

14th November
Cloud Native Prague #7

Cutting off-peak costs without people complaining

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Applifting



- Global software house of **almost 200 people** based in London and Prague.
- Specializing in **FinTech and MedTech**
- **Teal organization***
We do not have managers. We value transparency and freedom.
Learn more about Teal organizations [here](#).
- **Scan me for Applifting vibe**
<https://youtu.be/BKZjtsB730s>



Applifting



cloud

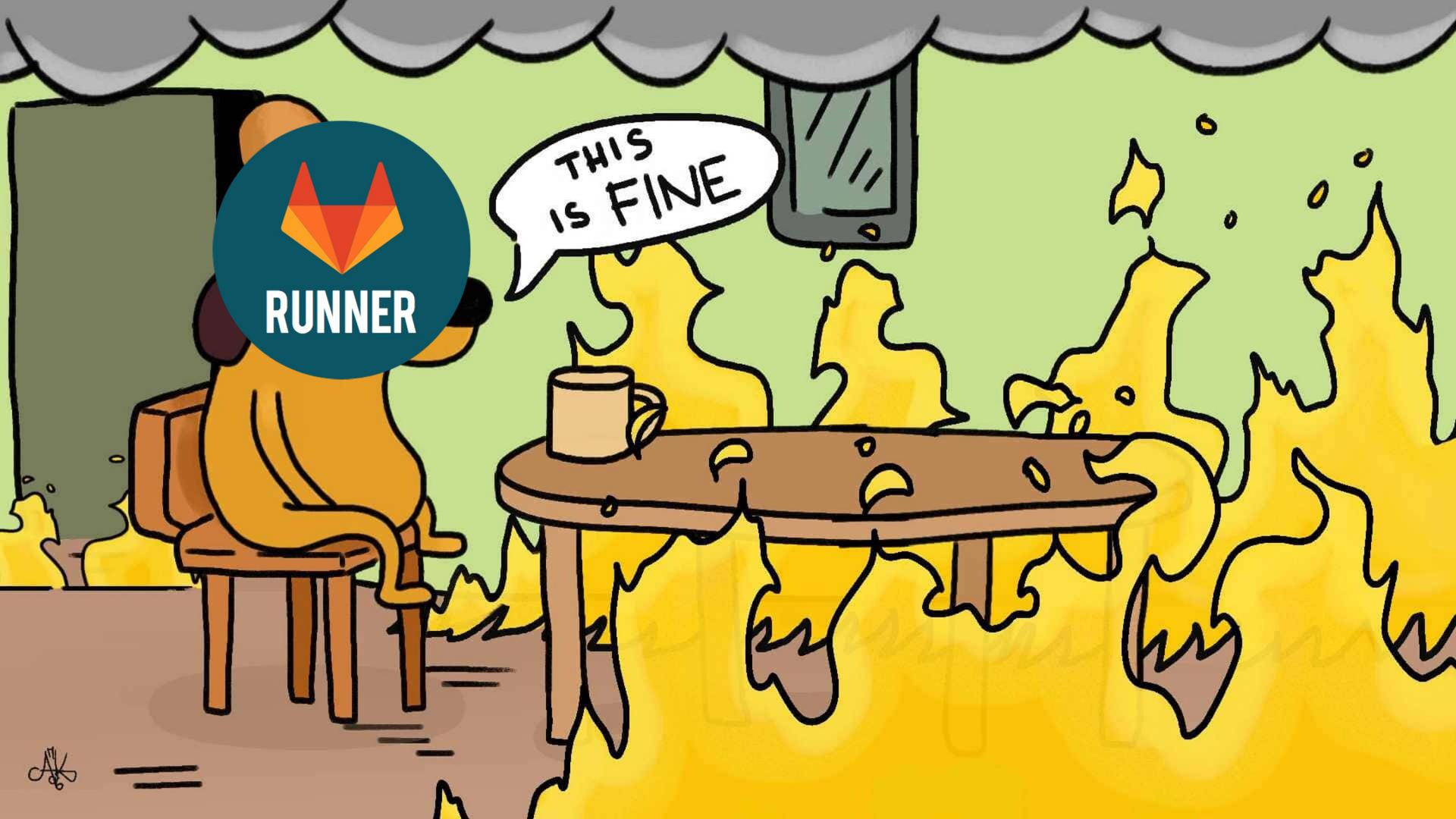
- We provide **cloud professional services**
- Our main directions:
 - Design and build
 - Migration
 - Automatization & CI/CD
 - Consultations & FinOps



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kubernetes



RUNNER

THIS
IS FINE



Scale down pods

- Kube-green
- Kube-downscaler
- KEDA
- HPA with metrics

Scale down nodes

- GKE node auto-provisioning with a filler pod
- Crossplane
- Kubeform

```
...  
  
# Get the current time and day of the week  
now = datetime.now()  
weekday = now.weekday()  
hour = now.hour  
  
# Define the time ranges  
day_start = 6  
day_end = 23  
work_start = 9  
work_end = 17  
weekend = 4 # Monday-Friday are 0-4 in weekday()  
  
# Check the time and day of the week  
if day_start <= hour <= day_end:  
    NODE_COUNT = 2  
    if work_start <= hour < work_end and weekday <= weekend:  
        NODE_COUNT += 1  
    else:  
        NODE_COUNT = 0  
  
client.set_node_pool_size(  
    node_count=node_count,  
    name=f"projects/{PROJECT}/locations/{LOCATION}/clusters/{CLUSTER}/nodePools/{NODEPOOL}")
```

What's wrong with this?

- Runs in Google Cloud Functions
- Supports GKE node pool scaling

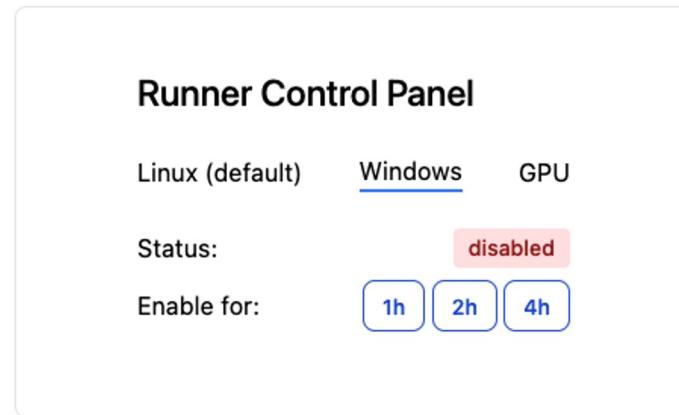
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```
676     ContainersNotReady: "containers with unready status: [build helper]"
677     ContainersNotReady: "containers with unready status: [build helper]"
678 Waiting for pod gitlab-runner/runners-yeyy9sqp-project-15-concurrent-0j9c2f to be running, status is Pending
679     ContainersNotReady: "containers with unready status: [build helper]"
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693 Waiting for pod gitlab-runner/runners-yeyy9sqp-project-15-concurrent-0j9c2f to be running, status is Pending
694     ContainersNotReady: "containers with unready status: [build helper]"
695     ContainersNotReady: "containers with unready status: [build helper]"
697 ERROR: Job failed (system failure): prepare environment: waiting for pod running: timed out waiting for pod to start. Check https://docs.gitlab.com/runner/shells/index.html#shell-profile-loading for more information
```

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UI



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UI

Runner Control Panel

[Linux \(default\)](#) [Windows](#) [GPU](#)

Status: enabled

Time remaining: 1 24 39
hour min sec

Extend for: 1h 2h 4h

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```
apiVersion: rcp.applifting.cloud/v1
kind: Target
metadata:
  name: production-web
spec:
  kubernetesRef:
    apiVersion: apps/v1
    kind: Deployment
    namespace: production
    name: web
```

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```
apiVersion: rcp.applifting.cloud/v1
kind: Target
metadata:
  name: runners-node-pool
spec:
  gkeNodePoolRef:
    id: applifting-project/europe-west3/runners-cluster/runners
```

```
apiVersion: rcp.applifting.cloud/v1
kind: Schedule
metadata:
  name: runners-node-pool
spec:
  parameters:
    - name: replicas
      targetParameter: spec.replicas
      default: 1
```

```
apiVersion: rcp.applifting.cloud/v1
kind: Schedule
metadata:
  name: runners-node-pool
spec:
  parameters: ...
  schedule:
    - when: 'weekday <= 4 && hour > 7 && hour < 19'
      parameters:
        - name: replicas
          value: 3
```

```
apiVersion: rcp.applifting.cloud/v1
kind: Schedule
metadata:
  name: runners-node-pool
spec:
  parameters: ...
  schedule:
    - when:
        start:
          weekday: 0
          hour: 7
          minute: 0
        end:
          weekday: 0
          hour: 19
          minute: 0
  parameters:
    - name: replicas
      value: 3
```

```
apiVersion: rcp.applifting.cloud/v1
kind: Schedule
metadata:
  name: runners-node-pool
spec:
  parameters: ...
  schedule:
    - when:
        cron: "0 0 * * 0"
      parameters:
        - name: replicas
          value: 1
```

```
● ● ●
```

```
apiVersion: rcp.applifting.cloud/v1
kind: ScheduleBinding
metadata:
  name: runners-node-pool
spec:
  scheduleRef:
    name: runners-node-pool
  targetRef:
    name: runners-node-pool
```

```
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apiVersion: rcp.applifting.cloud/v1
kind: ScheduleBinding
metadata:
  name: runners-node-pool
spec:
  scheduleRef:
    name: runners-node-pool
  targetRef:
    name: runners-node-pool
  parameterMapping:
    - schedule: replicas
      target: spec.replicas
```

```
apiVersion: rcp.applifting.cloud/v1
kind: ControlPanel
metadata:
  name: runners
spec:
  targets:
    - name: runners-node-pool
      title: Runners
      targetRef:
        name: runners-node-pool
  ingress:
    host: runners.applifting.cloud
  auth:
    google: ...
```

Thank You

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