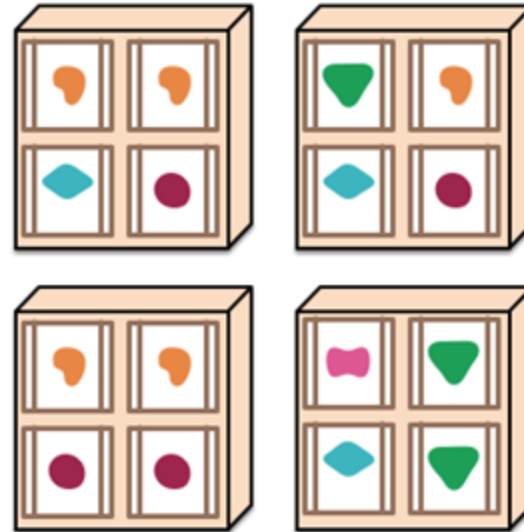


"Microservices" 2014

A microservices architecture puts each element of functionality into a separate service...



... and scales by distributing these services across servers, replicating as needed.



What about “serverless”?

Serverless Compute

Ken Fromm 2012

AWS Lambda 2014



Dan Rosanova
Group Principal PM Manager Microsoft

“Serverless is a description of
technical user experience.
Not of pricing or billing model.”

“PayGo != Serverless”

Serverless means...

“No thought or concern for:
Servers
Operating system
Capacity
Underlying components”

Dan Rosanova
Group Principal PM Manager Microsoft

“Green computing”!

Define PaaS?

Is X IaaS, PaaS or SaaS?





Azure CTO Mark Russinovich

"Infrastructure services (IaaS) like compute, storage and networking defined the "first generation" of cloud computing adoption...

...many organizations are increasingly turning to platform services (PaaS) to create and deploy applications more quickly.

I call this the shift
from infrastructure to innovation,
and it's underway today."

bit.ly/InfrastructureToInnovation Azure CTO Mark Russinovich, 2016

"PaaS
is the shift
from infrastructure to innovation!"

“Talk to 8 people
you get 3
definitions of PaaS!”

Talk to 3 people
you get 8
definitions of PaaS!

Talk to 8 people
you get 23
JavaScript libraries!

Talk to 8 people
you get 23
definitions of PaaS!

Holy Helpful Batman!



“Is service X PaaS?”
does not have
a clean definition!

Positioning PaaS – a Business Angle

If you need to *run/maintain* on a VM it's IaaS!

If you can get away with *buy/use* it's SaaS!

Positioning PaaS – a Business Angle

If you need to *run/maintain* on a VM it's IaaS!

If you can *run* on a Platform it's PaaS!

If you can get away with *buy/use* it's SaaS!

Features



Manage Services
Deliver Features Faster
Create Business Value

The Azure PaaS players are...

Azure Functions

Azure Service Fabric

Azure Service Fabric Mesh

Azure Kubernetes Service

Azure Cloud Service

Q: Surely Docker Containers are superior to PaaS/FaaS!

A: No they're not... well it depends on...

A: You're just being a jerk right now, right?!

(Everybody chant with me: Fight, fight fight!!!)

Surely there must be a
".VS"
hidden here somewhere?

Container vs. Function as a Service (FaaS)

Containers (+Orchestrator, read: Kubernetes) runs *applications* without you managing your own server systems.

FaaS runs *code* without you managing your own servers systems *or your own applications!*

When all you needed was to
deploy a few lines of code,
then go with FaaS!



<rant>
Azure Function App?

The *one* thing an Azure Function explicitly is *not* is an
"Application"!

Naturally,
somebody in marketing thought it was a good idea to
name several Functions together in Azure a
"Functions App"!

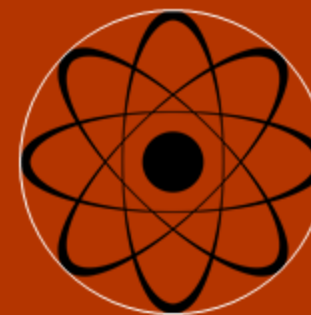




Virtual
Machines



Docker
containers



PaaS/FaaS



Slowly but surely Containers,
with the help of Orchestrators,
are getting more and more...

PaaS-ified!



Microsoft Azure Service Fabric



Service Fabric is a *distributed systems platform* that makes it easy to build scalable, reliable, low-latency, and easily managed applications for the Cloud.

This means that you can focus on your business needs and let Service Fabric take care of ensuring your application is always available and scales.

Service Fabric underpins “some” Azure Services... and more!

Azure Core
Infrastructure

Azure
CosmosDB

Intune

Azure
ServiceBus

Skype for
Business
Hybrid Ops

Power
BI

Azure SQL
Database

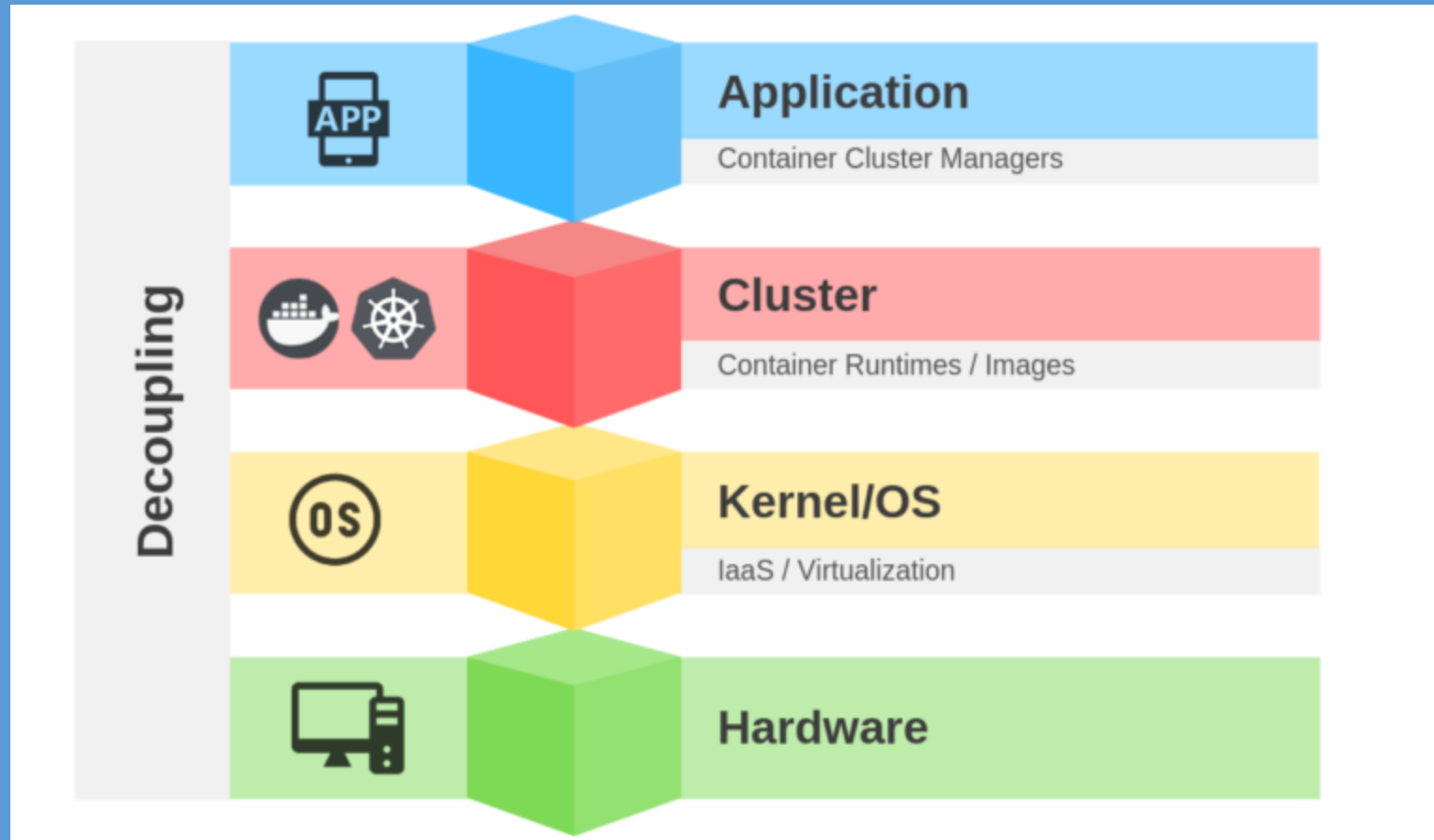
Bing Cortana

Event
Hubs

Azure PaaS++



What we are looking for is Consistency and Decoupling!



Vishwas Lele

<https://www.appliedis.com/what-are-cloud-native-technologies-how-are-they-different-from-paas-offerings/>

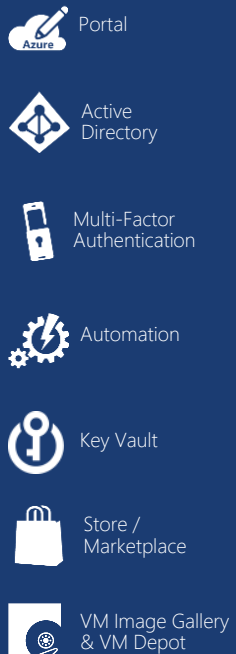
It looks like you are migrating
to the Cloud!

Would you like some help with that?

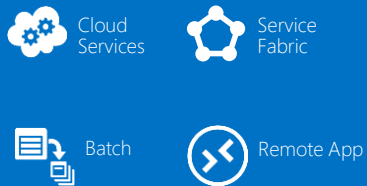


Platform Services

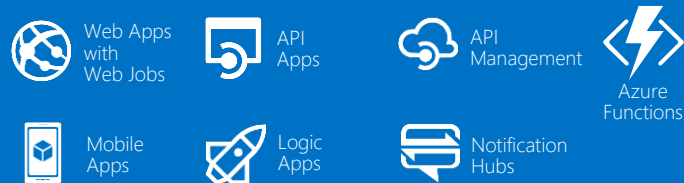
Security & Management



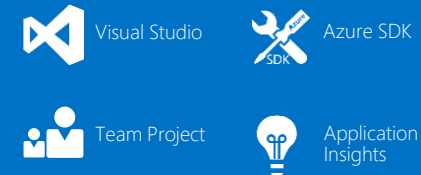
Compute



Web and Mobile



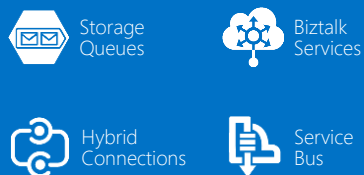
Developer Services



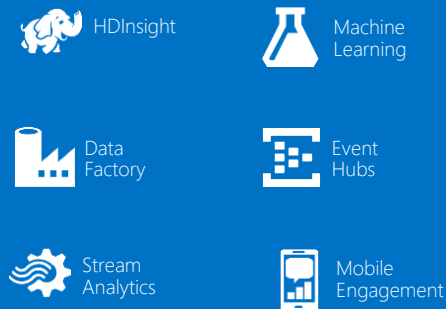
Hybrid Operations



Integration



Analytics & IoT



Data



Media & CDN



Infrastructure Services

Compute



Storage



Networking



Datacenter Infrastructure (~36+N Regions)



Once upon a time...



...In the dawn of Pass



Neo4j Blog

Announcing Neo4j on Windows Azure

(Neo4j Blog)←[:BACK]

By Neo4j Staff February 14, 2011

Reading time: 10 minutes



Peter Neubauer




Magnus Mårtensson

Announcing Neo4j on Windows Azure

Neo4j has a 'j' appended to the name. And now it is available on [Windows Azure](#)? This proves that in the most unlikely of circumstances sometimes beautiful things can emerge. Microsoft has promised Java to be a valued "first class citizen" on Windows Azure. In this blog post we will show that it is no problem at all to host a sophisticated and complex server product such

Announcing Neo4j in th


https://neo4j.com/blog/neo4j-

+

Neo4j Blog

Announcing Neo4j in the Microsoft Azure Marketplace [Azure Series, Part I]

(Neo4j Blog)←[:BACK]



By [Igor Borojevic](#), Director of Product Management

May 10, 2017

Reading time: 2 minutes

We are excited to announce the availability of Neo4j in the [Microsoft Azure Marketplace](#).

Neo4j is a [native graph database](#) that stores data as graphs rather than in tables so you can traverse any depth of data in real time and get your queries executed in milliseconds instead of minutes (or hours!).

Using the combined power of the world's leading graph database (that's [Neo4j](#)) and the flexibility and scale of Microsoft's trusted cloud platform, organizations can transform the way they approach and extract the value from their data.

Why Use Neo4j with Microsoft Azure

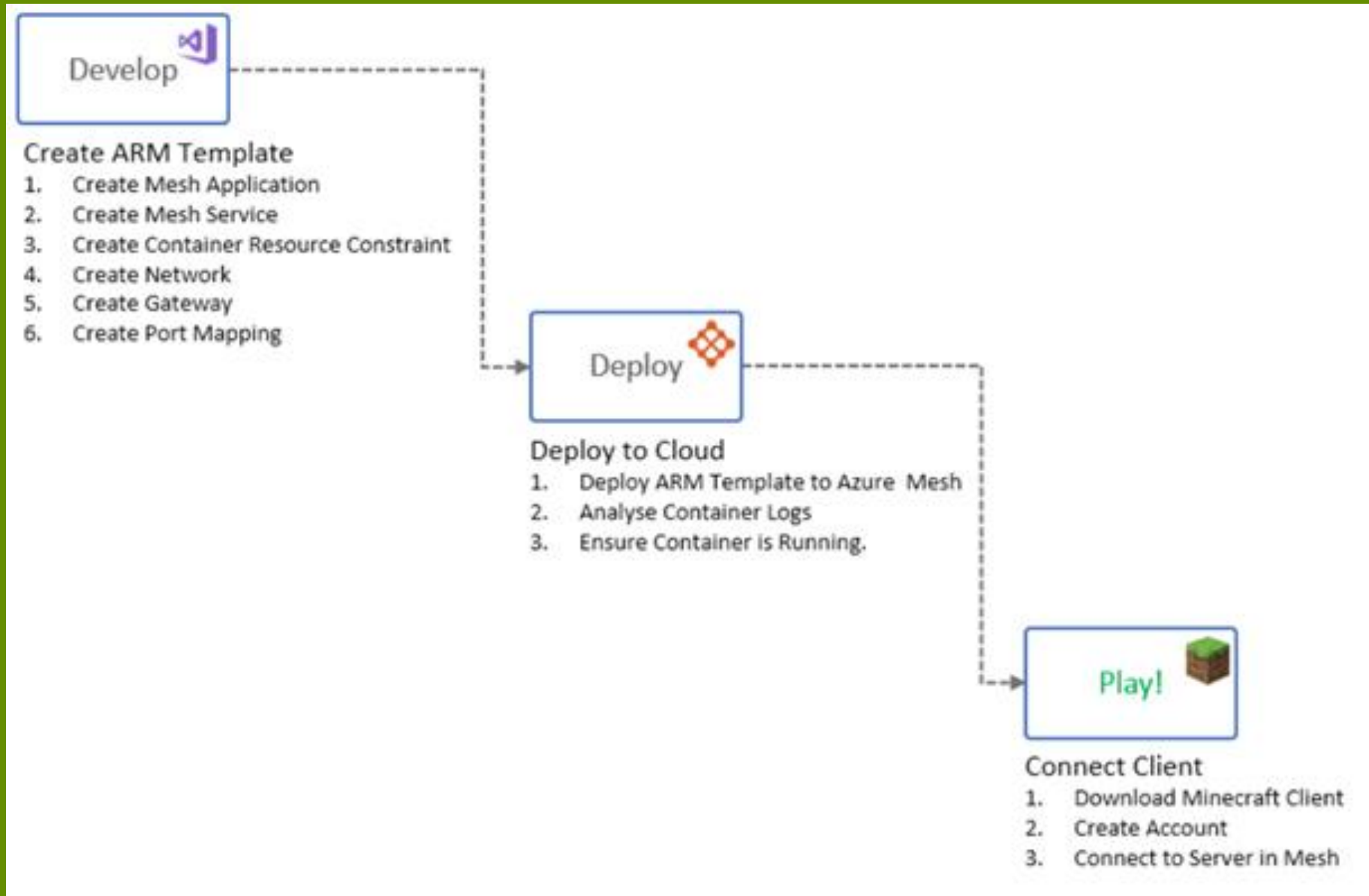
As systems and processes become increasingly interconnected, organizations need to understand and leverage cross-domain intelligence. Neo4j's native [graph database](#) is designed from the ground up to efficiently find and employ data relationships.

Now in a container in Service Fabric Mesh in Azure!

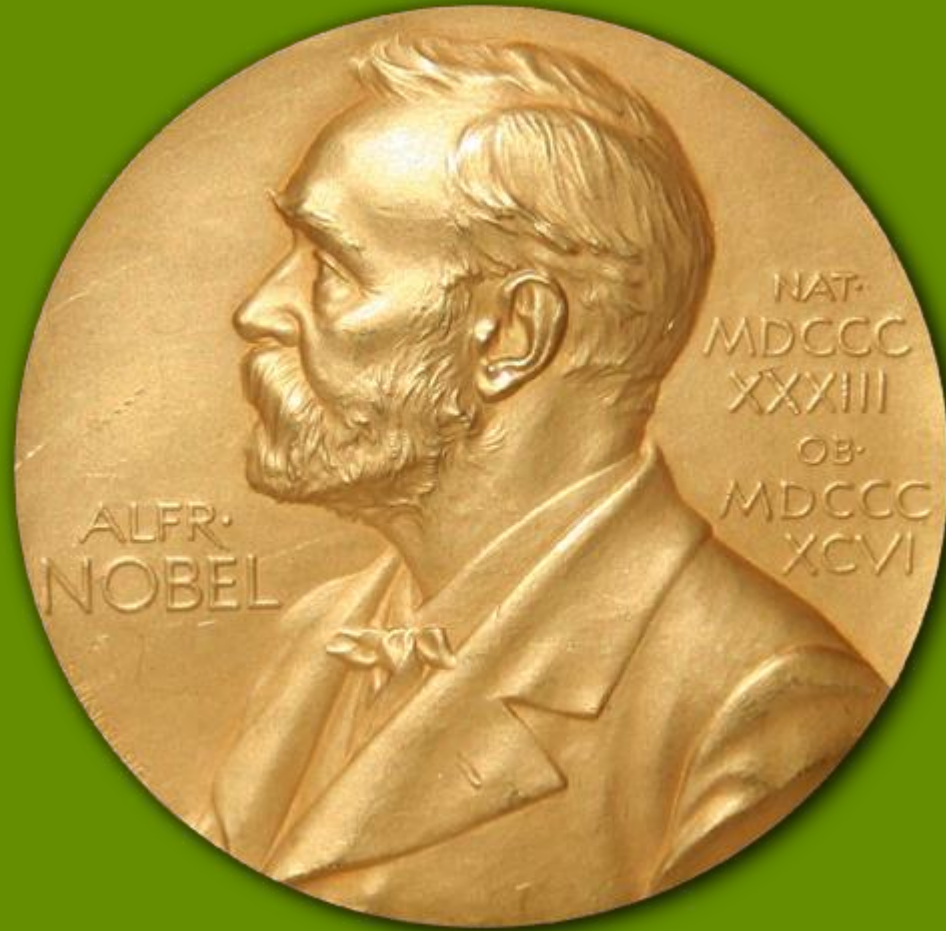
WINECRAFT

Suneet Nangia (MS) w. Mark Fussell (MS Service Fabric team)

Running Minecraft on Service Fabric Mesh



And the Nobel Price goes to...



“Building applications today
is becoming less about building applications
and more about using existing services
to bolt applications together!”

Chris Auld

“We will see an increased surface
of the Microsoft Graph
and closer and easier
to integrate with Azure resources.”

Rodrigo Diaz Concha

In a sense the future of Azure PaaS
is based on
the nice side dishes and condiments
Microsoft will serve
in the Azure Platform canteen!

You'll need a tray!

I
a Do you know
who I am?



Eddie Izzard - Death Star Canteen in lego stop motion: <https://youtu.be/Sv5iEK-IEzw>

What will it* be?

* *PaaS*

A white, stylized cloud graphic is positioned at the bottom right of the slide, partially overlapping the text area.



Brendan Burns
Kubernetes co-founder & Distinguished Engineer Microsoft

“As we move into the future
I’m fully convinced that
future Kubernetes clusters will contain a mix of
containers running on dedicated machines
as well as bursting into serverless infrastructure.”

Brendan Burns

Kubernetes co-founder & Distinguished Engineer Microsoft

<https://thenewstack.io/the-future-of-kubernetes-is-serverless/>

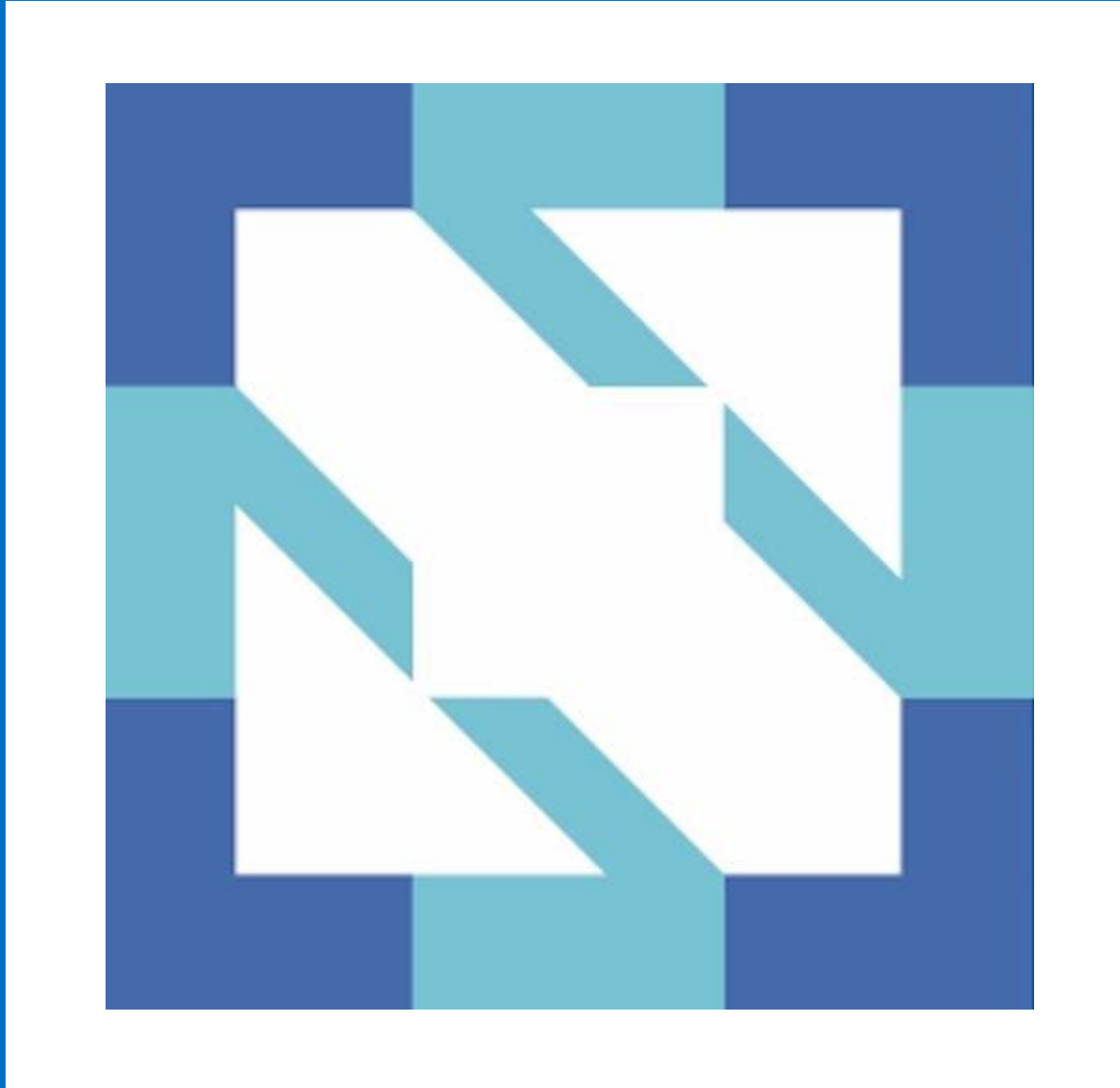
"The development
of serverless container infrastructure
enables people to begin to
forget about the machines entirely.."

Brendan Burns

Kubernetes co-founder & Distinguished Engineer Microsoft

<https://thenewstack.io/the-future-of-kubernetes-is-serverless/>

Cloud Native Computing Foundation (CNCF) - <https://cncf.io/>



Production usage of CNCF projects
has grown more than 200% on average
since December 2017...

40% of respondents
from enterprise companies (5000+)
are running Kubernetes in production.

Azure Functions & serverless getting bigger and bigger.

Cross-cloud container portability making
compute even more portable.

Price going down & down.

Security going up & up.

Stephen Thair

In the inevitable PaaS future

We won't think about CPUs, RAMs,
Hard Drives and Network Capacity!

The expectation will be that
on a PayGo basis
your App/Service
has the right amount of
throughput/transactions/capacity
per time unit, always,
no matter if it's a huge peak
or a slow weekend!

Best Practice: Servers (Compute/Apps)



Don't treat them
like *pets*!

Treat them like
packs!



Application hosting
will become a *utility*
just like water and electricity!



It's fair to say that there is a lot of confusion around...

...what PaaS is?

...if FaaS is better than Containers?

...or even different than Containers?

...if both are needed?

If you cant explain the difference between these...

PaaS

Microservices

Serverless

Containers

FaaS

... don't worry n00body else can either!

“Hosting we don’t manage ourselves”
(call it what you like)
has a great future!

Some final advice...

Almost Flying in the Clouds

(anti-pattern)



You *MUST*
use the Cloud for Dev&Test!



Chaos Monkey (NetFlix)

PaaS!

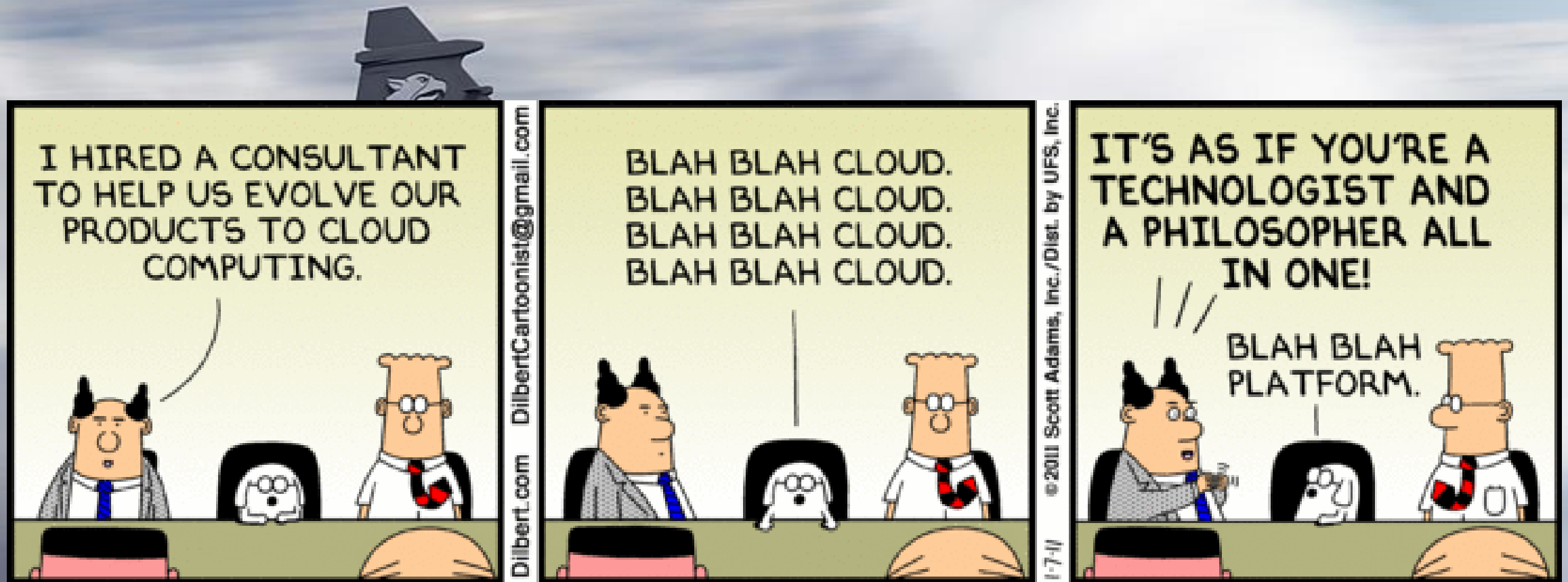
Because it's
inevitable
and really
#awesome!



(Yes, it's Scott Guthrie!)

Why
These
3?





Microsoft
Regional Director

@noopman
magnus@loftysoft.com

