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The Agile Engineer

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Engineering Manager,
7 January 2019

My Goals for today!

- Introduce you to a broader view of Agile
- Understand what YOU want to know about Agile
- Give you a perspective on the industry view of Agile
- Talk about the role of an Engineer in 2019
- More importantly, to have fun!

This topic is an iceberg

- Full training for:
 - ScrumMaster -- 2 days
 - Product Owner -- 2 days
 - Scrum Team Developer -- 3 days
 - Kanban -- 2 days
 - Lean -- 5 days to 12 months
- I can only scratch the surface in <90 mins



WHAT DO WE MEAN WHEN WE SAY AGILE?



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WHAT DO WE MEAN WHEN WE SAY **agile**?



Buzz Groups: What do YOU want to know about Agile?

Exercise 1: Form an orderly line

Based on your knowledge of Agile right now, how Agile is your way of working?

10 == Couldn't be better; living the dream!

1 == Failing on multiple levels ; train wreck waiting to happen

You have 30 seconds to form an orderly line.

The end nearest the projector is the 1 side of the scale, the opposite end is the 10 side of the scale

Exercise 1: Form an orderly line

Reform the line based on how tall you are.

You have 30 seconds to form an orderly line.

The end nearest the projector is the 1 side of the scale, the opposite end is the 10 side of the scale

Exercise 1: Form an orderly line

Reform the line based on shoe size.

You have 30 seconds to form an orderly line.

The end nearest the projector is the 1 side of the scale, the opposite end is the 10 side of the scale

What did we learn?

- The first exercise thought you about personal opinion, you formed your own thought and opinion and knew where you stood. **Individuals ideas and thoughts matter in Agile teams**
- The second exercise thought you about observation, you didn't need to communicate with your colleagues you could look and guess and fall in line silently. **Awareness of what others are doing is an important part of a functioning team.**
- The third exercise thought you about communication, you had to talk with your colleagues, listen and interpret. **Effective communication is the key to any good team**
- **These are not Agile principals but they are close! They are good team principles and Agile helps reinforce them**

The Agile Manifesto

- Individuals and interactions over processes and tools
- Working deliverables over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan
- There is value in the items on the right, but we place more value on the items on the left
- <http://www.agilemanifesto.org/> (2001)

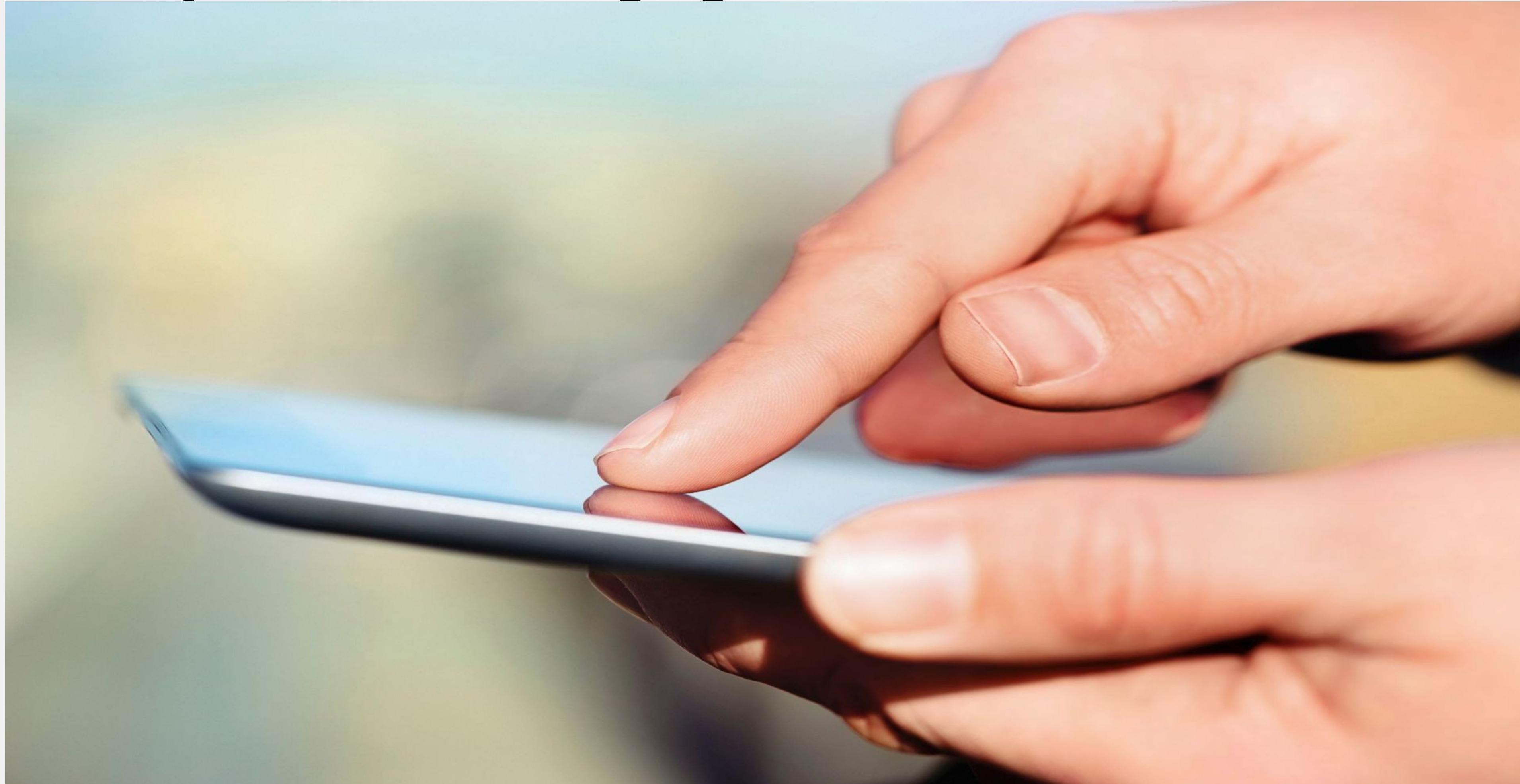


Why Agile?

We moved from a System of Record....



To Systems of Engagement.....



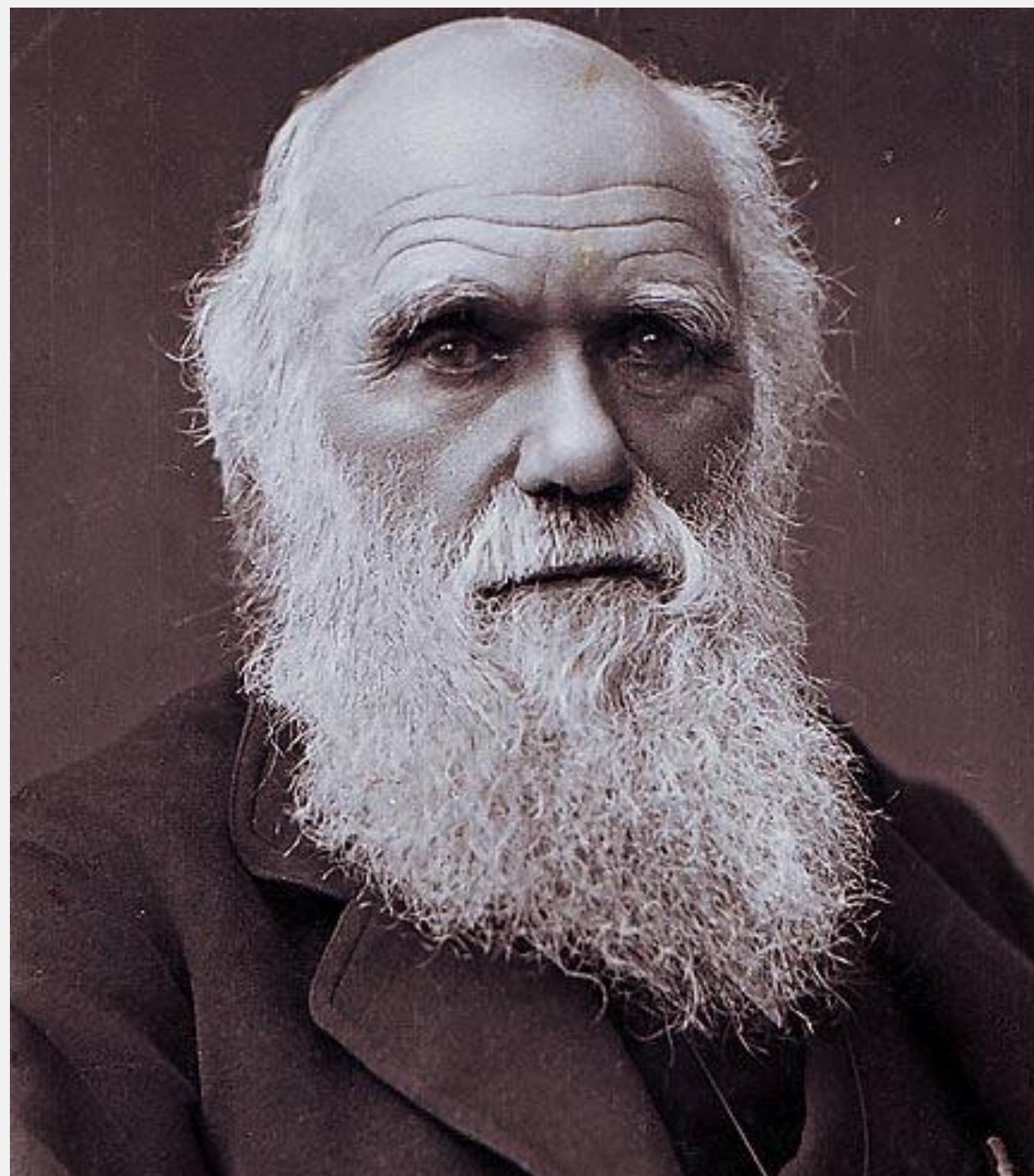
Emergence of Bimodal IT

SYSTEMS OF RECORD			SYSTEMS OF ENGAGEMENT	
Transactional		<i>process</i>	Collaborative	
Technology-centric		<i>focus</i>	User-centric	
Proprietary		<i>technology</i>	Open	
Waterfall		<i>approach</i>	DevOps & Agile	
Java & .Net		<i>framework</i>	Polyglot & Lightweight	
Physical & Virtual		<i>infrastructure</i>	Cloud	
Monolithic		<i>architecture</i>	Microservices	
Web		<i>application</i>	Mobile	
MODE 1			MODE 2	

What is Agile?

"It is not the strongest of the species that survives, nor the most intelligent that survives.

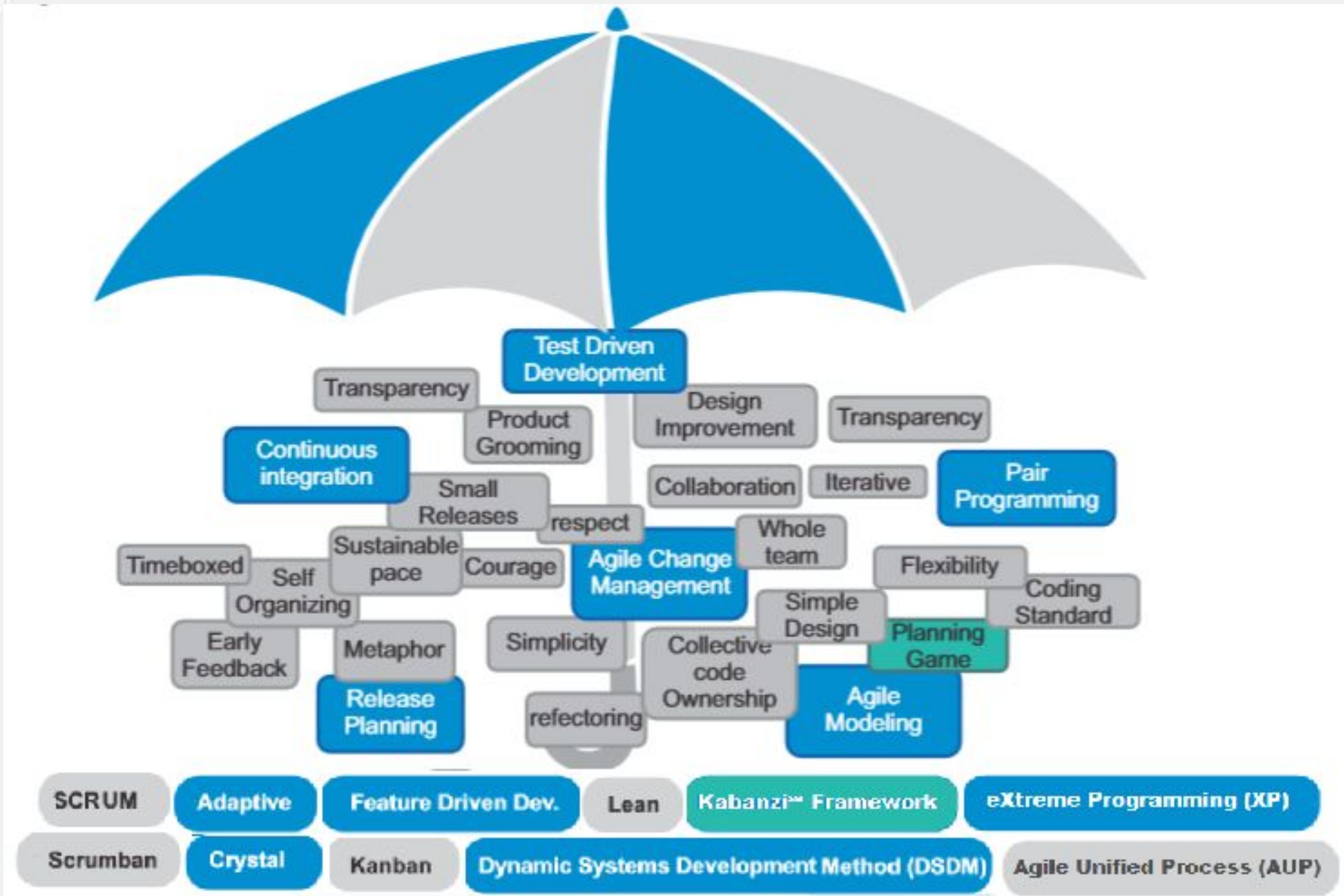
It is the one that is most adaptable to change" -- Misquote attributed to Charles Darwin (who is NOT a Software Engineer)

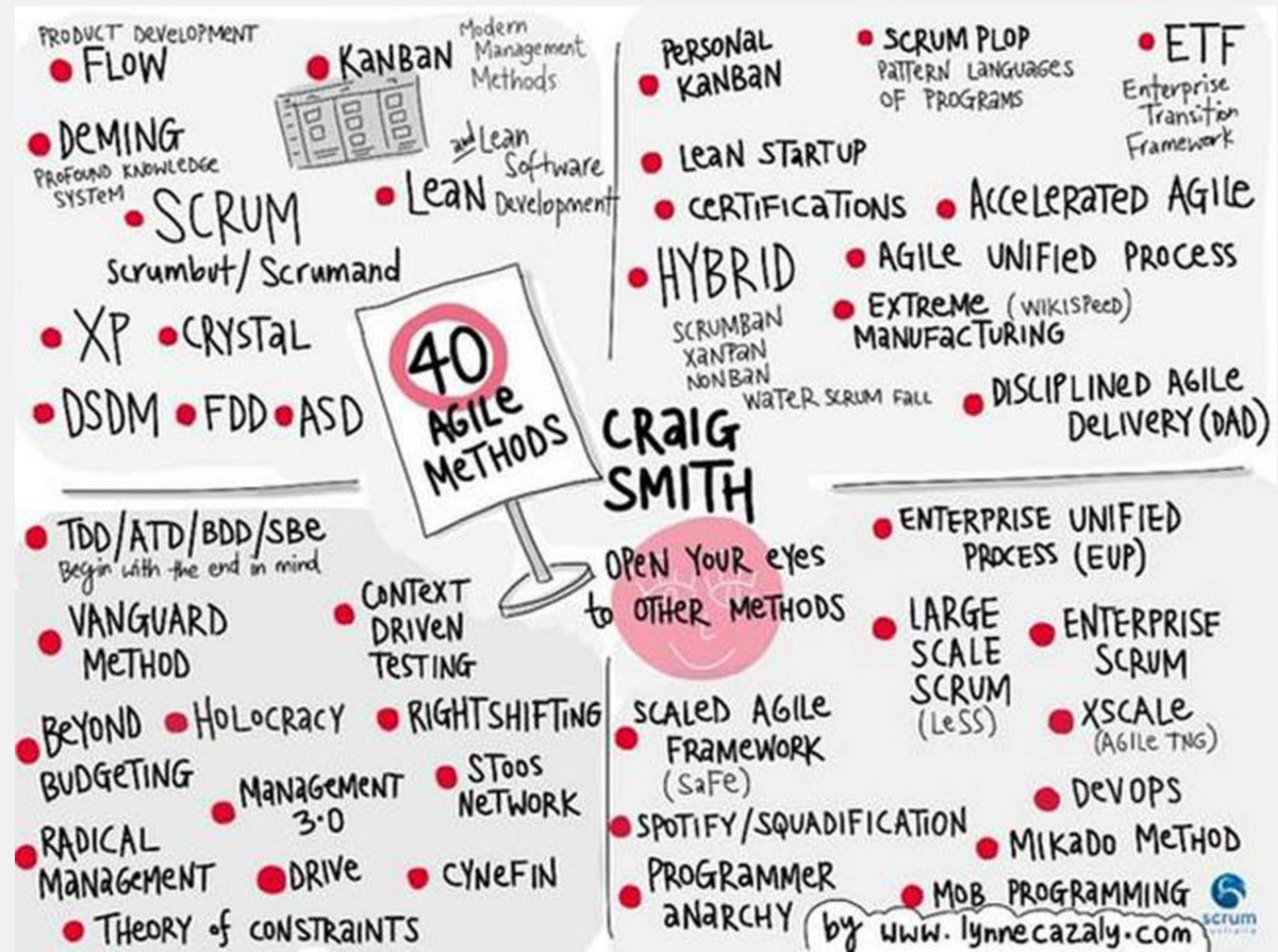


- Agile (as we know it) originally comes from Software Development.
- *We are uncovering better ways of developing software by doing it and helping others do it.*
- It was a response to how the industry was moving
- It was a response to how the customers perception of consuming technology was changing
- It is part of an Umbrella of other process improvement methodologies

The background of the slide features a large, modern bridge structure with a complex steel truss design. A solid red diagonal band runs from the top left towards the bottom right, partially obscuring the bridge. The rest of the slide is white.

Agile has many implementations





The many faces of Agile : LEAN

- Eliminate Waste
 - Promotes efficiency and money saving
- Amplify Learning, make everyone a domain expert
- Deliver as Fast as Possible
- Decide as Late as Possible
 - Keeping options open, every voice and opinion matters
- Empower the Team
- Build integrity in

The many faces of Agile : Kanban

- Japanese for Signboard
 - Very visual as a result
- Does not prescribe roles or process steps
 - Respects the current titles and processes
 - Gains support and confidence, reduces fear of change
- Incremental, evolutionary change
 - Continuous small changes
- Limits work in progress
- Improve Collaboratively
 - Work as a team, very empirical and data driven

The many faces of Agile : Scrum

- Highest Business Value in the Shortest Time Possible
- Delivers value in short, repeatable processes
- Business sets the priority
 - With help from the team
- Role and Ceremony Driven
 - Roles help the process flow and unblock the team
 - Ceremonies focus the team and improve collaboration
- Teams self organise around work
 - No micro management
 - Anybody can work on anything

What they Share

- Planning
 - Focused on small areas at a time
 - Delivering real value
- Discovery and Empowerment
 - Every voice in the team matters
 - No one person dominates what we do as an Agile Team
- Delivery
 - Short term, frequent deliveries
 - Long term, a more accurate delivery

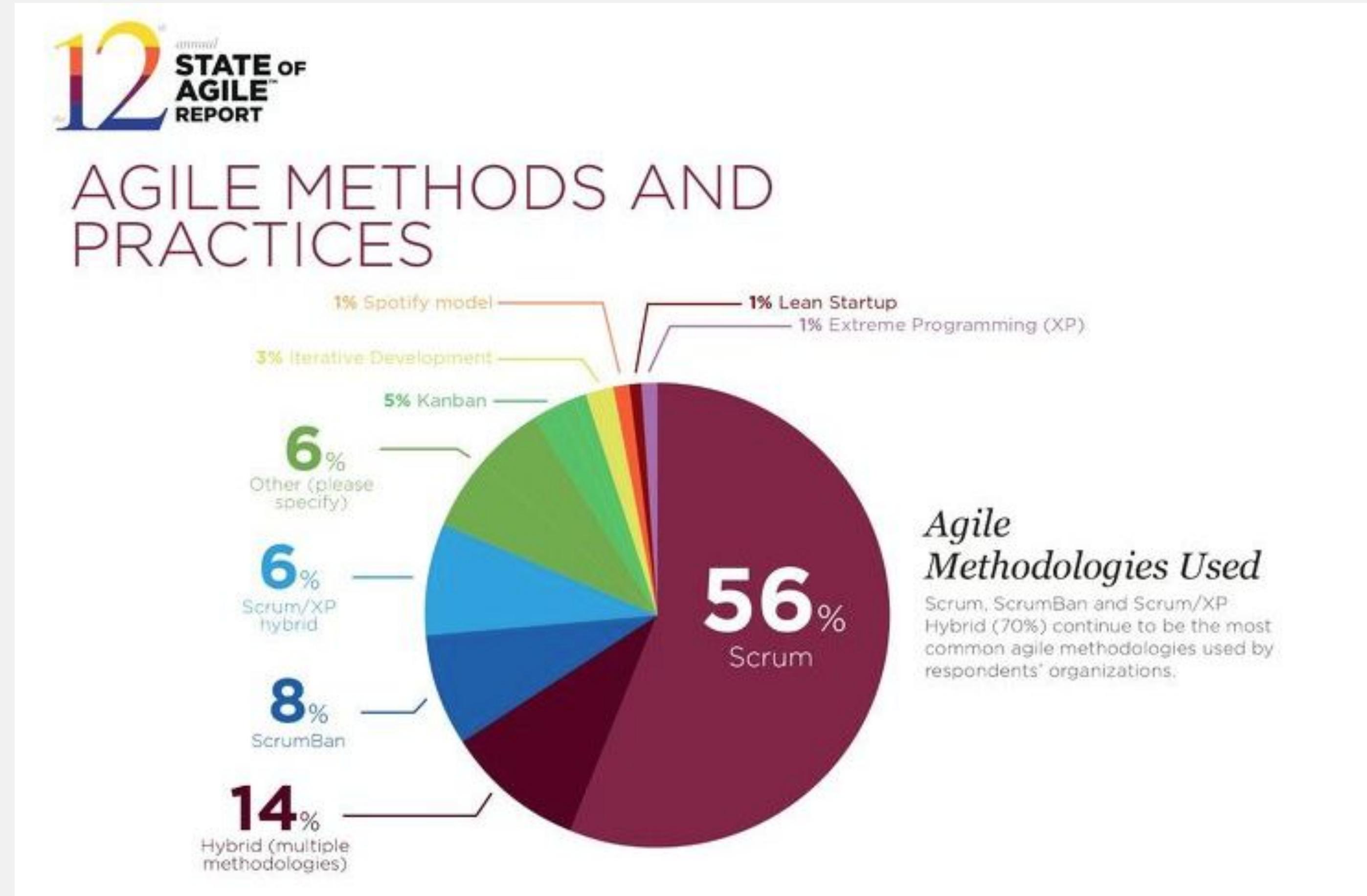
The power is in combining them

- Scrum
 - Value driven, self organising teams
- Lean
 - Optimise your workflows, eliminate bugs
- Kanban
 - Visualise, limit WiP
- Form your own flavour of Agile

A wide-angle photograph of a mountainous landscape featuring numerous terraced rice fields. The fields are arranged in a series of steps that follow the contours of the hillside, creating a pattern of light-colored patches against a darker green background. In the distance, a small, simple hut with a thatched roof sits atop one of the terraces. The sky is clear and blue.

A Scrum Approach

Why Scrum?



The three pillars of Scrum

Transparency

Inspection

Adaptation

A product and team vision

- At its core Agile Teams work towards a vision around a specific goal
- Our paying customer can help set the vision for what they want from the product or service
- Our company sets its own Vision, Red Hat is very strong on vision and principles
- Agile teams can set their own vision
 - To be the best? Most efficient? Reliable?

A vision becomes a Backlog

- Visions are really implemented at a project level
 - Some piece of software we are developing
 - Some future goal for the platform which we build towards
- Every project has some form of requirements
 - A feature set
 - A goal or objective
 - Engineering driven requirements (non functional)
- A Backlog can thus be defined as a “Queue of work”

A Backlog becomes a queue of Work

- The Backlog represents all of the steps that need to be taken by the team
- The team focus on a 1 at a time principle
 - More efficient
 - Focuses hugely on collaboration
 - Breaks down silos of responsibility
 - Stops the misperception that you can work 50:50 on two things
- The queue of work becomes an evolvable priority queue
 - Things change every day in our industry
 - We need to be reactive in a short time frame
 - We need to plan for short cycles

Work needs Planning

- Knowing what our next feature to focus on allows us to plan what work will be required to get this “done”
- As a team we invested time into our “Definition of Done”
 - We are done with this work when....peer reviewed? Deployed? tested? looks good?
 - As Agile Practitioners, you should define and enforce when work is Done
 - It sets a quality benchmark, improves team communication and confidence



Buzz Groups: Define your own Definition of Done

The Ceremonies

Backlog Grooming

Review state of Product Backlog, make sure all known work is reflected as backlog items, and ensure the backlog is prioritized.

Sprint Planning

Commit to a set of defined work as a team for the upcoming sprint cycle. The end result is the Sprint Backlog.

Daily Standup

Daily sync to share common understanding of the goals, coordinate the team effort, report on progress of work, and to communicate problems and improvements.

The Ceremonies

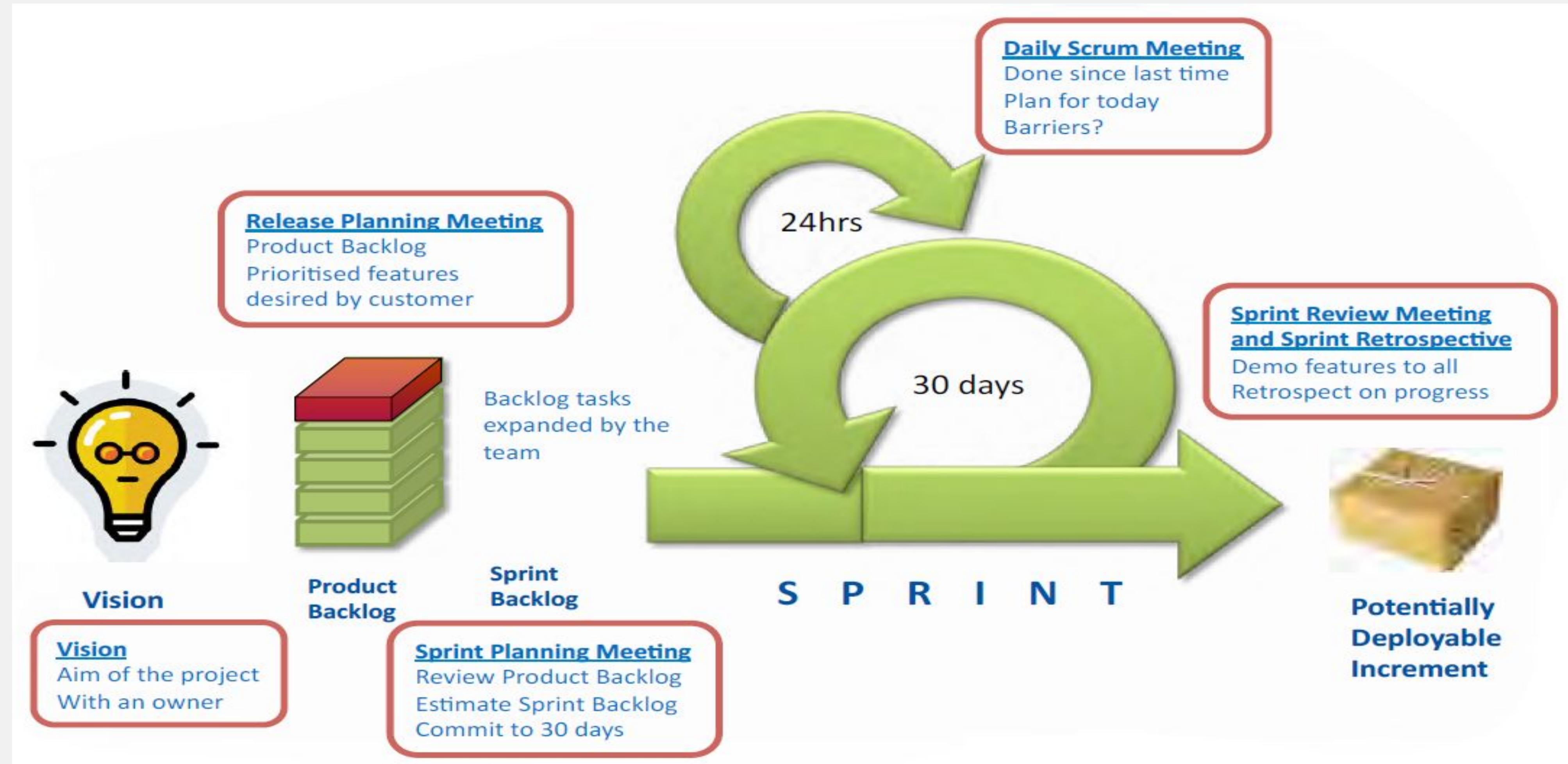
Sprint Review

Review what was completed during the sprint with all relevant stakeholders to collect feedback.

Sprint Retrospective

Help teams reflect on their internal team process with the goal to continuously improve.

The Scrum Framework



The Roles

- **PRODUCT OWNER**

- Defines the vision of the product
- Accepts the work



- **SCRUM MASTER**

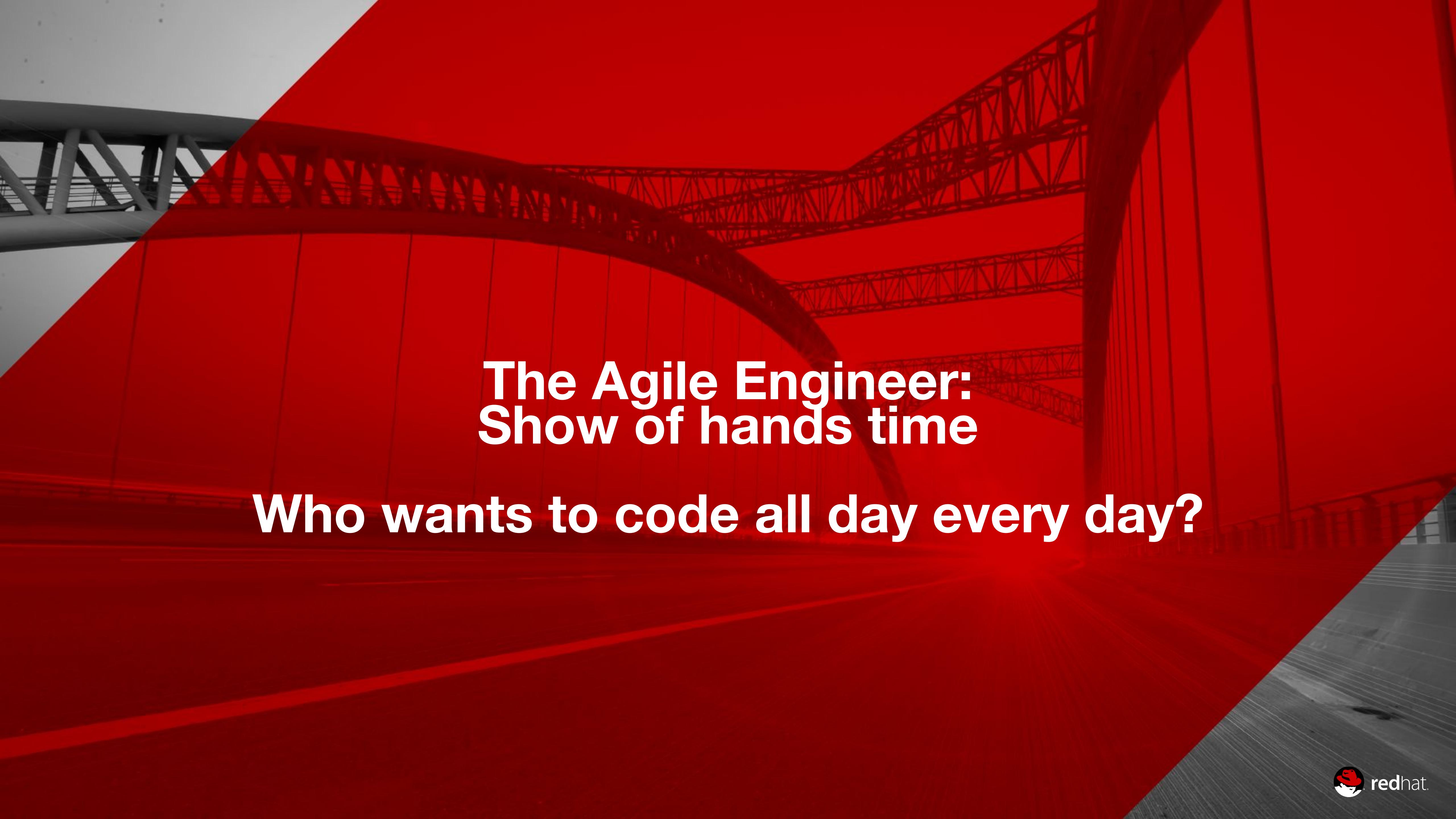
- Ensures the team work flows
- Focus on process



- **THE TEAM**

- Agrees to the work
- Completes the work

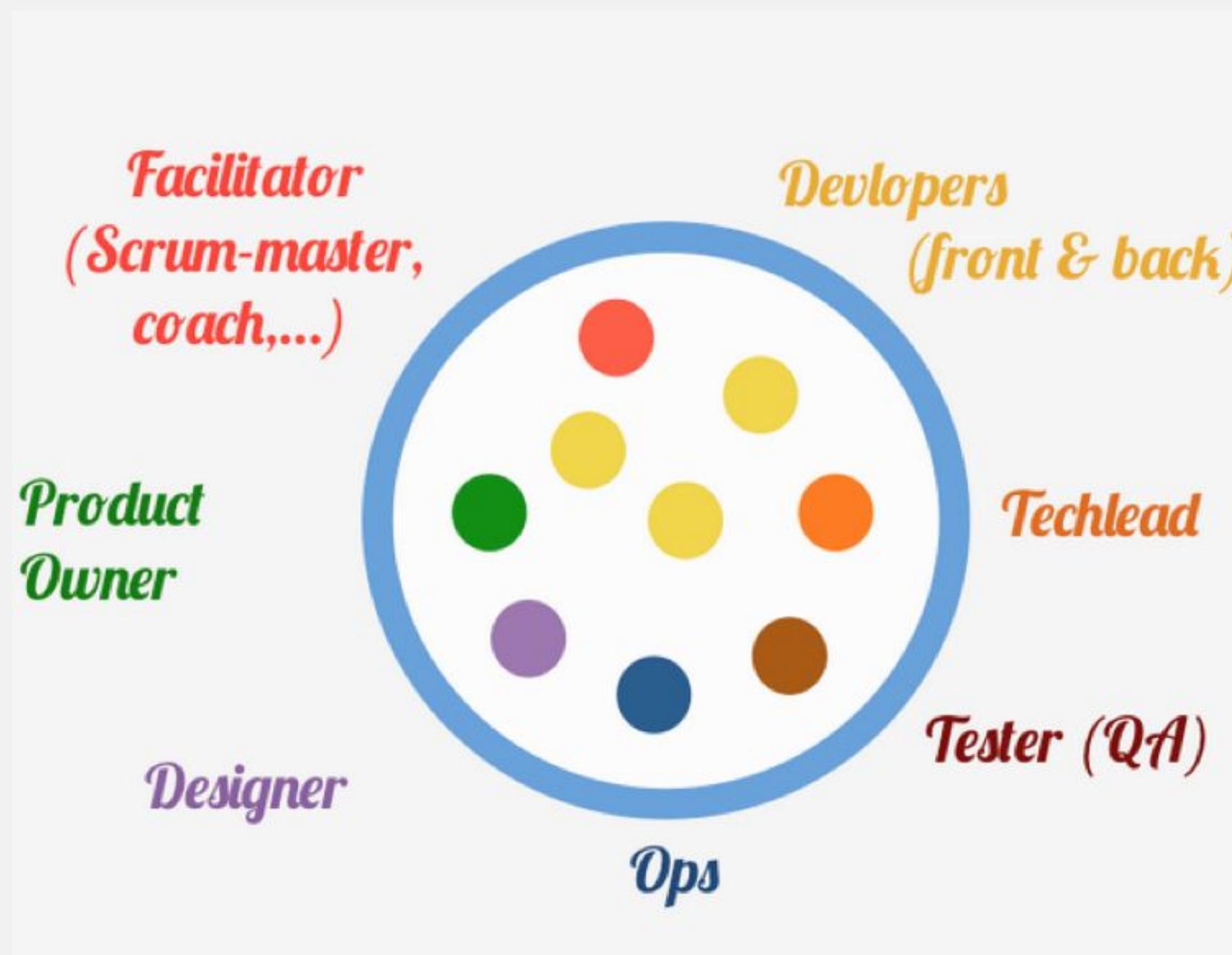


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**The Agile Engineer:
Show of hands time**

Who wants to code all day every day?

The role of the Engineer

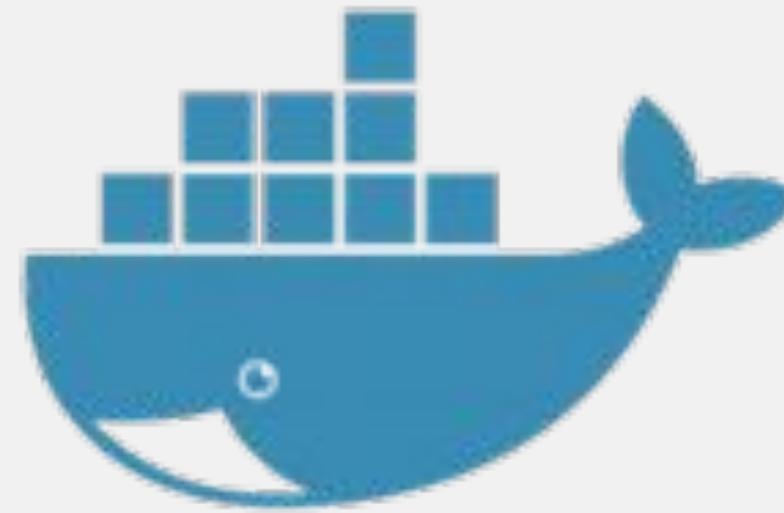
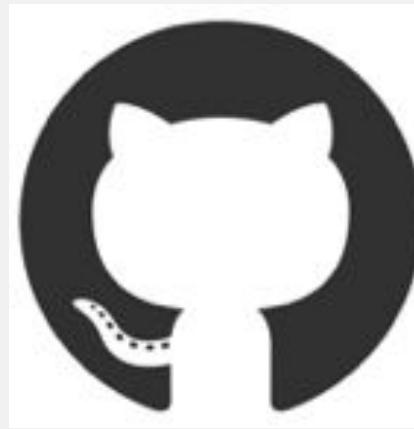


- Trend to move away from specialist
- More diverse responsibility, full stack exposure
- Often wearing multiple hats
- Scrum Team is self organising and contains all roles needed to ship

A typical daily workflow

- Discuss as a team what tasks we will do today
- Select a task
- Complete the work {write the code, write the docs, write the tests, update your ticket}
- Build it and prepare it for peer testing
- Get it tested
- Merge
- Repeat as many times as you can fit into your day

The {Continuous} Integration Toolchain



Automated, integrated, tool based development

- If you do something X times a day, it's a candidate for automation
- Our daily workflow is heavily automated
- Gives you maximum time to be productive and work on challenging problems
- There is an entire role dedicated to being automation specialists -- DevOps

DevOps

- A very overloaded term
- DevOps is an Agile movement for automating all of the things
- DevOps as an Engineer role:
 - Sys Admin, Developer and System Integrator characteristics
 - Heavily involved in scripting & configuring
- Every single Engineer needs a DevOps Toolkit

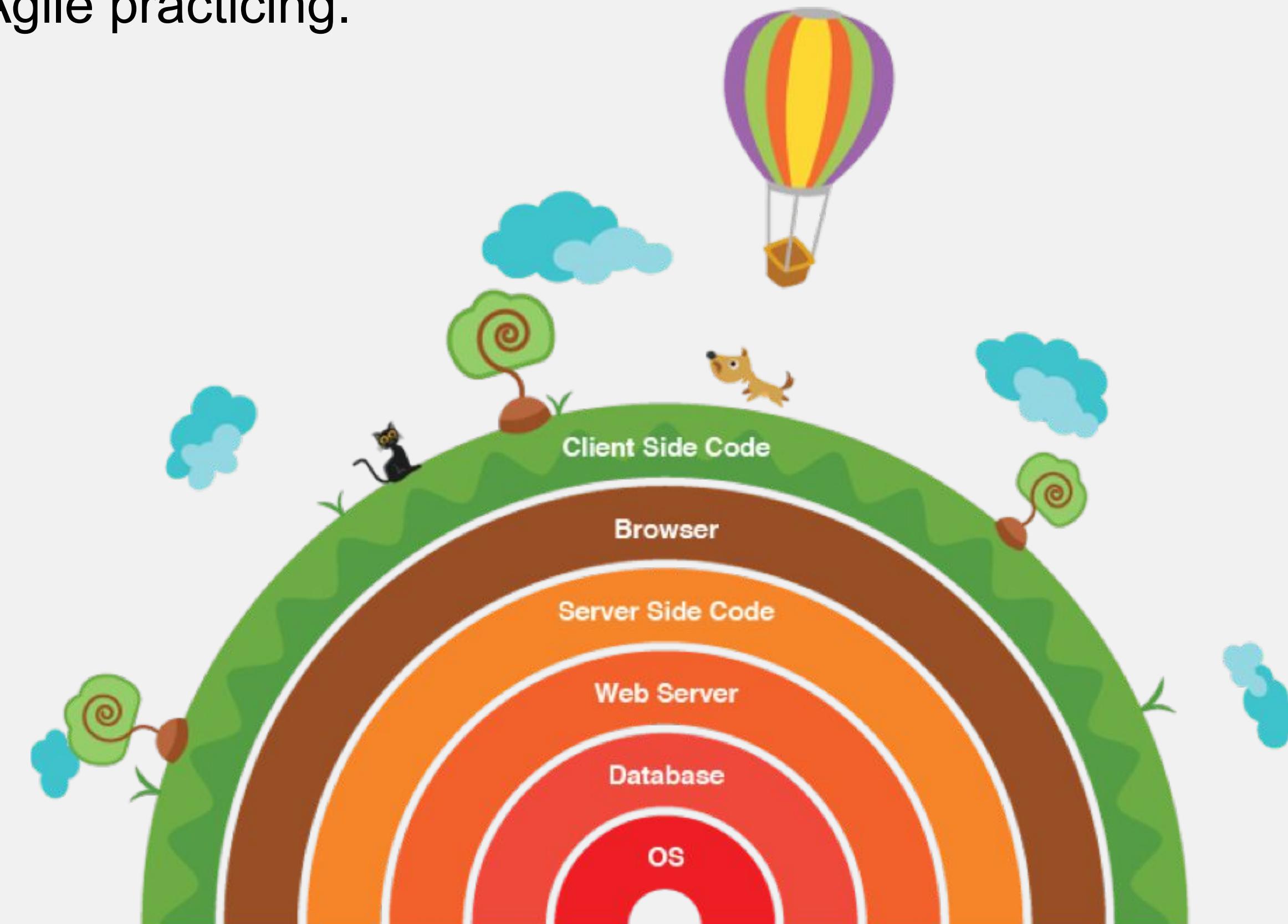
What should a modern Software Engineering Graduate Look like?

Answer: Flexible, Full Stack centric, Agile practicing.

Definition

Basically when people are asking for a full-stack programmer they're looking for the all-singing, all-dancing technical wizard. Or at least someone who won't complain too much when asked to do some work outside their normal comfort zone.

- *The Internet*



Core Skillset for 2019 and beyond

Programming

JavaScript
OO Language (Java / Python)
Scripting
Testing {Unit, Integration, End to End}
Documentation

Focus on the principles rather than the syntax

Tooling

GIT
Jenkins / Circle / Travis
SonarQube
Docker & Kubernetes

Person

Language Agnostic
Strong Communicator {verbal, written}
Context Switching
Lifelong Learner

The background image shows a large, modern stadium or arena. The most prominent feature is its roof, which is a massive, curved structure with a repeating pattern of red and white stripes. The stadium's exterior walls are also red with vertical white stripes. The seating area is visible at the bottom, showing rows of grey seats. The overall lighting is bright, creating a strong contrast between the red and white colors.

Question Time



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