I NEED TO KNOW WHY MOVING OUR APP TO THE CLOUD DIDN'T AUTOMATICALLY SOLVE ALL OUR PROBLEMS.

YOU WOULDN'T LET ME RE-ARCHITECT THE APP TO BE CLOUD-NATIVE. JUST PUT IT IN CONTAINERS.

YOU CAN'T SOLVE A PROBLEM JUST BY SAYING TECHY THINGS. KUBERNETES.
#1 IT challenge is organizational change
Dev ↔ Ops
Dev ←→ Ops
kubernetes
IT'S NOT CONFUSING

BUT I'M CONFUSED
A Look At IT Adoption

By Simon Wardley http://enterprisitadoption.com/
IT to Business
IT <-> Business
apiVersion: kubermatic.k8s.io/v1
kind: Cluster
metadata:
  name: g8gpmr9fw3
spec:
  cloud:
    dc: hetzner-nbg1
  hetzner:
    token: SOME_SECRET_TOKEN
clusterNetwork:
  dnsDomain: cluster.local
  pods:
    cidrBlocks:
    - 172.25.0.0/16
  services:
    cidrBlocks:
    - 10.10.10.0/24
humanReadableName: demo
version: 1.10.8
address:
  adminToken: 975w4b.7tcjkw5zzhjrs5
  externalName: g8gpmr9fw3.europe-west3-c.dev.kubermatic.io
  ip: 35.198.93.90
url: https://g8gpmr9fw3.europe-west3-c.dev.kubermatic.io:32489
status:
  health:
    apiserver: true
    controller: true
    etcd: true
    machineController: true
    openvpn: true
    scheduler: true
namespaceName: cluster-g8gpmr9fw3
Business

- Cloud spending will top $203.4 billion by 2020 - IDC

- 67% of enterprise IT infrastructure and software spending will be for cloud by 2020 - Gartner
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Better  Faster  Cheaper
What is Cloud Native?

Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.
What is Cloud Native for Non-Coders?

Cloud native technologies help businesses build modern software that delivers a good and/or service to their customers.

These technologies create **better** systems that allow engineers to make changes **faster** at a **lower cost**.
Demo

1) Cloud Native Storytime For CEOs
2) Building a Business Case
Demo

1) Cloud Native Storytime For CEOs
2) Building a Business Case

(Without Code)
Cloud Native Storytime for CEOs
Person

House
Hosting Continuum

Home Construction  Renting  Apartment  Flat Share  Hotel
Hosting Continuum

Cheaper

- Home Construction
- Renting
- Apartment
- Flat Share
- Hotel
Hosting Continuum

Home Construction  Renting  Apartment  Flat Share  Hotel

Simpler
Cloud Native Continuum

- Home Construction
- Renting
- Apartment
- Flat Share
- Hotel

- Mainframe
- Cloud
- Virtual Machine
- Container
- Serverless

Simpler
Faster
Cheaper
Cloud Native Continuum

Focus on business value, not the infrastructure
Building a Business Case
Building a Business Case
## The Paradox

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>91%</td>
<td>of companies use hybrid and multi-cloud</td>
</tr>
<tr>
<td>72%</td>
<td>cite complexity as major challenge</td>
</tr>
<tr>
<td>36%</td>
<td>use orchestration</td>
</tr>
<tr>
<td>10%</td>
<td>use automated orchestration</td>
</tr>
</tbody>
</table>
# The New World Is Here

<table>
<thead>
<tr>
<th>Old World</th>
<th>New World</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infrastructure:</strong></td>
<td>Vendor lock-in → Continuous freedom of choice</td>
</tr>
<tr>
<td><strong>Dev Experience:</strong></td>
<td>Waiting for Ops → Self-service platform</td>
</tr>
<tr>
<td><strong>Operations:</strong></td>
<td>Resource-intensive → Automated</td>
</tr>
<tr>
<td><strong>Resilience:</strong></td>
<td>Costly downtimes → Highly available, self-healing infrastructure</td>
</tr>
<tr>
<td><strong>Cloud costs:</strong></td>
<td>Cloud-provider dependant → Dynamically move workloads for best price</td>
</tr>
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Use Case:
Master on VM or on Containers?

Enterprise X runs numerous services. This suggests an architecture with a higher number of smaller clusters. They want to evaluate running the master of the cluster as dedicated VM or as Containers in a Kubernetes cluster.

Capacity needs:
100 high-availability clusters
3 masters (nodes or pods) per cluster
1 node on public cloud = ~ $30 p.a.
1 platform team

Scenario 1: “Masters as VMs”
Infrastructure (300 nodes*$30) $108,000 p.a.

Total $108,000 p.a.

Scenario 2: “Masters as Containers in Kubernetes”
Infrastructure (15 nodes*$60) $10,800 p.a.

Total $10,800 p.a.

Total Cost Saving $97,200 p.a.
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<th>Scenario 2: “Masters as Containers in Kubernetes”</th>
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<td>Infrastructure (300 nodes* $30)</td>
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</tr>
<tr>
<td>$108,000 p.a.</td>
<td>$10,800 p.a.</td>
</tr>
<tr>
<td>Cluster management (4 FTE)</td>
<td>Cluster management (1 FTE)</td>
</tr>
<tr>
<td>$800,000 p.a.</td>
<td>$200,000 p.a.</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>$908,000 p.a.</td>
<td>$210,800 p.a.</td>
</tr>
</tbody>
</table>

Total Cost Saving: $697,200 p.a.
Use Case:
**Master on VM or on Containers?**

Enterprise X runs numerous services. This suggests an architecture with a higher number of smaller clusters. They want to evaluate running the master of the cluster as dedicated VM or as Containers in a Kubernetes cluster.

**Capacity needs:**
- 100 high-availability clusters
- 3 masters (nodes or pods) per cluster
- 1 node on public cloud = ~ $30 p.a.
- 1 platform team

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**Scenario 1: “Masters as VMs”**
- Infrastructure (300 nodes* $30) $108,000 p.a.
- Cluster management (4 FTE) $800,000 p.a.
- Downtime (1 hour) $302,800
- Total $1,210,800 p.a.

**Scenario 2: “Masters as Containers in Kubernetes”**
- Infrastructure (15 nodes* $60) $10,800 p.a.
- Cluster management (1 FTE) $200,000 p.a.
- Total $210,800 p.a.

**Total Cost Saving** $1,000,000 p.a.
What is Cloud Native for Non-Coders?

Cloud Native technologies allows engineers to create better systems which can make changes faster at a lower cost.

This enables businesses to deliver better value to customers, more quickly at a lower cost.
IT ↔ Biz