Go2Group

SYSTEMS THINKING & LEAN PRINCIPALS

Lance Knight · COO Field operations · Go2Group

Agenda

- Introductions
- Systems Thinking
- Lean Principals
- Artifact Integration
- Conclusions

Go2Group

I’m from upstate New York (Utica).

Started working in aerospace manufacturing in the 1990s.

In 1998, I ran my first agile like development project.

In 2000, I started working in the software development tooling space.

In 2016, I published Driving the Technical Sale.

Lance Knight · COO Field operations · Go2Group

Father, Husband, and Author


For the last 15 years,
I have worked with
companies to improve
velocity in their
software systems of
delivery.

About Go2Group

15 years

Founded
in 2002

32%

Year-on-year
annual growth

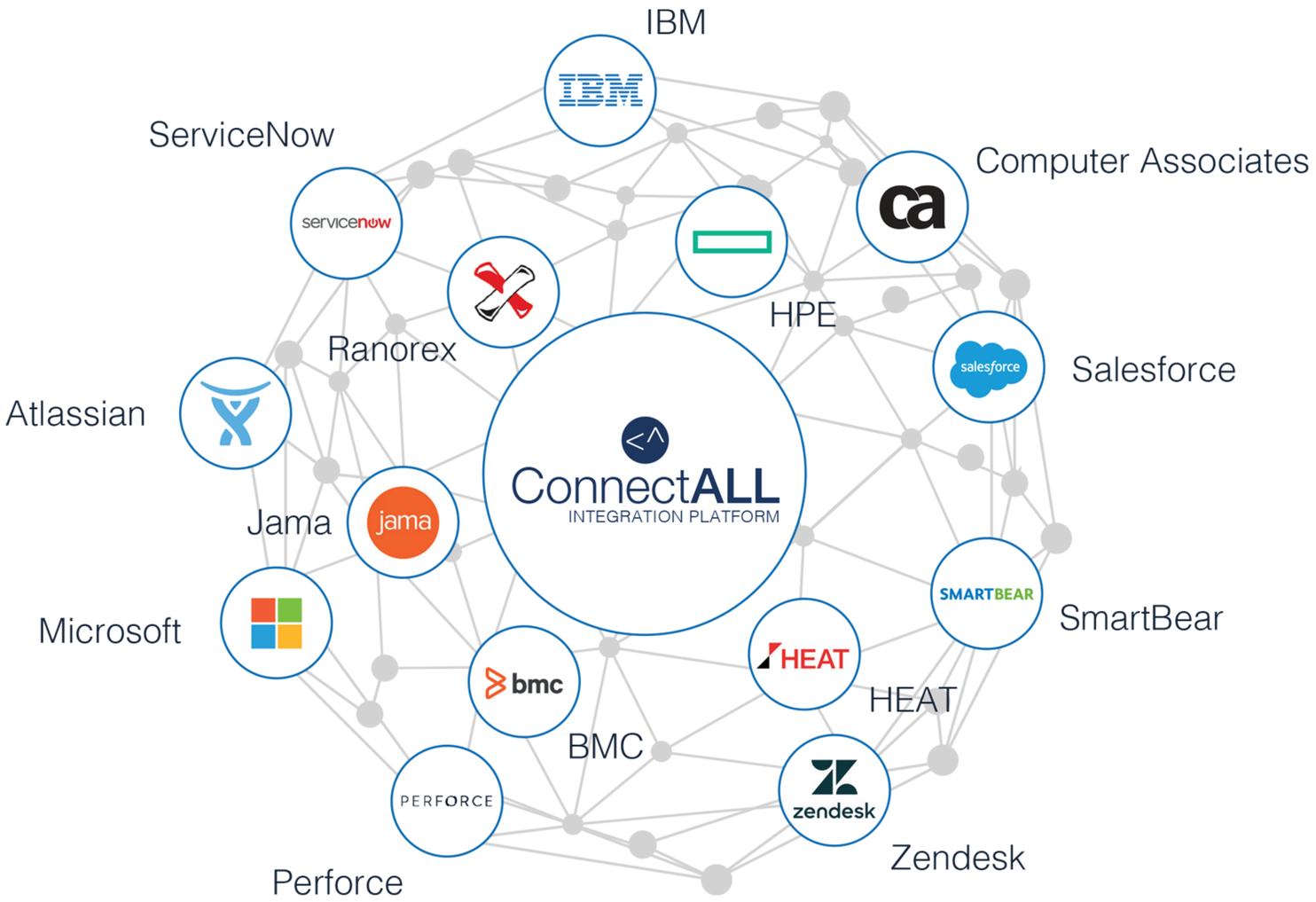
70+

Countries where
customers are

60+

Employees
across the globe

ConnectALL connects all of them!



Why is this relevant to DevOps?

- You need to look at the whole system to improve flow
- Changing process in one area may not improve overall system velocity
- These processes help build a roadmap for success

Real-world company example

Acme Corporation

Company Profile

Industry: Incendiary devices and novelties

Customers: Wile E. Coyote

Competition: Stark Industries

ACME’s Problem

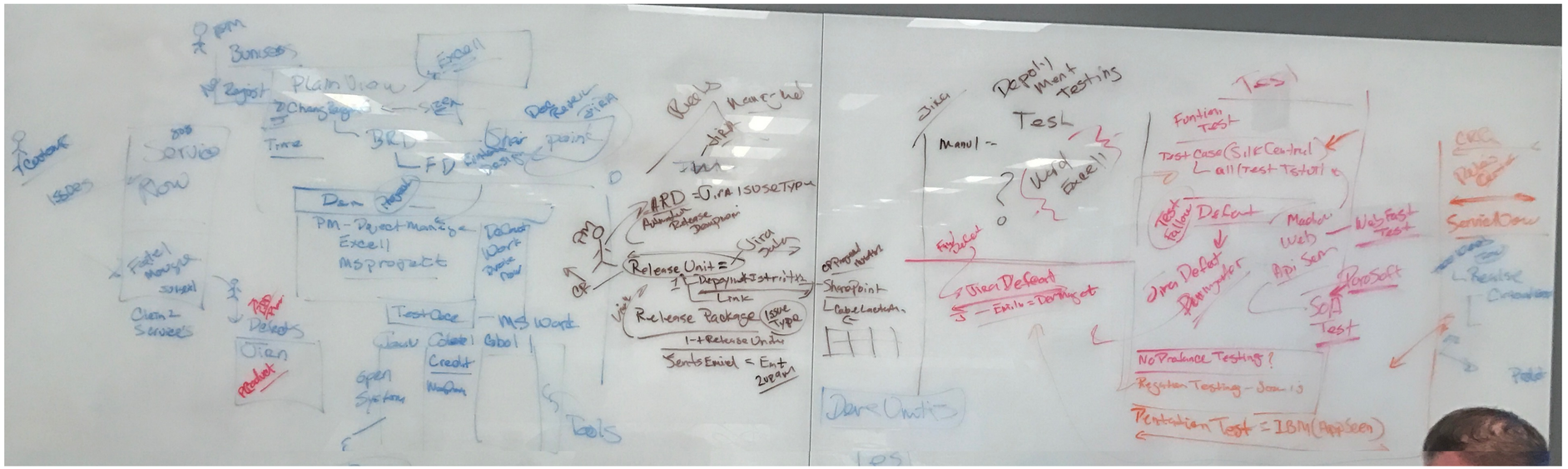
Their competition has intruded in their guided missile programs.

Prone to failure because of their GPS systems

Their top customer, Mr. Wil E. Coyote, has expressed that he will be thinking about using Stark Industries missiles in the future.

STARK INDUSTRIES

It started with a big white board meeting



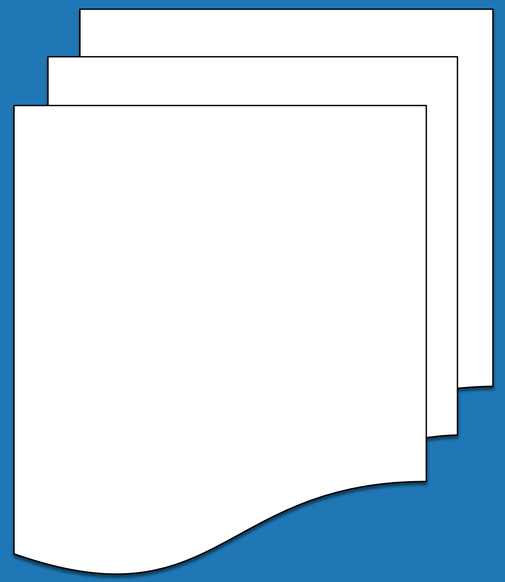
Work Intake → Code in Production

This is the system for software delivery

Mixed bag of tools

Work Intake → Code in Production

This is the system for software delivery



What are the Inputs and Outputs?

In a software development system, the inputs and outputs are artifacts like requirements, defects, specifications, tasks, and others that are usually managed by a tool like Jira.

Let’s talk about Systems Thinking

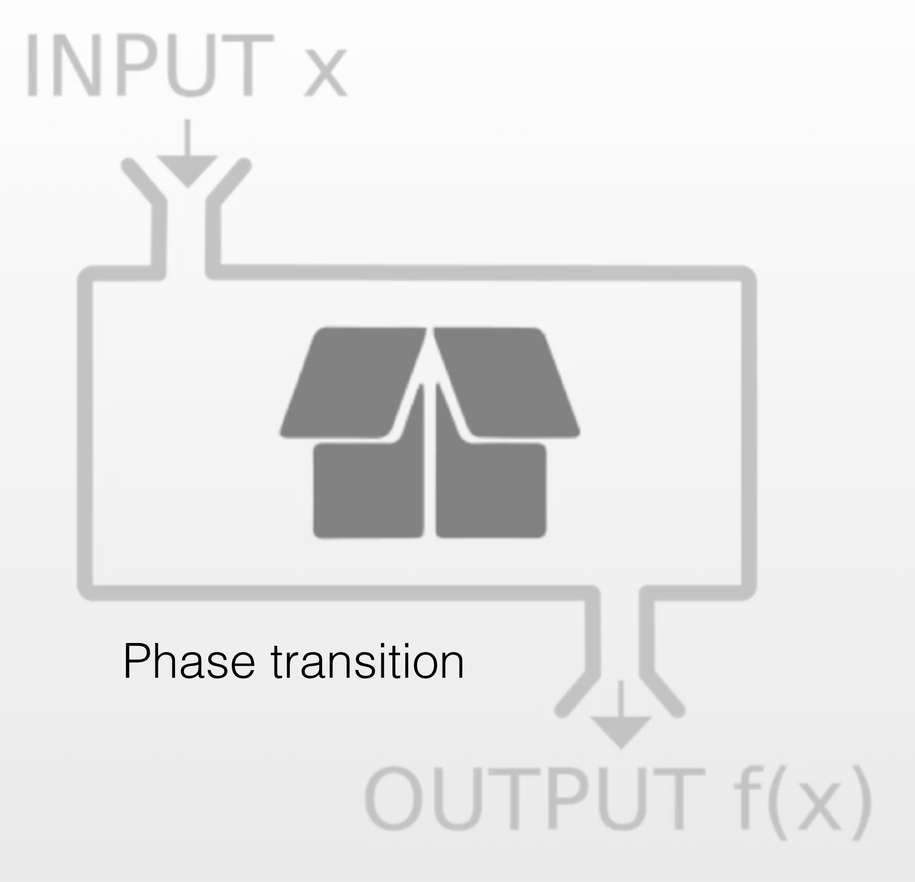
What is a System?

Simply put, a system is a set of elements that take inputs through a phased transition to emergence of an output.

A Simple System Example

The clothes dryer at home

Wet clothes
Cold Air
Electricity



Clothes dryer as black box system

Emergence

Dry Clothes

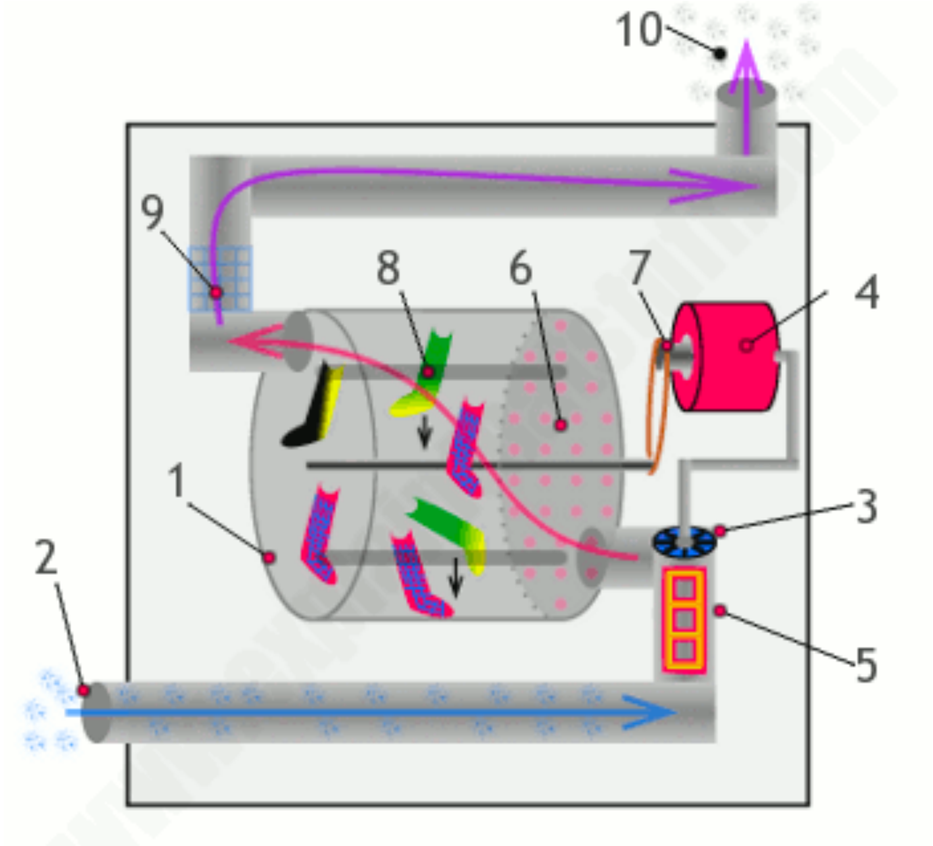
Cycle Time

Heater

Drum

Electric motor

Fan



Clothing Dryer Elements

It not a system if there is no relationship between elements

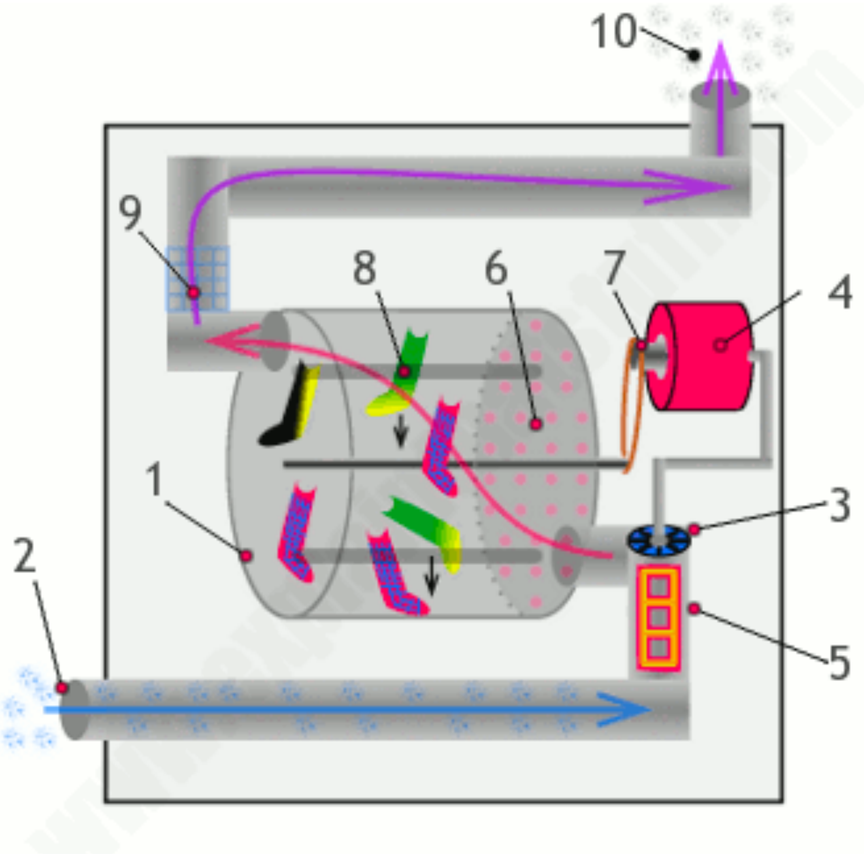
Clothes Dryer Elements Relationships & Feedback Loops

Synergies:
Electric motor runs the fan and drum.

Dependency:

Interference:
The clothes produce lint and cause a blockage in the exhaust.

Potential Bottleneck/Constraints:

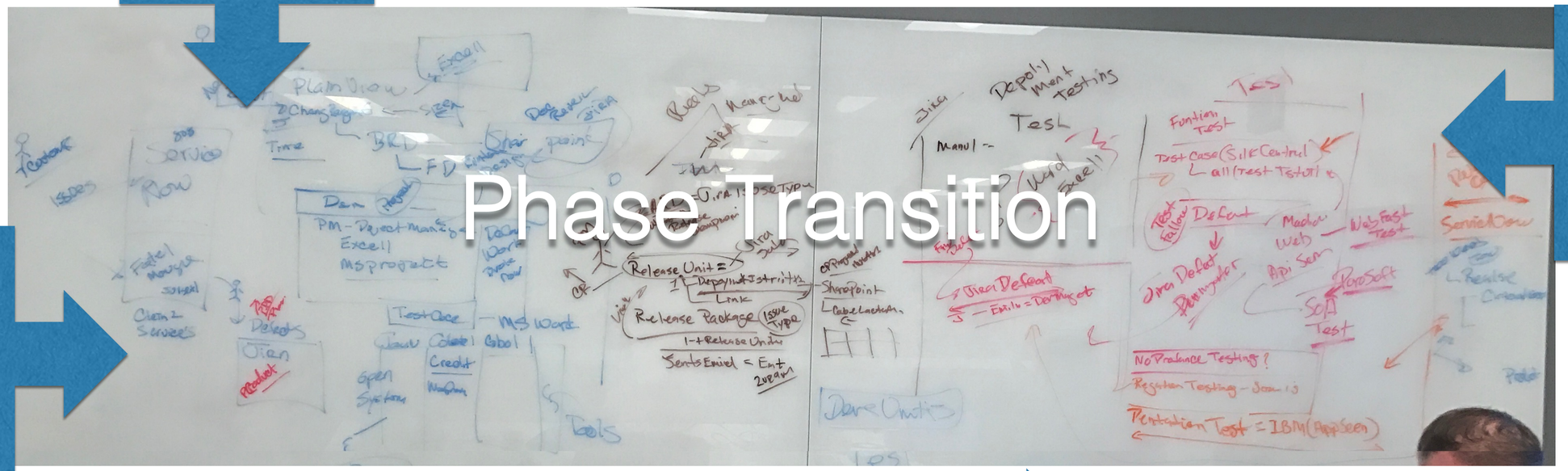


Let's apply this to our understanding at Acme Corporation

First let's look at the input and output

Request for
the business

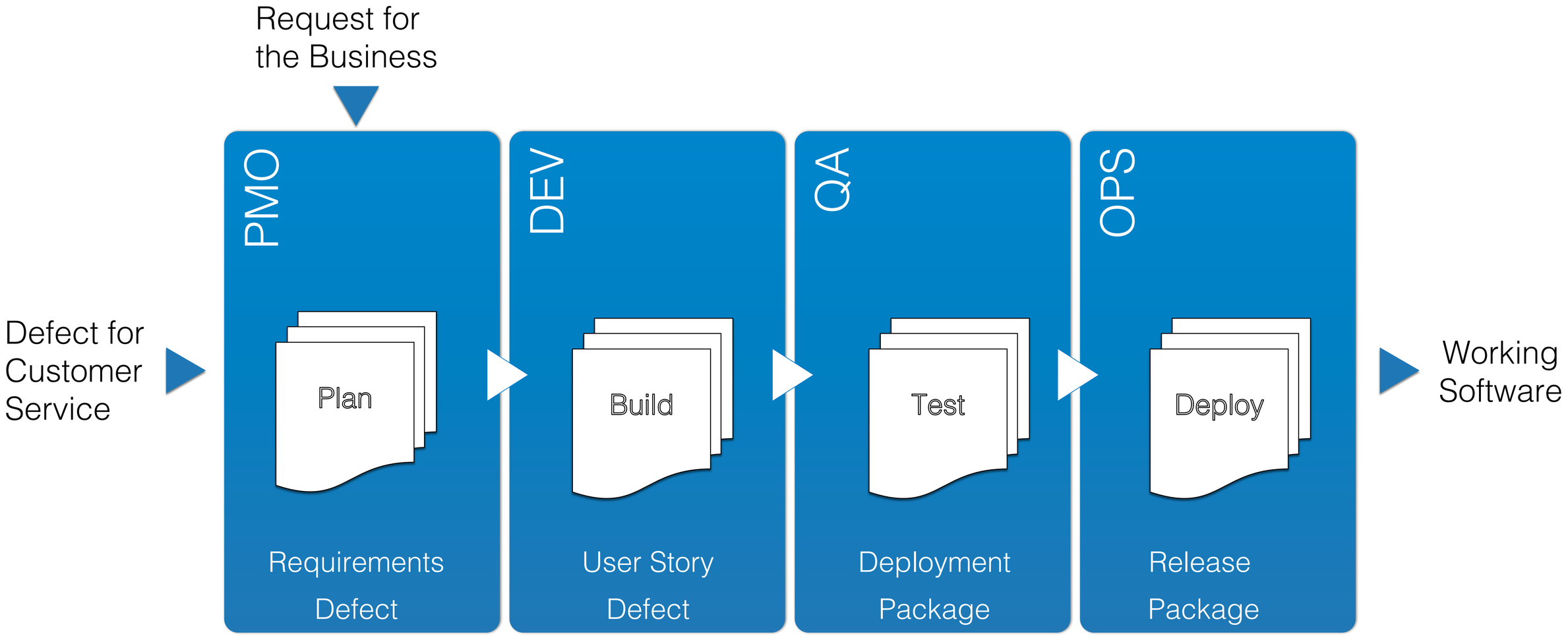
Software
In production



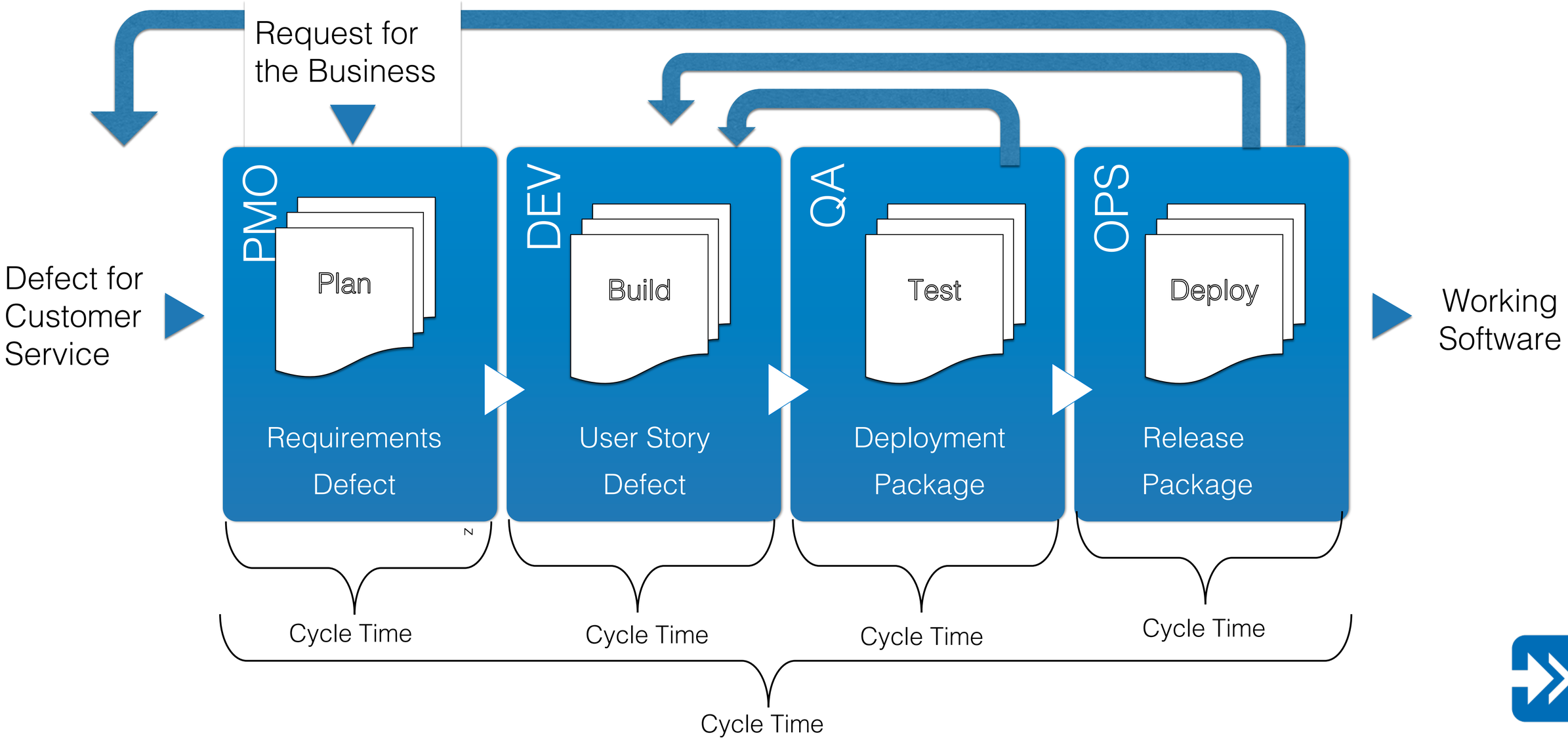
Defect for
Customer Service

Cycle Time

What are the Systems Elements?



What is the feedback loop?

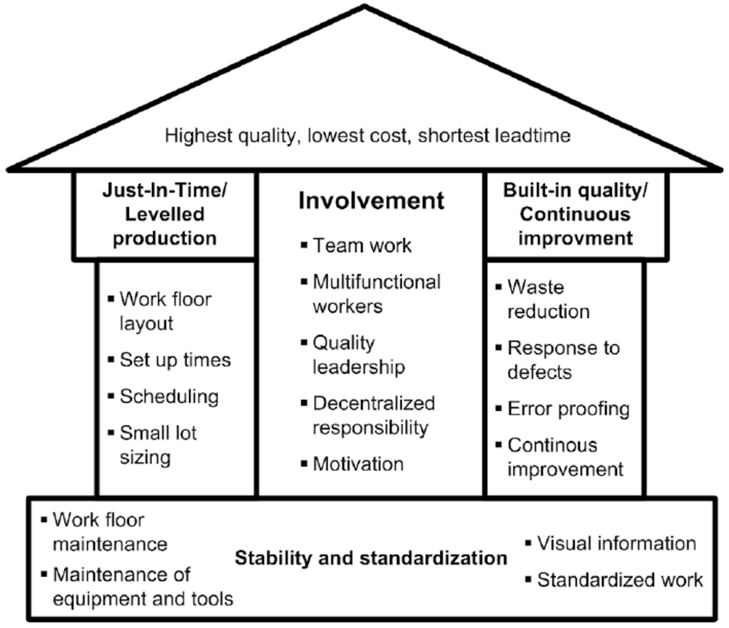


Systems Thinking and Systems Theory

There is a lot more to Systems Thinking and Systems Theory

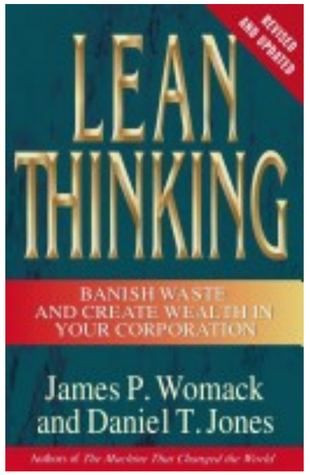
Let's talk about Lean Principles

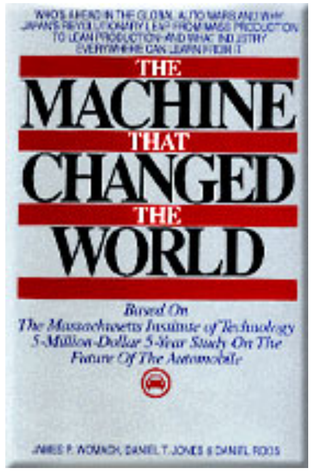
Lean Thinking



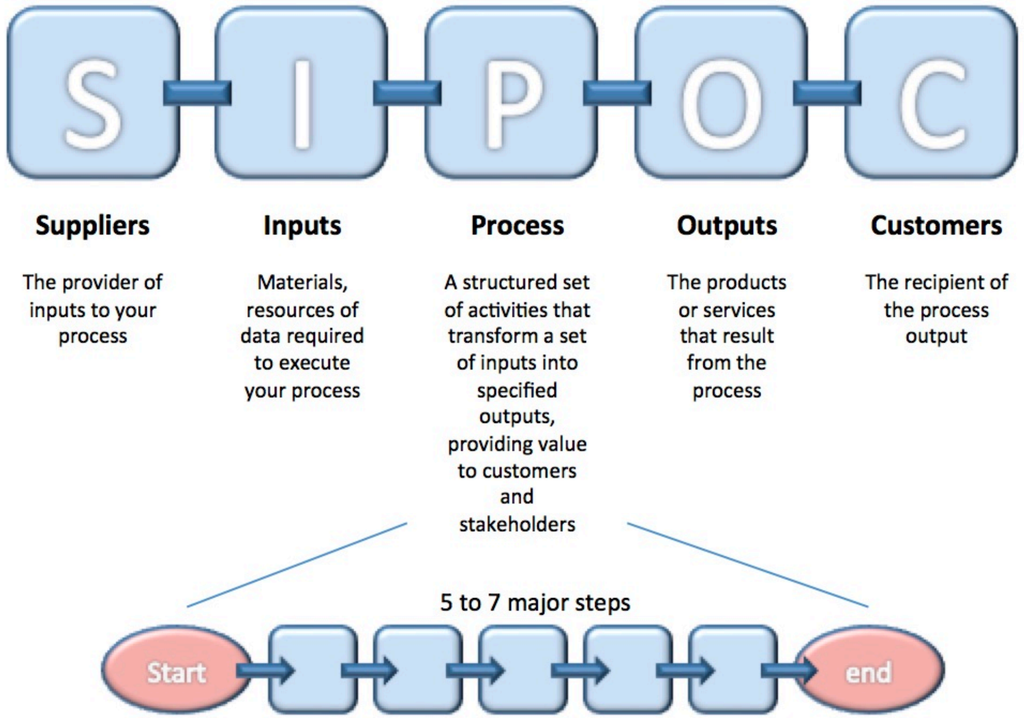
5 Principles

- Identify Value
- Map the Value Stream
- Create Flow
- Establish Pull
- Seek Perfection

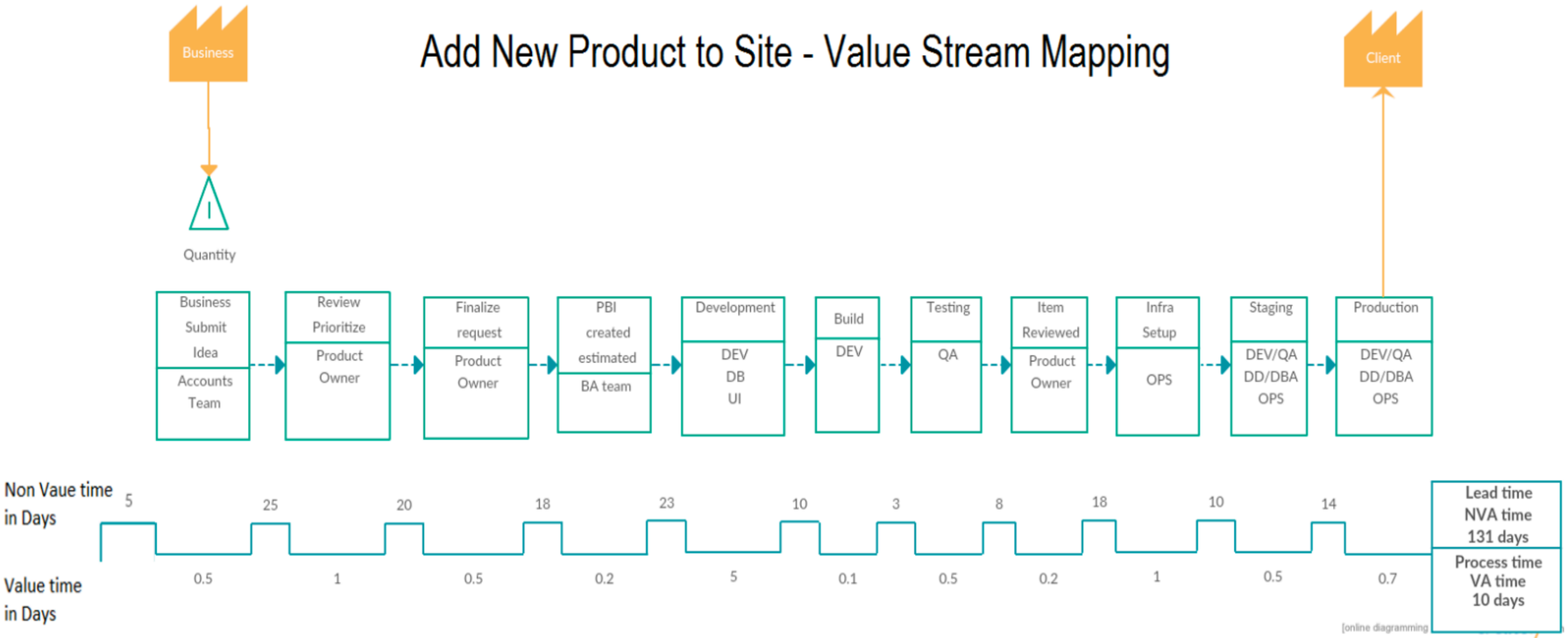




Visual Information

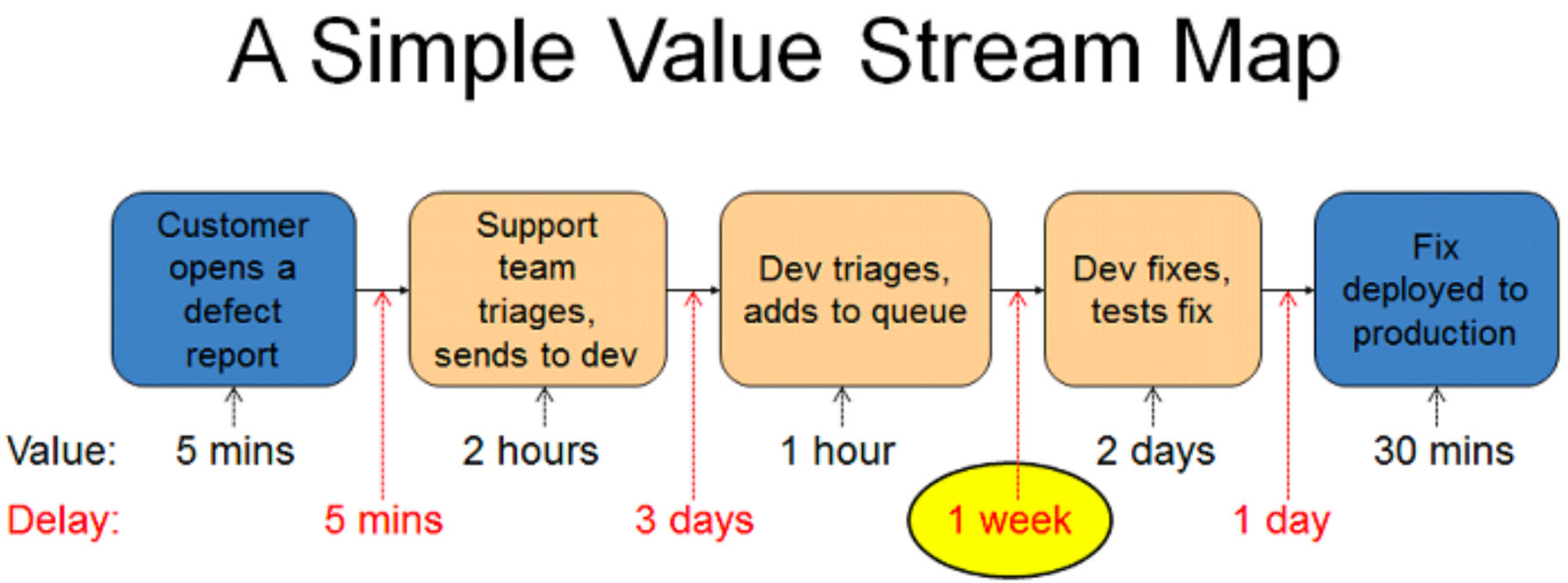


Visual Information



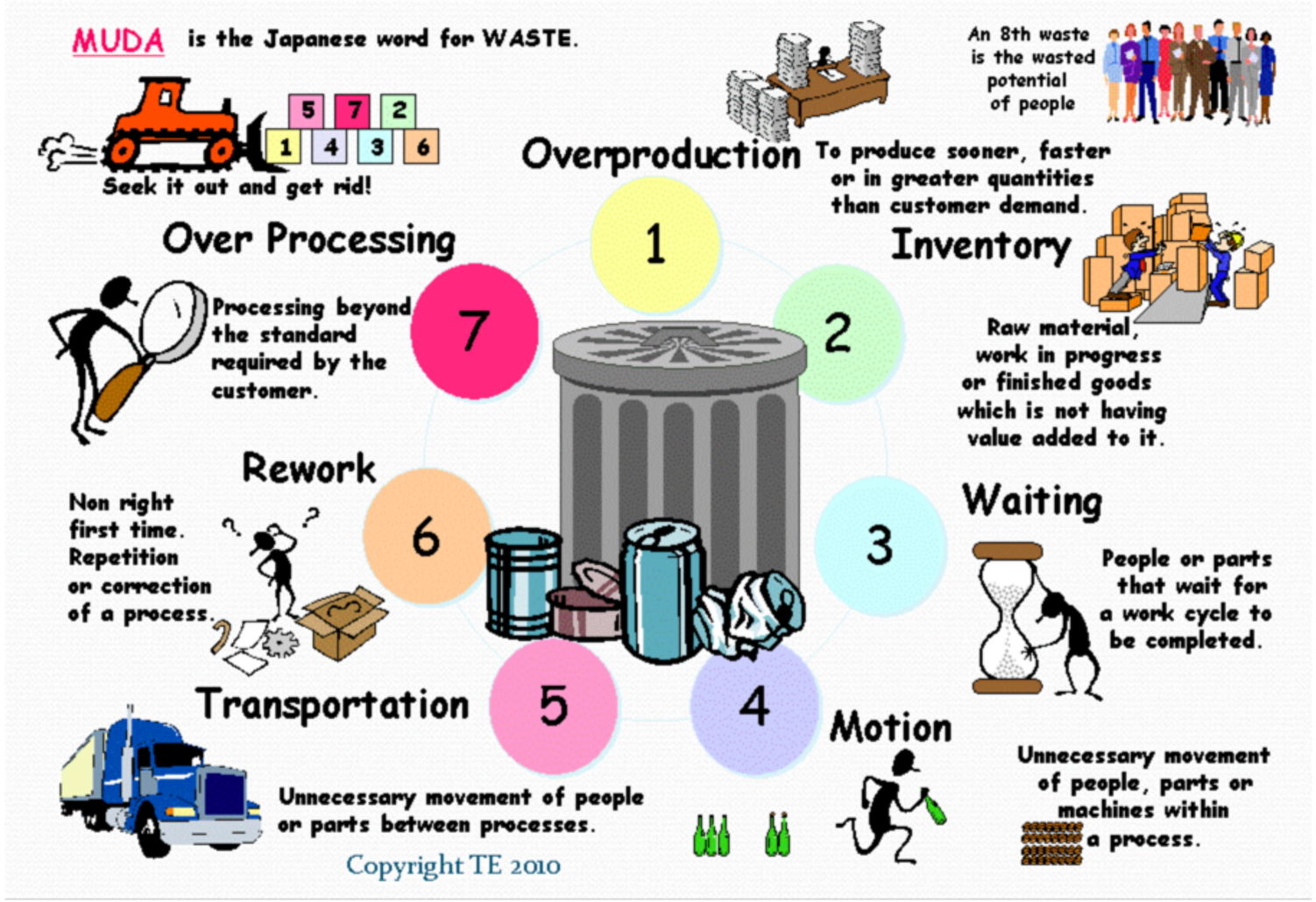
Observation: It takes 10 days to Develop but it waits 121 days!! Why??

Visual Information

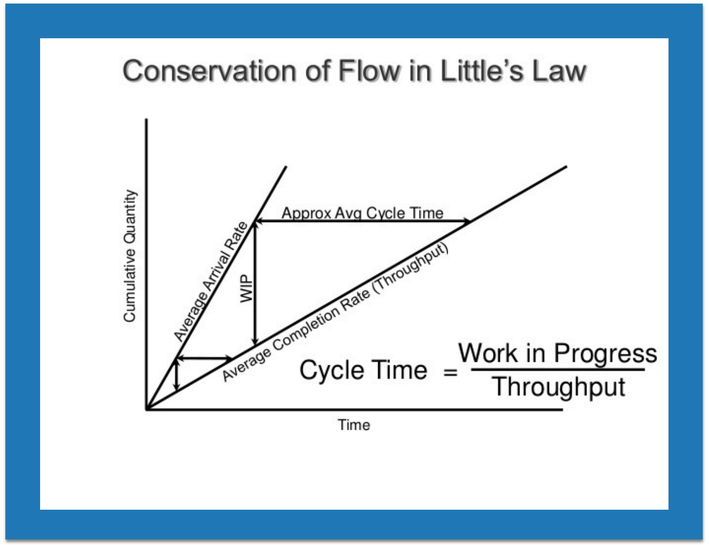


Waste Reduction

- Transport
- Inventory
- Motion
- Waiting
- Over-Processing
- Overproduction
- Defects



Create Flow



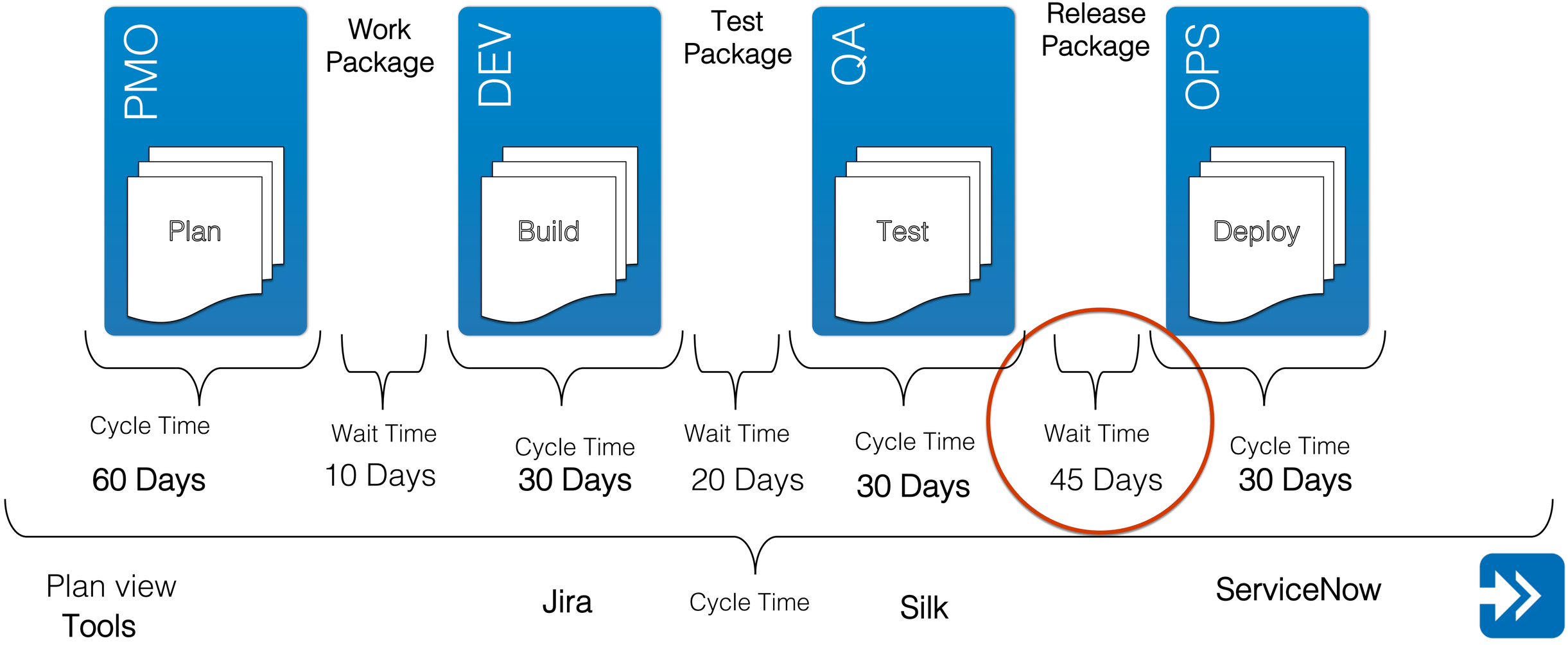
- WIP Limit
- Cycle Time
- Wait time lead time
- Kanban
- Pull versus push

Theory of Constraints (TOC)

Let's apply this to our understanding at Acme Corporation

ACMC Value Stream

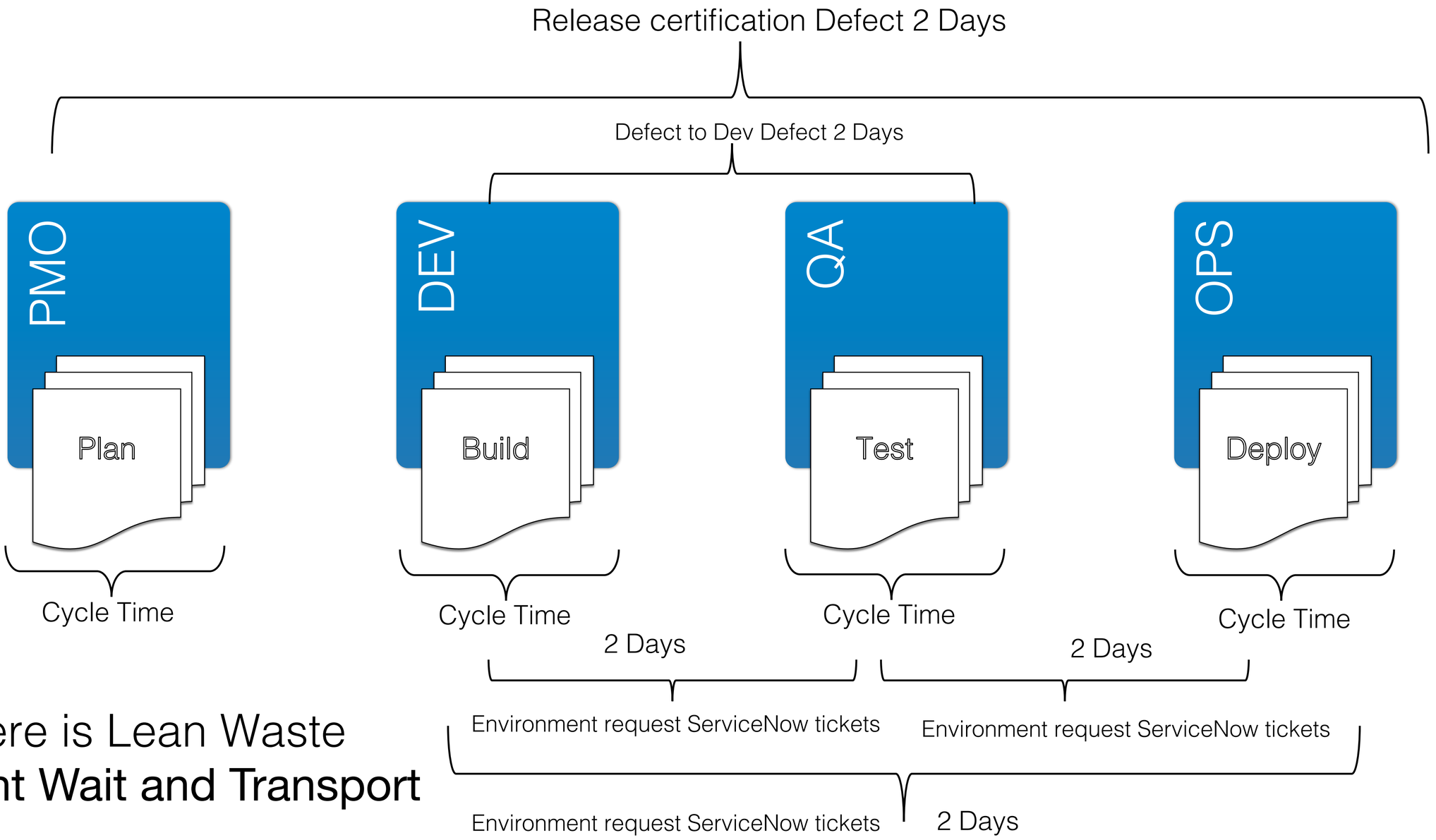
Packages are common artifacts like requirements.
user stories, features, defects



Value stream is just part of the story

You need to look at the relationships between elements

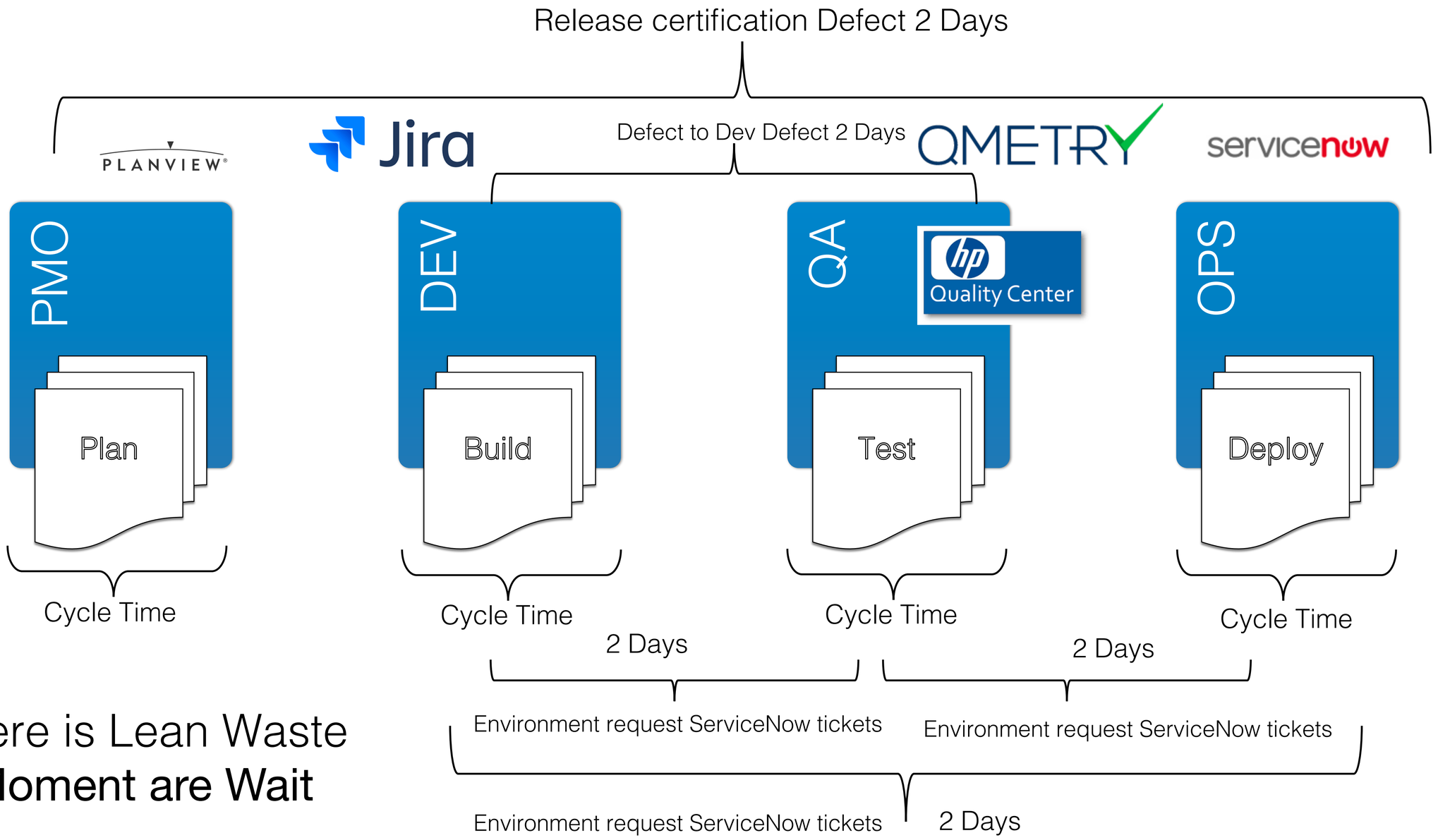
ACME Value Stream with Feedback Loop



There is Lean Waste

Moment Wait and Transport

ACME Value Stream with Feedback Loop



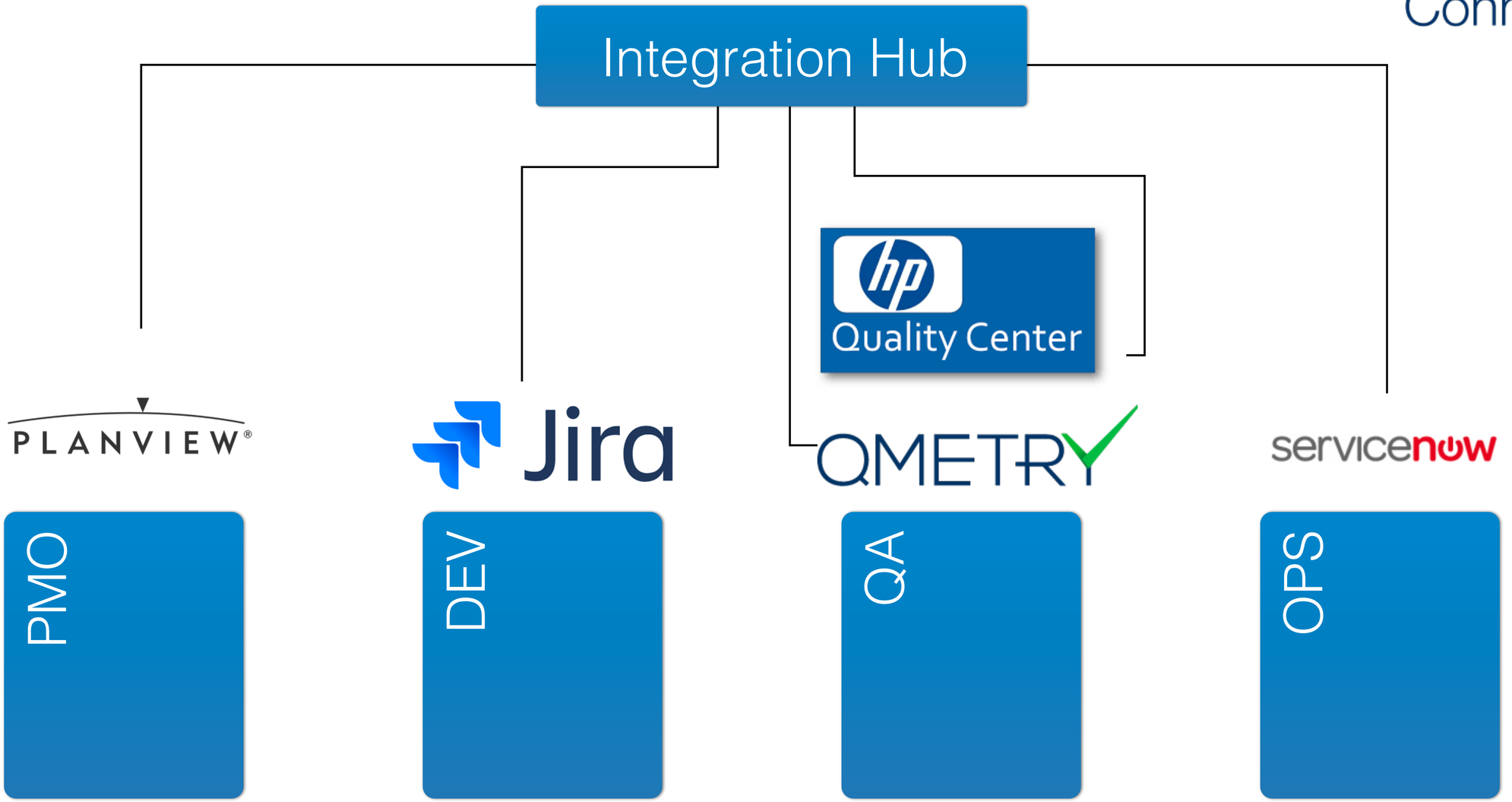
There is Lean Waste
Moment are Wait

Integration can remove this waste

And

Create one backlog across all tools

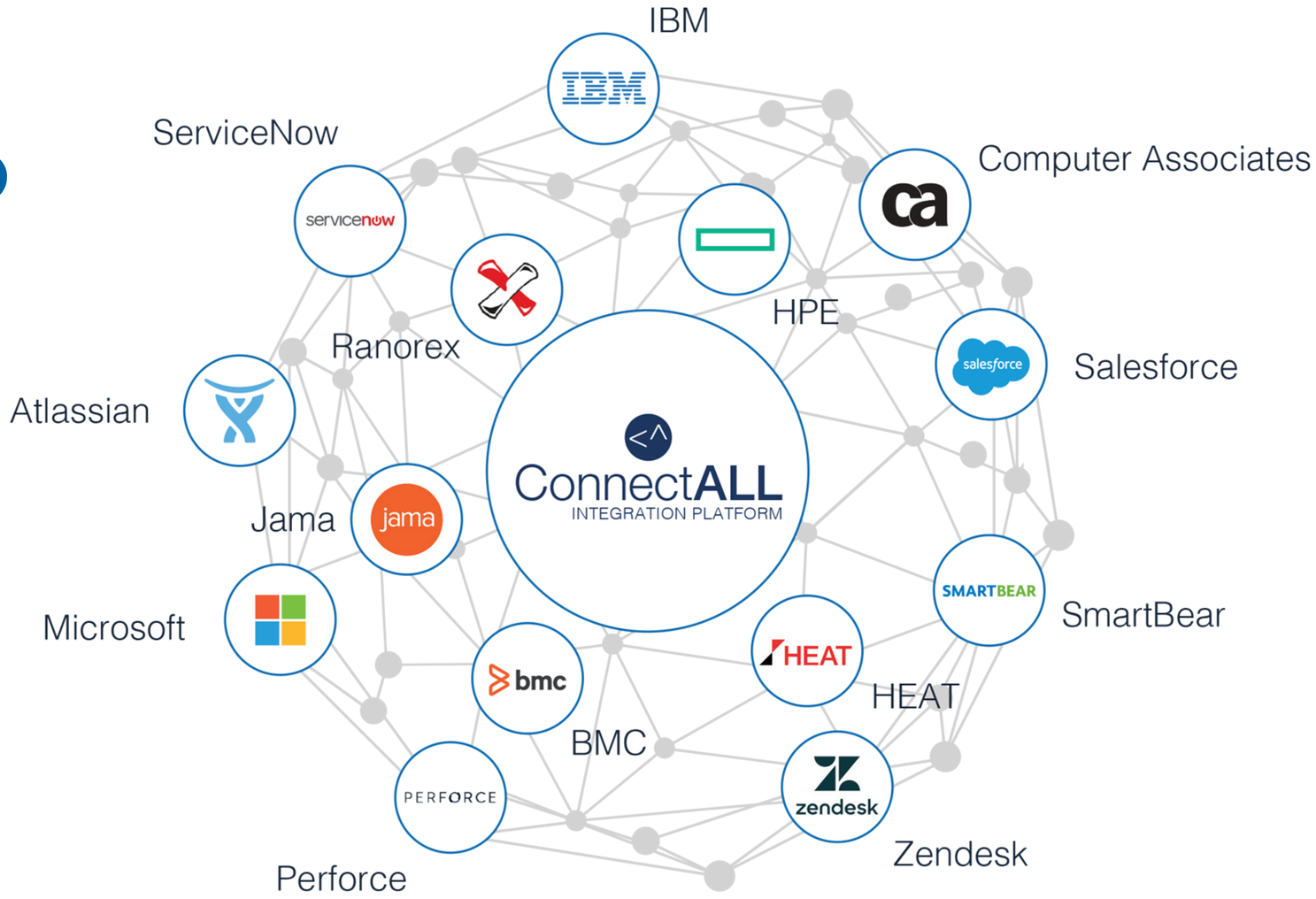
Creating on backlog access tool's



Benefits of this approach

- We can use these principles to guide our DevOps journey
- And even create a DevOps Roadmap
- Could also quantify the ROI in DevOps

Questions?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INTEGRATION PLATFORM
Jama
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SmartBear
HEAT
BMC
Perforce
Zendesk

Thank You

Reference Sources

https://www.tocinstitute.org/theory-of-constraints.html

http://leanmanufacturingtools.org/