



# Architecting & Developing for Windows Phone



Philipp Bauknecht  
CEO & Software Architect  
medialesson GmbH

# Session Outline

- WP7 Basics
- Design Patterns
- Unit Tests
- Application Lifecycle
- Localization
- Coming up: Mango!

# WP7 Basics

# Hardware Foundation



## Capacitive touch

4 or more contact points

## Sensors

A-GPS, Accelerometer, Compass, Light, Proximity, **Gyro**

## Camera

5 mega pixels or more

## Multimedia

Common detailed specs, Codec acceleration

## Memory

256MB RAM or more, 8GB Flash or more

## GPU

DirectX 9 acceleration

## CPU

Qualcomm **MSM7x30**, MSM8x55 800Mhz or higher



Hardware buttons | Back, Start, Search

# Development Platforms

## Apps

- Silverlight 3.x
- XAML UI Framework
- .NET
- Metro Design
- Rapid Application Development



Microsoft®  
**Silverlight™**

## Games

- Performance for 2D & 3D games
- Mature technology for PC & XBOX 360



# Design Patterns

# Why use design patterns?

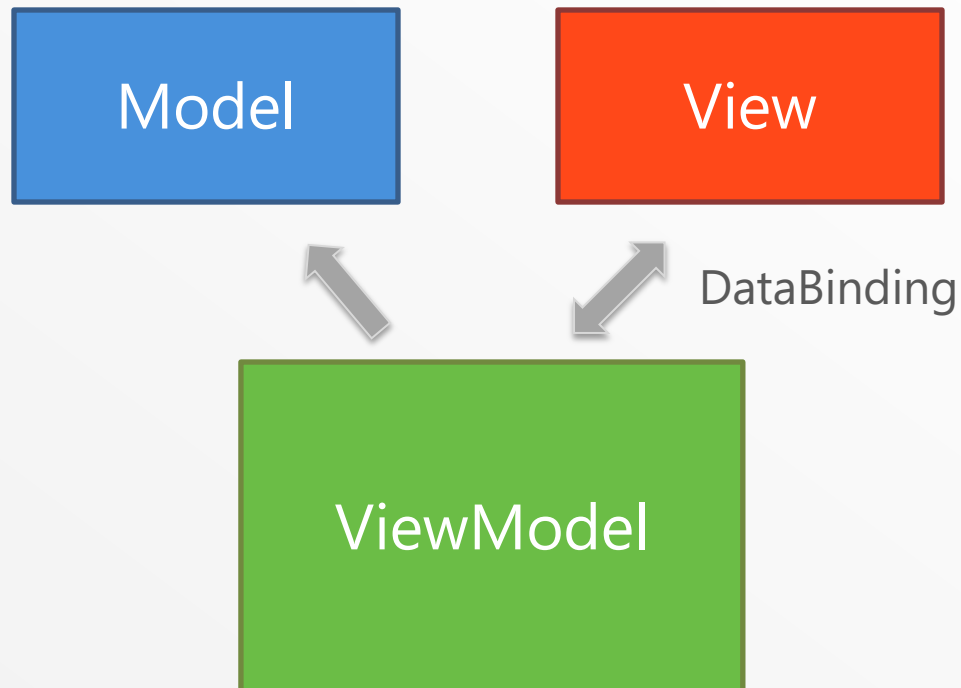
- Separation of concerns
- Collaboration
- Blendability
- Lookless view logic
- No duplicated code to update views
- Testability

# MVVM – Model View ViewModel

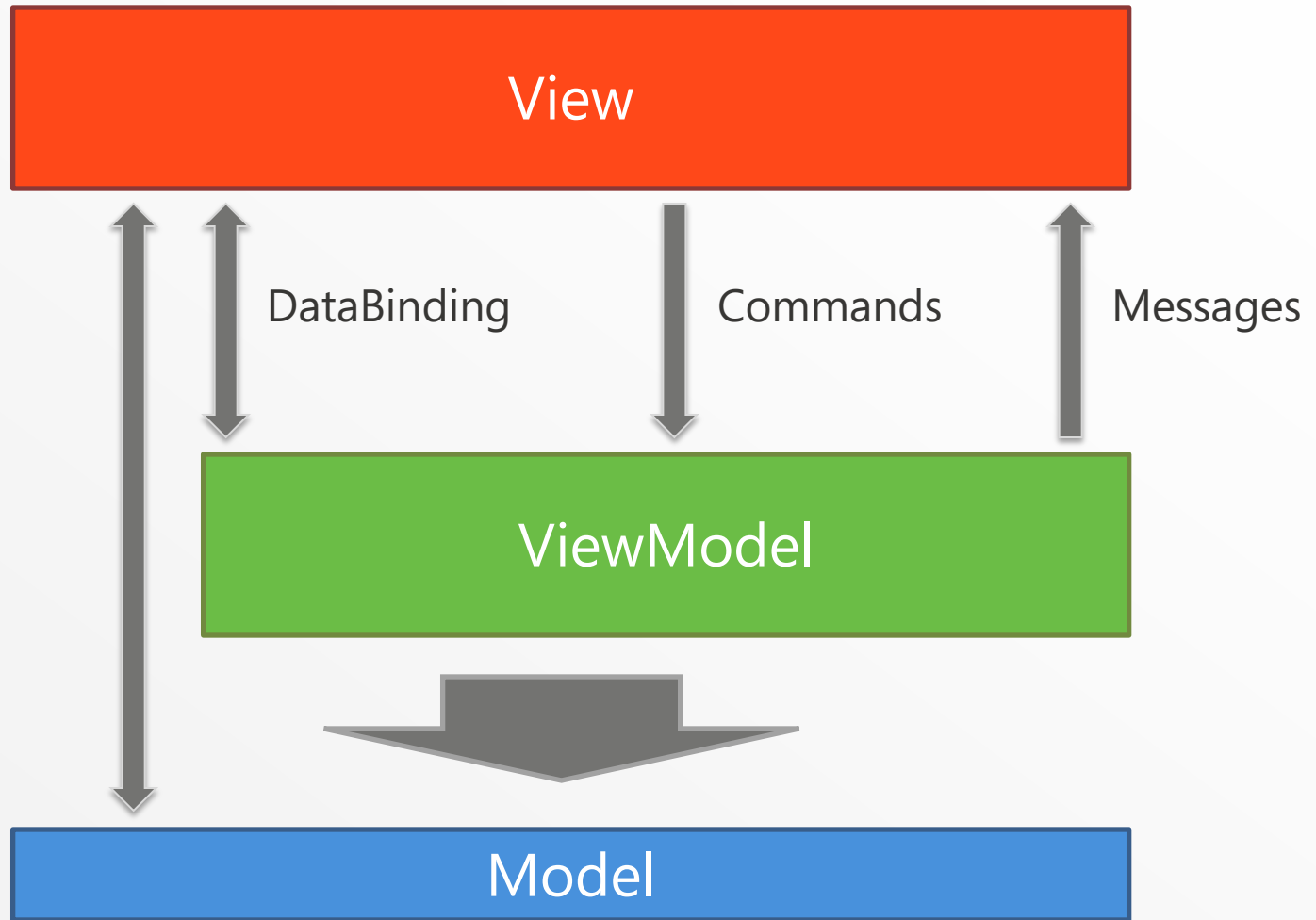
- It's just pattern!
- Build into Silverlight & WPF
- Can be extended with frameworks & helpers



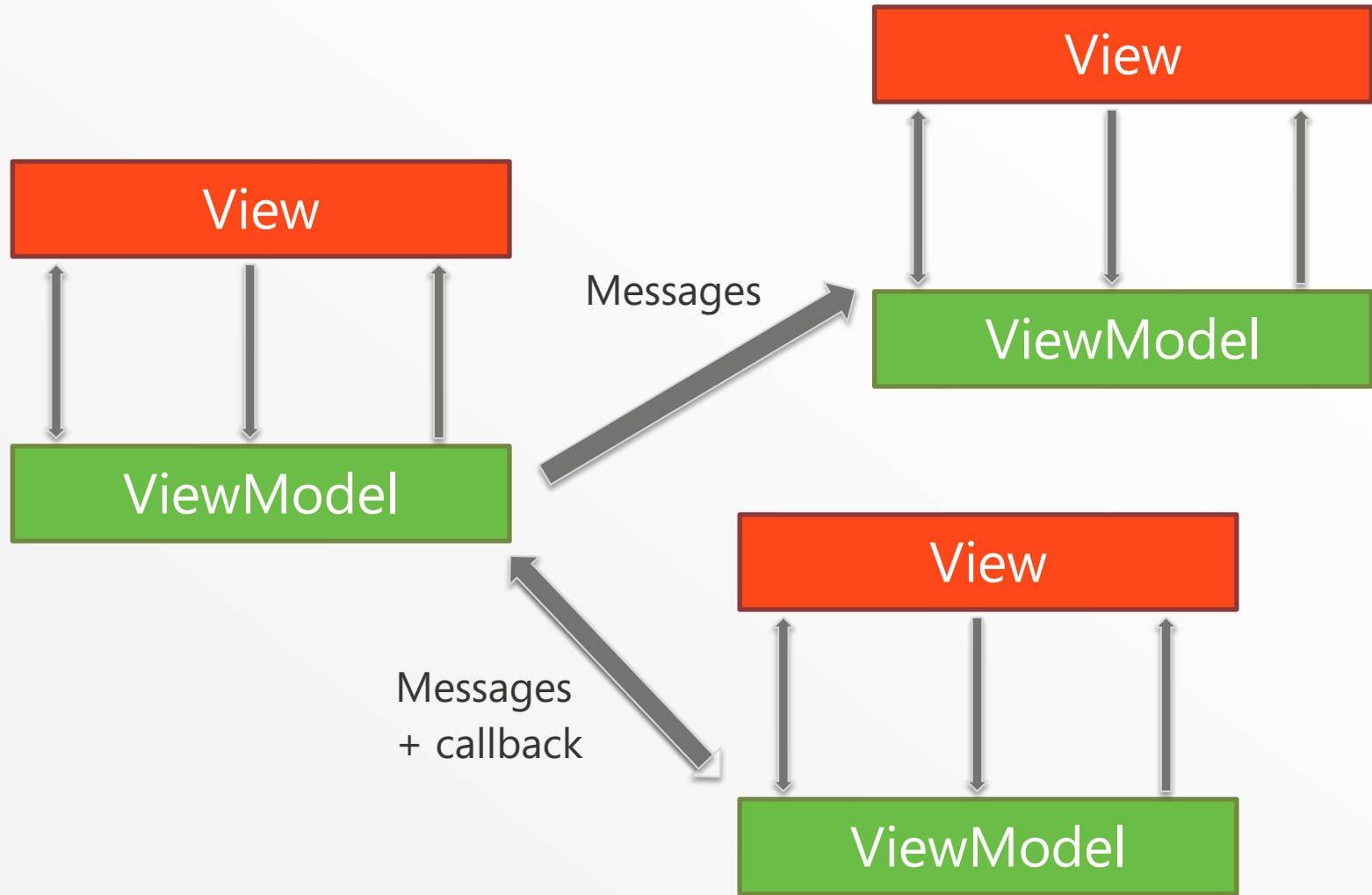
# MVVM pattern



# MVVM communication



# MVVM communication



# MVVM commands

- “Point of entry” for a method
- Can be data bound
- ICommand interface
  - Execute method
  - CanExecute method
  - CanExecuteChanged event

# MVVM messaging

- Communication between ViewModels and Views → loose coupling
- Should be simple by default
- Possible to open filtered channels
  - To a target Type (or an Interface)
  - With a Token

Demo

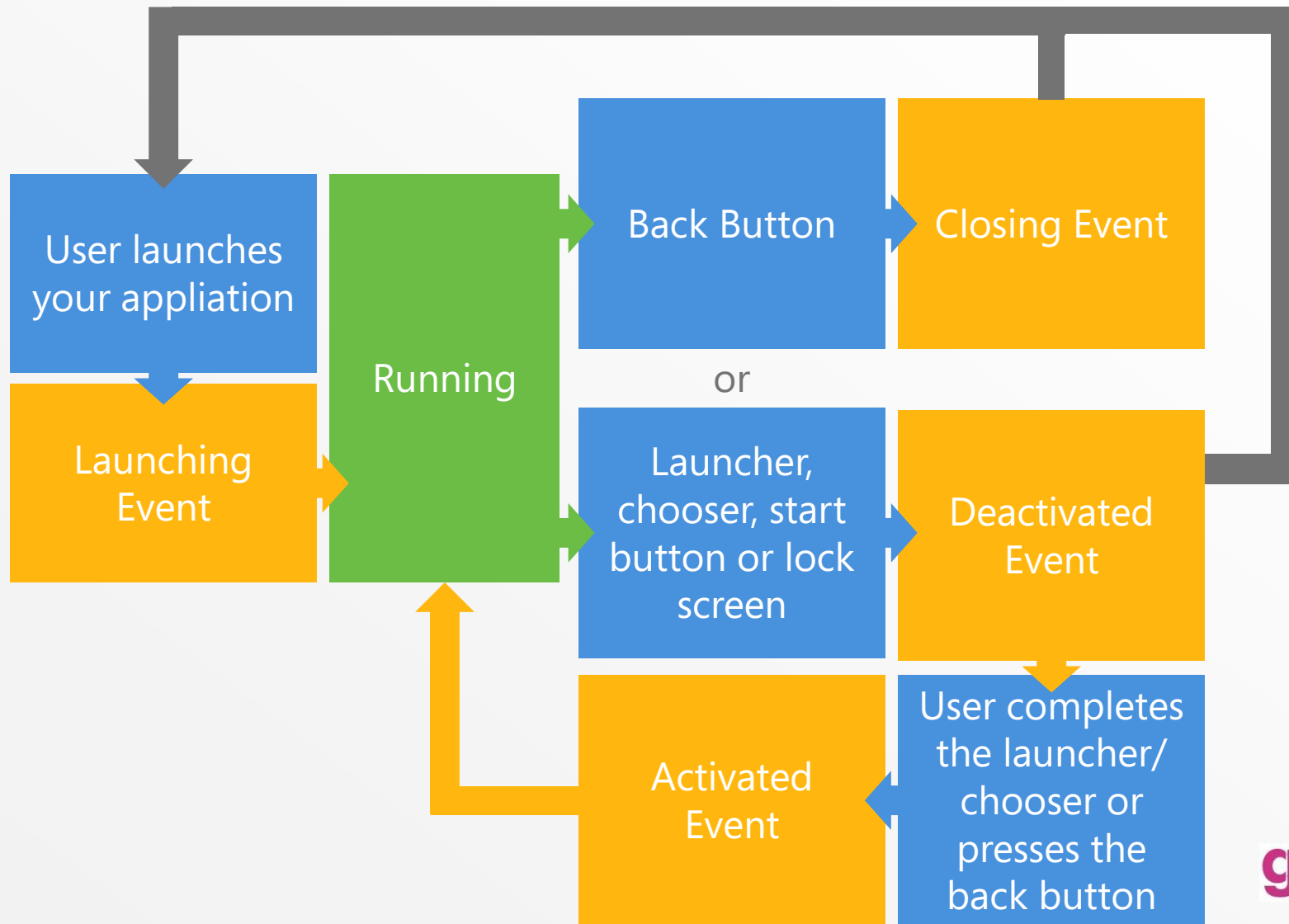
# Unit Tests

Demo



# Application Lifecycle

# Application Lifecycle - Tombstoning



Demo

Localization

Demo

Coming up: Mango!

New Features

XNA Silverlight Integration

Multitasking

Complete the  
push notification  
and Tile  
experience

Marketplace Services

Sockets

Integration with  
the phone

Performance

Enhanced Phone  
Framework

Database Access



# Multitasking Themes

- Fast Application Resume
  - Ability to resume applications that the user has recently used
  - Apps stay in memory unless memory is needed for other apps
  - **\*Every\*** app should do this
- Background Agents
  - Ability to run your code in the background
  - Audio, Timed or on Idle
- Notifications
  - Ability to create alarms and reminders
  - UX and behavior is the same as the phone Alarms and Calendar items
- Background Transfer Service
  - Application can queue up transfers in the background

# Integrating with the Phone

Camera	Sensors	Networking	Data	Launchers & Choosers	Controls
Access to the pipeline	GPS	Sockets	SQL CE	Bing Maps	Frame and Page Navigation improvements
	Accelerometer			E-mail	Performance
	Compass		Phone Contacts		
No need to capture the image to flash	Gyro	Connection Manager control	Phone Calendar	Phone Number	
	Spatial Framework			Address Chooser	Open Source on CodePlex

# Expanding the Phone Framework

Tiles	Push Notifications	Phone Extras
Signature user experience for Windows Phone	Deep Toast	Search
Complete Framework		Music
Multiple Tiles	More control over notifications	Photos

# Silverlight Investments

Silverlight 4	Performance	International
RichTextBox	Memory Management	Reading/Writing of all Mango Languages
Implicit Styles	Input on Render Thread	
Clipboard API	Profiler Instrumentation	Big deal if you are writing an app for Asia

XNA & Silverlight

# In the same app...

Using XNA Shared Graphics

Better Tooling

# Tools Investments

Tools	.NET	Emulator
New Template for Multitasking	Performance	Sensors and Location in Emulator
Debugging Background Agents	Generational GC	Multi Touch in Emulator
Isolated Storage Explorer	Serialization	Screen shot
Profiler	SIMD – Vector	Ingestion Tool
	Profiler	

Greater Reach



# Creation & Commerce

Now supporting 16 more languages

Moi maailma

世界您好

Γεια σου  
κόσμε

ハローワー  
ルド

Всем

привет

Hej världen

Helló világ

Olá mundo

Hallo mensen

Hallo, verden

Cześć ludzie

Hej verden

8:27

新橋営業所長と打ち合わせ  
本社ビル 第5会議室  
12:45-2:00 PM

4 3 12

Ahoj světe

8:27

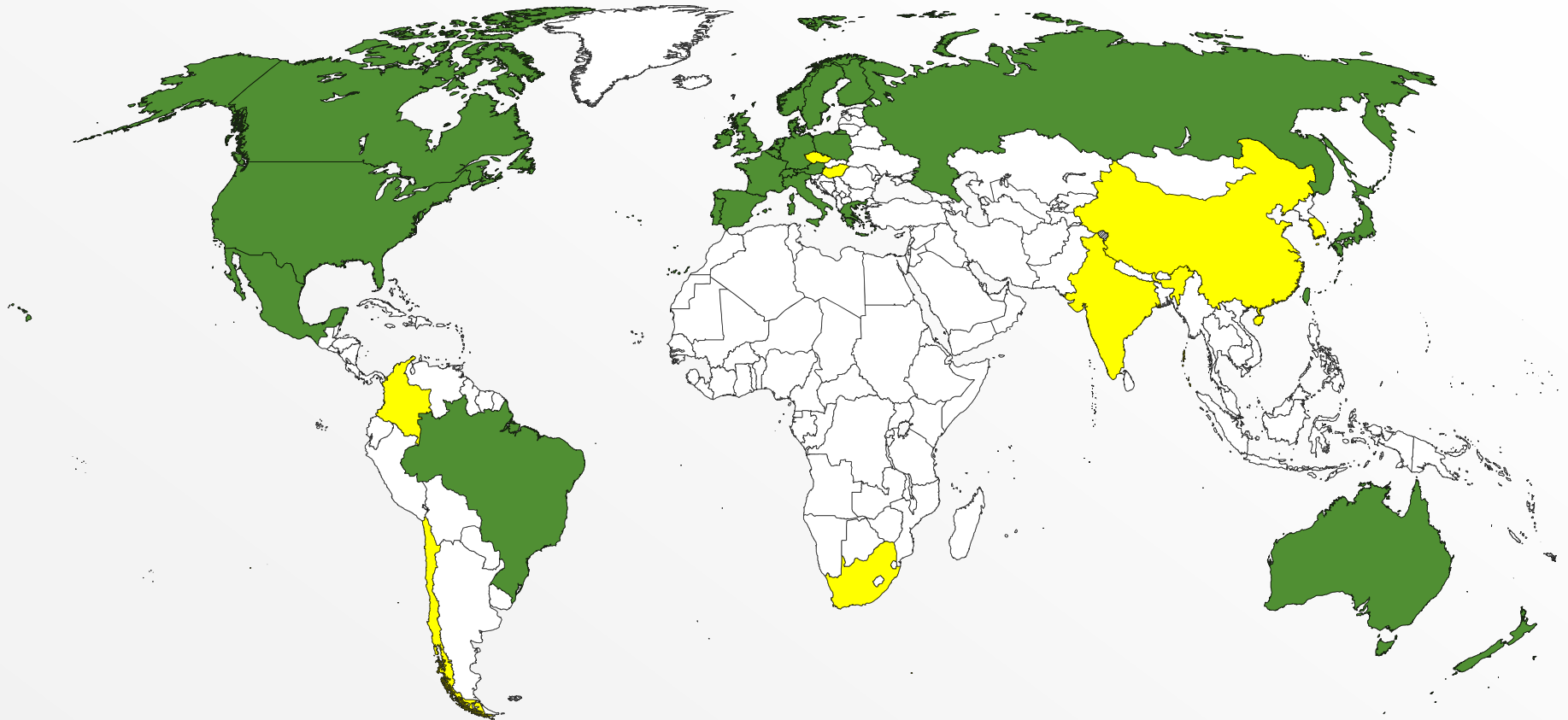
은진이랑 저녁 식사  
명동 칼국수에서  
오후 7:00

4 3 12

전 세계  
여러분  
안녕하세요

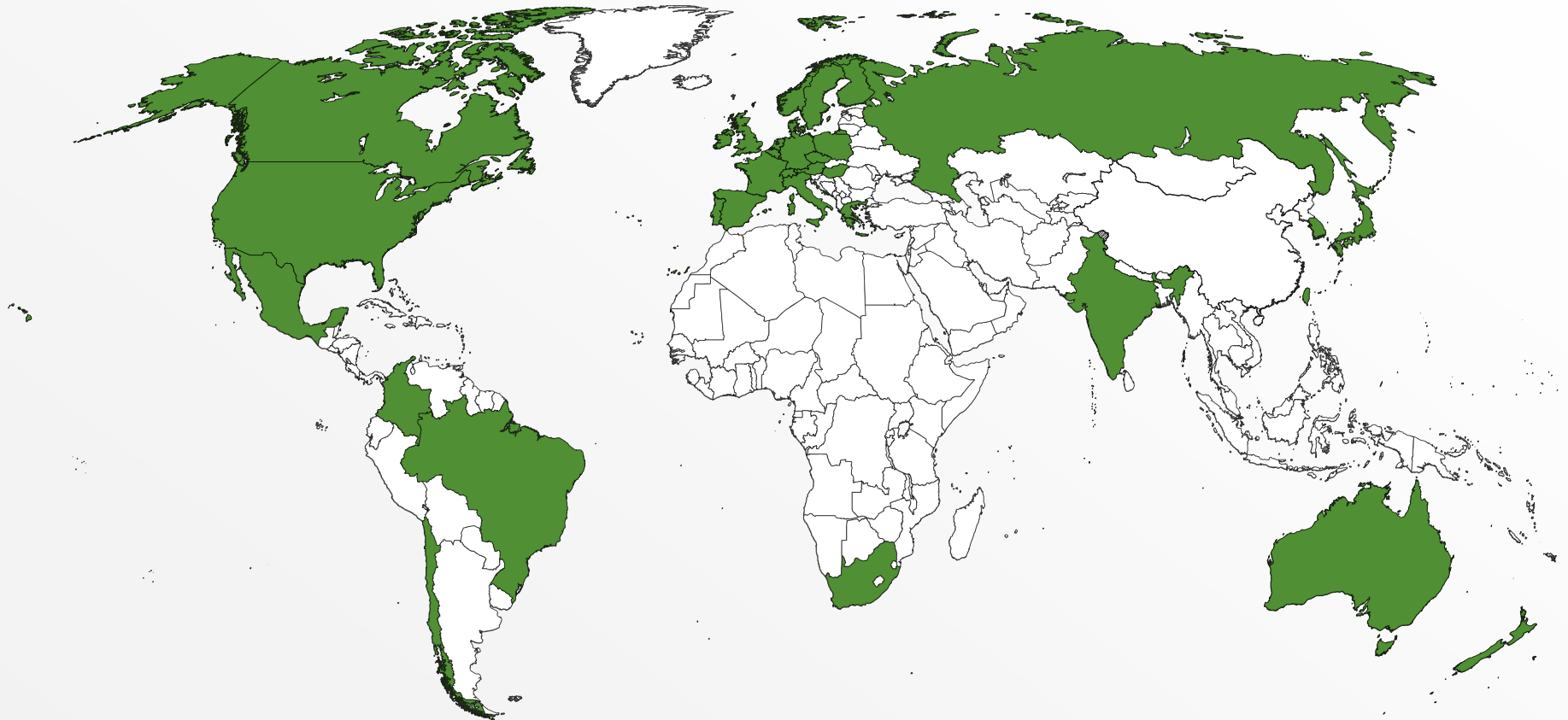
# Creation & Commerce

More countries for app creation...from 30 to 38







# Creation & Commerce

More countries for app commerce...from 16 to 35



Q&A

# Let's stay in touch!

-  [bauknecht@medialesson.de](mailto:bauknecht@medialesson.de)
-  [@grillphil](https://twitter.com/grillphil)
-  [facebook.com/philipp.bauknecht](https://facebook.com/philipp.bauknecht)
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