



You make **possible**



Cross-domain Orchestration with NSO & Ansible using Business Process Automation

Orchestrated by:

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BRKNMS-2733

CISCO *Live!*

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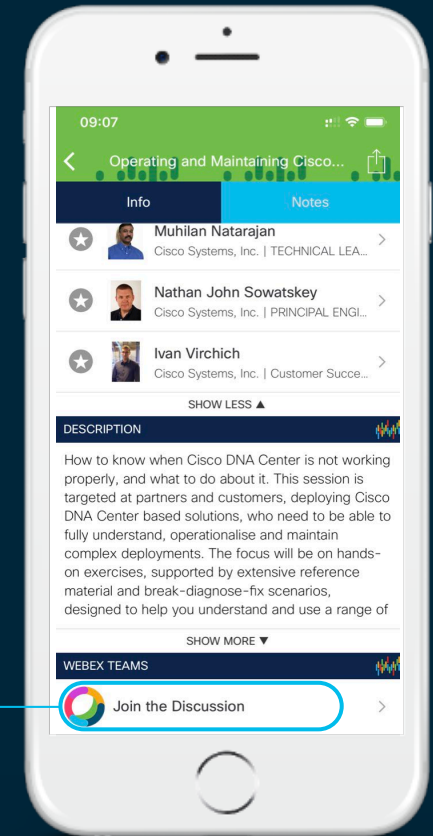
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What we are hearing from customers...



I need...

- *End-to-end Automation & Orchestration solution cutting across multiple domains*
- *Easy adoption with 3rd party controllers & industry leading tools*
- *Intuitive & user-friendly portal to reduce complexity, OPEX and time to market*
- *Seamless integration of new automation tools into existing IT processes*
- *Closed-loop automation with Network Analytics and Assurance*

Speakers

Giri Venugopal



Sai Junjarampalli

Agenda

- 1 Current Automation challenges
- 2 Automation v Orchestration
- 3 Cross-domain Orchestration
- 4 What is Business Process Automation (BPA)
- 5 Cross-domain orchestration using BPA
- 6 Demo using Cisco NSO & Ansible
- 7 Customer Success Story
- 8 Key takeaways

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Customer needs → Solution Requirements

Digital User
Experience

Multi-domain
Orchestration

Easy adoption of
Domain
controllers

Turnkey solution
with out-of-the-
box applications

Workflow
Orchestration

Foundation for
DevOps
framework

API-driven
Integration

Self Service with
Access Control

Desired Outcome: Faster time to market with new services, lower costs, and higher uptime

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Automation vs Orchestration

Automation

- Ability to execute a specific task with minimal to no human intervention.
- Focus on a single task to automate
- Performed using a single technology / platform
- Ex: Automated tasks:
 - Provision VNF
 - Perform OS-Upgrade
 - Apply Day-1 Configs

Orchestration

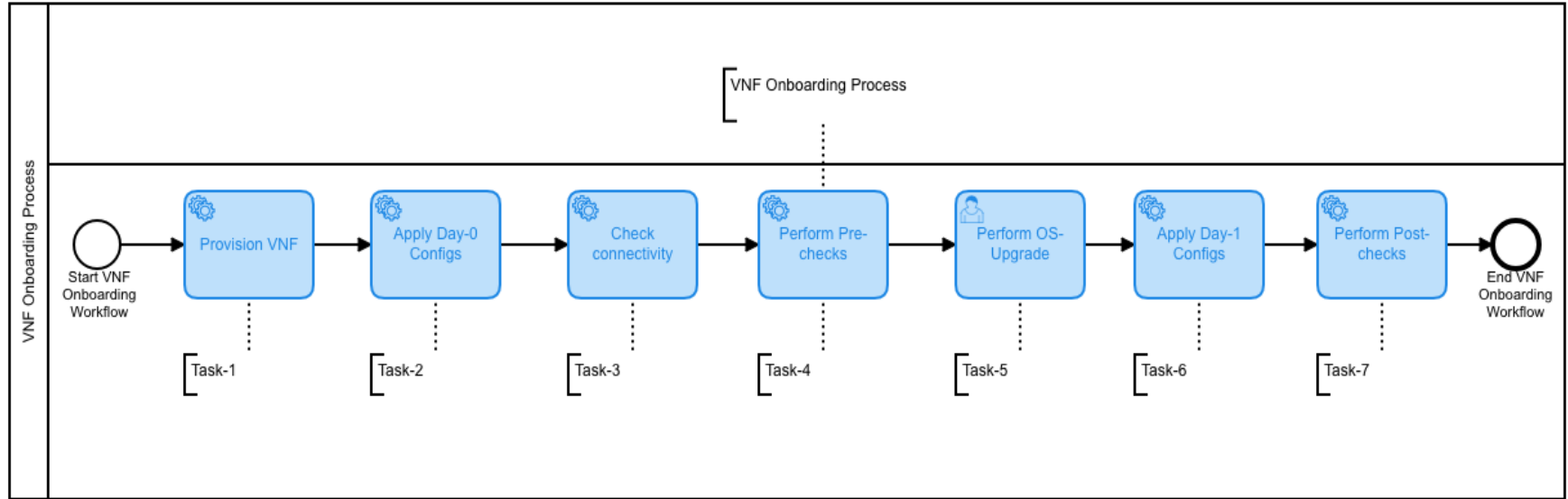
- Ability to execute a sequence of tasks a.k.a process in an automated manner to achieve a specific business outcome.
- Chains a series of automated tasks
- Spans across multiple platforms.
- Ex: VNF Onboarding
 - **VNF Onboarding** = [Provision VNF + Perform OS-Upgrade + Apply Day-1 Configs]

“Automation is about codifying *tasks* and orchestration is about codifying *processes*. Orchestration takes advantage of automation by reusing these basic building blocks..”

-devops.com

Orchestration

Orchestrated Workflow = Sequence of Automated Tasks [Task-1+...+Task-7]



Agenda

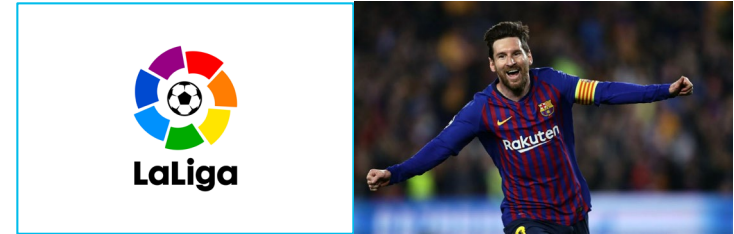
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Wait, let's start with: What is Domain orchestration?

- Automation technique that orchestrates common tasks grouped by “domains”.
- Domain Orchestrators - Toolsets targeted at automating domain specific use-cases
- These toolsets are provided by industry leading vendors to automate / orchestrate problems in a specific domain.
- Domains can be classified based on various criteria :
 - Network Automation (NSO, DNAC)
 - Security (Cisco Umbrella, SecureGW)
 - Collaboration (Webex, CUCM)
 - Mobility (Ultra Services Platform)
 - IoT (Kinetic, Jasper)

Cross-domain Orchestration

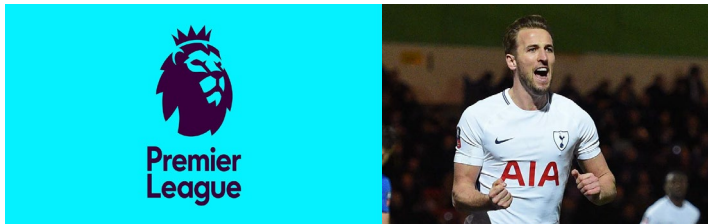
How does EPL say “hello” to La Liga??



Hola!



Hello!



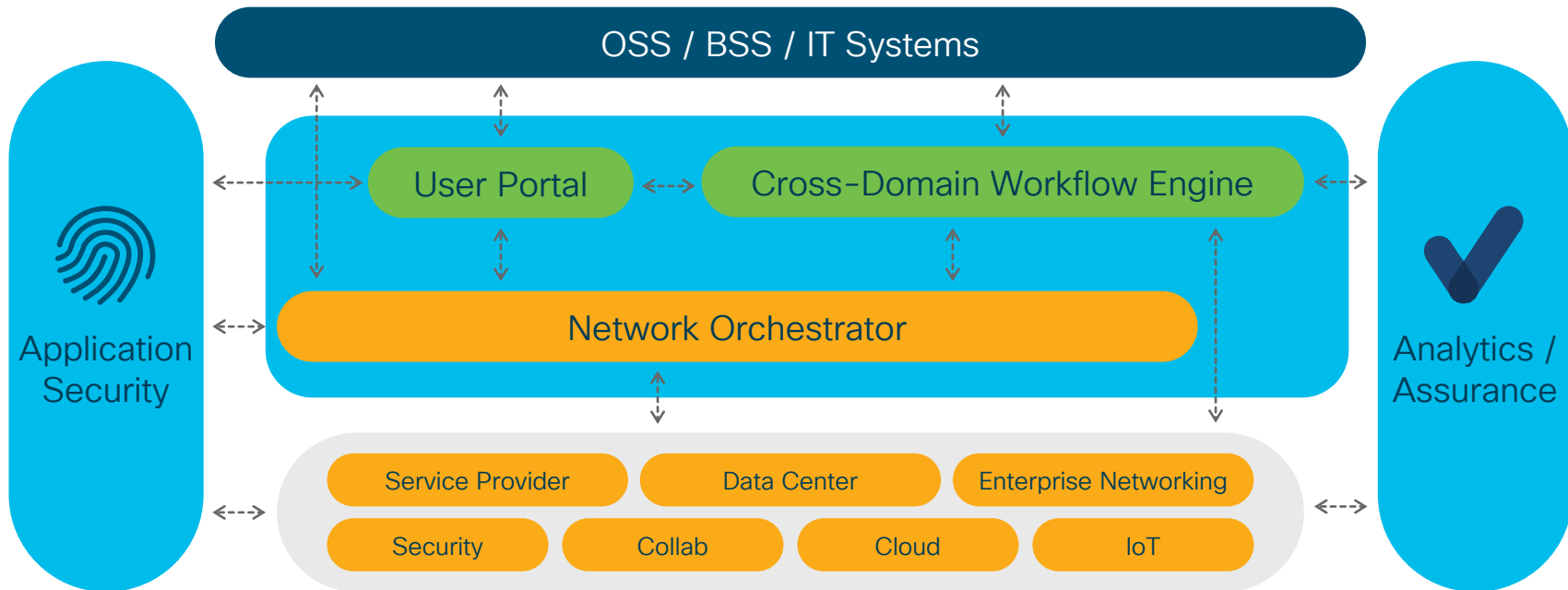
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Cross-domain Orchestration

How do orchestrators talk to each other?



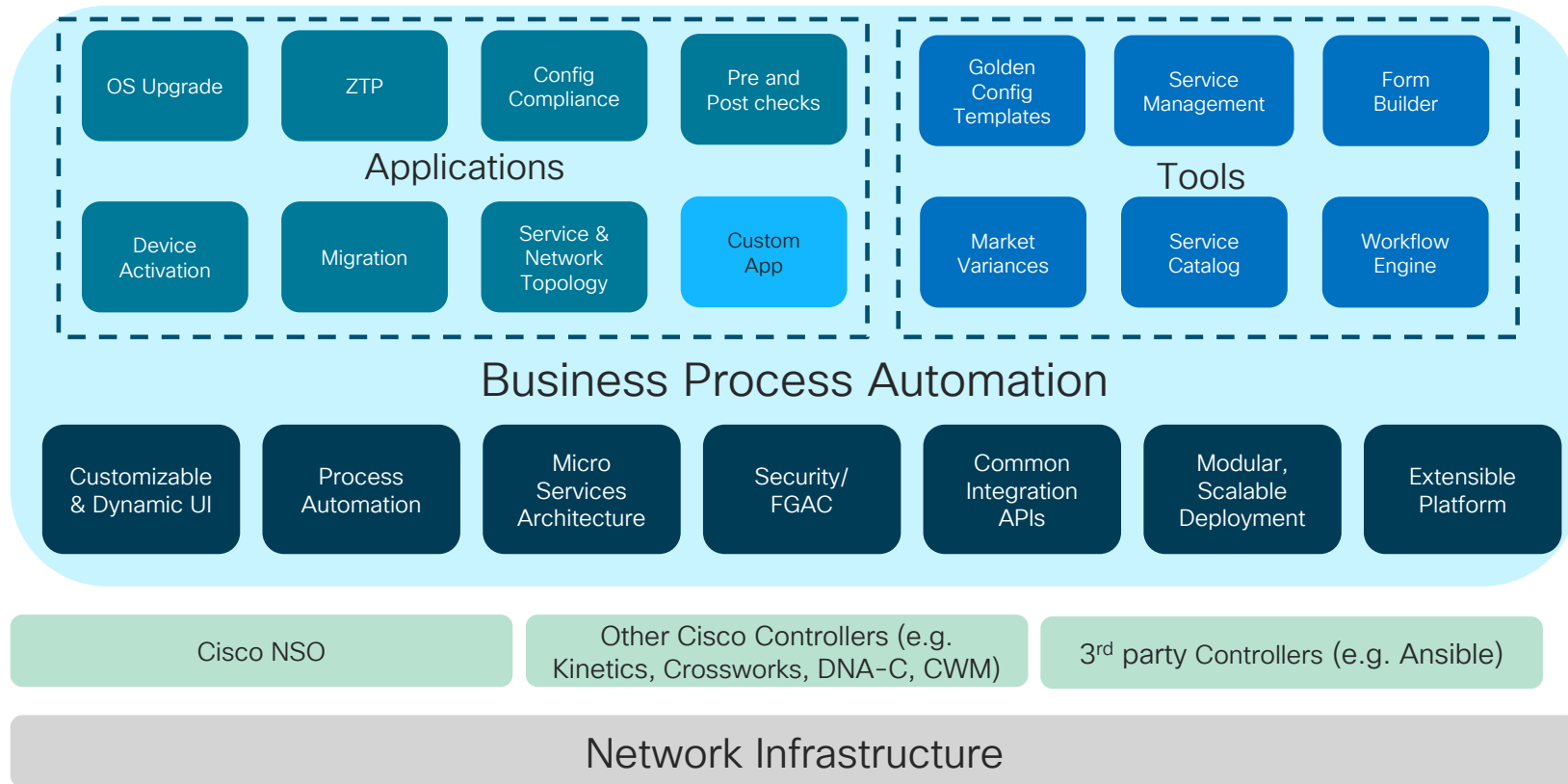
Cross-domain Orchestration - Blueprint



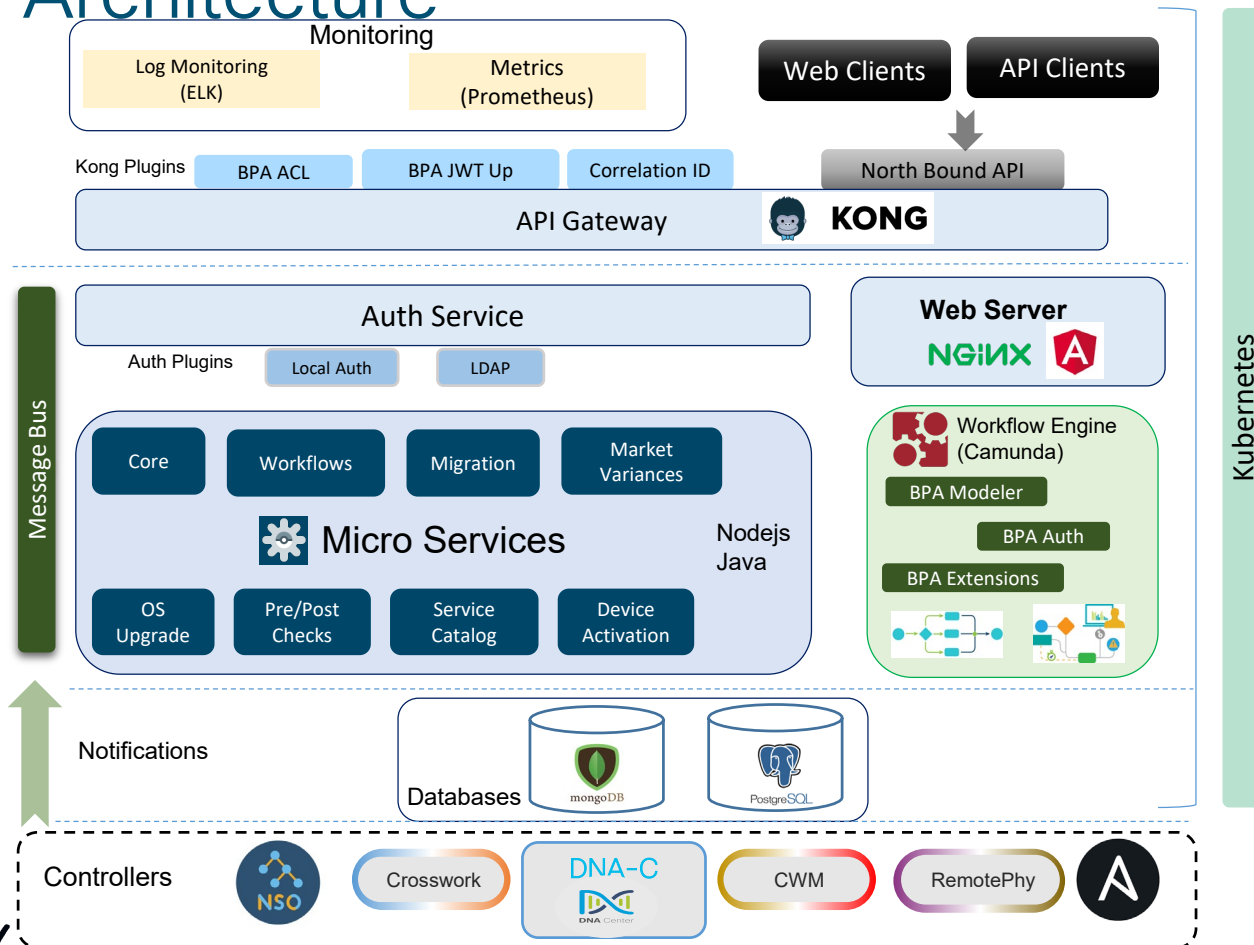
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Business Process Automation (BPA)



BPA - Architecture



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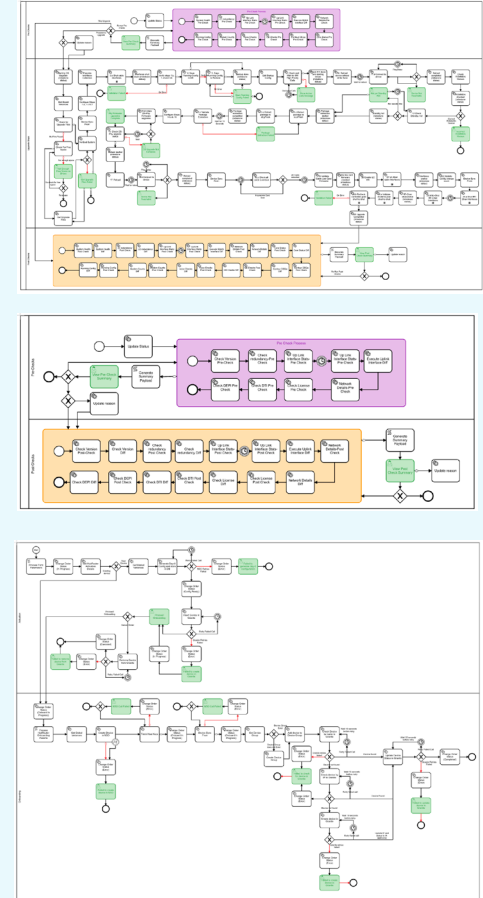
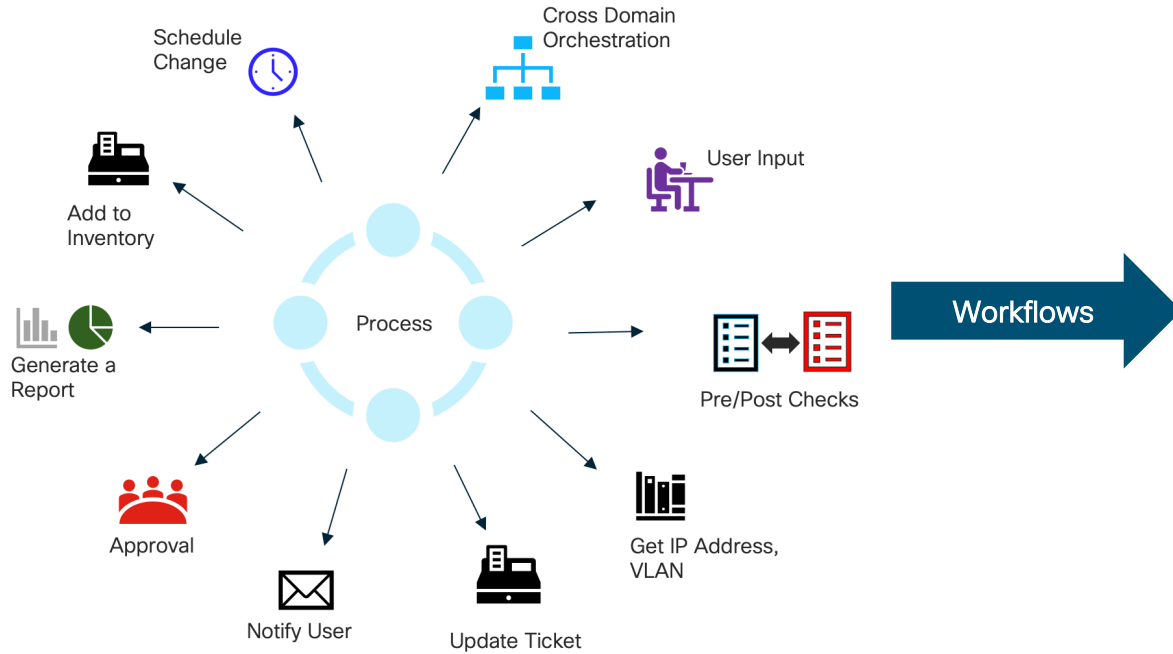
What does BPA offer?

- *Microservices-based Automation platform: Modular, Extensible, Scalable*
- *Simplified and Unified User Experience*
- *Out-of-box: Reusable use-cases / apps*
- *BPMN 2.0 compliant Workflow Engine*
- *Integration via North bound APIs*
- *Dynamic Form builder that auto-renders forms from Yang models*
- *Inter-Operability across Multiple Domains & Controllers*
- *Pre-integrated with Domain controllers*
- *Day 2 support from Cisco TAC*

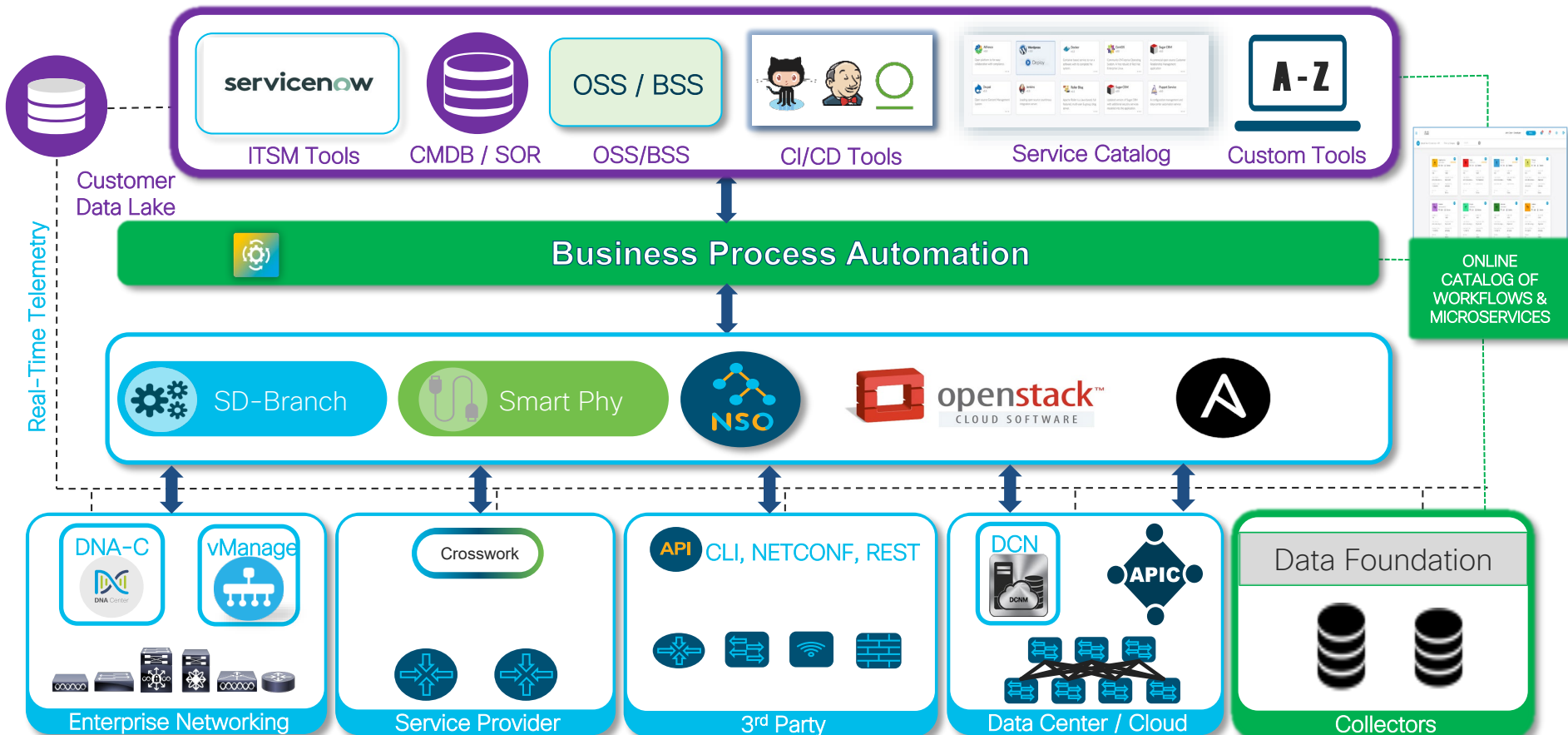
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Process Automation



Automation & Orchestration Architecture



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BPA Demo → Key Features and Apps



Intuitive UI

No custom code



User Form builder

*Form designer app with
no custom code*



MOP Automation

*Maintenance window
tasks automation*

Golden Config template

*Create GCTs to make
your devices compliant*



Service Catalog

*Shopping cart
Abstraction & adoption*



Workflow automation

*Orchestrates ENG &
OPS processes
OSS/BSS integration*

Service Builder

*Low learning curve to
build NSO packages*

Out of Box apps

*Enables Faster GTM &
jumpstarts Automation*

Controllers (*NSO & Ansible*)

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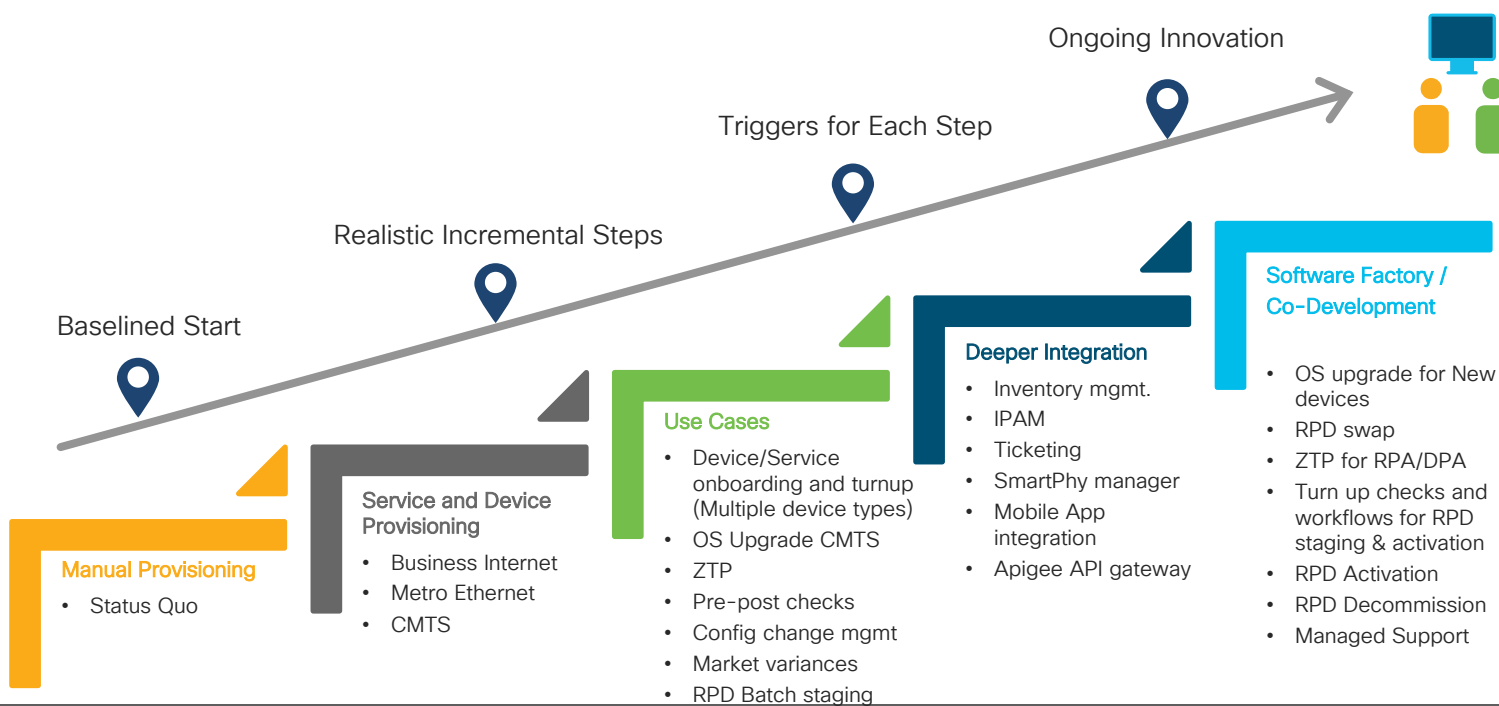
Tier-1 Cable Provider Automation

Mission statement:

*“Automation as a
fundamental right to all”*

- Automate day-day activities of Network Engg, Planning & Operations team.
- Automate Device activation & life-cycle management of the following:
 - Multi-vendor Network devices
 - Core Business services (data, voice, video)

Case Study: Tier-1 SP, Automation Journey



Start with the end in mind

Delivered use-cases

1. OS Upgrade



2. RPD Onboarding



Outcomes (1/2)



Single engagement model



Cross-functional coupling

Single team of IT, Net Engg, Field Engg & Ops



Multi-everything support

Device, system, service, protocols



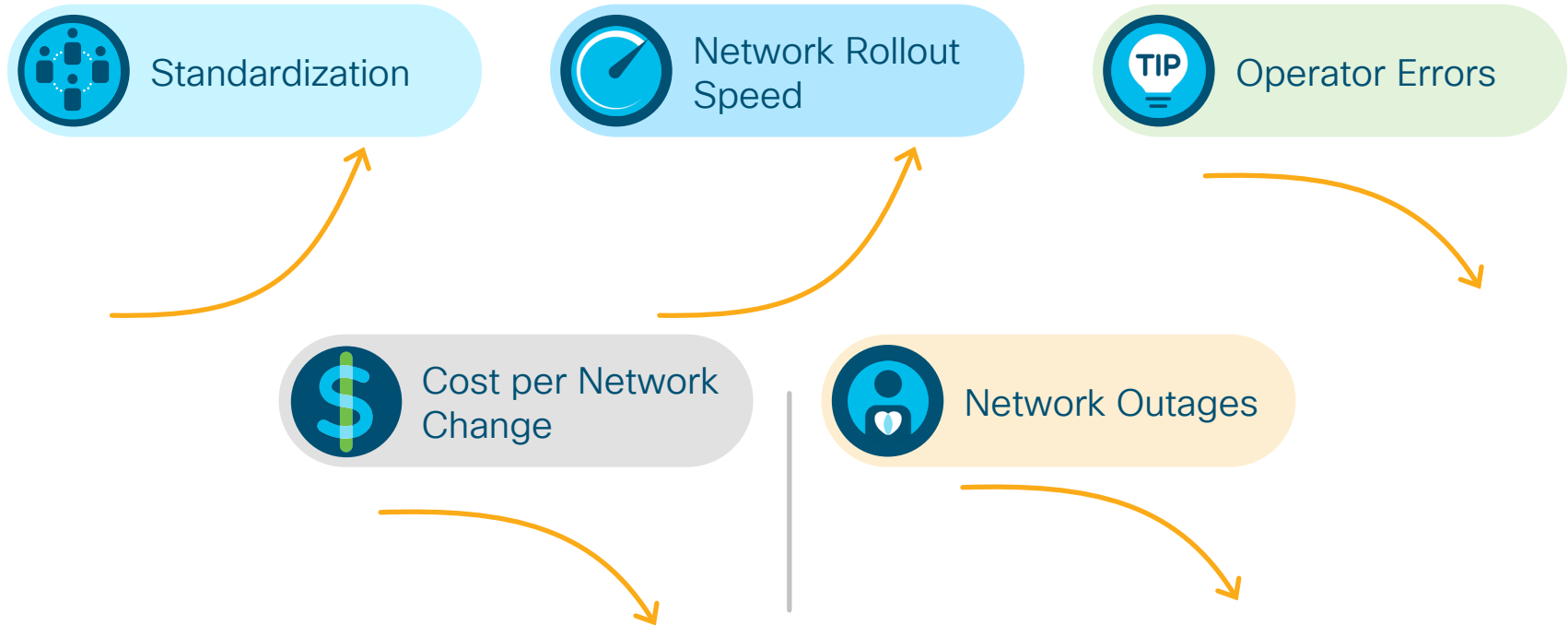
Co-development

Cisco + Customer development



Reusable frameworks

Outcomes (2/2)



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Key Takeaways:



Prepare

- Break inter-domain barriers/silos
- Baseline automation tasks within individual domains
- Document cross-domain Orchestration use-cases
- Identify APIs for integration



Build

- Obtain functional requirements (ENG, OPS, Security, + domains)
- Create user stories for individual domains
- Create user stories for Cross-domain orchestration
- Build cross-domain integration framework using above principles



Adopt & Optimize

- Flexibility for addition of new domain controllers,
- Day2 solution support and maintenance
- Performance Optimization
- Global training & expansion to new business

Cisco BPA provides the perfect platform for cross-domain orchestration!

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