



# Resilient connected app

Xamarin hands-on-labs





HAPPY USER



GRUMPY USER





# 8 FALLACIES OF DISTRIBUTED COMPUTING

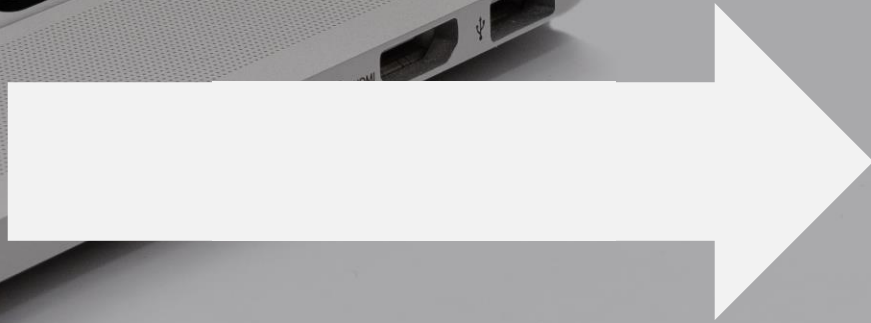
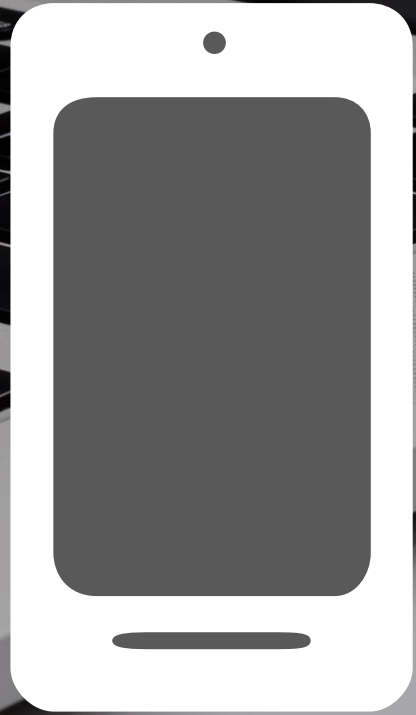
1. THE NETWORK IS RELIABLE.
2. LATENCY IS ZERO.
3. BANDWIDTH IS INFINITE.
4. THE NETWORK IS SECURE.
5. TOPOLOGY DOESN'T CHANGE.
6. THERE IS ONE ADMINISTRATOR.
7. TRANSPORT COST IS ZERO.
8. THE NETWORK IS HOMOGENEOUS.

Deutsch '94  
Gosling '97





# ARCHITECTURE



# OUR GOALS

1. Do less coding
2. Speed!
3. Work offline
4. Deal with errors





**GOAL #1**  
be a lazy dev

(do less coding)



A close-up photograph of a tabby cat lying on its back on a concrete floor. The cat's mouth is wide open, showing its pink tongue, white teeth, and dark gums. The cat has a black collar with gold-colored studs. The background is a plain, light-colored concrete surface.

be a lazy dev

> Install-Package Refit

(thanks Ana Betts!)





GOAL #2  
speed!



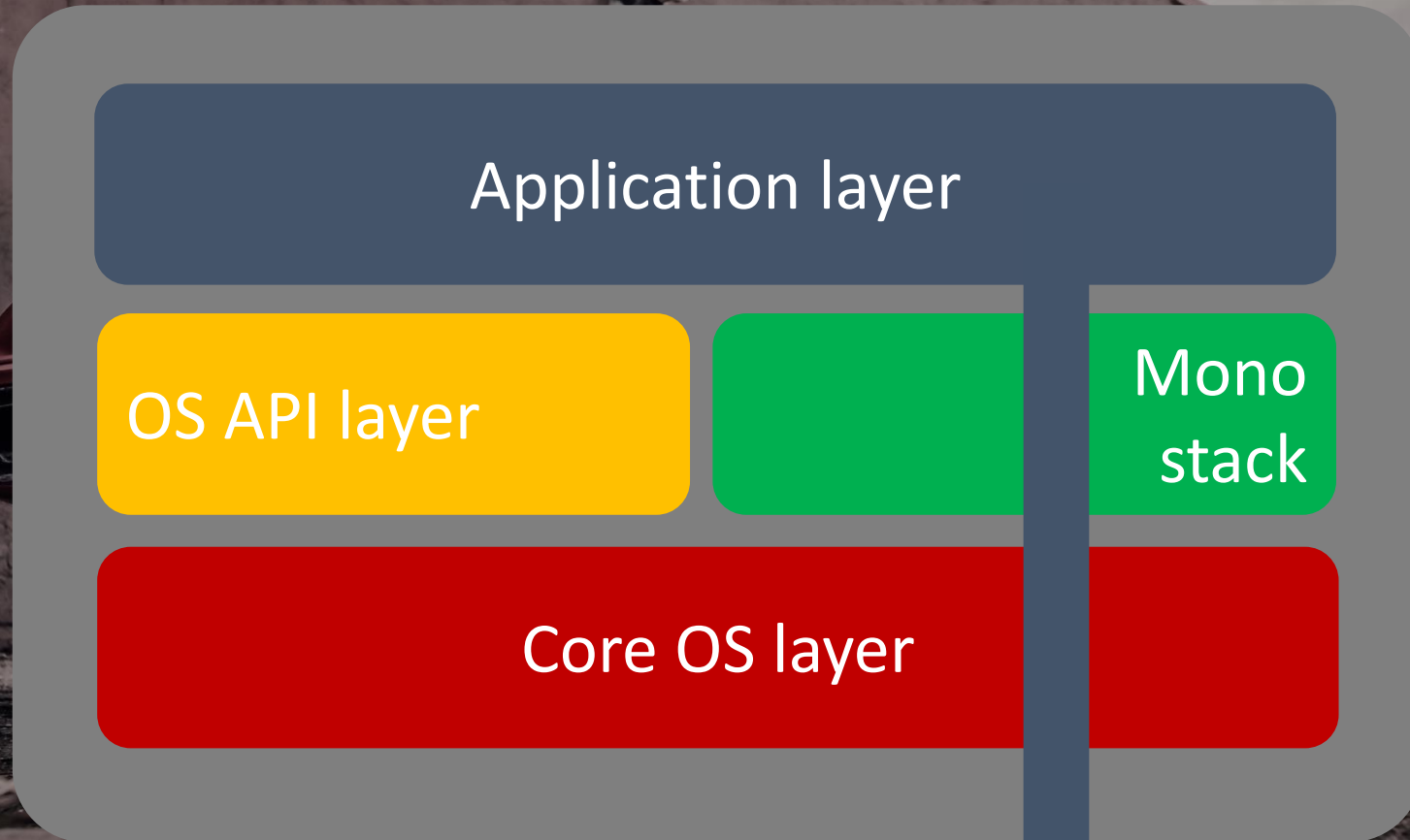
speed!

**STEP 1**  
use native stack

A red classic car, possibly a Chevrolet Camaro, is parked on a gravel surface in front of a textured, grey wall. The car is angled towards the left. The text "STEP 1" is overlaid in large, bold, white capital letters, and "use native stack" is overlaid in a smaller, white, lowercase serif font below it. The word "speed!" is written in a white, lowercase serif font in the upper left corner of the image.

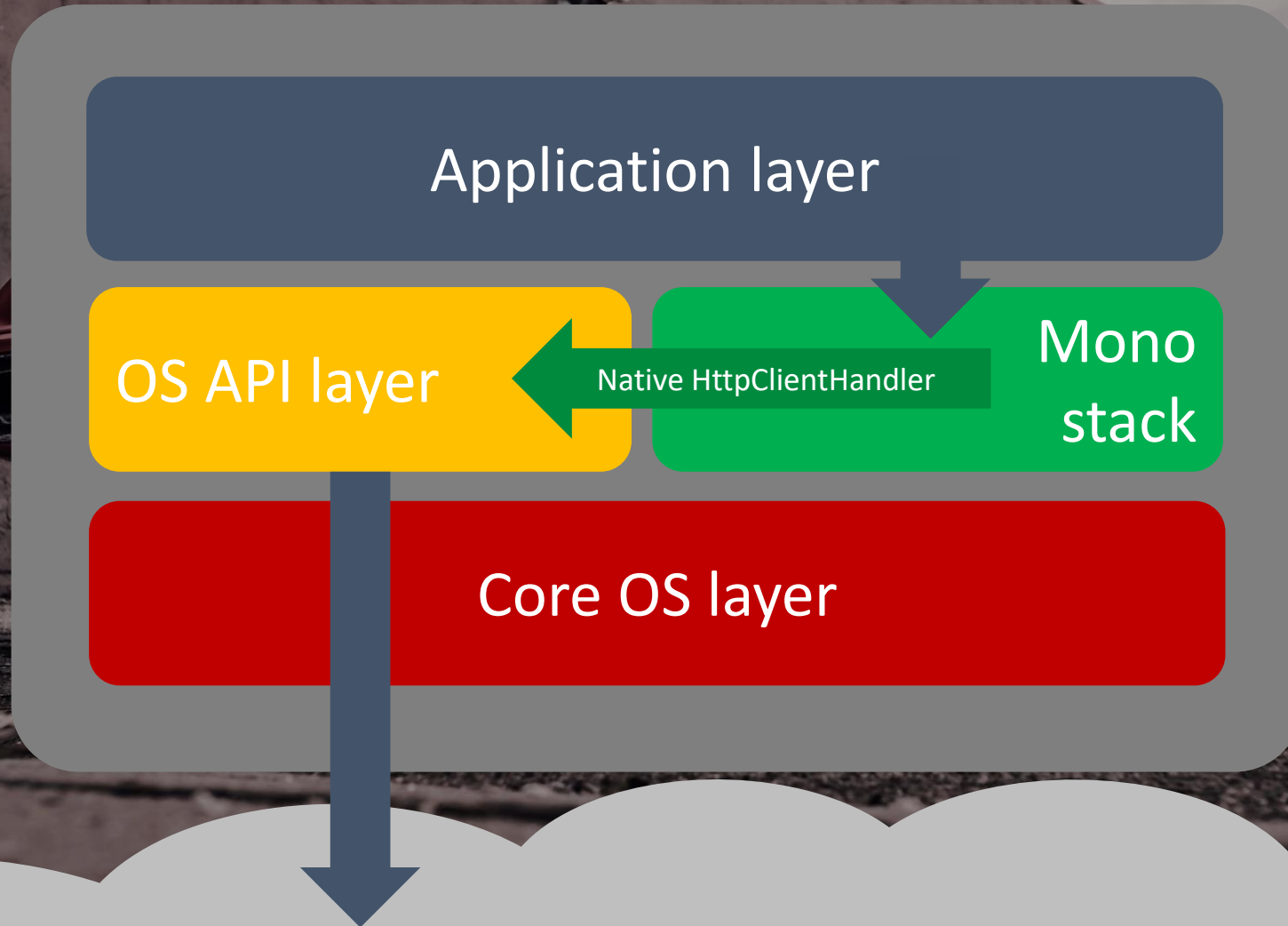


speed!





speed!





speed!

**CACHING**  
cache data locally



speed!

> Install-Package Akavache

(thanks again Ana Betts!)



A vintage motorhome with tan and red stripes is parked in a desert landscape. The sky is filled with dramatic, dark clouds, with a large, bright red cloud on the left. The motorhome has a large front windshield and several side windows. A small table and chairs are set up outside the motorhome. The text "GOAL #3" is overlaid in large white letters, and "work offline" is overlaid in smaller white letters below it.

# GOAL #3

work offline



work offline

# > Install-Package Xamarin.Essentials





A man with grey hair, wearing a dark pinstripe suit and a purple checkered shirt, is covering his face with both hands. His eyes are closed, and his expression is one of frustration or despair. The background is a dark, solid color.

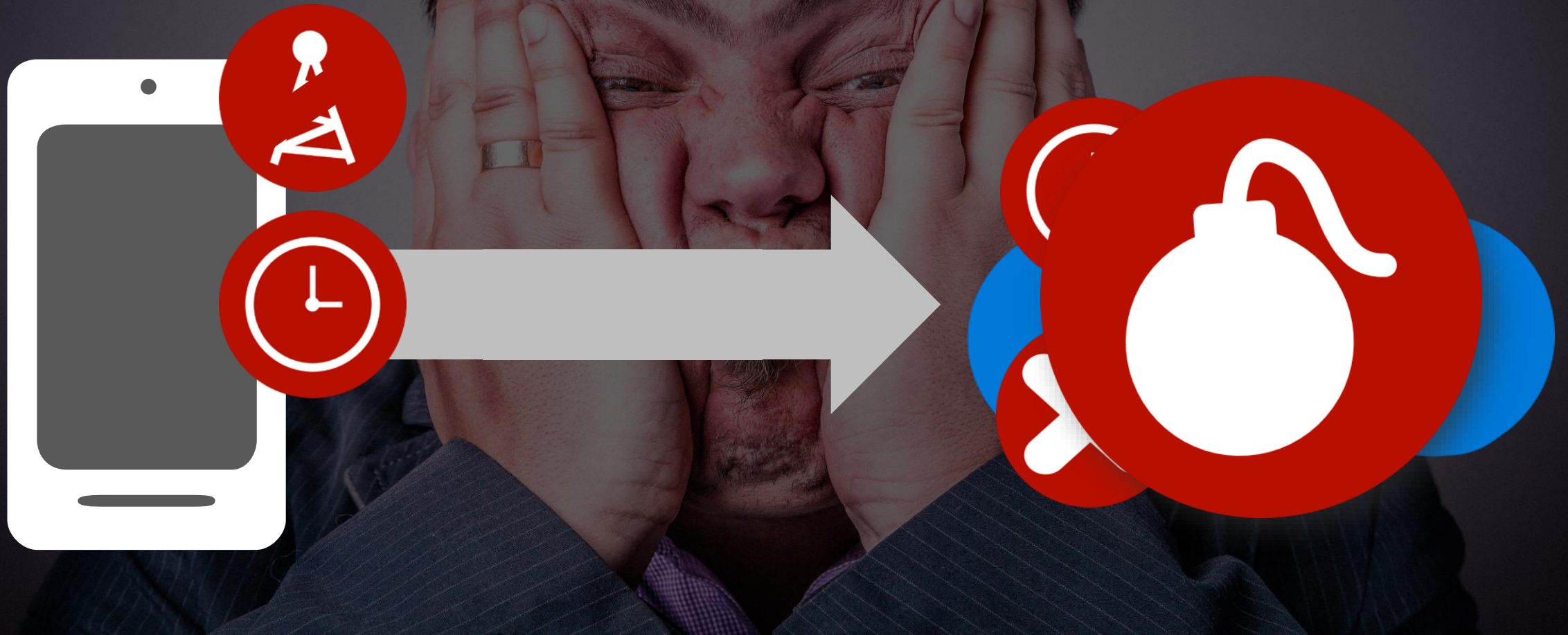
# GOAL #4

deal with errors



deal with errors

# WHAT COULD POSSIBLY GO WRONG?





deal with errors

# WHAT DO YOU DO?

## RETRY

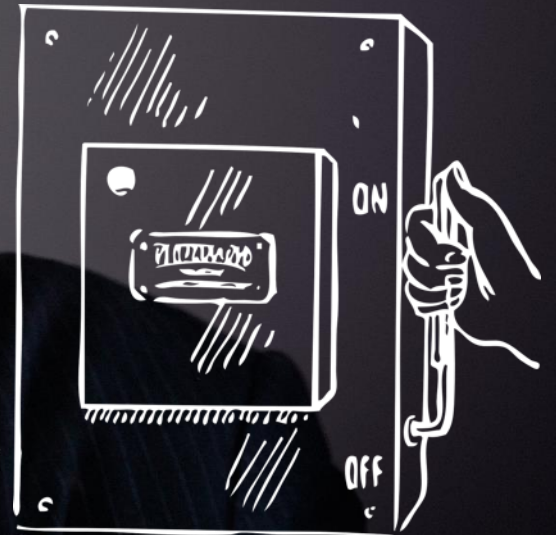
How often?

At what interval?

What if the server is already busy?

## CIRCUIT BREAKER

Fail fast in case of downstream errors







> Install-Package Polly  
(or Polly.Extensions.Http)

(thanks Michael Wolfenden & the Polly Project!)



# YAY!

- ✓ Less coding: Refit
  - ✓ Speed:
    - Native network stack
    - Local caching: Akavache
  - ✓ Work offline: Xamarin.Essentials Connectivity
  - ✓ Deal with errors: Polly
- 
- A child wearing a red hood with a yellow bird-like face and a yellow tank top with a red cape is pointing forward with their right hand. The background is a brick wall.





# LAB

Add some resiliency to the  
Conference App



# RECOMMENDED READING

## **Improving HTTP Performance in Xamarin Applications**

*Jonathan Peppers*

<http://jonathanpeppers.com/Blog/improving-http-performance-in-xamarin-applications>

## **Disconnected Mobile Device Seminar**

*Frank Krueger*

<https://blog.xamarin.com/the-disconnected-mobile-device-seminar>

## **Resilient Network Services with Mobile Xamarin Apps**

*Rob Gibbens*

<http://arteksoftware.com/resilient-network-services-with-xamarin>

## **Eight Fallacies of Distributed Computing**

*Gareth Wilson*

<https://blog.fogcreek.com/eight-fallacies-of-distributed-computing-tech-talk>