

INTRODUCTION TO J-EDI: THE JUNIPER EVENT- DRIVEN INFRASTRUCTURE

Nathan Embery

Senior Consulting Engineer

LEGAL DISCLAIMER

This statement of direction sets forth Juniper Networks' current intention and is subject to change at any time without notice. No purchases are contingent upon Juniper Networks delivering any feature or functionality depicted in this presentation.

This presentation contains proprietary roadmap information and should not be discussed or shared without a signed non-disclosure agreement (NDA).

I would characterize the transformation that we are seeing in this industry with one word, and that is
AUTOMATION.

—Rami Rahim, CEO at Juniper Networks



JUNIPER
NETWORKS

Automation: Setting the context

What?

“Using machines to run machines”

-- Peter F Drucker'1955

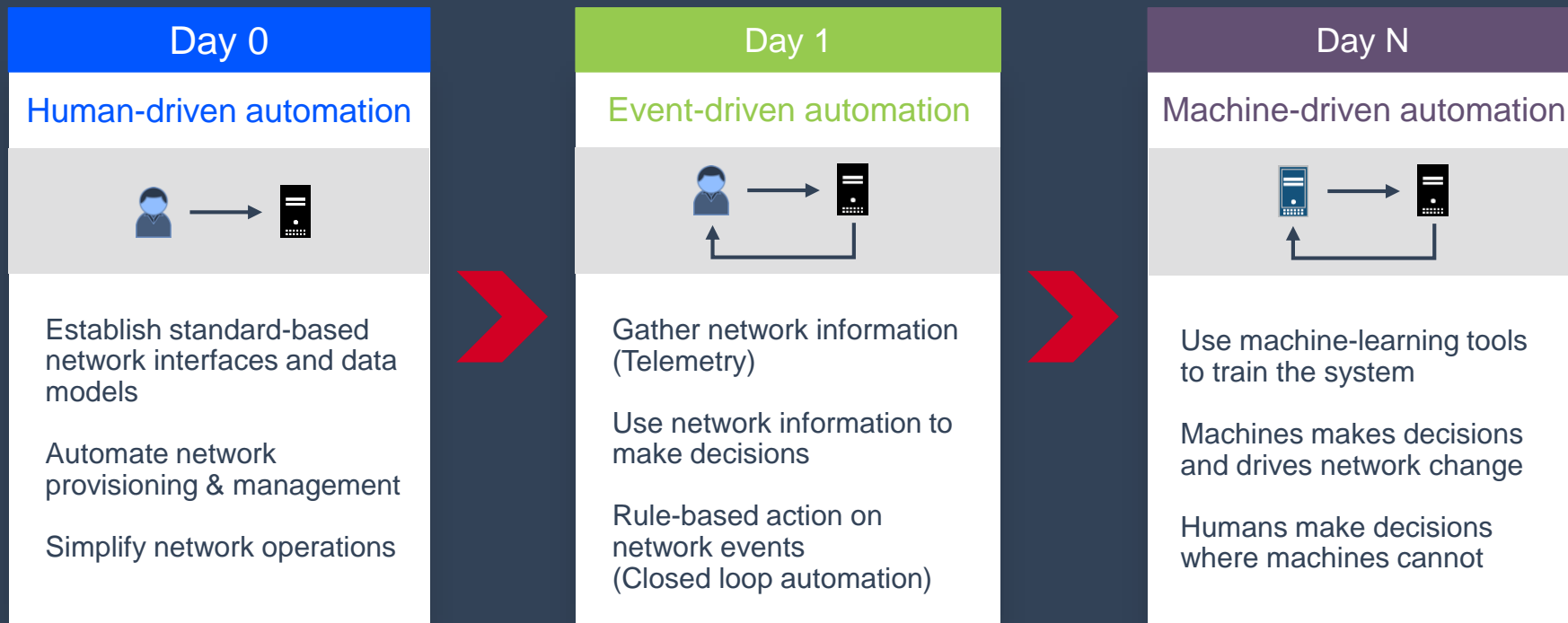
Why?

Agility! Delivering outcomes @ speed (and scale!)

How?

Technology, Culture, and Process

Network Automation: How do we get there?



Day 0 Automation – Scripts and Playbooks

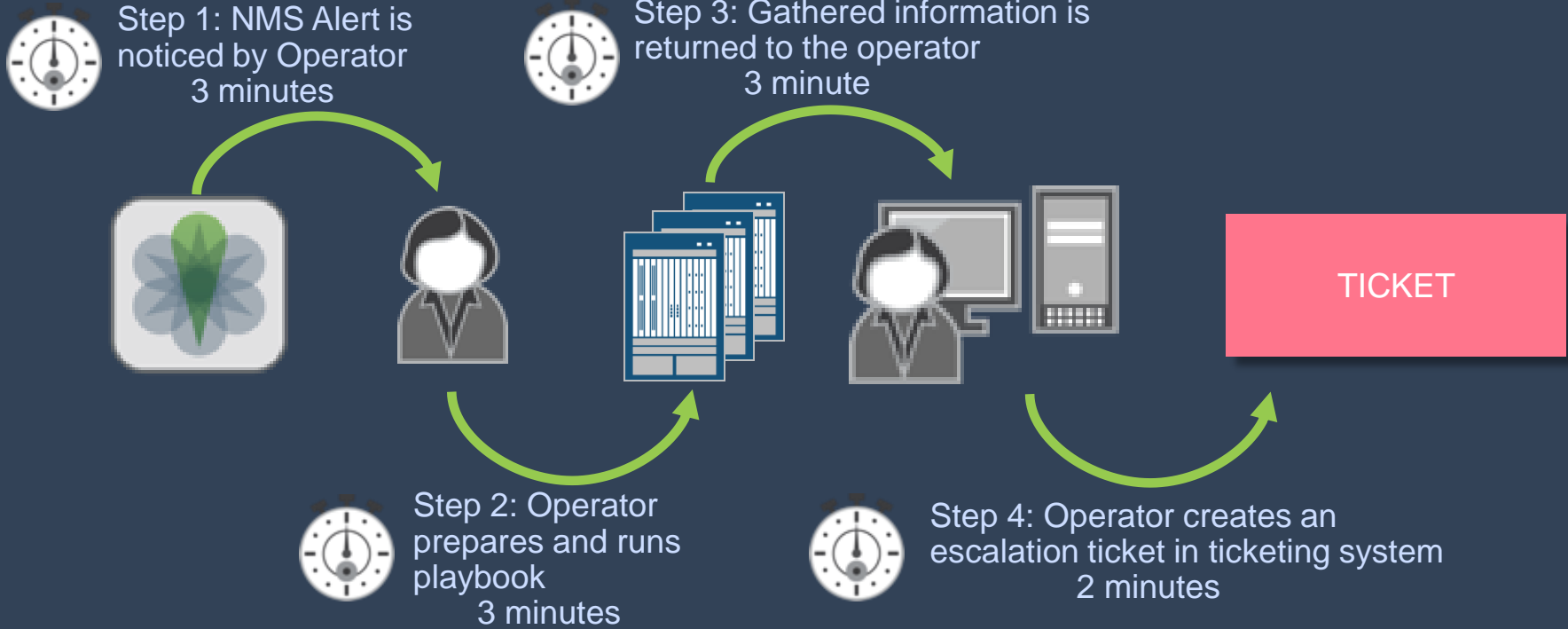


ANSIBLE



BASH
THE BOURNE-AGAIN SHELL

Automating Operations Processes

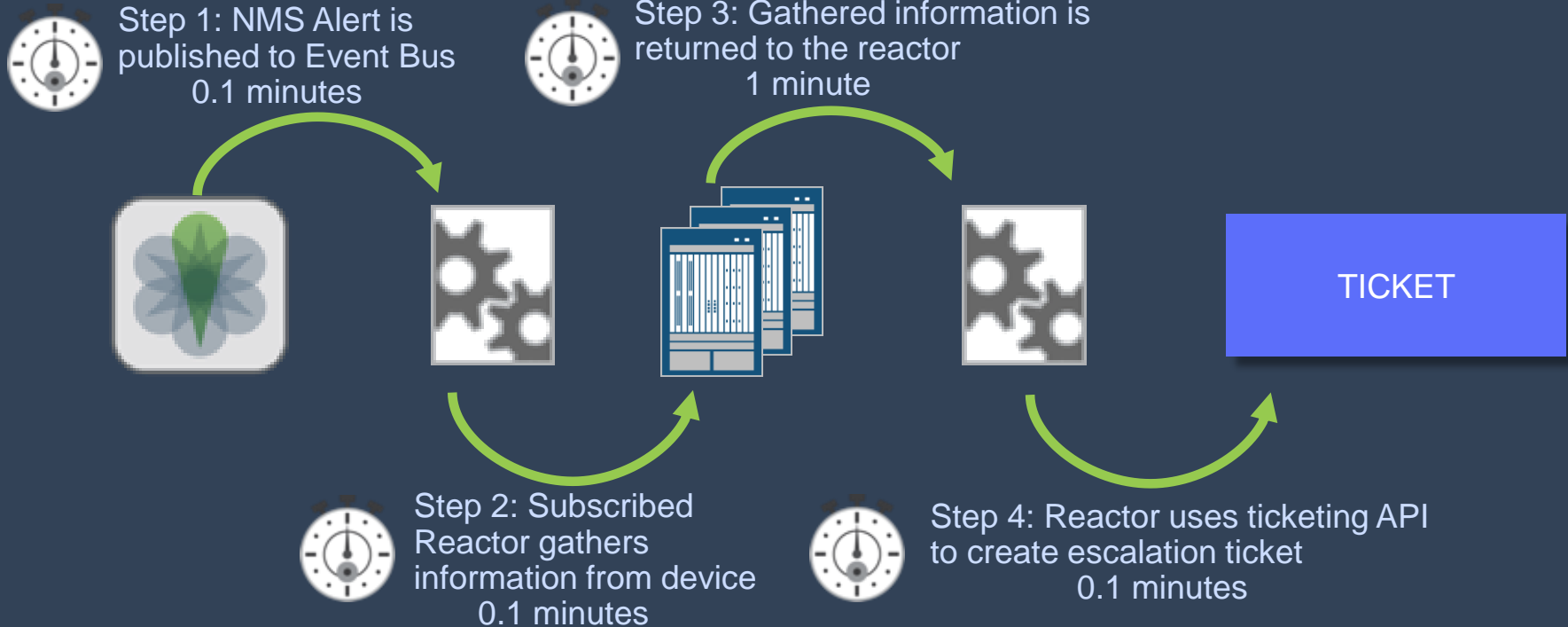


Human Driven Process = 11 minutes

Day 1 Automation – Events and Reactors



Automating Operations Processes



Event Driven Process = 1.3 minutes

Building an Event Driven Infrastructure



BUILD MORE THAN A NETWORK.

EDI Components

Event Sensors



Sensors detect events occurring on the network and in the applications

Shared Event Bus



A shared event bus is a central place where network and application events are published

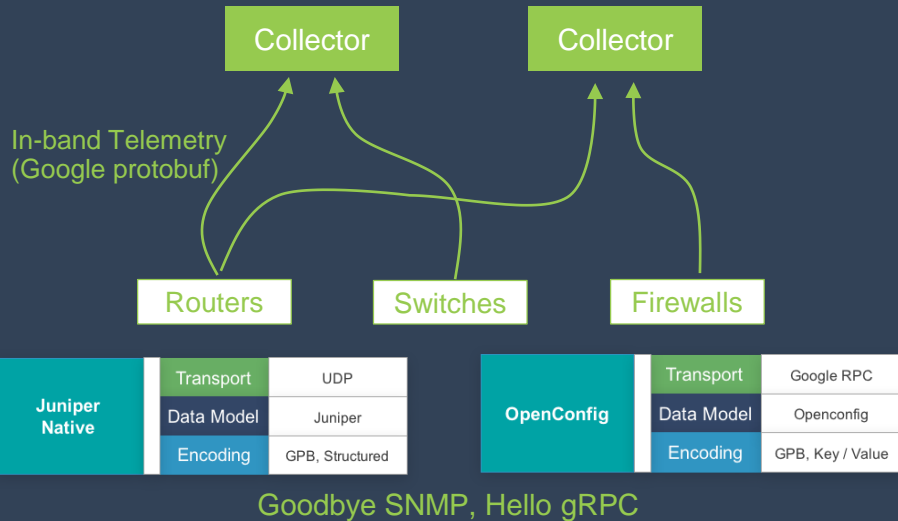
Reactors



Reactors subscribe to events on the event bus and take some action based on a set of pre-determined rules

Gathering Network Telemetry

What gets measured, gets managed



gRPC & JVision

Push-based telemetry model (v/s pull-based SNMP)

Continuous streaming of Network telemetry data based on subscriptions

Observe network state through time-series data stream and take action.

Uses Google protocol buffer encoding format

Event Sensors and Telemetry

EDI Event Bus / Network Automation Backplane

API

APPFORMIX

ANY APPS & SERVICES



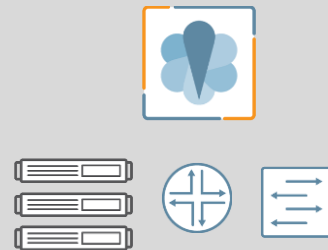
CLOUD INFRASTRUCTURE

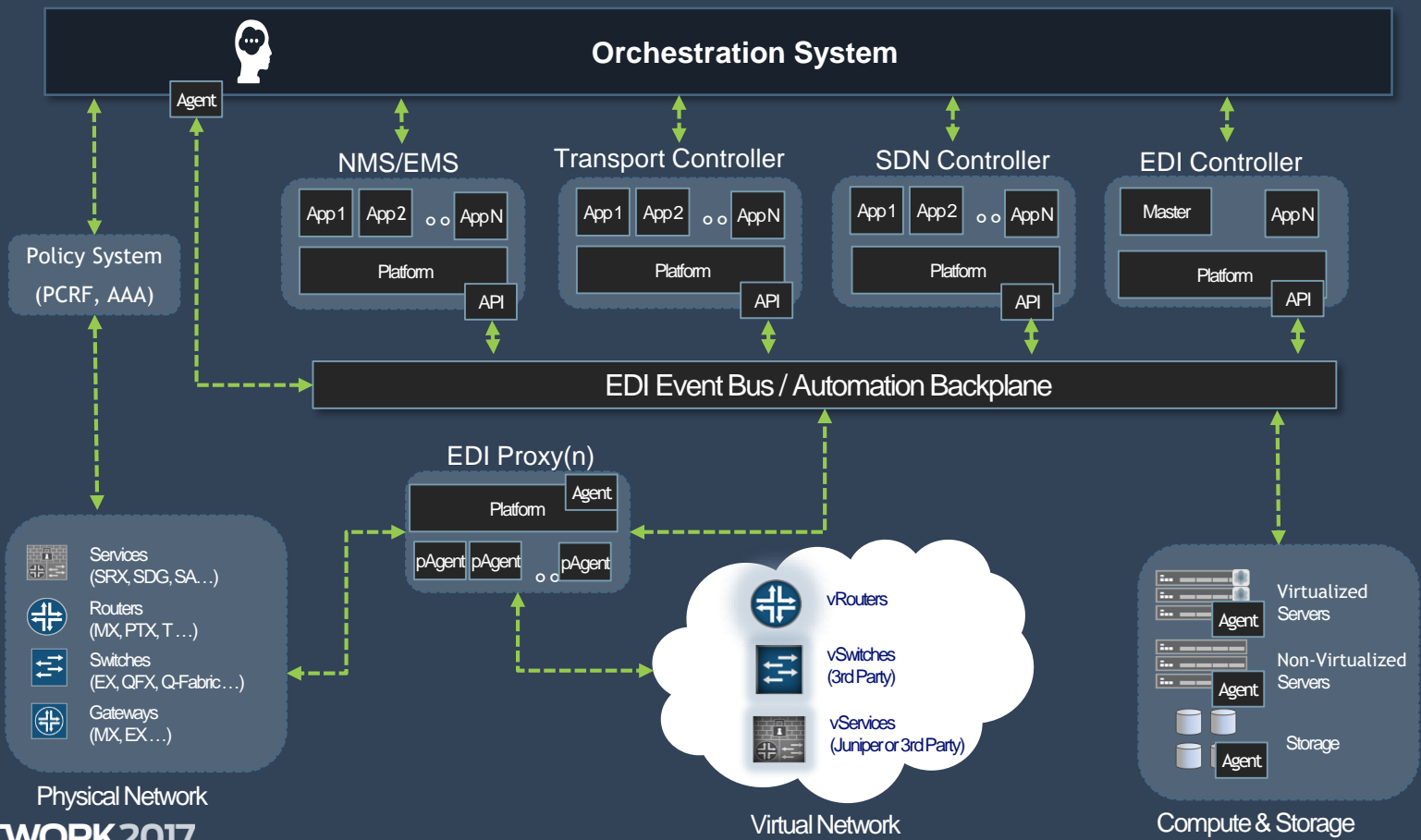


SOFTWARE-DEFINED INFRASTRUCTURE

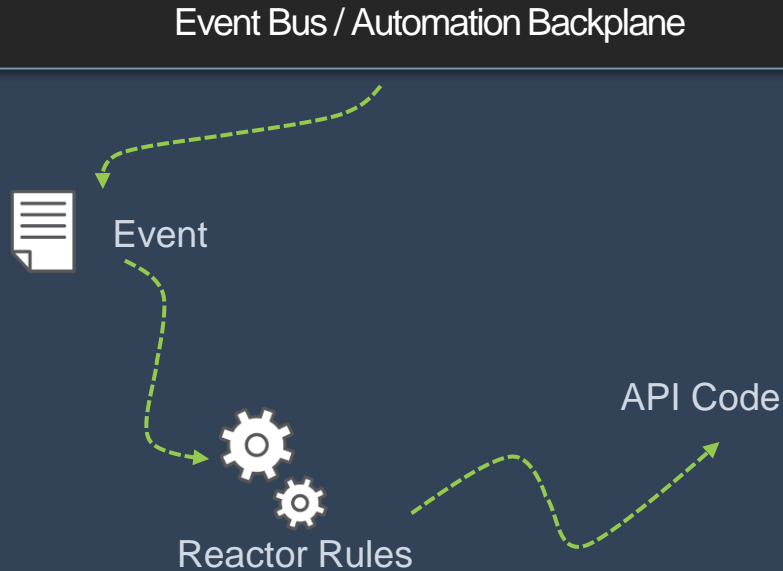


PHYSICAL INFRASTRUCTURE





Reactors parse events and call automation code



```
def get_configs
  # Get configuration for action if available
  # Get default configuration if not available
  begin
    # Get configuration for action
    # Get default configuration if not available
    # Get configuration for action
    # Get default configuration if not available
    # Get configuration for action
    # Get default configuration if not available
  end
end
```

Automating Business Processes



BUILD MORE THAN A NETWORK.

Which Processes to Automate?

Knowing is half the battle

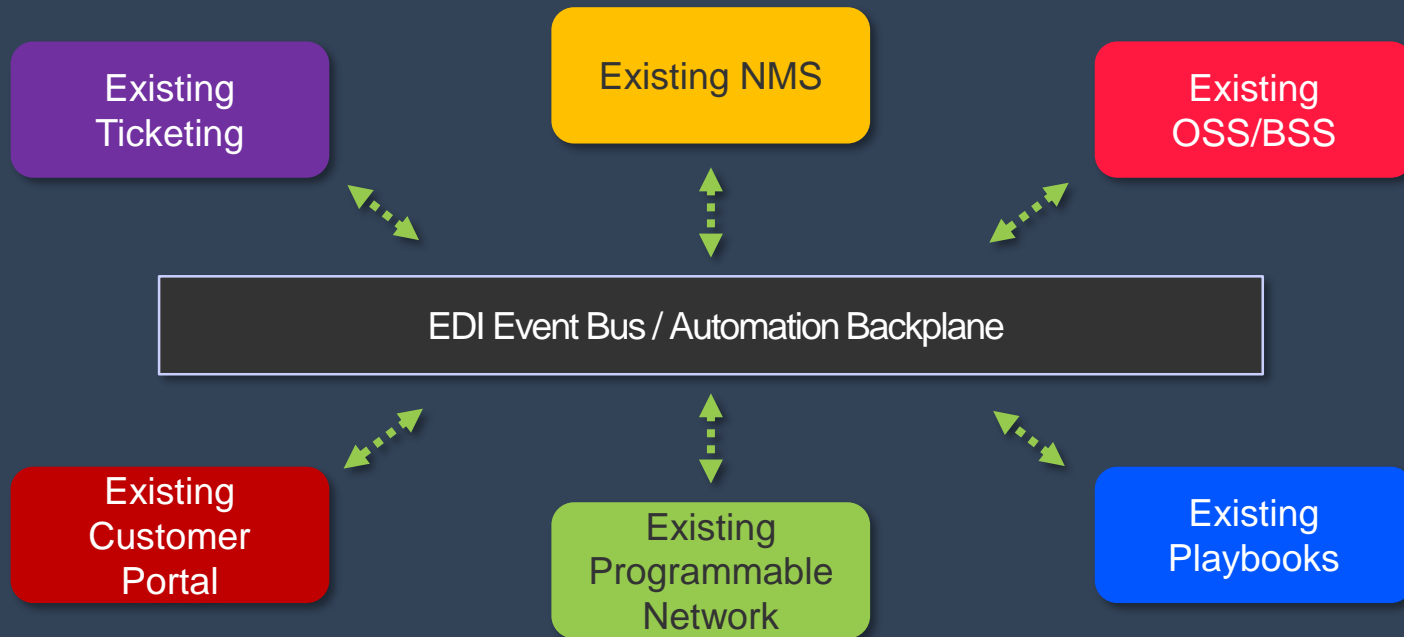
I-T-T-T

Processes with relatively simple, linear, decision points are great candidates

EDI works best when following the **'If-This-Then-That'** model

Yet Another Single Pane of Glass?

YASPG - An oxymoron

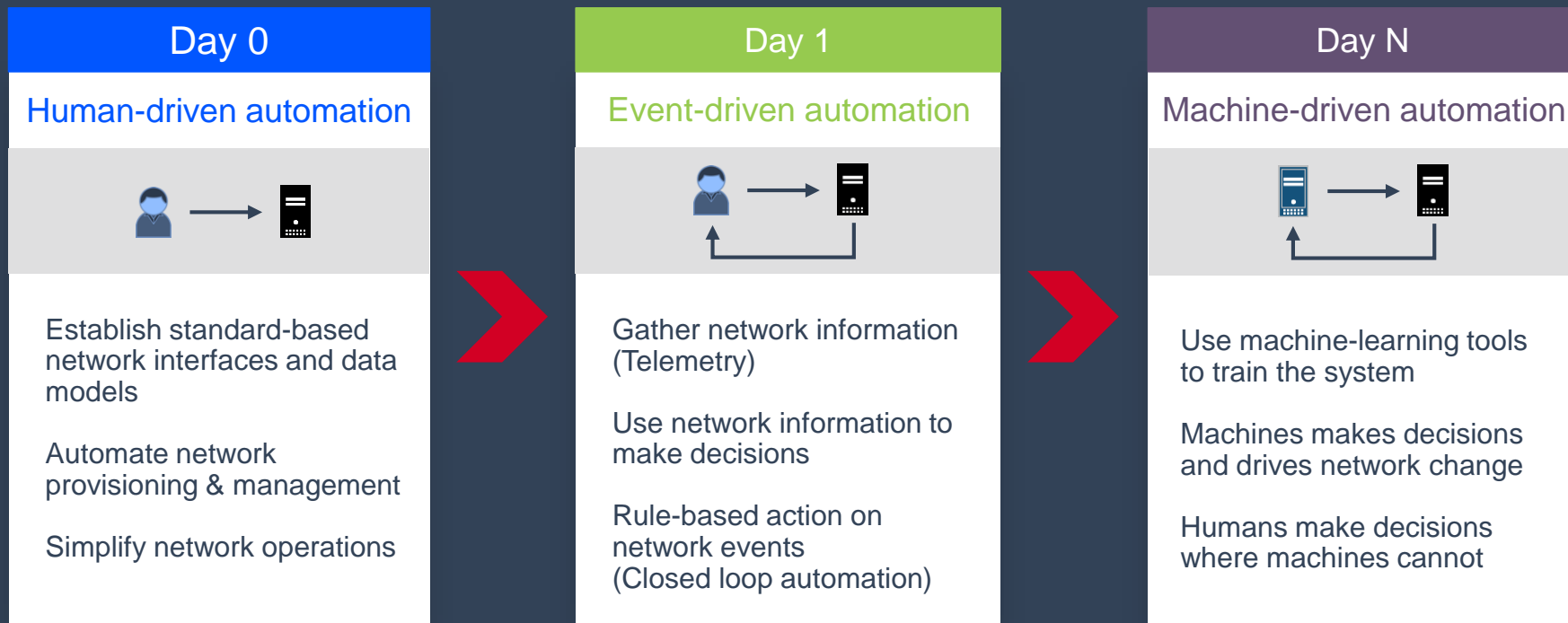


The Future of Network Automation



BUILD MORE THAN A NETWORK.

Network Automation: How do we get there?



Day N – Rise of the machines?

I-T-A-M-T-B-A-M-T-T-T-T

For processes that follow the **'If This and maybe this, but also maybe this too then that'**

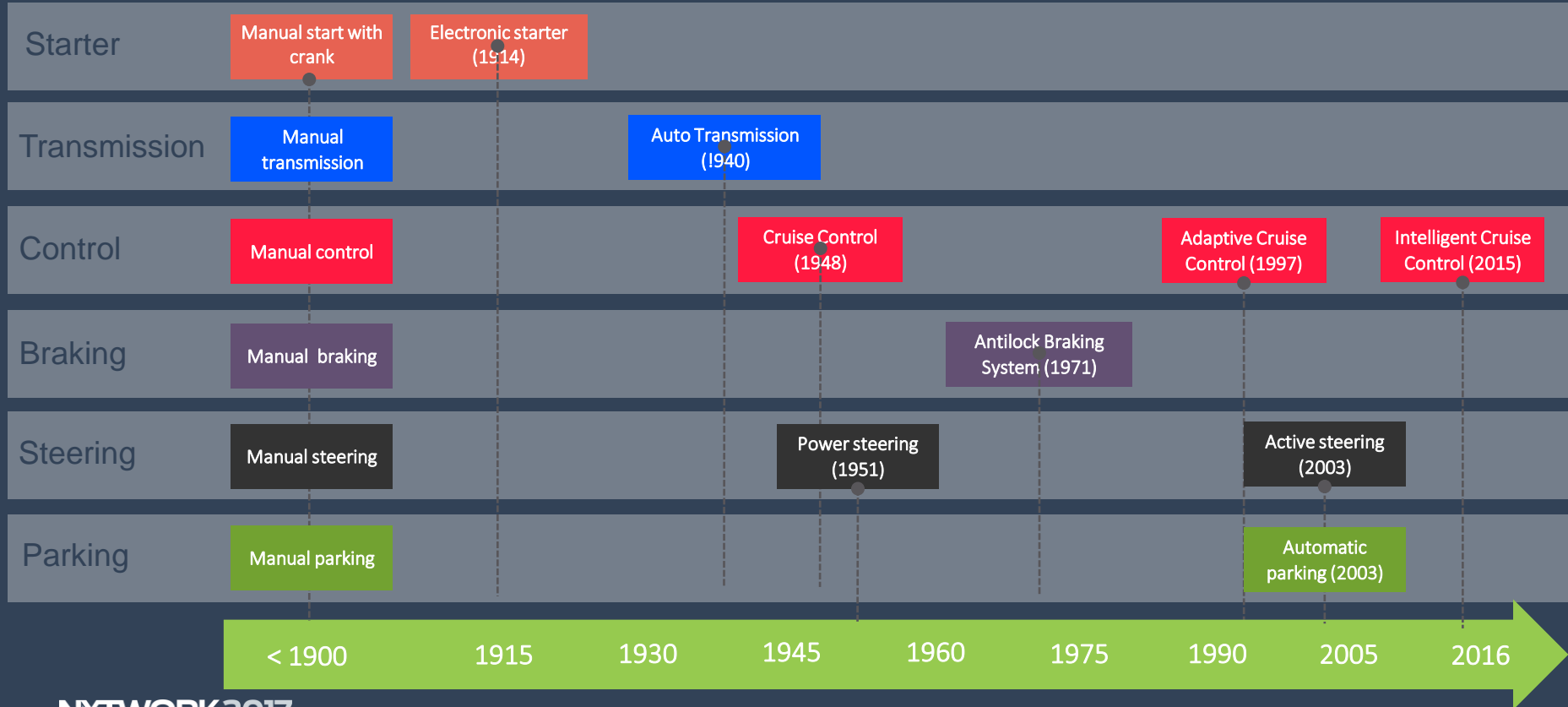
For processes that require complex decision points with many variables, machine learning will be necessary.

Conclusion



BUILD MORE THAN A NETWORK.

Evolution of the automobile



Pre-requisites for Self-Driving

Before an automobile can drive itself, it needs two things:

1. The intelligence to make decisions about when to turn, when to apply the brakes, and so on
2. The means by which to interact with the various systems in the automobile such as steering, braking, etc.

Summary



BUILD MORE THAN A NETWORK.

Event Driven Automation leads to...

- Scaling automation **beyond** simple scripts
- Automating business process **across** system and organizational bounds
- Faster **time** to resolution
- Lower Book-to-bill **lag**

Thanks!



BUILD MORE THAN A NETWORK.