CX Customer Success: Automation is Fueling du-Telecom Digital Transformation

Basel El Abed: du Transport Planning Director

Amr Tawfik: Software Solutions Architect, Cisco Systems, Inc.

Ayman Abdoon: Agile Transformation Lead, Cisco Systems, Inc.

CSSSPG-1065

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until February 24, 2023.

Agenda

Who is du? and what is the mission?

du Automation Journey

Extending automation footprint across du network domains (Transport, Mobility, GPON, IGW, DC ... etc.)

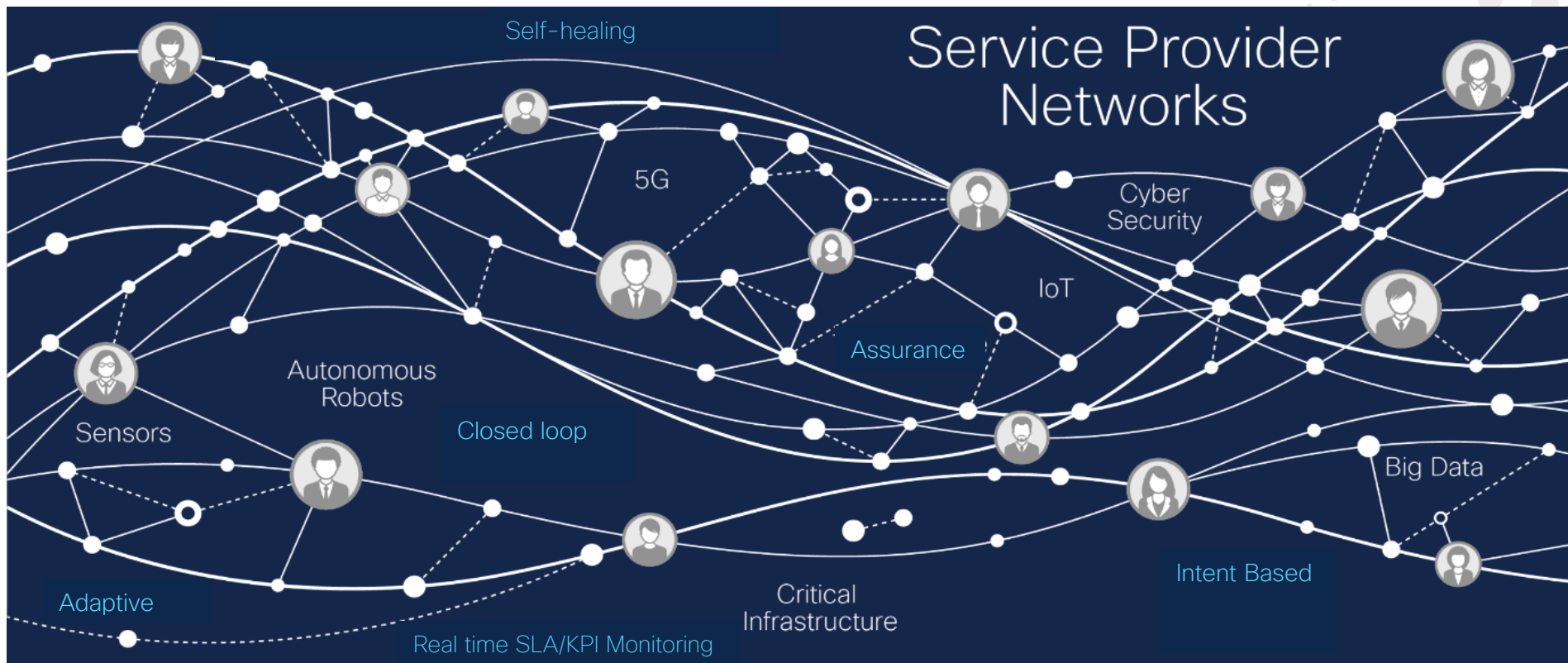How Cisco CX Value delivery model was adopted to fulfill du strategic objectives

Embracing DevOps culture and mindset to deliver value faster and incrementally

Automation impact, and business value realization

Q&A

du Vision

"To have a Customer Centric *Autonomous Network*"

Foundation

" *Having the building blocks* *"*

- Real time Topology
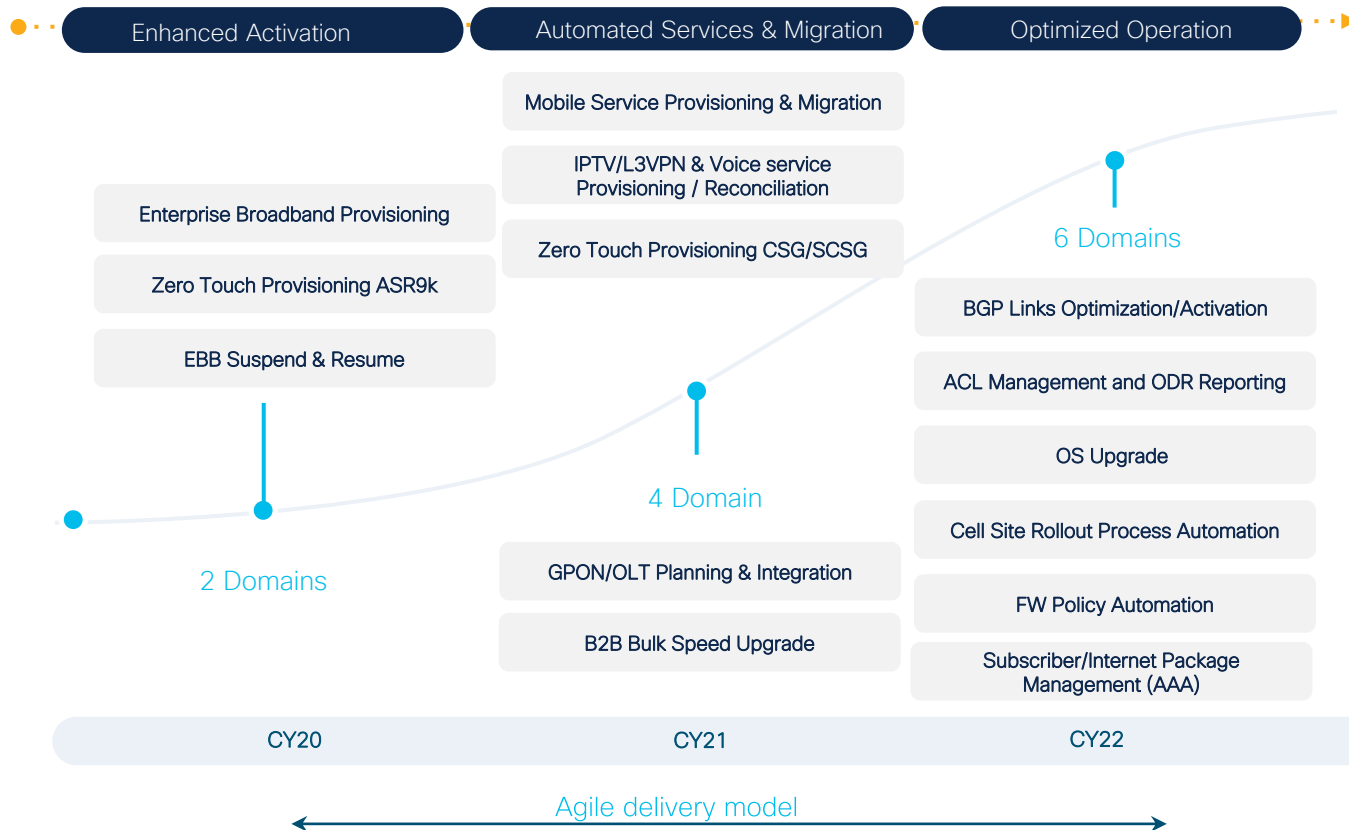- Cleansed data (Internal/external)
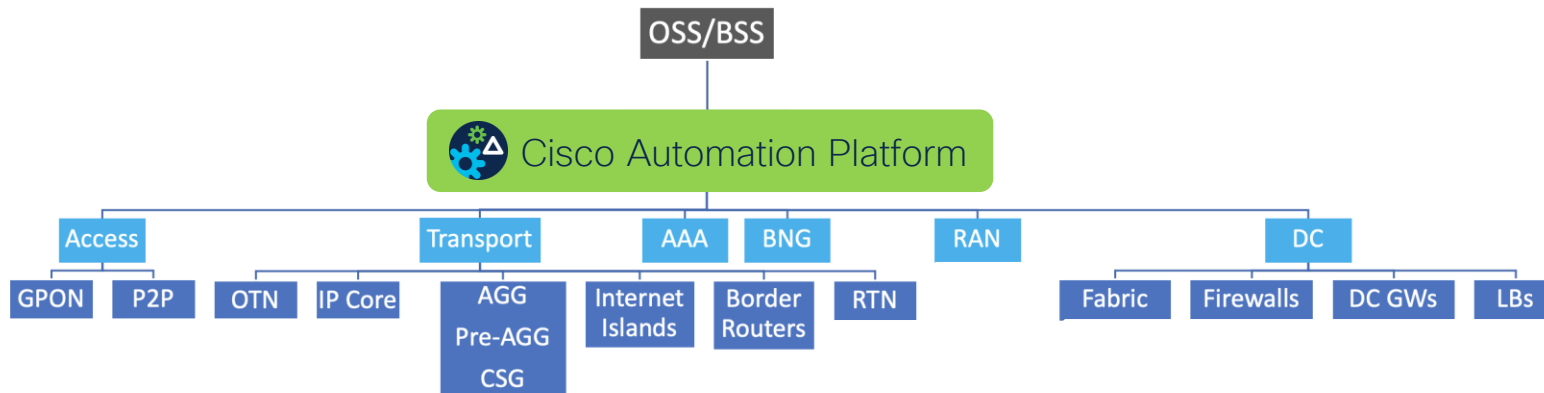- Standardized network deployment

Automation Journey

Automation Journey

| Enhanced Activation | Automated Services & Migration | Optimized Operation |

Mobile Service Provisioning & Migration

IPTV/L3VPN & Voice service Provisioning / Reconciliation

Enterprise Broadband Provisioning

Zero Touch Provisioning CSG/SCSG

6 Domains

Zero Touch Provisioning ASR9k

BGP Links Optimization/Activation

EBB Suspend & Resume

ACL Management and ODR Reporting

4 Domain

OS Upgrade

2 Domains

Cell Site Rollout Process Automation

GPON/OLT Planning & Integration

FW Policy Automation

B2B Bulk Speed Upgrade

Subscriber/Internet Package Management (AAA)

| CY20 | CY21 | CY22 |

Agile delivery model

Automation Domains
With NSO as the Master Orchestrator

OSS/BSS

Cisco Automation Platform

Access

GPON | P2P

Transport

OTN | IP Core

AGG
Pre-AGG
CSG

AAA

Internet Islands

BNG

Border Routers

RTN

RAN

DC

Fabric | Firewalls | DC GWs | LBs

Automation High-level Architecture

All du Networking and Operation Teams

E2E – NetCracker

Multi-Domain Orchestration

External Data Sources
- AD
- TACACS
- Arbor
- Elite AAA
- Netbox
- SMTP

Cisco SPIS
- Portal, RBAC & Dashboards
- AI/ML/Analytics Apps

Cisco BPA
- API Gateway — kafka
- Workflow Engine

Cisco NSO-IIB — CDB / NED

Cisco NSO- DC — CDB / NED

Multi-Domain Network

Programmable | Distributed | Dynamic

3G 4G 5G Access/CSG — Pre-Agg/SCSG — Aggregation — Core — Centralized DC

GPON

Integrated IP Backbone — SR / EVPN

Fixed Access

Edge DC — Regional DC — Internet
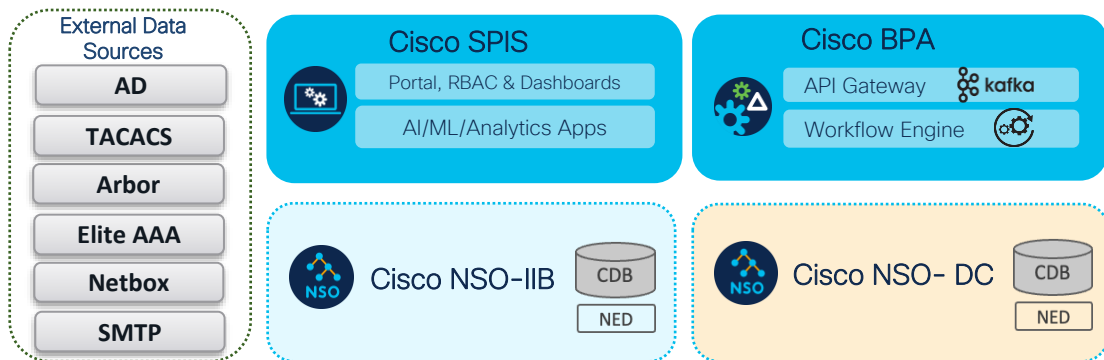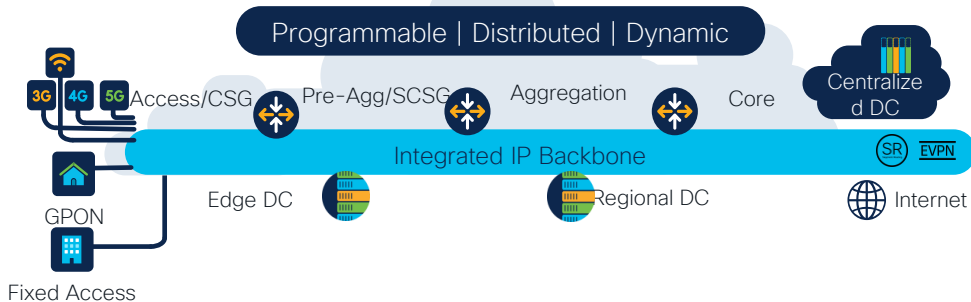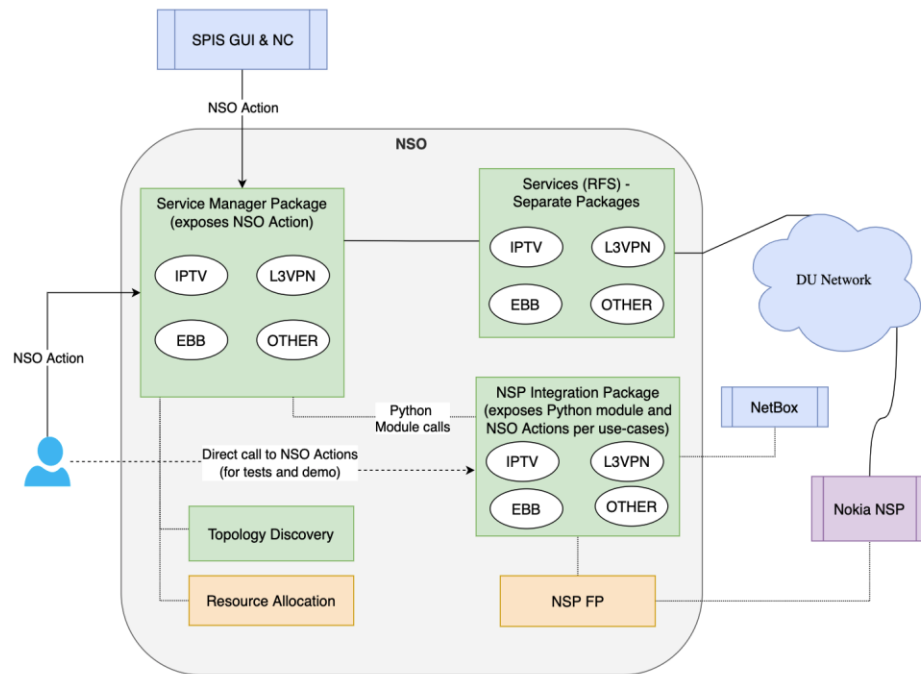
Accelerated Service Fulfilment

Eliminate Human Mistakes

Faster Time To Market

NSO modularity and code reusability

NSO Modules, Components and Integrations

- Abstraction of Functions

- Dynamic modules serving multiple services

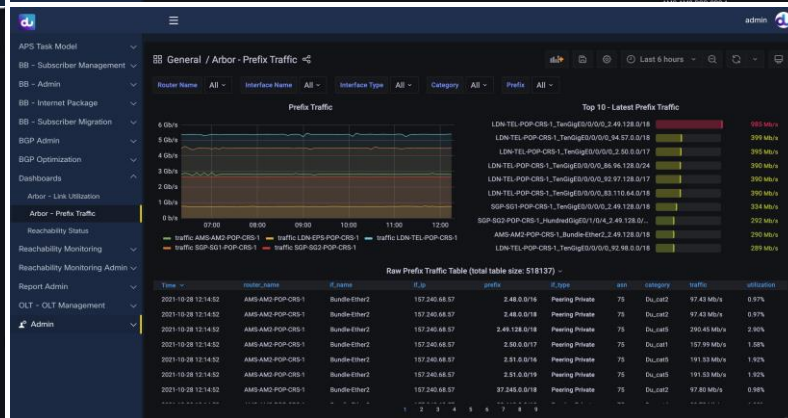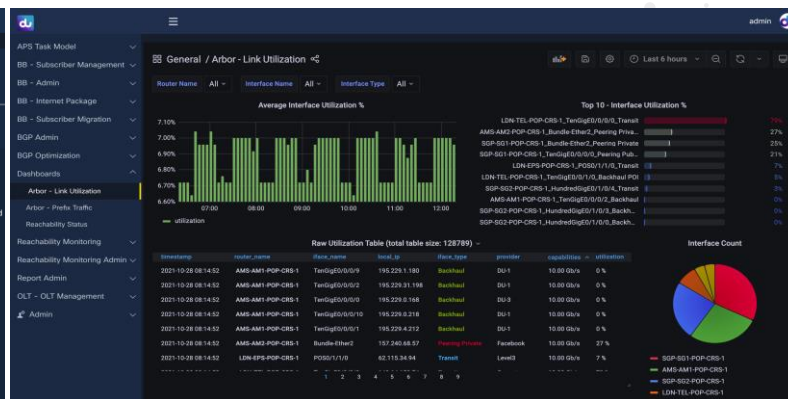- Splitting Business logic from resources facing logic

- Smaller modules used on demands fasten services development and increase velocity

- Follow Agile Methodology to generate potential working increment every sprint

UOP – dashboards samples

Cisco CX Value Delivery Model

Automation Portfolio

Vision

Value

Why?

Strategic Themes
- Improve time to market through automated service provisioning
- Automate Mobile Site Migration
- Automate Enterprise Broadband Services

What?

Objectives and Key Results (OKRs)	Current State	Target
Time 2 Market/New BB Service Provisioning	5 Days	3 Hours
Improve Bulk Speed Upgrade Time (25K)	3 Month	9 Hours
Reduce EBB Suspend/Resume Time	15 Min	2 Min

- ☑ Identification of strategic themes and priorities
- ☑ Identification of OKRs
- ☑ Benefits realization and adoption tracking

Executive

How?

Architecture

UI — Unified Portal/User Interface (Cisco SPIS)

Use Cases — Use case #1 | Use case #2 | Use case #3 | Use case #4 | Use case #n

Automation Platform
- BPA
- Analytics Automation Platform
- SPIS
- NSO
- 3rd Party Components

du Network

- ☑ Architecture roadmap evolution

AMO

Who?

Value Streams and supporting ARTs

Transport Network Automation | DC Automation

- Scrum1
- Scrum8
- Scrum1
- Scrum2

Day2 Support Team

- ☑ Value stream and ATRs Identification
- ☑ ARTs planning and launch
- ☑ Design, develop, test and deploy

DevOps

Agile at scale – *in numbers*

80+ Team members

10 Scrum teams

100+
Sprints delivered

40,000 +
Hours of code development

50+
Use cases and services

2000+
Automated use cases

CICD / DevOps

DEFINE

du – CISCO
Automation Governance

Strategic Vision

Business Objectives

Operations Objectives

PLAN

du – CISCO
AMO

Operations Improvement

Product Backlog
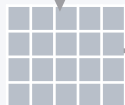
Executable Backlog

Sprint Backlog

Continuous Requirements Gathering

Continuous Architecture & Design

Define

Validate   Design

Continuous Release Planning

DevOps

Operations Issues

OPS

Previous sprint

Sprint Planning

SM

Scrum Team

SM

Scrum Team

Test

Test

Release

Deploy

Operate

Monitor

Ops Team
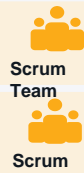
SRE Function

Continuous Delivery Pipeline
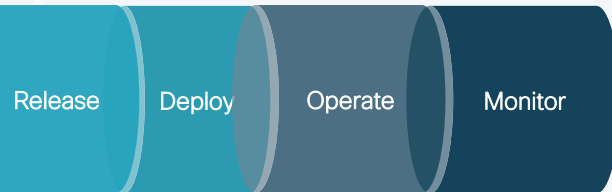
Continuous Release, Deployment & Monitoring

Collaboration, Shared Goals, Common Tools

CICD platform functionality

Download(dependencies /required sw, images..etc)

Update

Feature Requests

Du Product Owner

Scrum Masters

SW Lifecycle Management

Jira · RALLY

Central Source Code Repo.

Fetch

notify

CI System

Automated Build & Test

CXTA

Artifacts

Binaries Repository

Code Quality Check

Code Quality Analysis & Reporting

sonarqube

Pull & Push

Clone

Manage Tasks

Dev Team

Collaborate.

Dev Team

Feedback

Looking ahead

Automation 2.0 – Architecture evolution

Assurance AIOps

Data Analytics

Multi-Domain Visibility & Orchestration

Service Provisioning and Assurance

Collection & Probing

Kafka

Notifications
Metrics

Cisco SPIS

Cisco BPA

Topology
Structured Operational Data
Topology

Sensor Metrics
Notifications

Health Insights
Device Fault performance
CDG

Cisco NSO
Device and Services Inventory

Probing Controller

Syslog/traps
Passive Metrics
MDT
Syslog/traps
MDT
Embed Probing
Sensor Configuration
Sensor Results

Access
Pre-Aggregation
Aggregation
Core
Centralized DC

3G 4G 5G

DSL/PON

Ethernet

Fronthaul
Midhaul / Backhaul
Midhaul / Backhaul
SR EVPN
Embed Probing, SR-PM

Edge DC
Regional DC
Internet

Probing Sensor

Probing Sensor

LEGEND

- Configuration
- Structured Data
- Device and Embedded Probe data
  Future target
- Topology
- Active Metric
- Context (i.e. Service Name)

Journey continues …!

Going Beyond "Network Automation"

Service Orchestrated Assurance	Telco-Cloud	Network Analytics and AI
ACI Automation & ODR	Automated Capacity Managment	Intent Based Network
Webex Chatbot Network Self Services	Services Visualization	Business process automation
Network Assurance with MV probes	Enhanced Network Security	
Executive / Field Mobile App	Self-Healing Network	
Automated Links Capacity Management		
APN Management and Reporting		

X Domains

X Domain

8 Domains

CY23	CY24	CY25

Agile delivery model

"Show me the money !"

Business value realization

Use Case	Before Automation Baseline		After Automation Improvement
ACL Rules Provisioning	5 min	→	2 sec
Mobile Service Provisioning	15 min	→	5 min
Mobile Service Migration	20 min	→	10 min
Zero Touch Provisioning	90 min	→	20 min
BGP Optimization and Activation	4 Hours	→	5 min
ODR Reporting	3 Weeks	→	30 Min
Bulk Speed Upgrade	3 Months	→	9 Hours

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