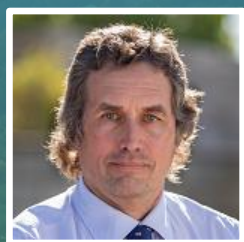


LIVE: September 12, 2023
8AM PDT | 11AM EDT | 5PM CET

How to Build Scalable & Sustainable Enterprise Networks



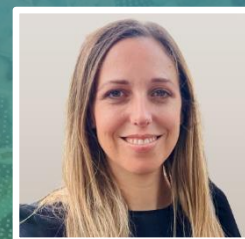
Horst H. Katter

Network and
Communication Sales
EMEA CTO Office



Iris Finkelstein-Sagi

Chief Marketing
Officer



Charo Sanchez

Global Alliances
Manager



Brian Menezes

Network Architect



Webinar

How to Build Scalable & Sustainable Enterprise Networks

Horst H. Katter, September 12, 2023



2022 America's Most Sustainable Company¹ 2023 America's Most Sustainable Company²

BARRON'S **BARRON'S**

¹<https://www.barrons.com/articles/most-sustainable-companies-51644564600>

²https://www.marketwatch.com/articles/most-sustainable-esg-us-companies-1b5f70fd?mod=mw_latestnews&tesla=y

Intel's Mission

Sustainable computing for a sustainable future

Reduce Intel's footprint through manufacturing and supply chain partnership

The Intel logo is centered in the middle of the slide. It consists of the word "intel" in a white, lowercase, sans-serif font. The logo is overlaid on a circular graphic made of two concentric green arrows that form a clockwise loop. The background of the slide is a collage of images: a factory floor on the left, a server room on the right, and a green landscape with a grid pattern at the bottom.

Design sustainability into products, platforms, software and services

Collaborate across ecosystems to create standards and scalable solutions

Network: An Increasing Source of Energy Consumption

- Currently Data Transmission Networks account for 1-1.5% of global energy consumption *
- Total global mobile data traffic will quadruple to reach 282 exabytes a month by 2027**
- Growing demand for power efficiency & reduced cooling while meeting workload SLAs
- Reducing global network energy consumption is required to meet Industry Net-Zero Carbon Emissions

Opportunity to drive optimizations/innovation network to meet sustainability challenges & TCO

[*Source: IEA 2022](#)

**Source: "Ericsson Mobility Report, 2022"

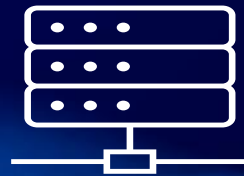
Distributing Intelligence across Your Network for to End to End Energy Efficiency



Access



Edge



Core



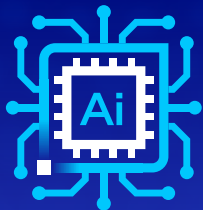
Data Center



Power Optimized performance, Integrated Accelerators (e.g. vRAN Boost), efficient coding & other tools (IPM, OpenVino...)

Built-in telemetry and power mgmt tools

Dynamically reduce frequency and power down cores across Network Workloads



Intelligent solutions that lower energy consumption from DC to Edge

Collaboration across the ecosystem to create standards and build scalable, sustainable solutions

ADVANTECH

Address tomorrow's 5/6 G 10x (plus) traffic challenge by AI, ML, Compute-at-the-Edge

Polling Question 1

What is the key factor that drives your company's networking strategy?

- 1. The growing demand for higher bandwidth**
- 2. Greater agility and scalability**
- 3. Supporting new edge computing use cases**
- 4. Network sustainability and lowering CO2 emissions**
- 5. Total cost of ownership (TCO)**



Enabling Digital Transformation @ the Edge

Iris Finkelstein-Sagi
CMO
Telco Systems
September 2023

Who Are We?

we know networks

we understand the edge

Almost 50 years expertise in
Networks & Telecommunications

Leader in innovative
Carrier Ethernet, Metro
Edge & Edge
Computing solutions

Multi-billion dollar
install base @>300
Service Providers in
over 50 countries

Over 150 years cumulative experience
in Telco & Enterprise Cloud & Edge Computing



NOKIA



VERINT



blueplanet

allot



HUAWEI

Camilyo

Edge Computing Challenges and Complexities



Security & Connectivity



Legacy HW



Use Cases



uCPE



Workloads Placement



SCALE

Deploying, operating and managing software solutions at the edge is challenging due to the complexity of network architecture, scale and diversity



DEVICES @SCALE

1000's (or more) of geo-distributed physical devices, Each running their own VNF/VM/CNF



DIVERSITY @SCALE

Multiple independent management systems, and a variety of applications, vendors, devices & networks



TCO @SCALE

Cost of devices; Cost of provisioning; Cost of maintenance; Cost of carbon emissions; Cost of diversity; Cost of SLAs



OPERATIONAL EFFICIENCY @SCALE

1% ZTP failure rate of deploying 100,000 devices = Manually deploy 1000 devices

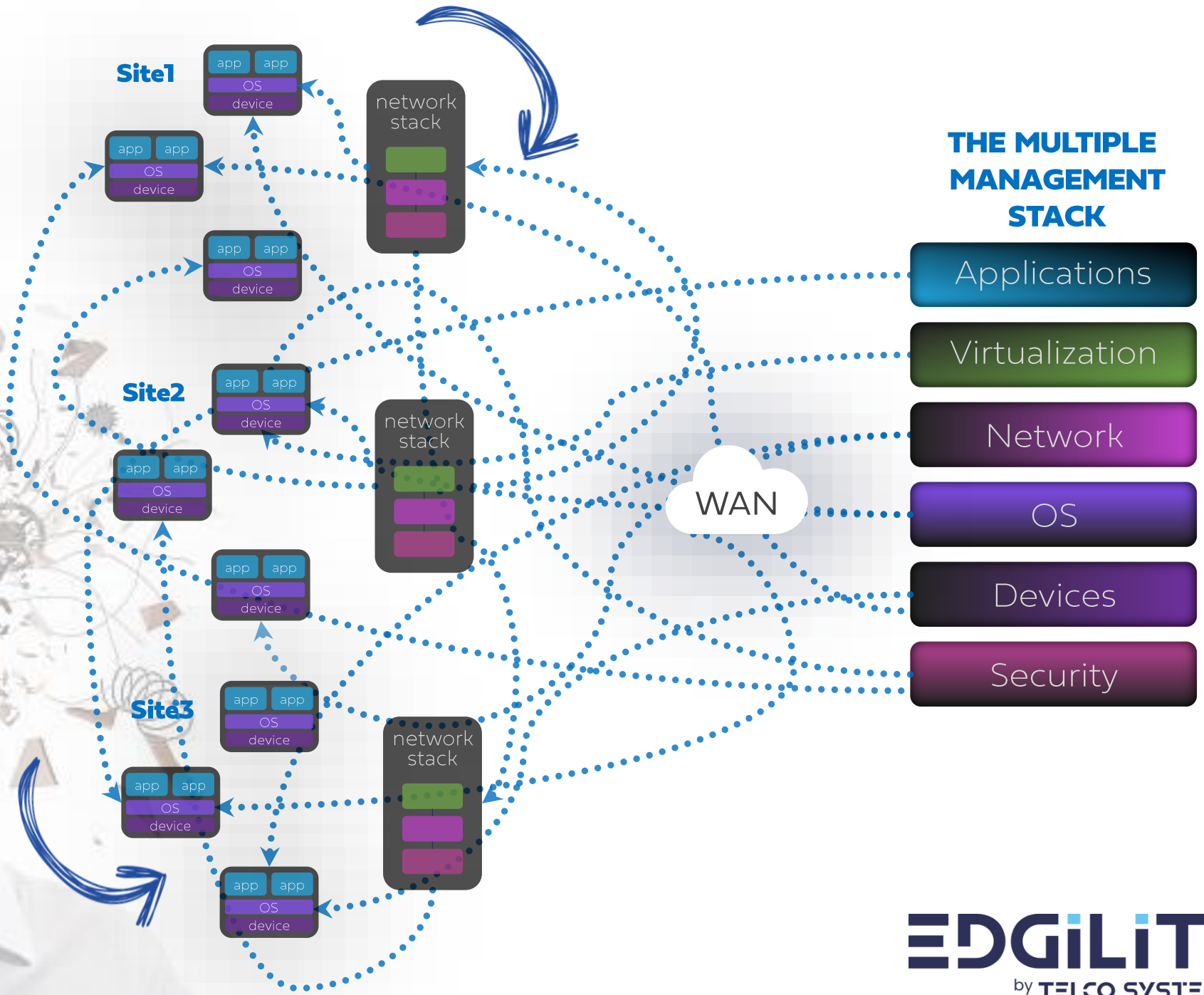
HOW DO YOU HANDLE CONFIGURATIONS, DEPLOYMENT, PROVISIONING AND UPDATES?

HOW DO YOU GET A CLEAR PICTURE AND SEAMLESS OPERATIONS?

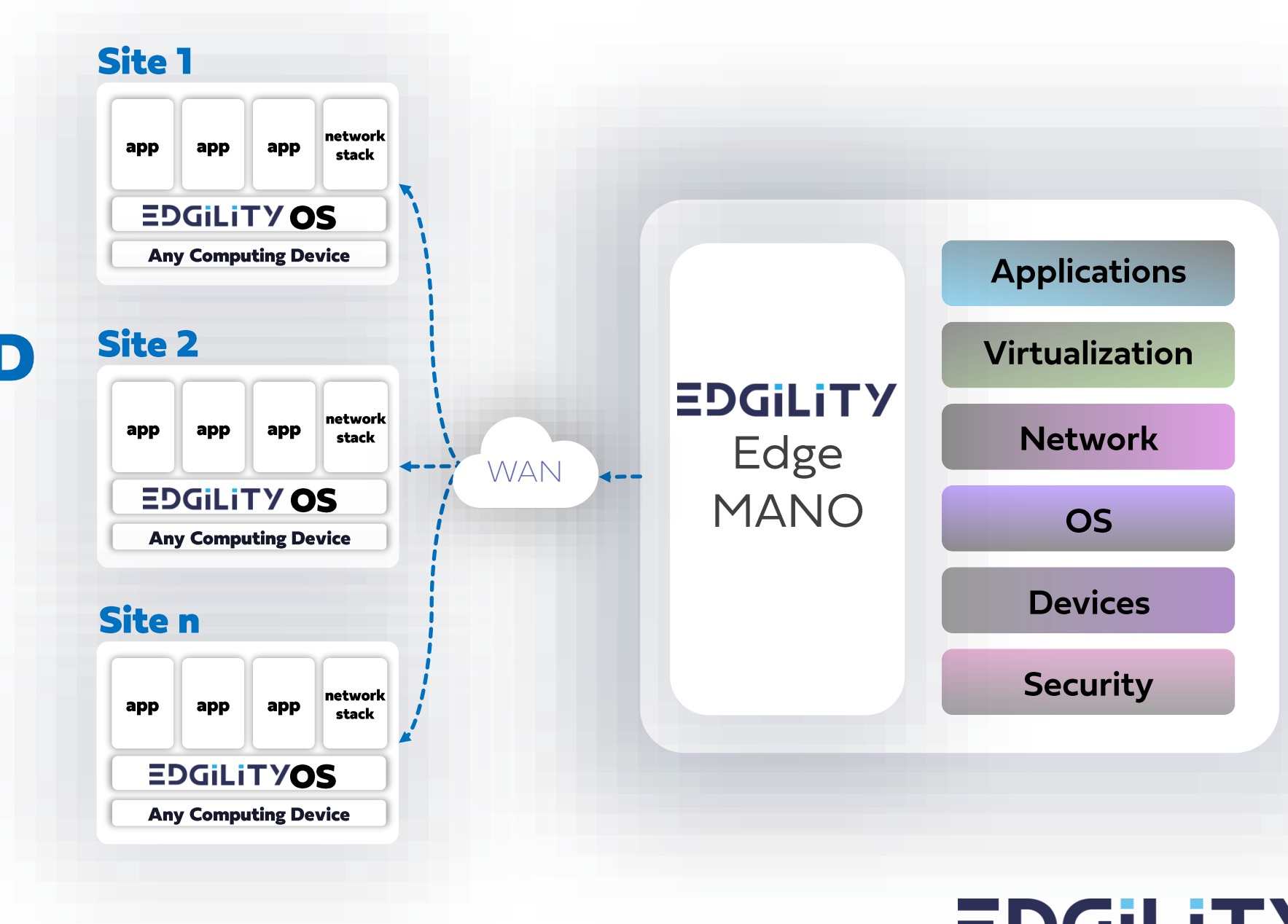
HOW DO YOU OPTIMIZE YOUR TCO? ARE YOU GETTING – AND PAYING – FOR MORE THAN WHAT YOU NEED?

HOW DO YOU PERFORM ON-SITE MAINTENANCE AND TROUBLESHOOTING?

The Management MESS

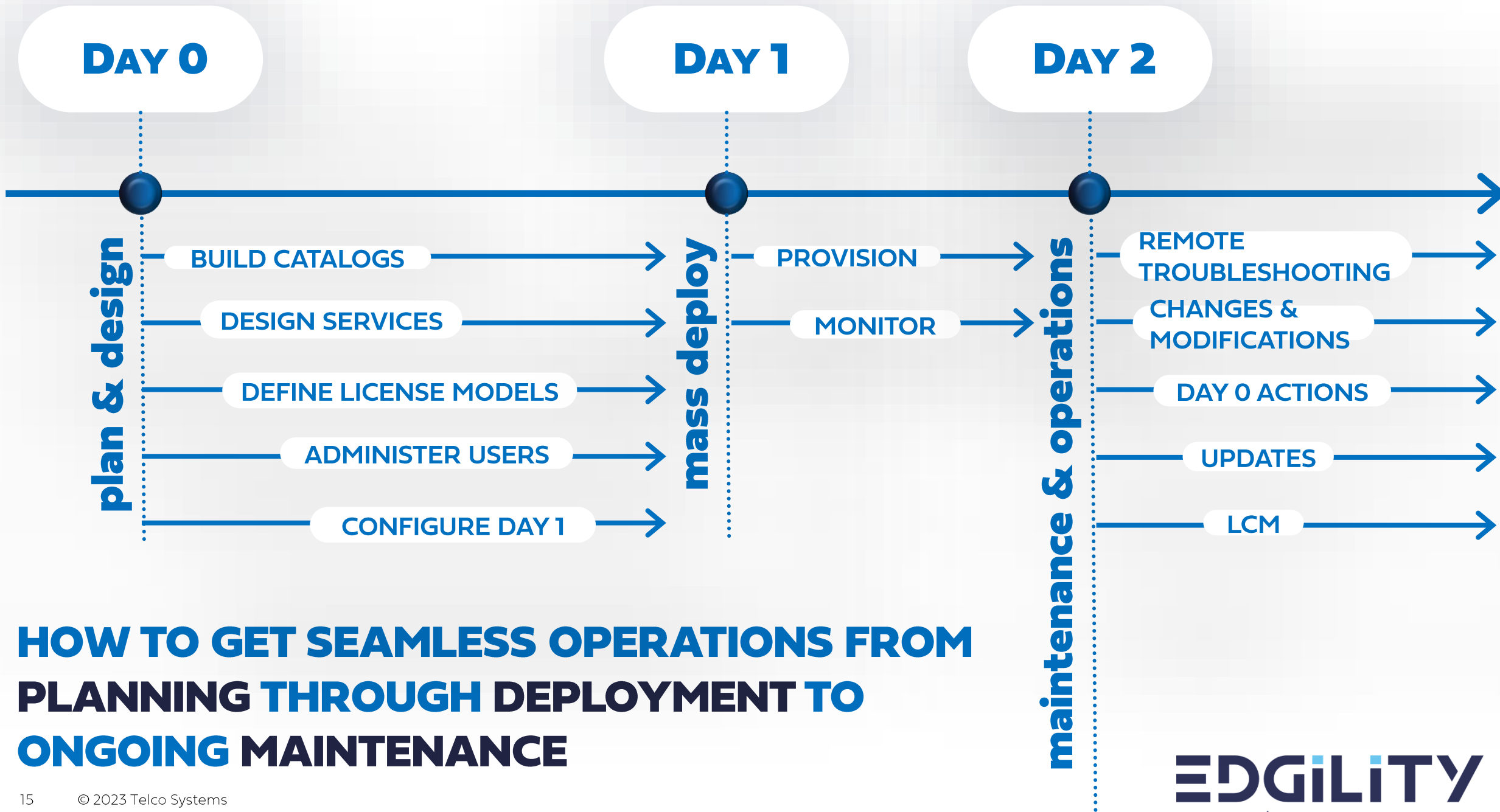


A
**UNIFIED
STREAMLINED
SIMPLIFIED**
Platform
for Edge
Computing



An **open, distributed**, smart platform for edge computing that **accelerates & automates** the deployment, operation and life cycle of IT services at **scale**





HOW TO GET SEAMLESS OPERATIONS FROM PLANNING THROUGH DEPLOYMENT TO ONGOING MAINTENANCE

VIRTUALIZED CUSTOMER EDGE

USE CASE



Drivers & Challenges

Replacing costly, legacy Cisco hardware

Achieving 'net zero carbon emissions by 2030'

Providing a scalable and future proof solution for their business customers

Expediting deployment of new services

Managing hundreds of thousands of physical devices

Solution & Value

Small footprint, low-cost, low-power white-boxes

Carbon emissions reduction of at least 45%*

TCO reduction of 60%*

Capable of deploying, managing and operating multiple virtualized services, at scale, across multiple sites

Efficiently managing 1000's of devices and services from one central location

Easy onboarding and deployment of new services

10 Gbps with no extra costs

How to Build Scalable and Sustainable Enterprise Networks

Charo Sanchez
Global Alliances Manager
Industrial Cloud & Video Group
charo.sanchez@advantech.com



ADVANTECH

Enabling an Intelligent Planet

Est. **1983**

Headquarters: **Taipei, Taiwan**

INDUSTRIES SERVED

Industry 4.0, Industrial IoT,
Embedded Computing,
Medical, Retail, Logistics



\$11B MARKET CAP
(July, 2023)



HONORS & AWARDS

- No.5 in Best Taiwan Global Brands
- No.17 in Top 50 Global Automation Vendors
- No.9 in Top 100 Industrial IoT Companies
- Red Dot Product Design Award
- iF Product Design Award

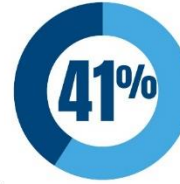
Interbrand

CONTROL



WORLD'S LARGEST IPC COMPANY

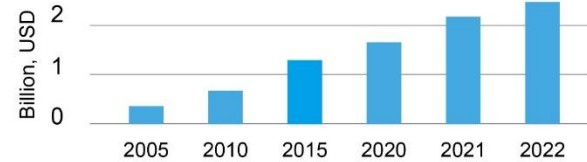
Advantech IPC WW Market Share



- Advantech
- Other IPC Companies

Source: OMDIA – Market Share estimates for Industrial PCs: World, 2022 Edition

\$2.31B 2022 REVENUE



KEY ECO-SYSTEM PARTNERS



QUALITY SYSTEMS IN PLACE

- ISO9001
- ISO14001
- ISO13485
- ISO17025
- ISO27001
- ISO45001
- TL9000
- RoHS
- WEEE
- SONY GP
- REACH

1.8 MILLION+ sq. ft.

MANUFACTURING PLANTS

Linkou, Taiwan



- 9 SMT lines, 16 system lines
- Engineering sample services
- Complex product lines
- Flexible & quick production

Kunshan, China



- 12 SMT lines, 13 system lines, 6 chassis lines
- Chassis design & production
- Mature product lines
- Cost-effective production



Nogata, Japan

- 4 SMT lines, 1 system line
- Japan design center, CTOS service, logistics center, repair center

WORLDWIDE OFFICES



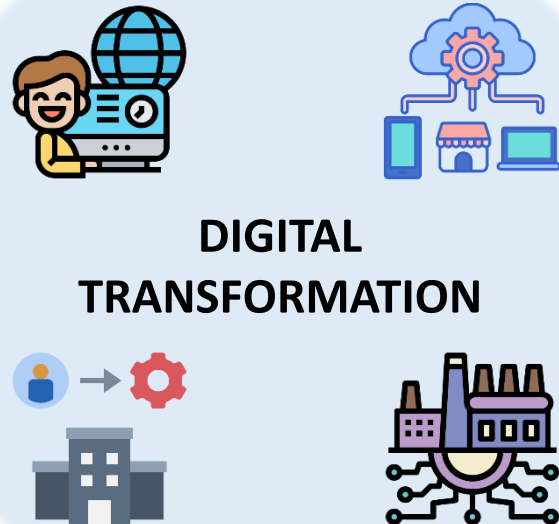
- Manufacturing 3
- On-site service 4
- Design centers 11
- CTOS centers 16
- Repair centers 17
- Logistics centers 20

More than 90 offices globally!

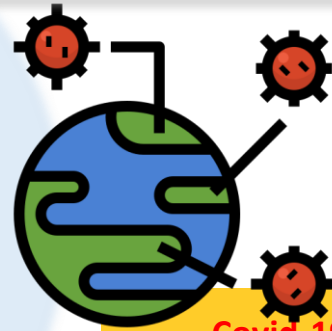
8900+ EMPLOYEES



The Network Transformation



**DIGITAL
TRANSFORMATION**



**Covid-19 pandemic
accelerated the digital
transformation**

NFV & SDN AT THE CORE OF TRANSFORMATION

SD-WAN facilitates contextual awareness about WAN and connection quality, **allowing software to efficiently reroute traffic** when connections go down between on-premise equipment and the cloud. SASE delivers converged network and security as a service capabilities including SD-WAN and cloud native security functions such as **ZTNA & FWaaS**.

NEW APPLICATIONS AND USE CASES

5G and more distributed edge cloud networks will open up the possibilities for the **internet of things (IoT) and AI**, as well as business cases that intelligently combine the two in artificial-intelligence-of-things (AIoT) devices.

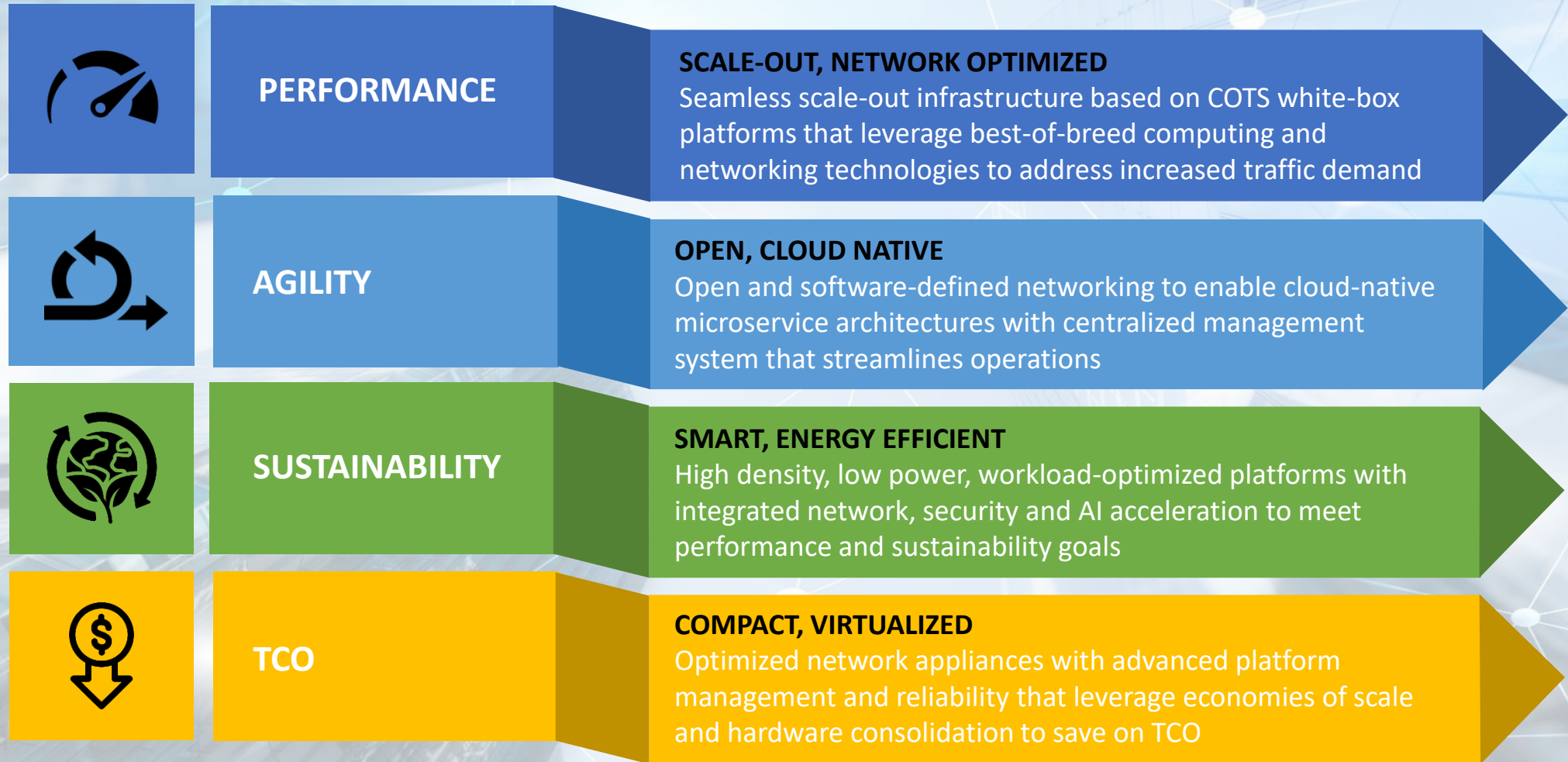
EDGE AI DRIVERS

The key driver and facilitator of new applications and use cases are edge computing platforms that can deliver **low-latency, high-bandwidth and secure communication services**.

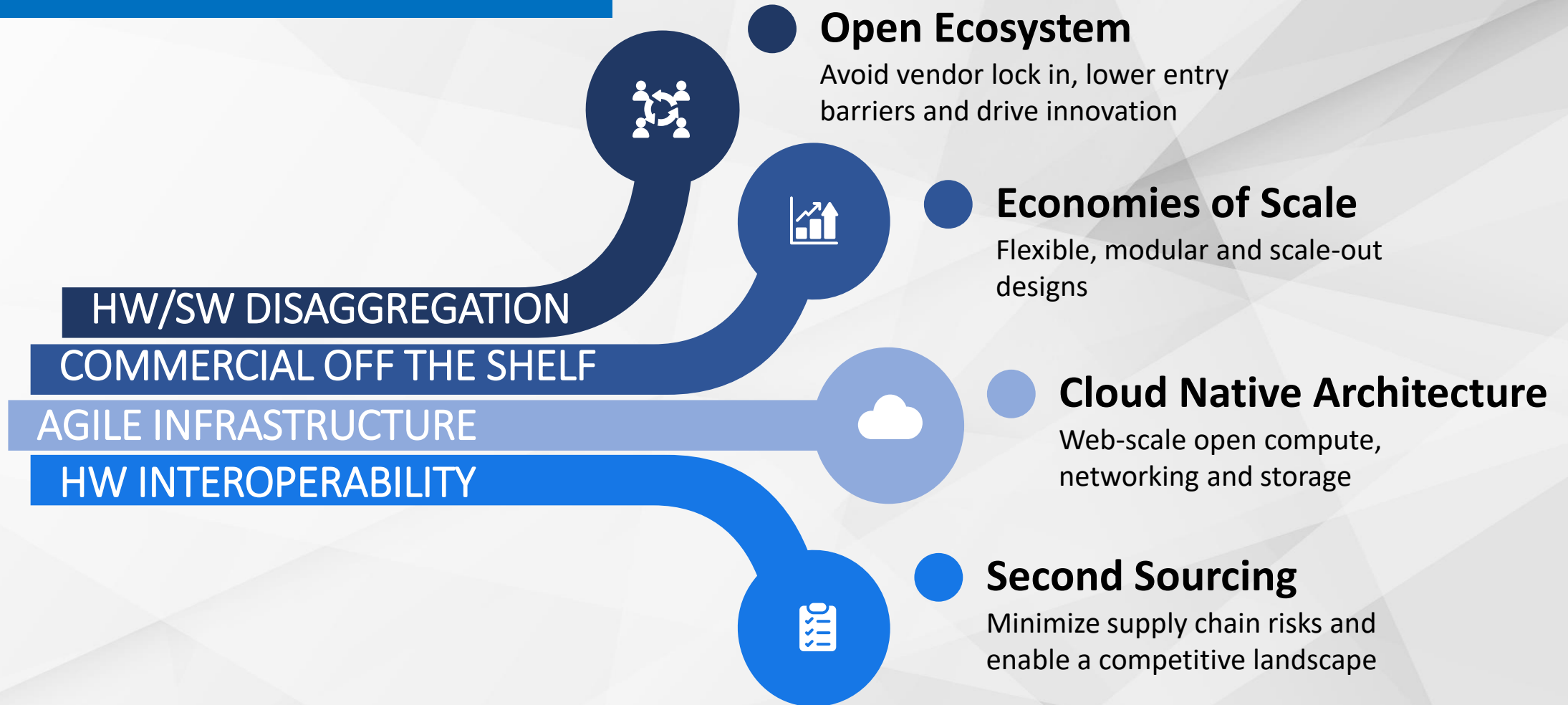
REMOTE WORKING – THE NEW NORMAL

WAN and Security are moving from Enterprise office to a home office! The way of providing enterprise connectivity and security is **transforming**.

Network Disaggregation to Accelerate Digital Transformation



White-box Hardware Opportunities



Advantech Network Appliances for the Intelligent & Sustainable Edge

BROADEST SCALABILITY

From entry level to high end configurations to fit thin vs heavy branch strategies

FLEXIBLE CONNECTIVITY

5G, 4G/LTE, Wi-Fi 6, Wi-Fi 5, 10GbE, PoE modular LAN/WAN options

COST & POWER OPTIMIZED

Compact and efficient designs meeting mainstream deployment requirements

RUGGED CONFIGURATIONS

Extends SD-WAN to harsh and outdoor use cases such as Smart City or Industrial IoT



HIGH RELIABILITY

Designed for business and mission critical applications to minimize costly downtime, service interruptions and on-site interventions

STRONG ECOSYSTEM

White-box platforms qualified by a wide range of leading software partners for shorter time to market and lower risk

GLOBAL SERVICES

From tailored branding, packaging, logistics, HW and FW customization and factory integrated customer ready solutions to industrial life-cycle and worldwide support

Millions of Units Deployed Globally

Trusted by Leading Networking and Security Vendors, CSPs and Enterprises

Universal Network Appliances for SD-WAN & uCPE



FWA-T011

Intel Celeron Processor
Slim CPE for cloud-based
deployments



FWA-1000/2000 Series

Intel Atom Processor
Versatile platforms for
wide-scale deployment



FWA-3000 Series

Intel Core/Xeon D Processor
Fully configurable to fit
any enterprise deployment



FWA-5000/6000 Series

Intel Xeon Scalable Processor
Throughput & connectivity for the
most demanding deployments

TCO Savings & Sustainability

Workload
optimized,
high density
designs

Flexible WAN Connectivity

4G/LTE, 5G,
Wi-Fi 5, Wi-Fi 6,
SFP+ & more

Reliability & Security

Major
enhancements
over pure IT
solutions

Reduced Deployment Risks

Broad SD-WAN,
uCPE & NFV
ecosystem
support

Maximum Scalability

From SOHO
to HQ
with global
support

www.uCPE.tech



Polling Question 2

Is your company planning to deploy disaggregated networking solutions?

- 1. Yes, already in production**
- 2. Yes, in the next 1-3 years**
- 3. Yes, in the next 5 years**
- 4. No, not considering it**

UCPE – USE CASE

BRIAN MENEZES

CITYFIBRE WAS FOUNDED IN 2011

To set a new standard in our industry and bring much-needed choice to the market



TO BUILD

a new, intelligent, fibre only network for the data age



TO IMPROVE

the digital lives of people across entire communities



TO ENABLE

business innovation and UK economic growth

OUR NETWORKS WILL SERVE A THIRD OF THE UK BY 2025



8 MILLION
homes



400,000
public sector sites



800,000
businesses



250,000
mobile / 5G sites

We're fully
financed for
these targets,
with scope to
extend beyond

VIRTUALISATION - UCPE

TURNING A CHALLENGE INTO AN OPPORTUNITY



Key Business drivers



Supply
Chain



Total Cost of
Ownership



10 GE



Innovation



Virtualization



Carbon Footprint

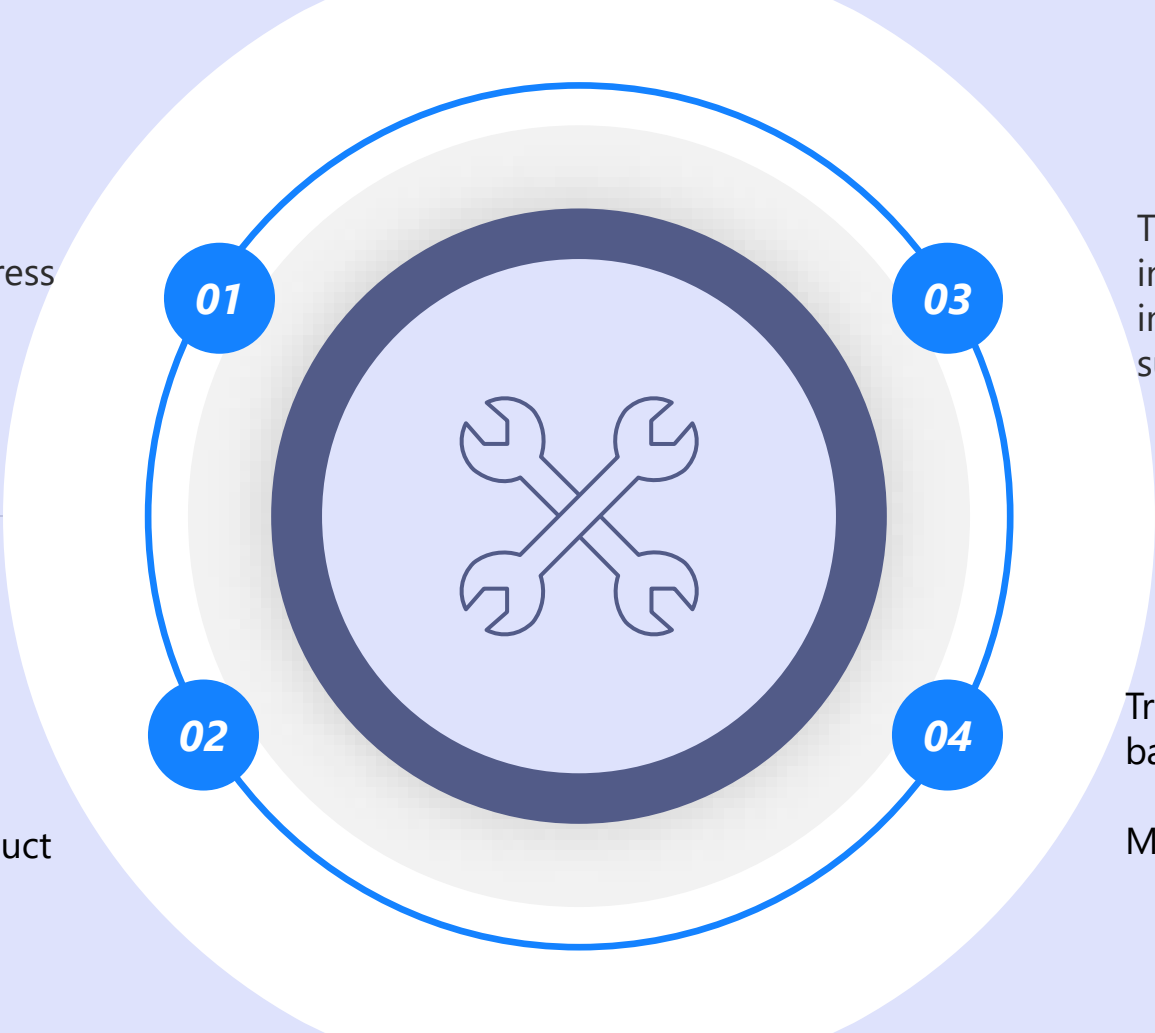
Current Problem Statement

01

Cityfibre currently has a 1Gig Internet access product in its portfolio to address the needs of the Business wholesale customers.

02

Current CPE have underlying scale limitation and that constrain our product development.



03

There has also been a material change in Vendor strategy towards CPE's, introducing tiered bandwidth subscription models

04

Traditional CPE upgrade with a higher bandwidth subscription model

Multiple boxes for multiple functions

VIRTUALISATION - UCPE

BENEFITS :

Vendor Lock -in

Come out of Vendor Lock in



Supply-Chain

Buy any approved white box CPE's which eases dependency on supply chain

Innovation/Product Development

Ability to develop new products quickly and go to market.

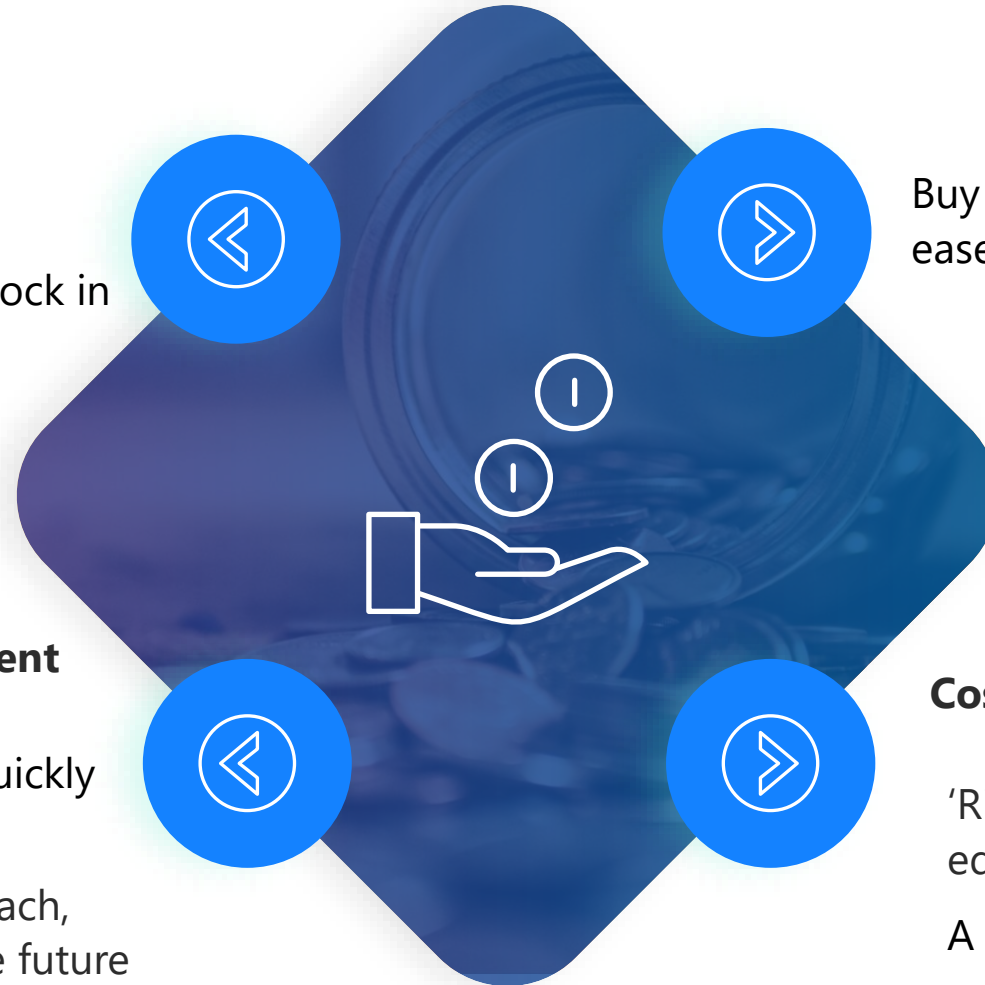
Formalise our cookie-cutter approach, ensure we have a path to integrate future platforms



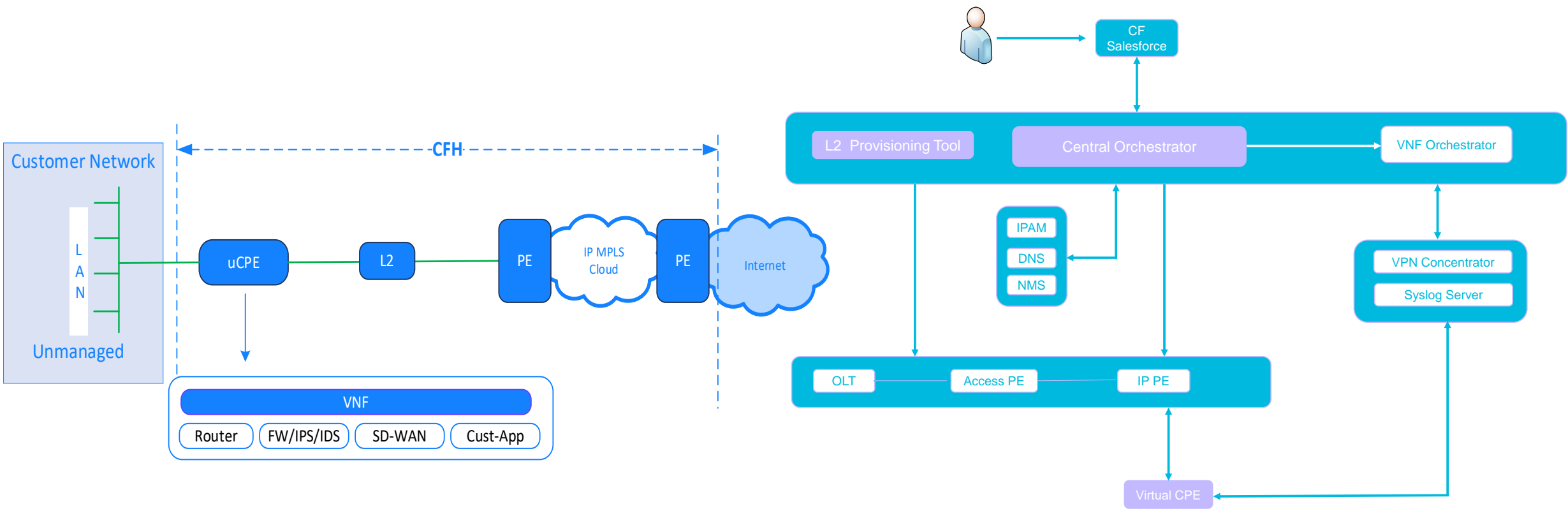
Cost-Effective / Carbon footprint

'Right-size' our technologies to manage equipment costs

A Box that could do 1G to 10G

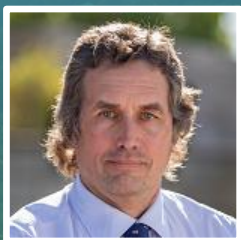


UCPE USE CASE WITH CLOSED LOOP AUTOMATION



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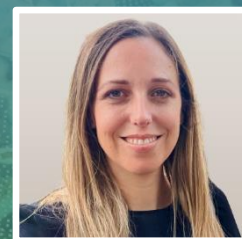
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