chop wood, carry water

Andrew Clay Shafer
@littleidea

hold my drink, a devops story

Andrew Clay Shafer
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Agenda

- Introduction
- Influences
- Assertions
- Meandering
- Bikeshedding
- Conflate Things
- More Meandering
- Call to Action

We are living in a world where more and more of the world becomes constantly connected to the totality of human knowledge. We face the insurmountable opportunity that every aspect of human performance and experience that can be transformed by software, will be. What are the challenges? What are the risks? What are we going do to about it?

We face the insurmountable opportunity that every aspect of human performance and experience that can be transformed by software, will be.

insurmountable opportunity
transform human experience

tl;dr

you are building a software company

or losing to someone who is

tl;dr

you are continuously devopsing microservices

or losing to someone who is

tl;dr

you are building a learning organization

or losing to someone who is

this is the devops

Andrew Clay Shafer

Puppet

openstack™

CLOUDFOUNDRY

DEVOPS DAYS

VELOCITY

Pivotal™

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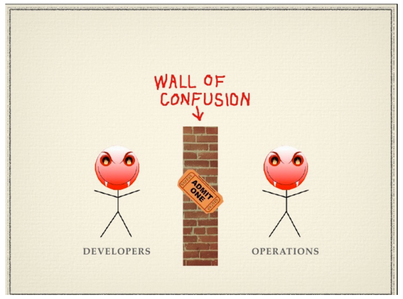
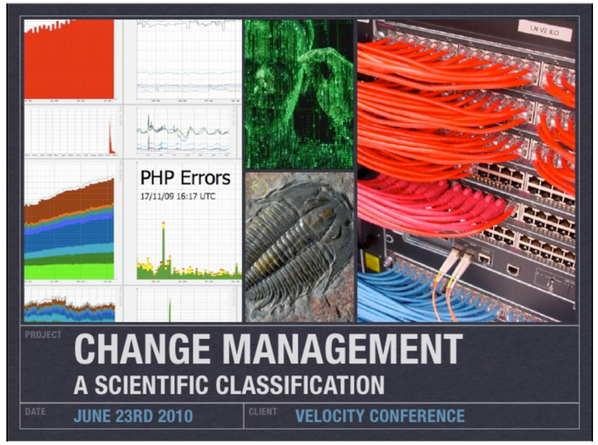
@littleidea's greatest hits compilation

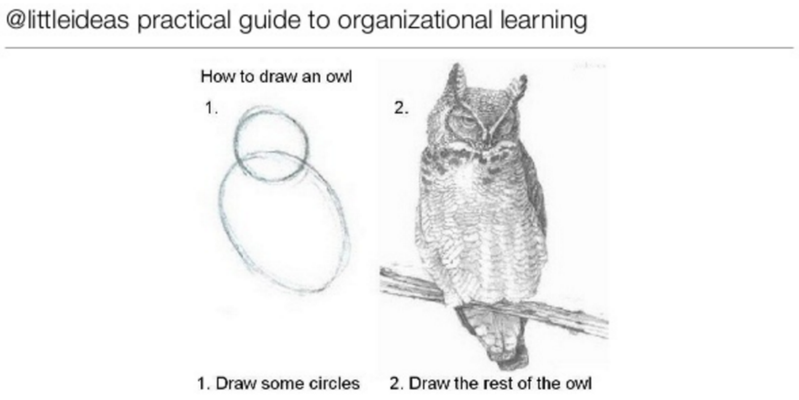


Agile Infrastructure



Change Management

leading a learning organization



There Is No Talent Shortage

everyone wants the devops

ride the devops rainbow

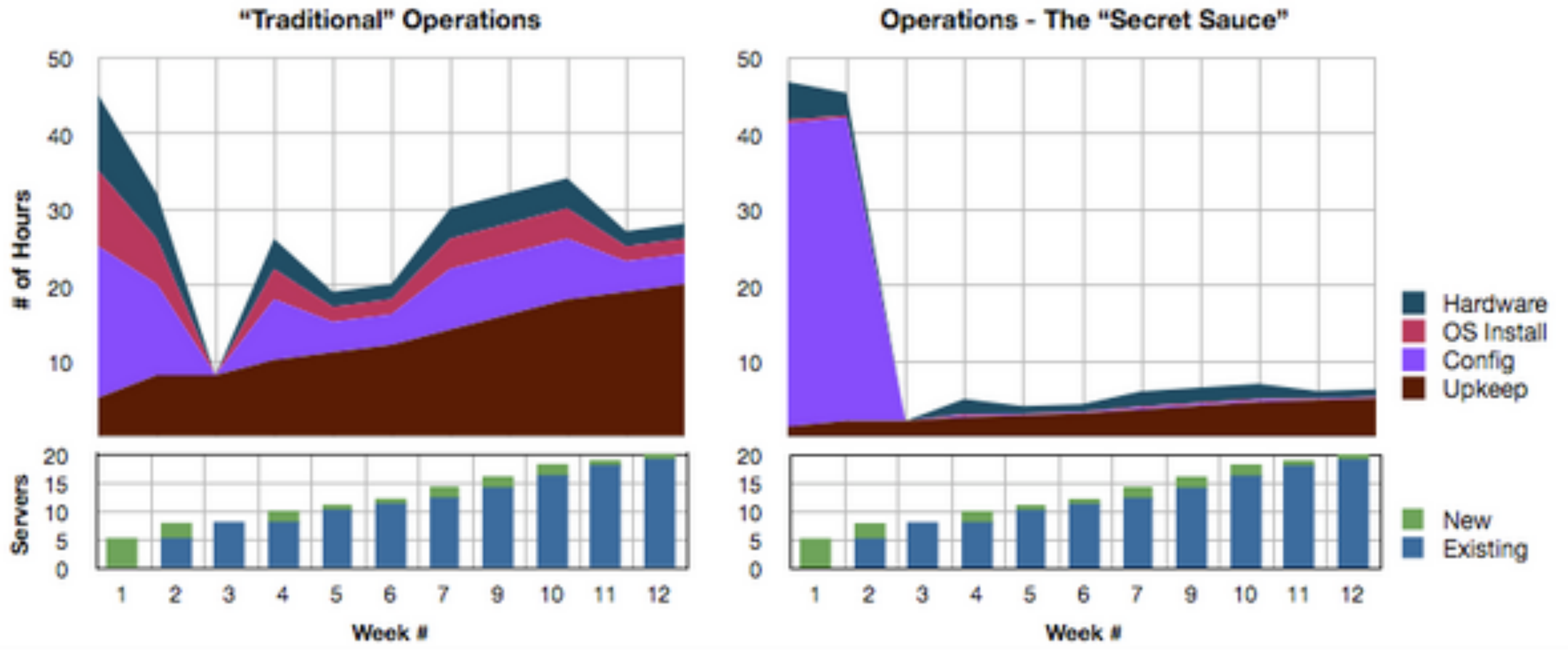
but WTF is the devops?!??

I don’t know either

but I know devops when I see it

I know devops has been very good to me

where are we?
how did we get here?



Operations is the secret sauce

you can either easily manage complex systems at scale…

or you can’t

I’ve been using that same slide for the better part of a decade

devops

- developers and operations can and should work together
- system administration evolving to look more like software development
- evolving together as global community sharing solutions

devops - calms

- culture
- automation
- lean
- metrics
- sharing

the five pillars

optimizing human performance and experience operating software…

with software…

and humans

everyone wants the devops

Well actually…

what they really want

- scalability
- availability
- reliability
- operability
- usability
- all for free
- without changing anything

without changing anything

without changing anything

without
changing anything

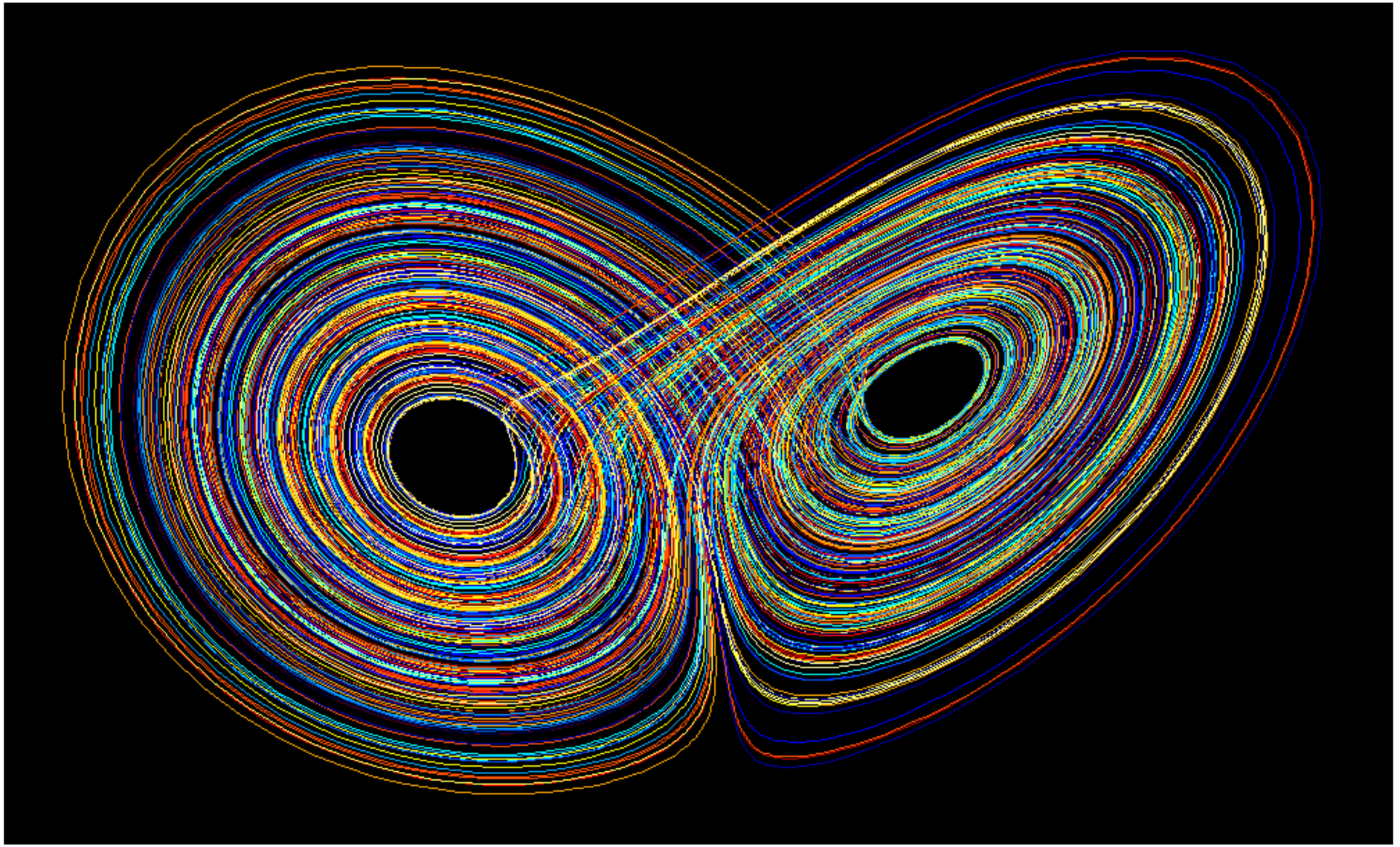
good luck; have fun

WARNING: devops is hard

devops was always hard

Man Shouts “F*ck That Alligator”, Jumps Into Lake And Is Killed By Alligator

same tools, same advice,
drastically different results

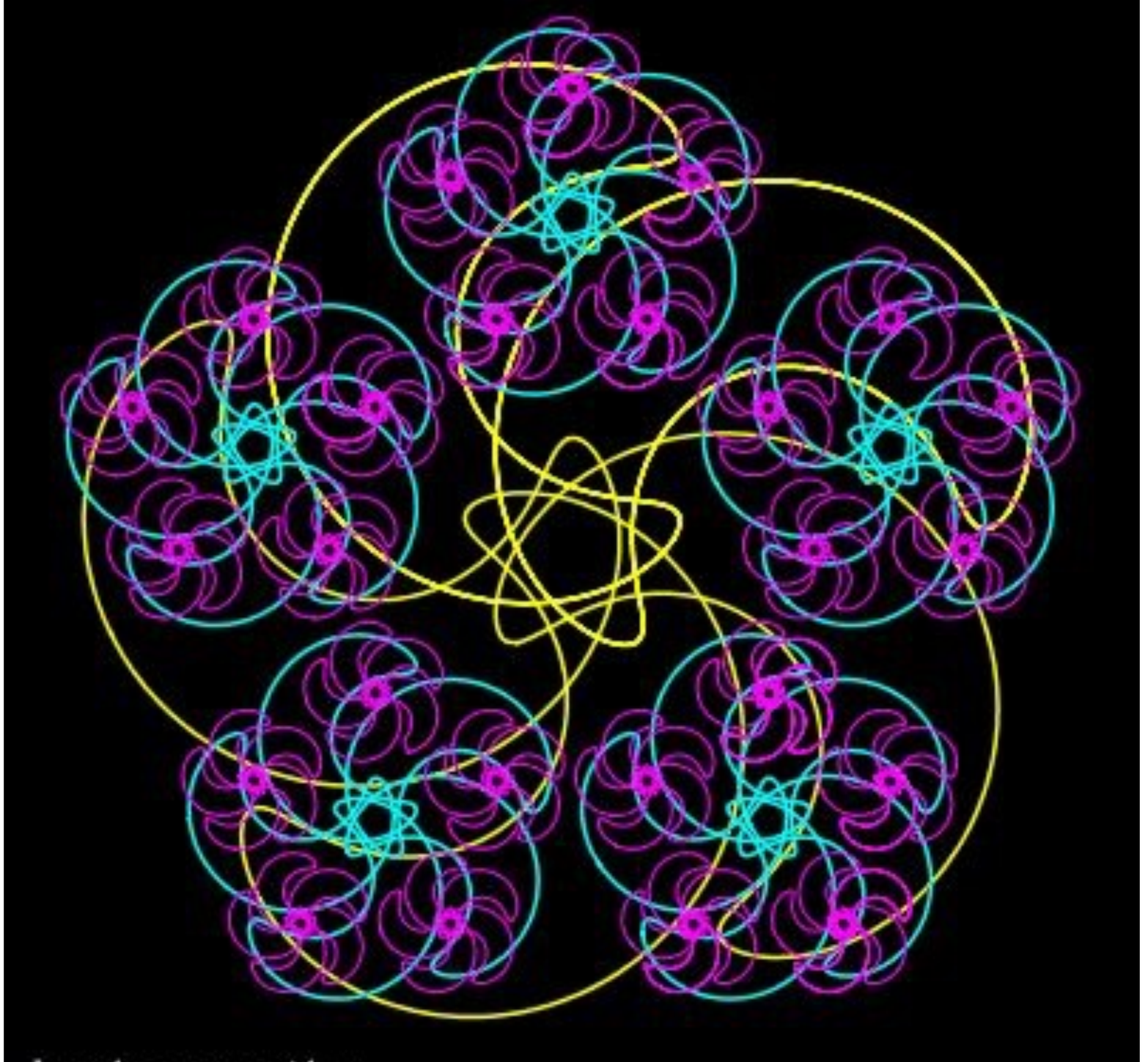


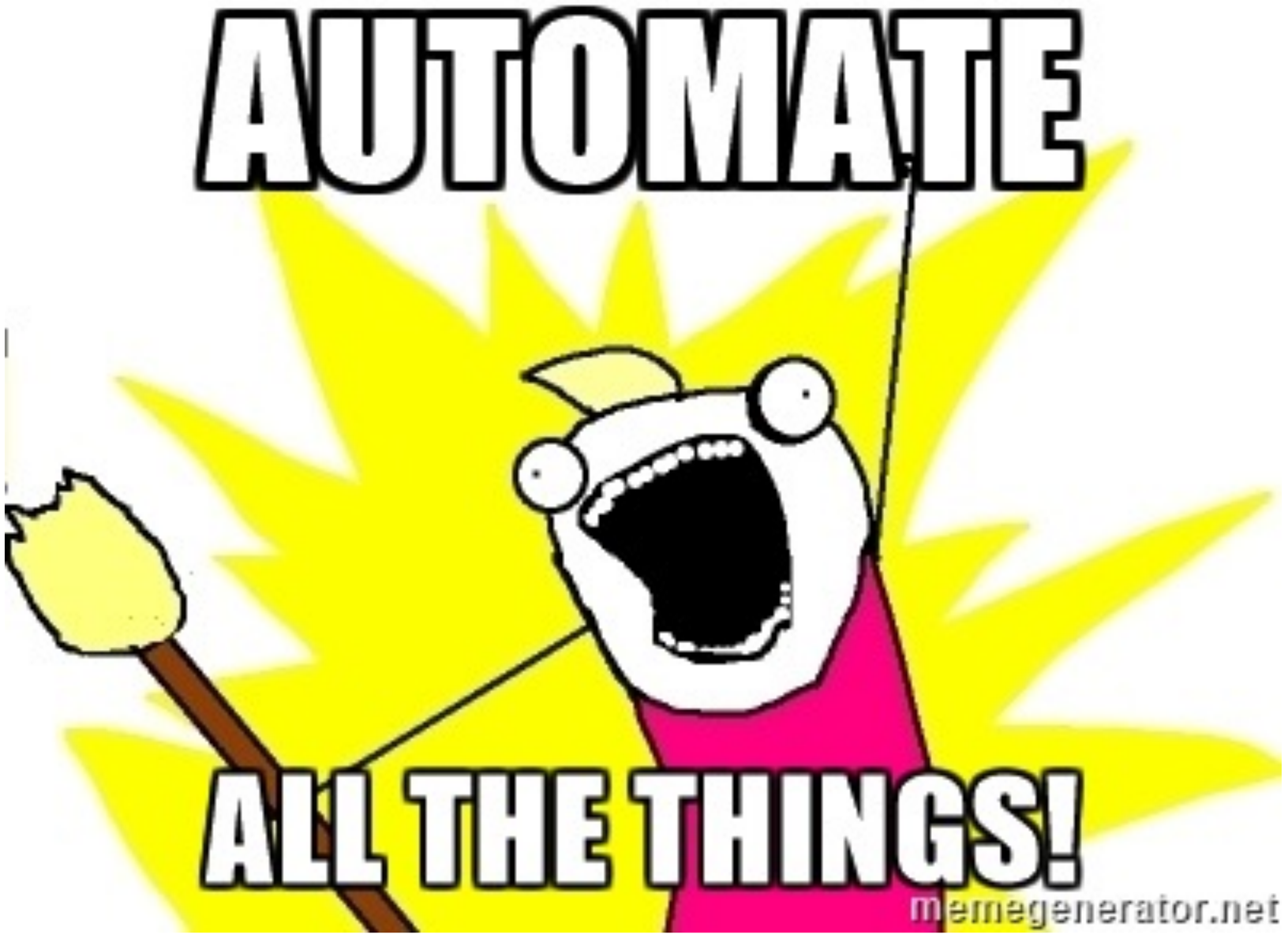
STRANGE ATTRACTORS

Chaotic Dynamics

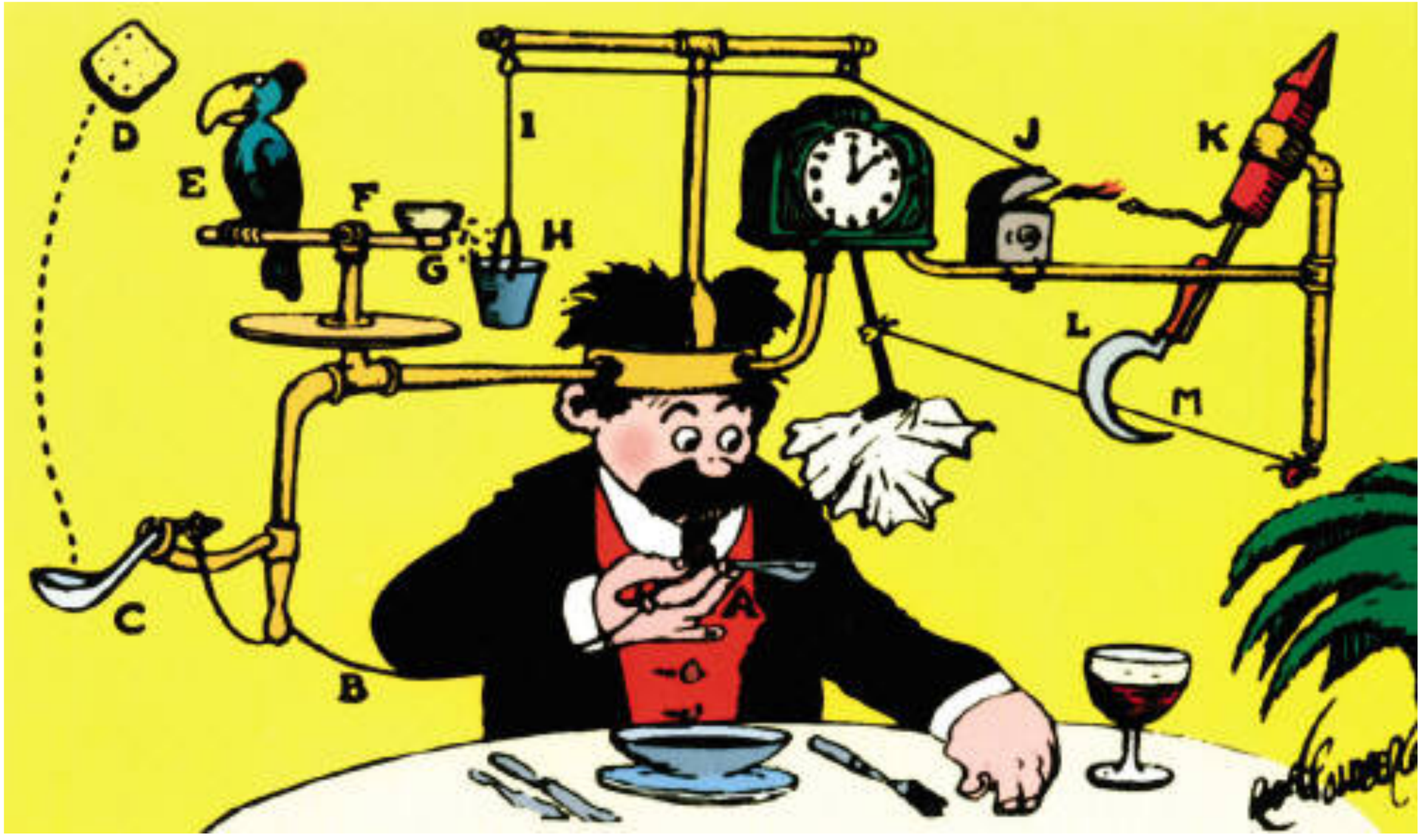
‘Two points on the attractor that are near each other will be arbitrarily far apart at later times… the motion of the system never repeats.’

just looks cool




AUTOMATE
ALL THE THINGS!
memegenerator.net

what, how and why you automate is as important that you do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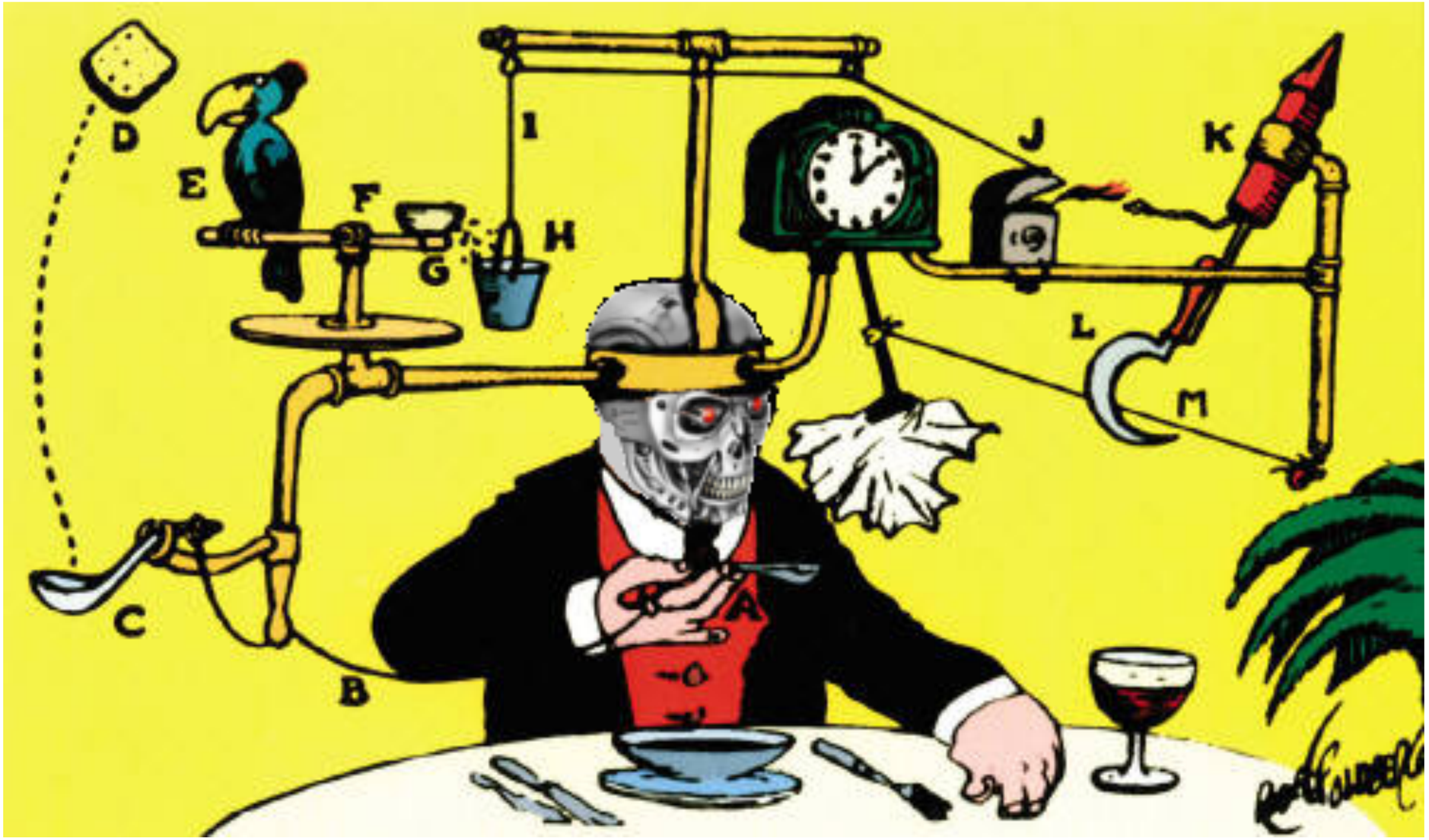
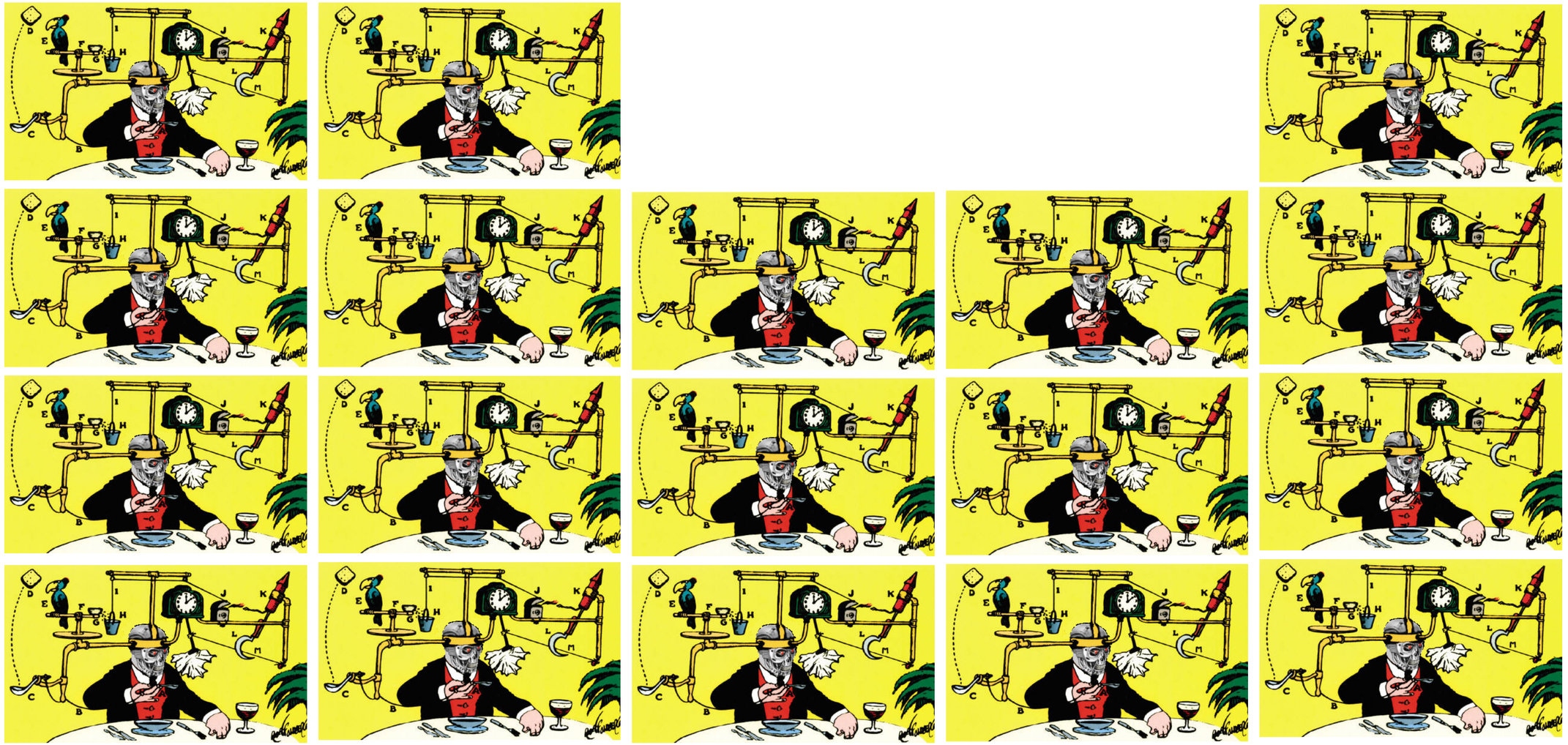


yay automation!

I’m sure some of you have lived this too

or are about to



yay automation!

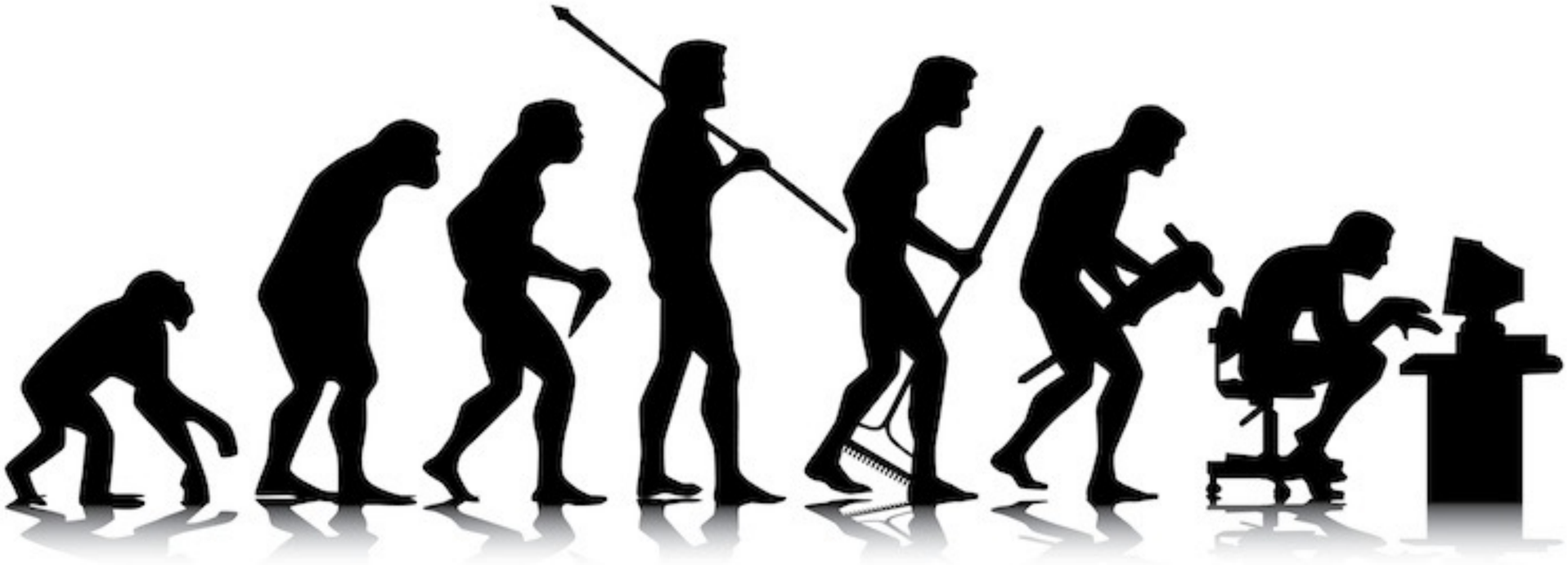
If Tetris Has Taught Me Anything, It's That Errors Pile Up and Accomplishments Disappear

Pareto Inefficient Nash Equilibria Rule Everything Around You

Pareto Inefficient - a change benefits someone without detriment to anyone

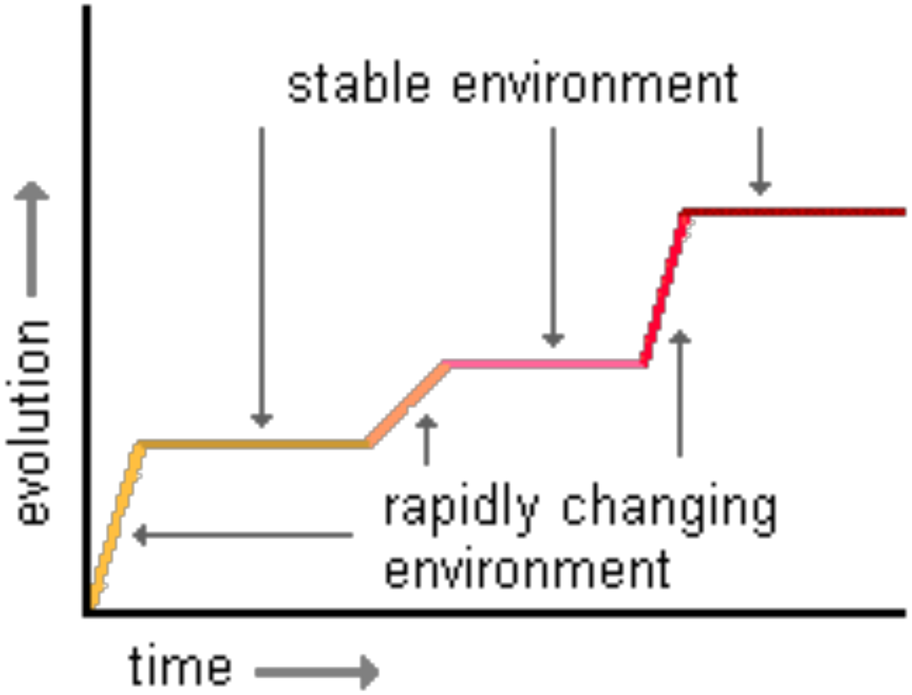
Nash Equilibrium - no one will change

Evolution



Punctuated Equilibrium

evolutionary gradualism is virtually non-existent in the fossil record



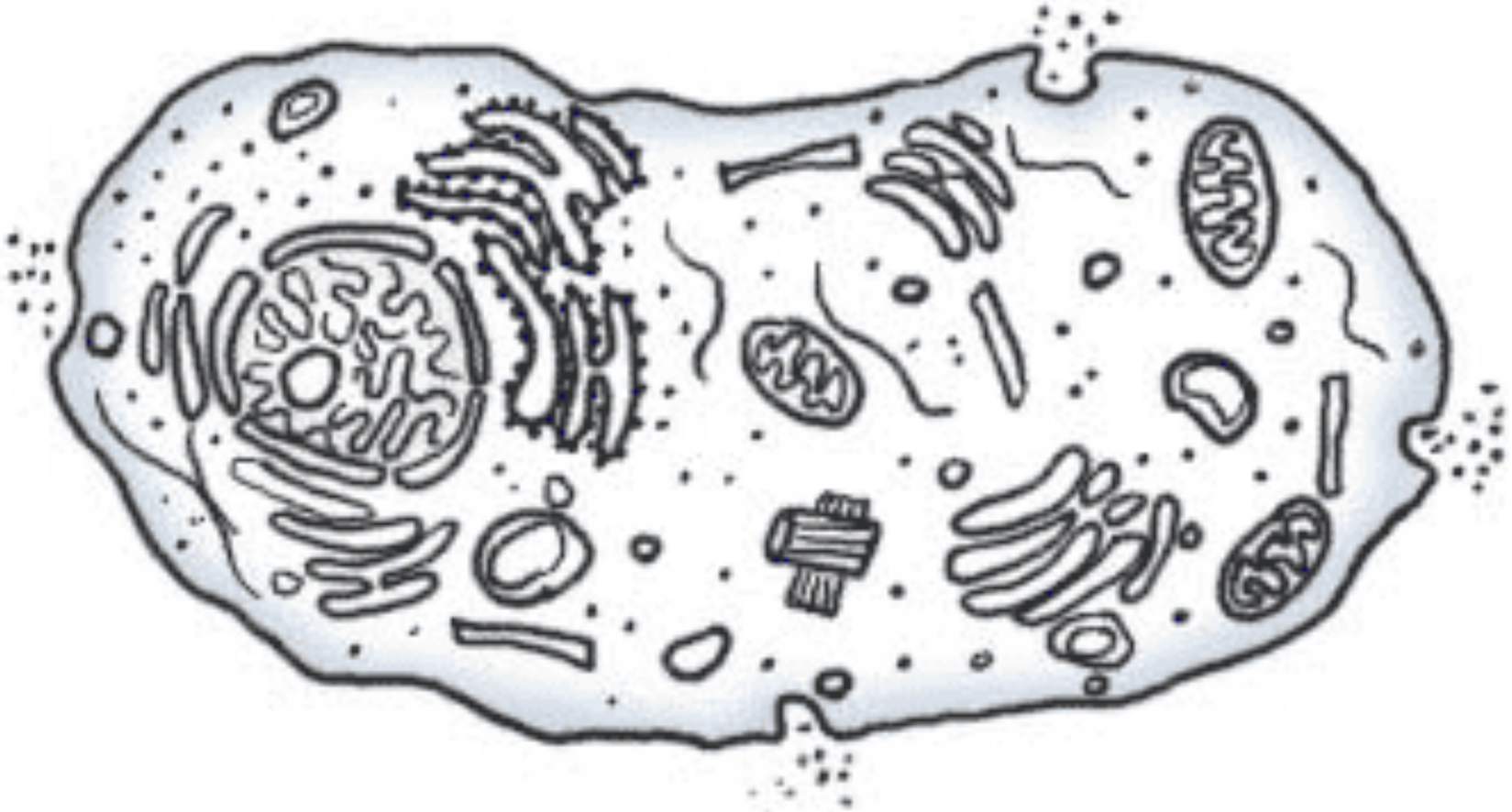
Evolution in the fossil record comes in sudden jumps

and extinction events

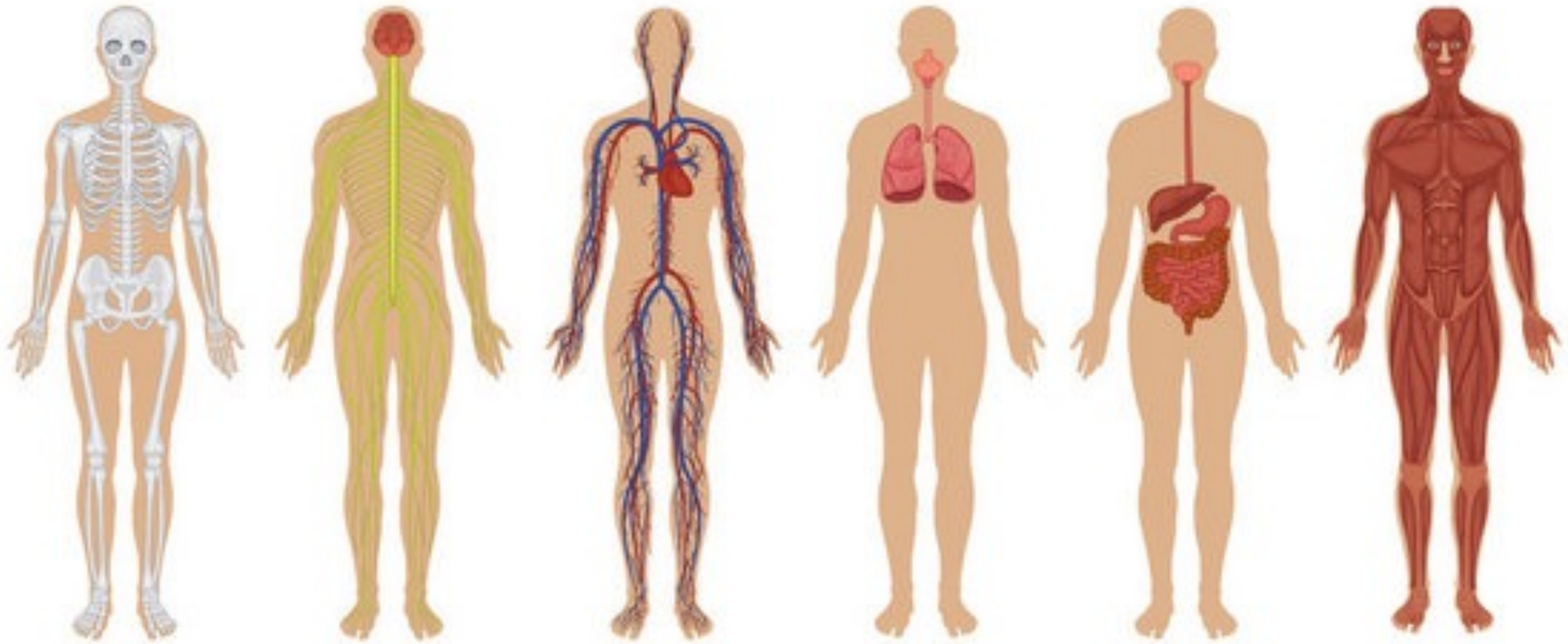
Nash Equilibria
til death do us part

you lose if you keep playing the same way

let’s talk about organisms



discrete structure

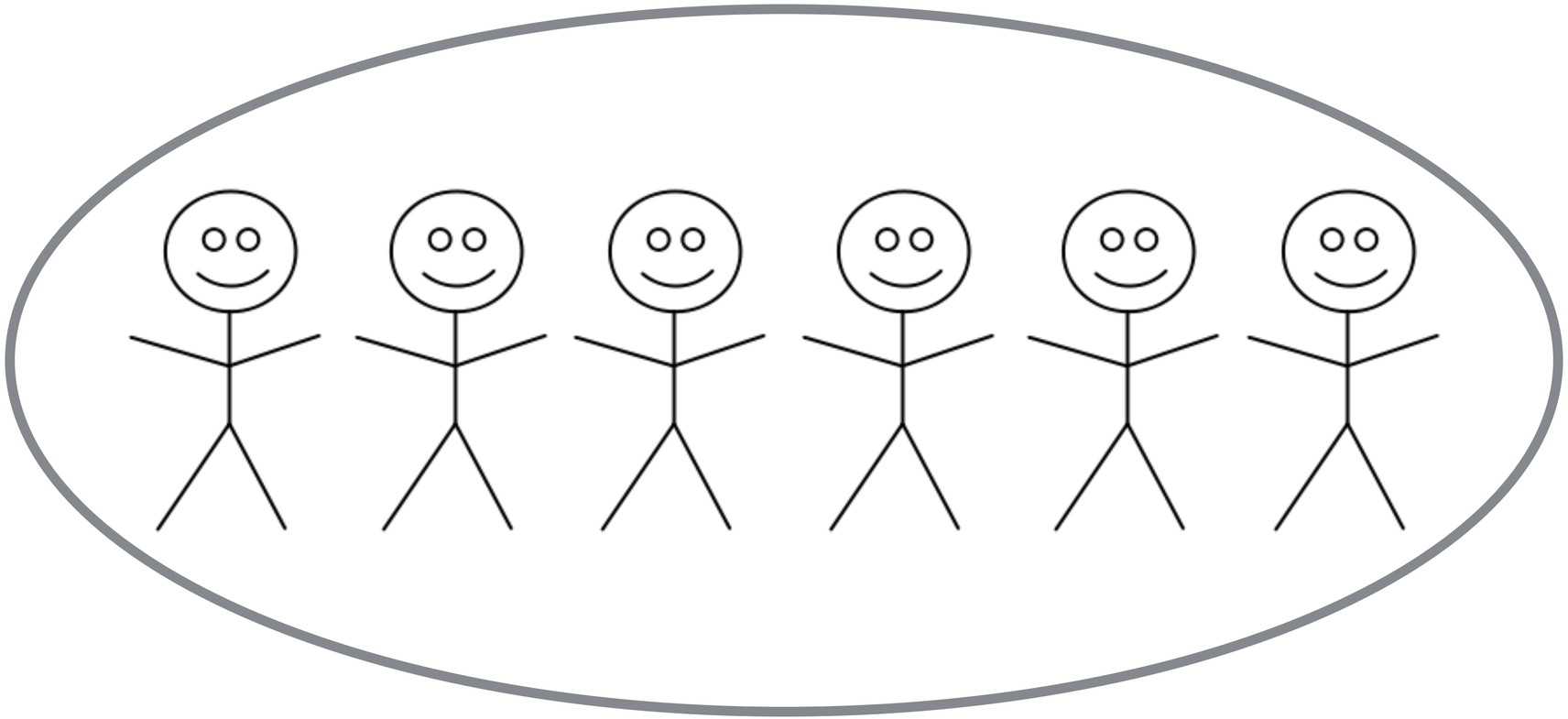


Humans have identified 11 major separate organ systems in humans

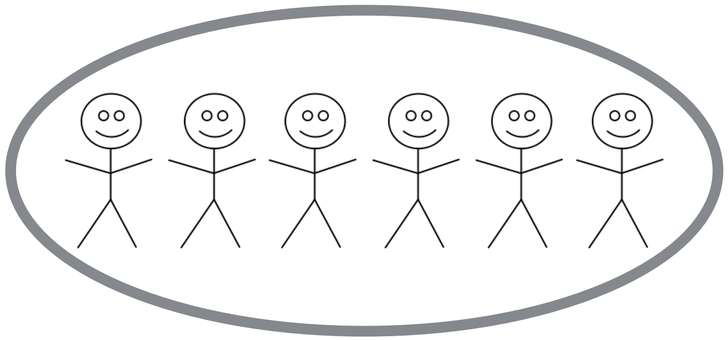
systems of systems

an undifferentiated mass of cells

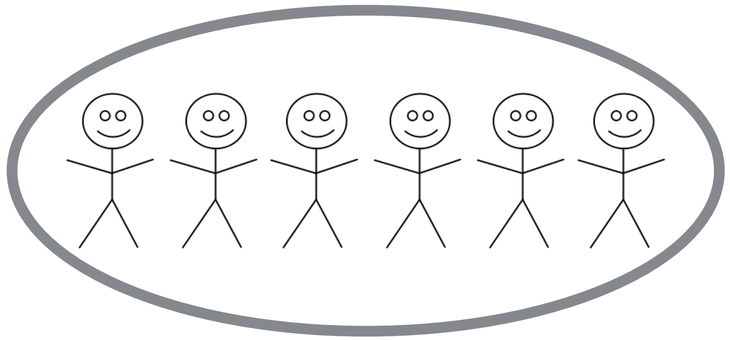
also called ‘a tumor’



Community of Practice

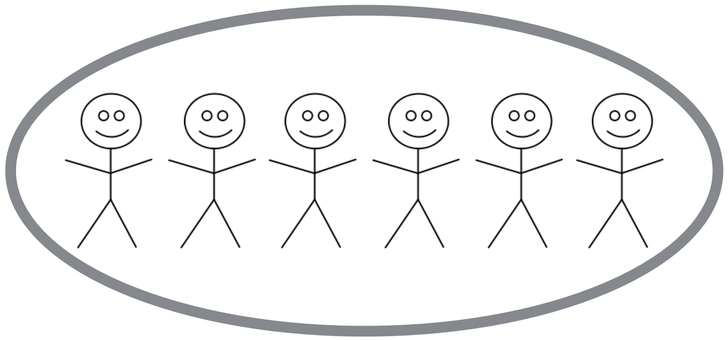


dev

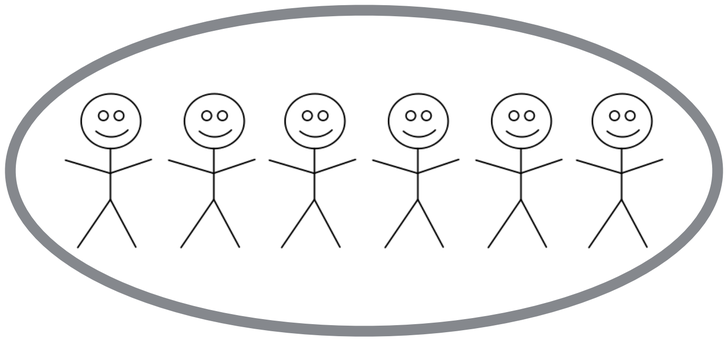


ops

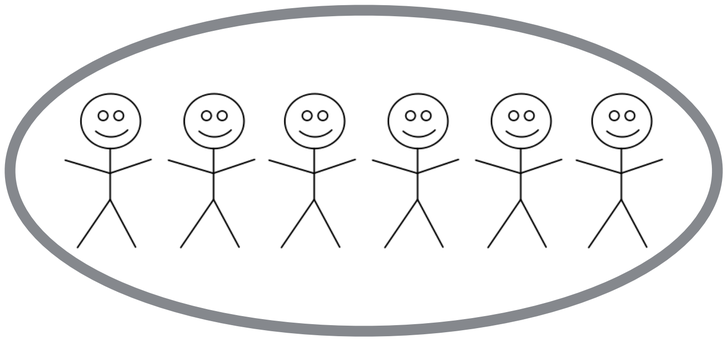
wall of confusion



dev

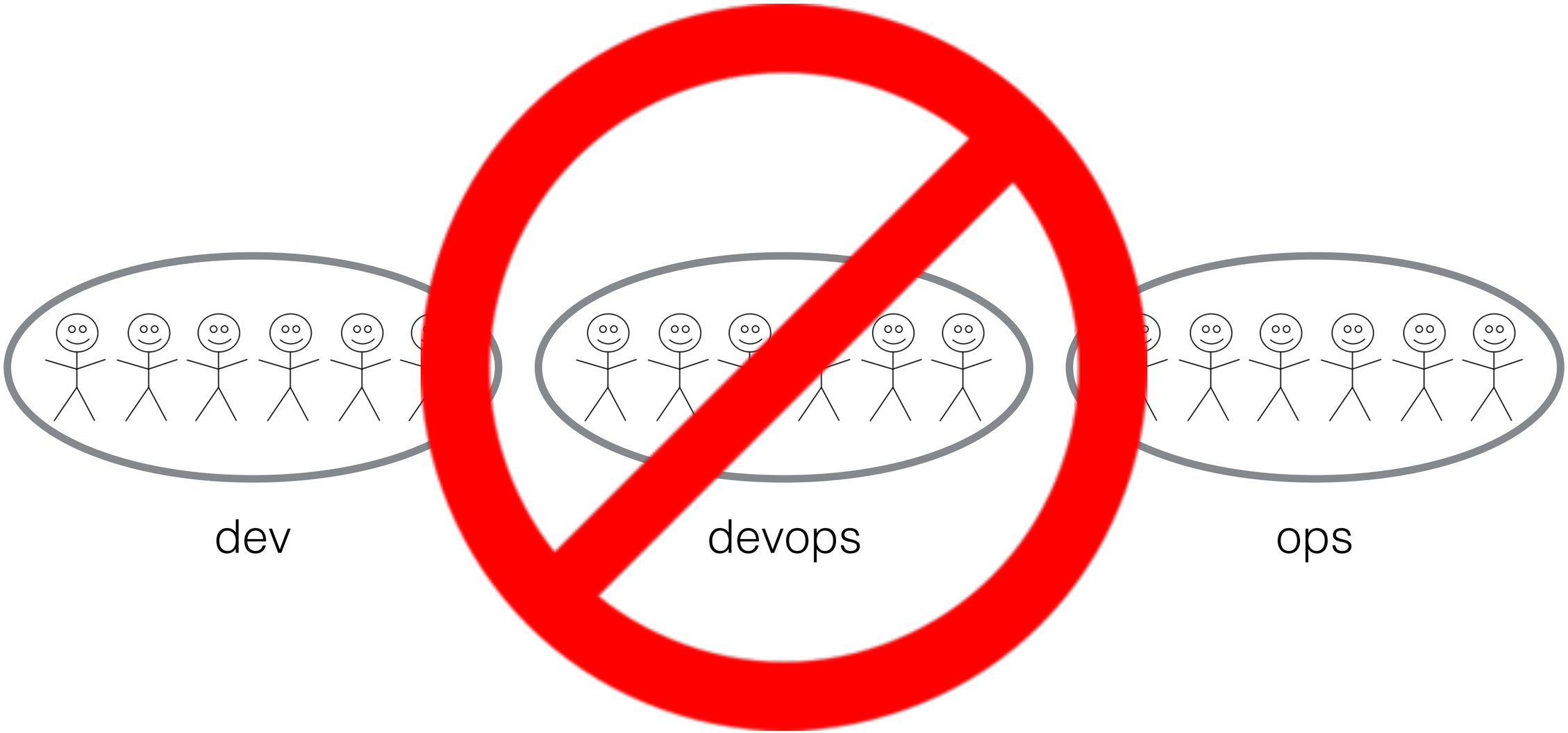


devops

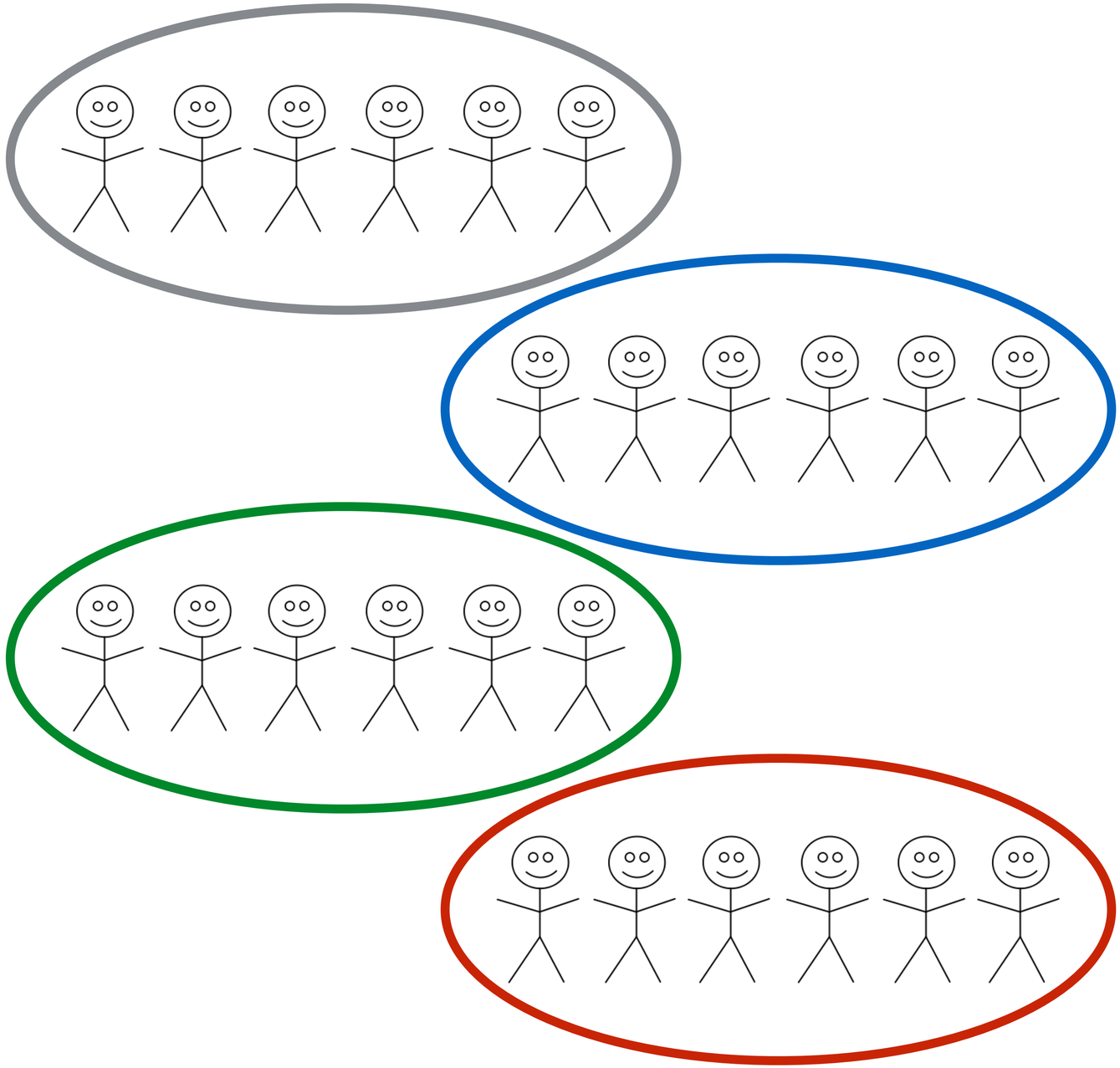


ops

YAY!!


dev
devops
ops

Don’t.
Just
don’t.

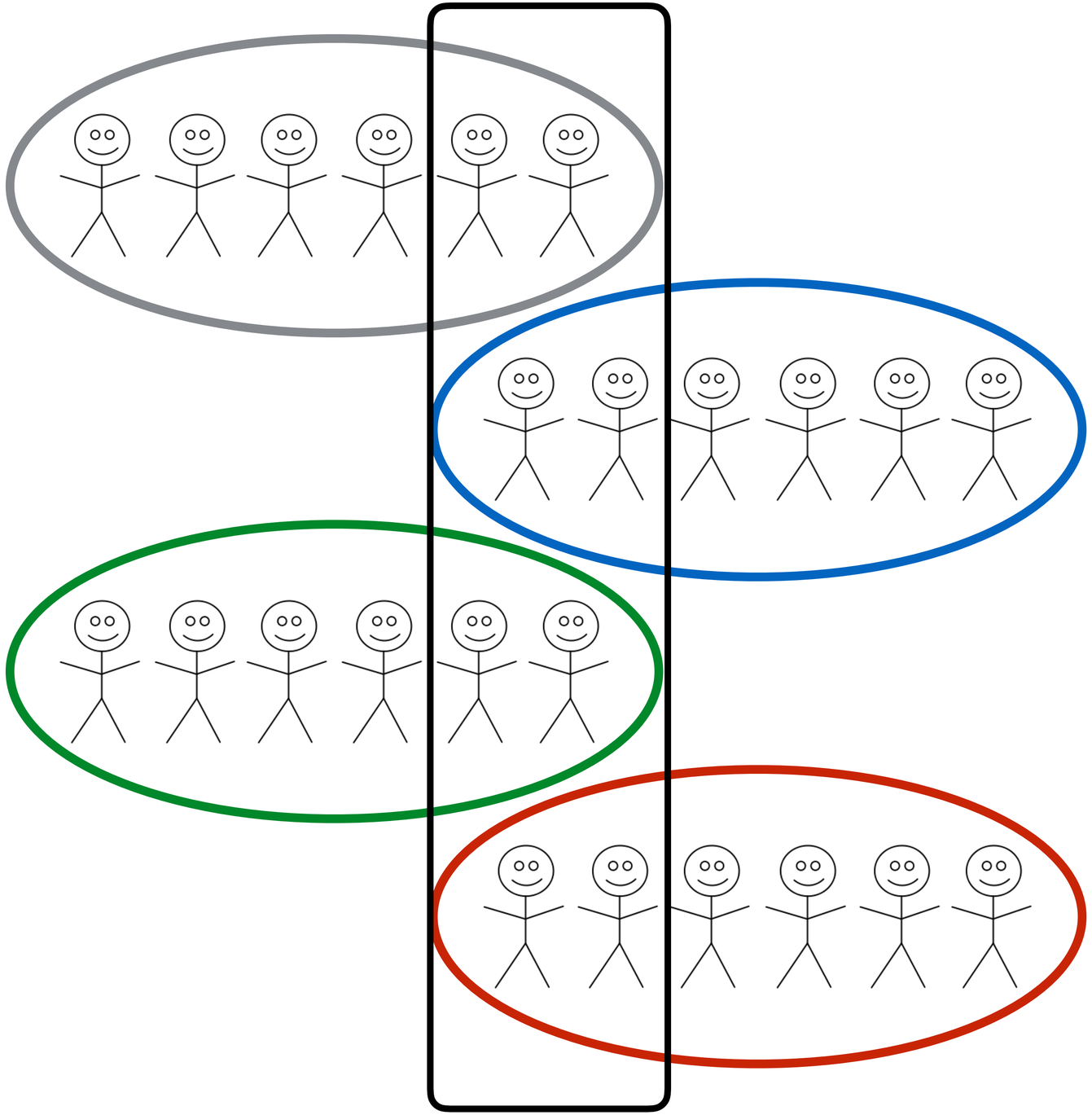


developers

operations

business

security



community of interest

scale breaks everything

“I can lift 50 times my own body weight.”

– a very humble ant

“I spend 12-18 hours eating 200-600 pounds of food per day.”

– average elephant

but what about an elephant sized ant, hmmm?

Physics gets in the way

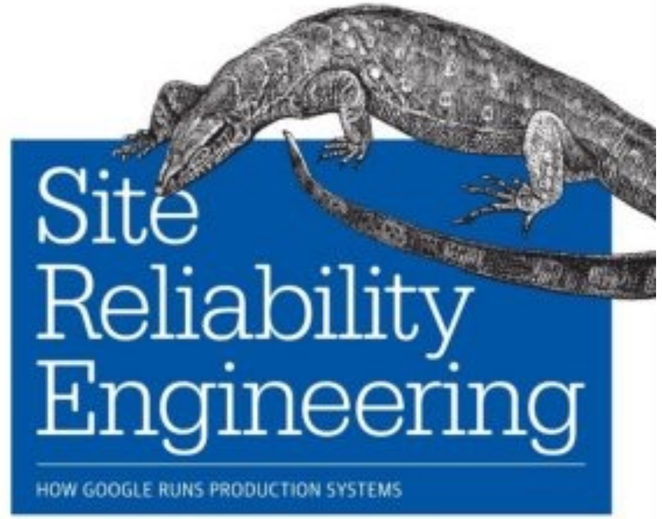
square-cube law:

when an scaling a physical object, the new surface area is proportional to the square of the multiplier and the new volume is proportional to the cube of the multiplier.

an elephant sized ant would require hurricane strength winds to get enough oxygen and would most likely die immediately as the internal organs crushed each other on the first attempted movement

what is the organizational equivalent of square-cube law?

I don’t know either but I know scale breaks everything



devops as she is spoken at scale

at Google™

not that Google is the best at every possible thing, but they did write a book

Homework

- Embracing Risk
- Service Level Objectives
- Eliminating Toil

Bonus: Communication and Collaboration in SRE

What are your service level objectives?

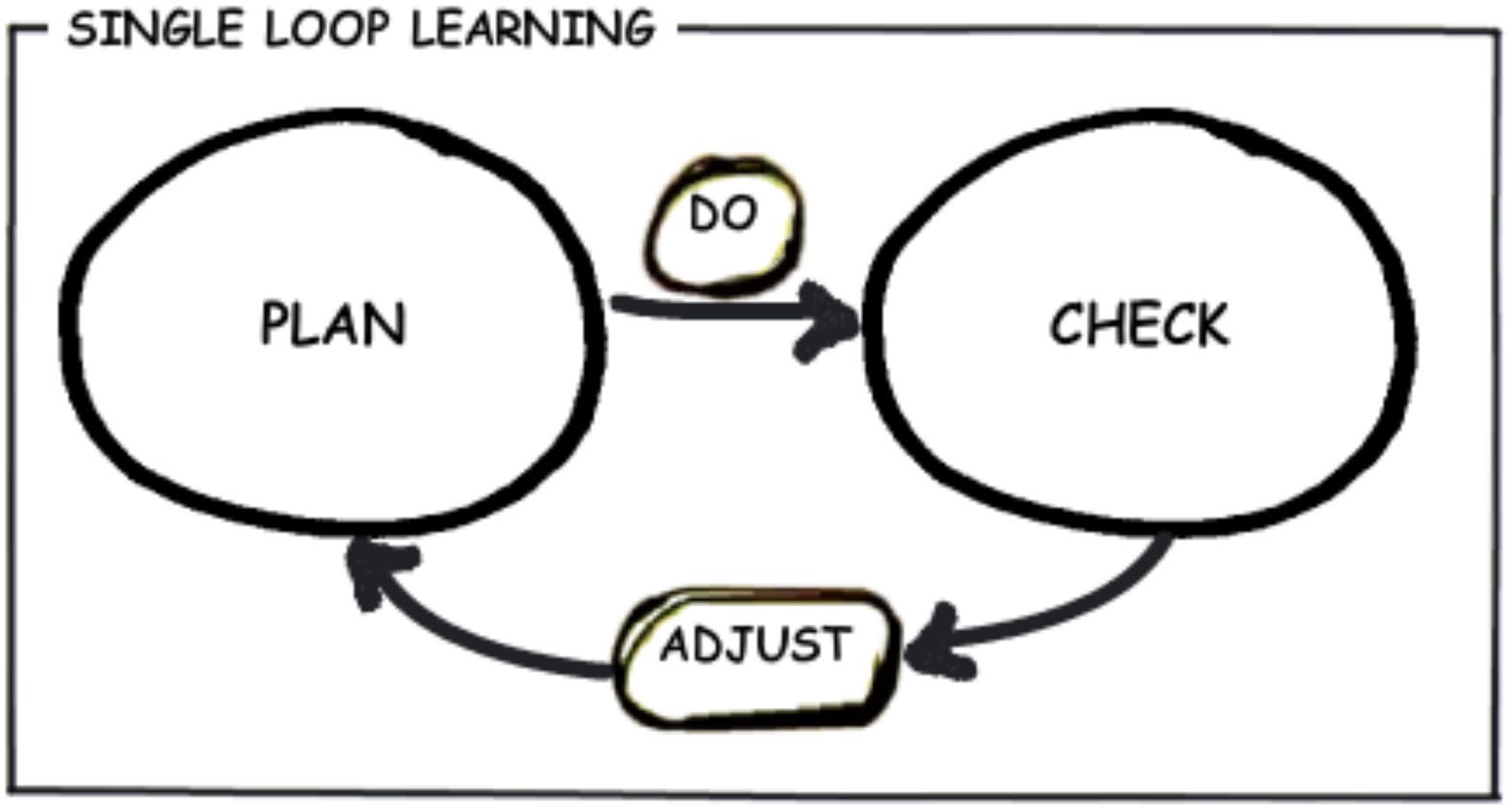
What are your service level indicators?

Google is an organization that changes

You haven’t learned anything until you change your behavior

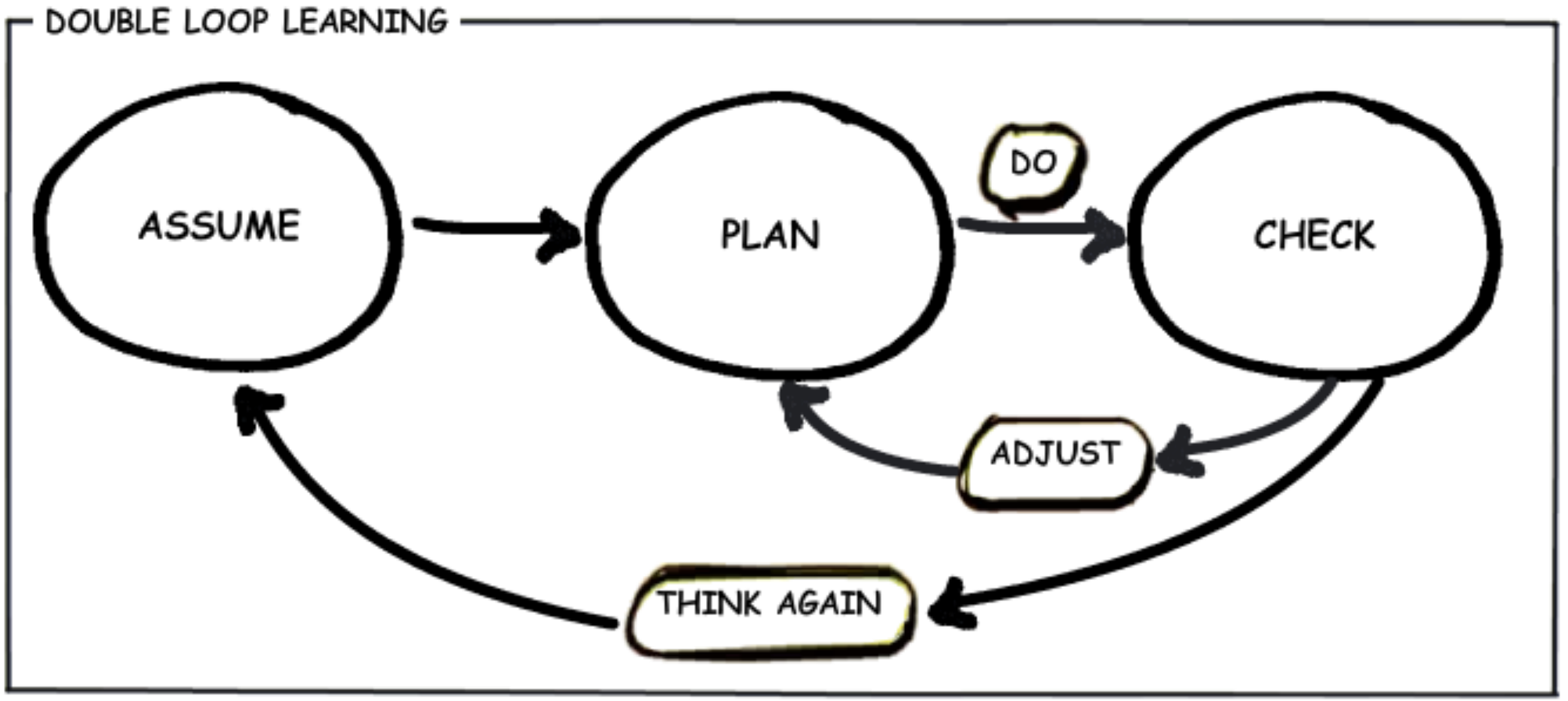
Cándido
Mesonero Mayor de Castilla

how do we change?


SINGLE LOOP LEARNING
PLAN
DO
CHECK
ADJUST

I don’t have time to learn new things because I’m too busy getting things done!”

- least productive person in the world


DOUBLE LOOP LEARNING
ASSUME
PLAN
DO
CHECK
ADJUST
THINK AGAIN

If I had an hour to solve a problem I'd spend
55 minutes thinking about the problem and
5 minutes thinking about solutions.

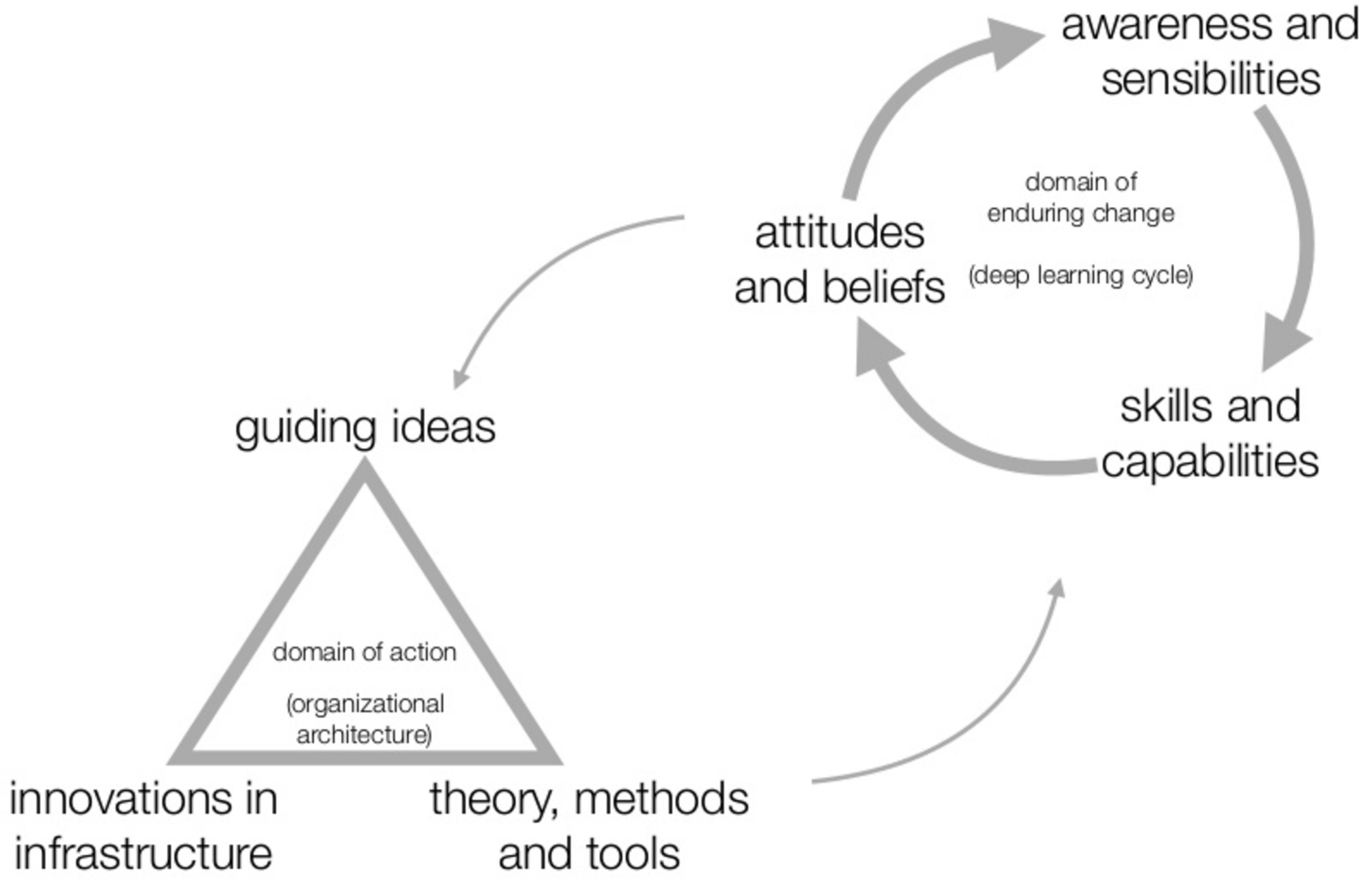
— Albert Einstein

Success and Failure is highly correlated with the degree of ‘Organizational Learning’

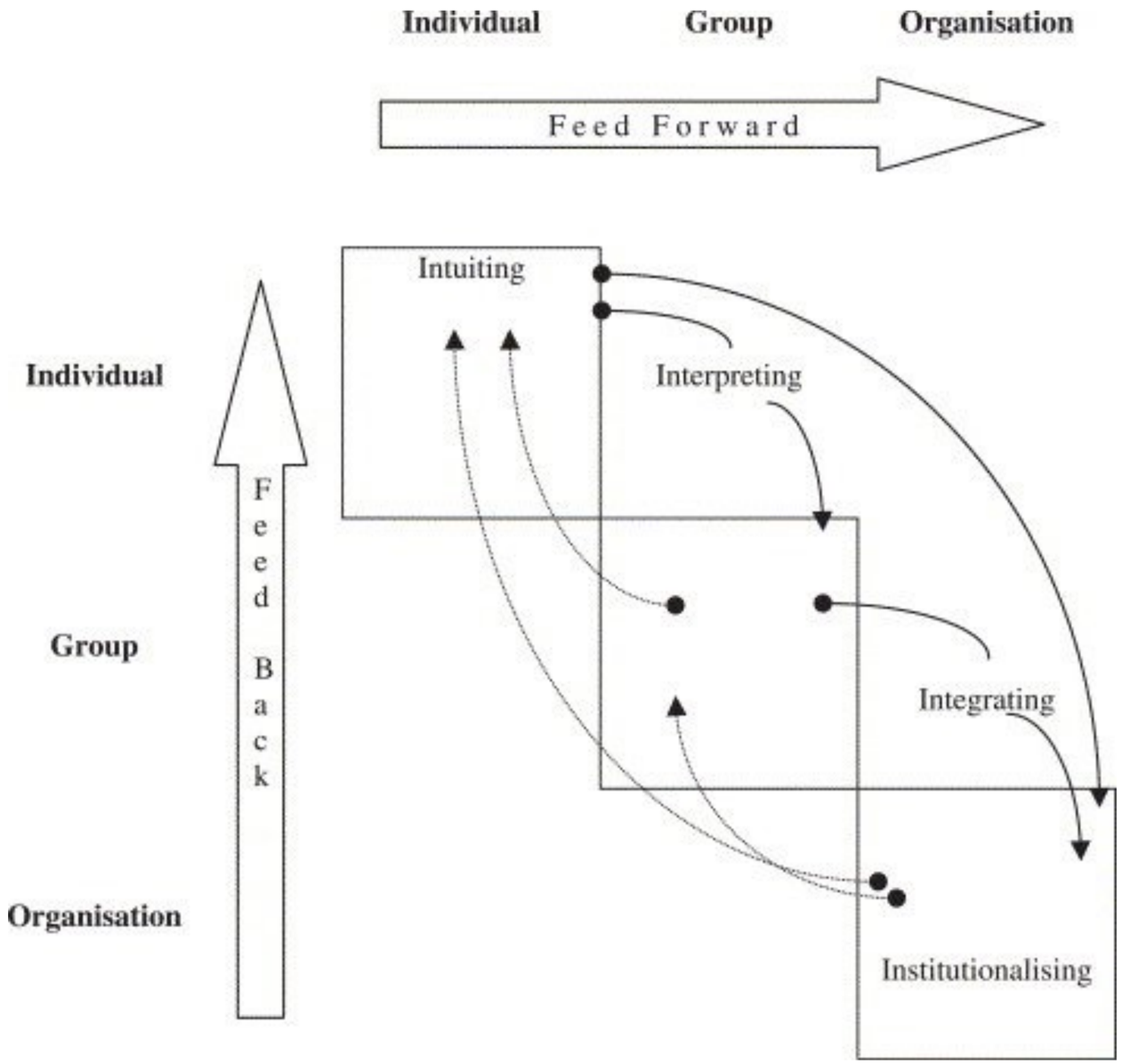
7 Dimensions of Organizational Learning

- continuous learning
- inquiry and dialog
- team learning
- empowerment
- embedded system
- system connection
- strategic leadership

The learning organization is one that has the capacity to integrate people and structures in order to move toward continuous learning and change.


awareness and sensibilities
attitudes and beliefs
domain of enduring change
(deep learning cycle)
skills and capabilities
guiding ideas
domain of action
(organizational architecture)
innovations in infrastructure
theory, methods and tools

At every scale



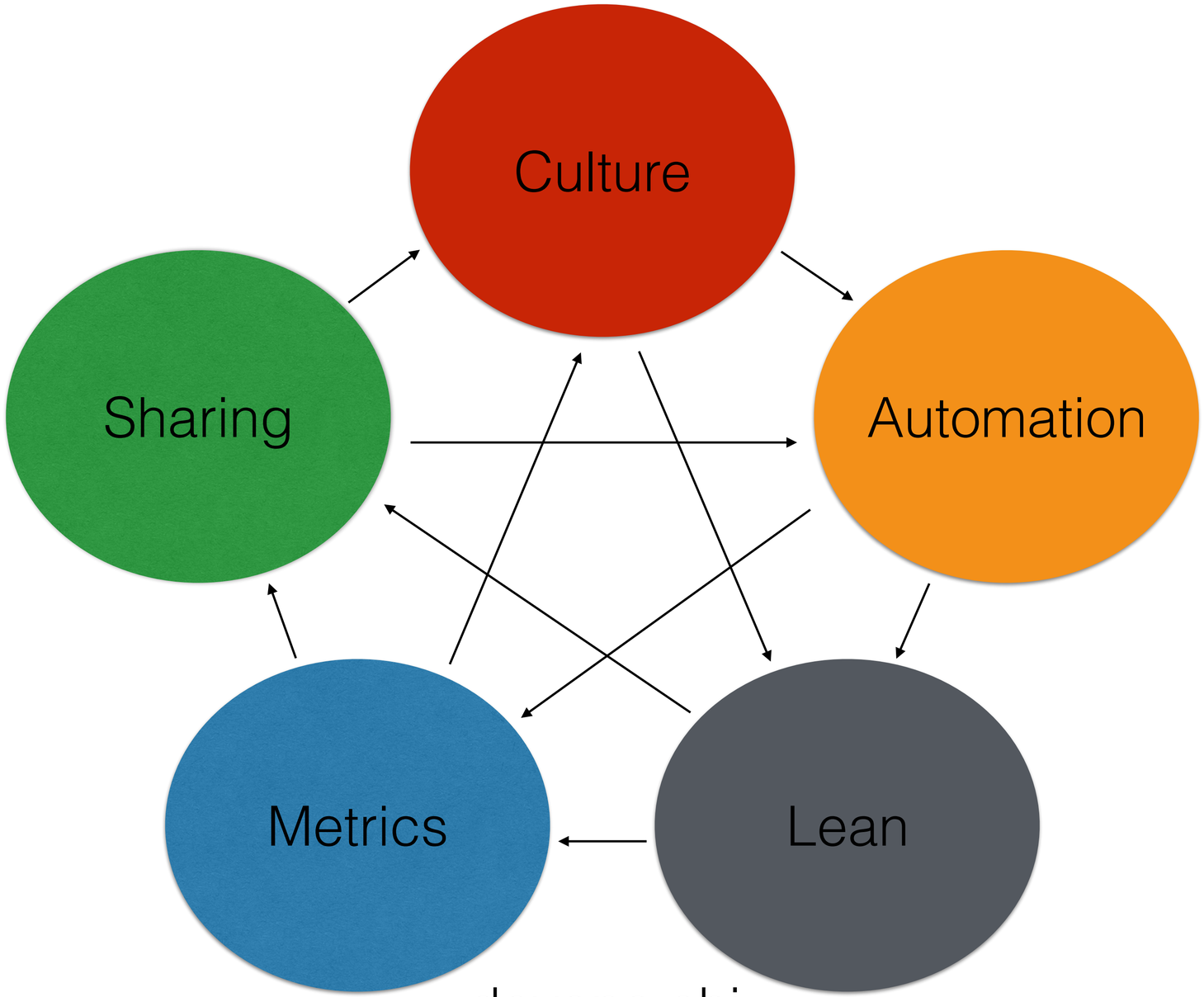
Organizational learning as a dynamic process (Crossan et al., 1999)

https://twitter.com/cyetain/status/851228981479321601

director’s cut material

火
木
土
水
金

enterprise devops therapy



devops chi

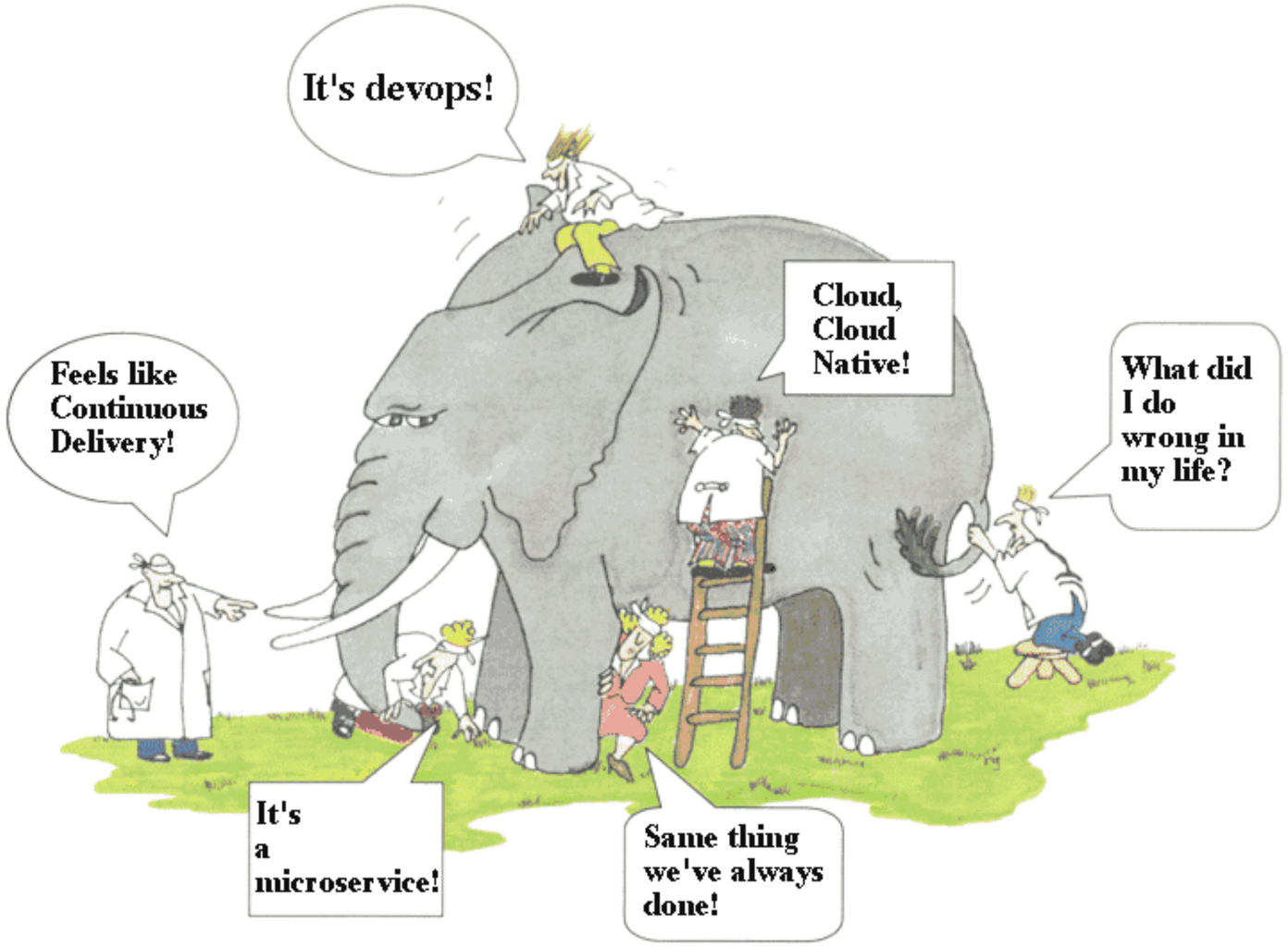
the 5 stages of devops

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

culture	automation	lean	metrics	sharing
pathological	manual	isolated	nothing	hidden
bureaucratic	discrete	systemic	measurement	available
generative	continuous	exceptional	insight	ambient

devops,
continuous delivery,
microservices…

These things are all one…



continuously devops
microservices

or die trying

the patterns proven successful building and operating highly available systems with predictable scaling and failure characteristics

Do not seek to follow in the footsteps of the wise.

Seek what they sought.

don’t seek devops, continuous delivery, containers, microservices…

Seek Awesome

principles > practices > tools

mindset > skillset > toolset

adapt > adopt

why > what

The problem isn’t technical.
The problem isn’t people.
The problem is socio-technical.

We have to solve both together.

we are all part of the system

In Conclusion

- the game is changing
- lots of options, extinction is one
- devops is not as confusing as some would make it
- you haven’t learned anything until you change your behavior
- there are good examples
- change is our opportunity

Every attempt to make software easy and safe will result in humiliation and disaster.

— William Tecumseh Sherman

Call to Action

- Question everything
- Don’t limit yourself with labels (devops or otherwise)
- Find the Why, What will follow
- Get mud on your hands
- Don’t let mud stop you from learning
- Play to win
- Know you can

what happens next?

change

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.

— No evidence Darwin ever said this

choose your adventure

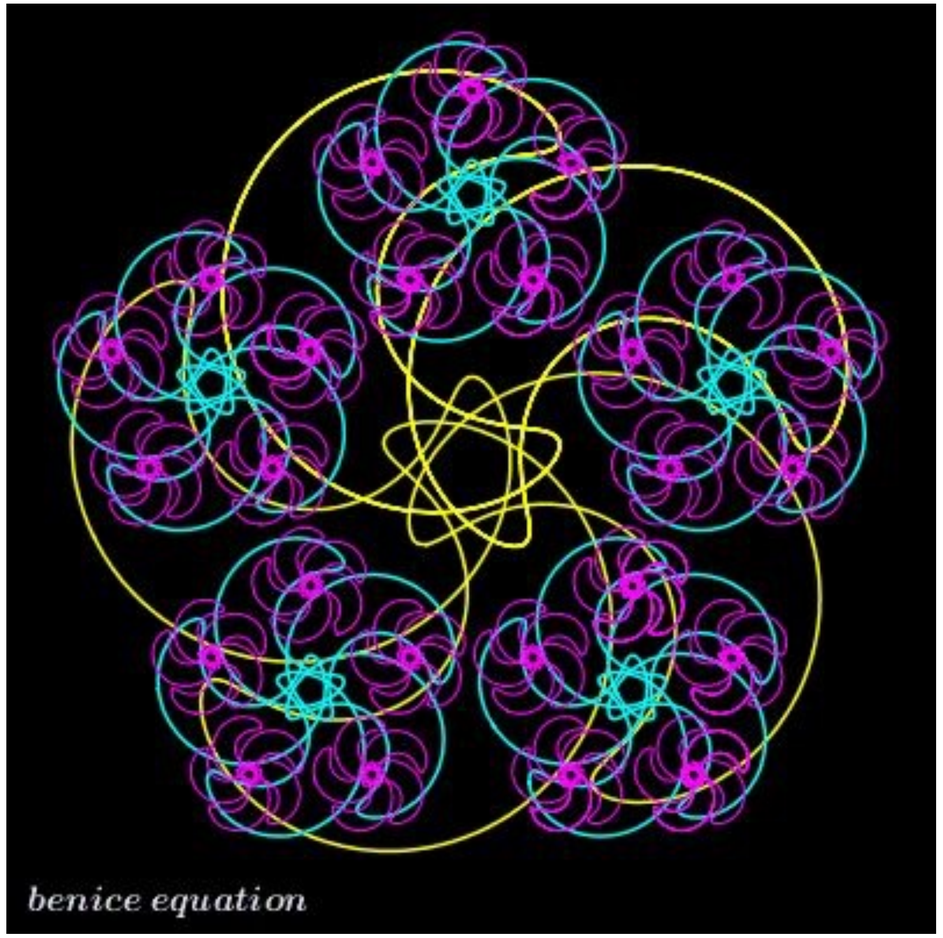
Thank You

@littleidea

I’m not here to answer questions.

I’m here to have conversations.

@littleidea



We are uncovering better ways of developing software,

by doing it and helping others do it