

Intel 5G Network Vision Deck

January 2022



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Usage Notes

Presentation Name	Intel Network Vision Gold Deck
Version	Q1 2022
Abstract	<p>The digitization of everything and a confluence of “superpower” technologies are unleashing the power of compute and connectivity everywhere—creating trillions of dollars in business opportunities.</p> <p>This presentation dives deeper into these trends, how they are driving the transformation to cloud-native networks, and Intel’s central role in this seismic shift.</p>
Target Audience	Comms service providers, Telecom partner ecosystem, Enterprise, PR
Classification	Public
Owner	Roxanne Gryder
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Legal Review	TBD
Key Notes	This version of the network vision deck is designed to be customized for individual users needs. Mix and match the slides based on your audience and priorities.

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- Technology superpowers
- 5G will enable a data-driven future
- Enterprise interest in 5G
- Computing and communications converge
- 5G use cases (URLLC, mMTC, eMBB)

Section 2:

Speeding the Path to Flexible, Scalable, Cloud-native Networks (Network transformation)

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- 5G and edge
- Role of the cloud in networks
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Section 3:

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- Intel network value proposition
- Network diagram
- Intel portfolio
- Intel 5G network security
- Intel ecosystem

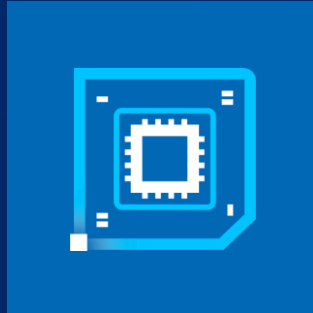


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The slide features several decorative squares in two shades of blue. In the top-left corner, there is a large light blue square, a medium light blue square, and a small dark blue square. In the top-right corner, there is a small light blue square. In the bottom-left area, there is a medium light blue square. In the bottom-right area, there is a large medium blue square.

Unleashing the Power of Compute and Connectivity Everywhere

The Entire World is Becoming Digital



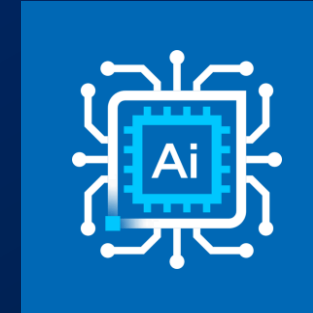
Ubiquitous
Compute



Cloud to
Edge
Infrastructure



Pervasive
Connectivity



Artificial
Intelligence

Superpowers fundamentally change how networks are designed, how they operate, and how network services are delivered.

5G Will Enable a Data-driven Future



Billions of devices are becoming connected, driving the need for network capacity to scale.



Enhanced Mobile Broadband must deliver the highest resolution immersive media experience for digital natives.



Artificial Intelligence infuses experiences and processes with data, but security and privacy are concerns.



Machine-to-machine communications opens opportunities, requiring reliability and ultra-low latency.



Will Transform
Enterprises

IT decision makers

80%

believe 5G will
impact their
business.

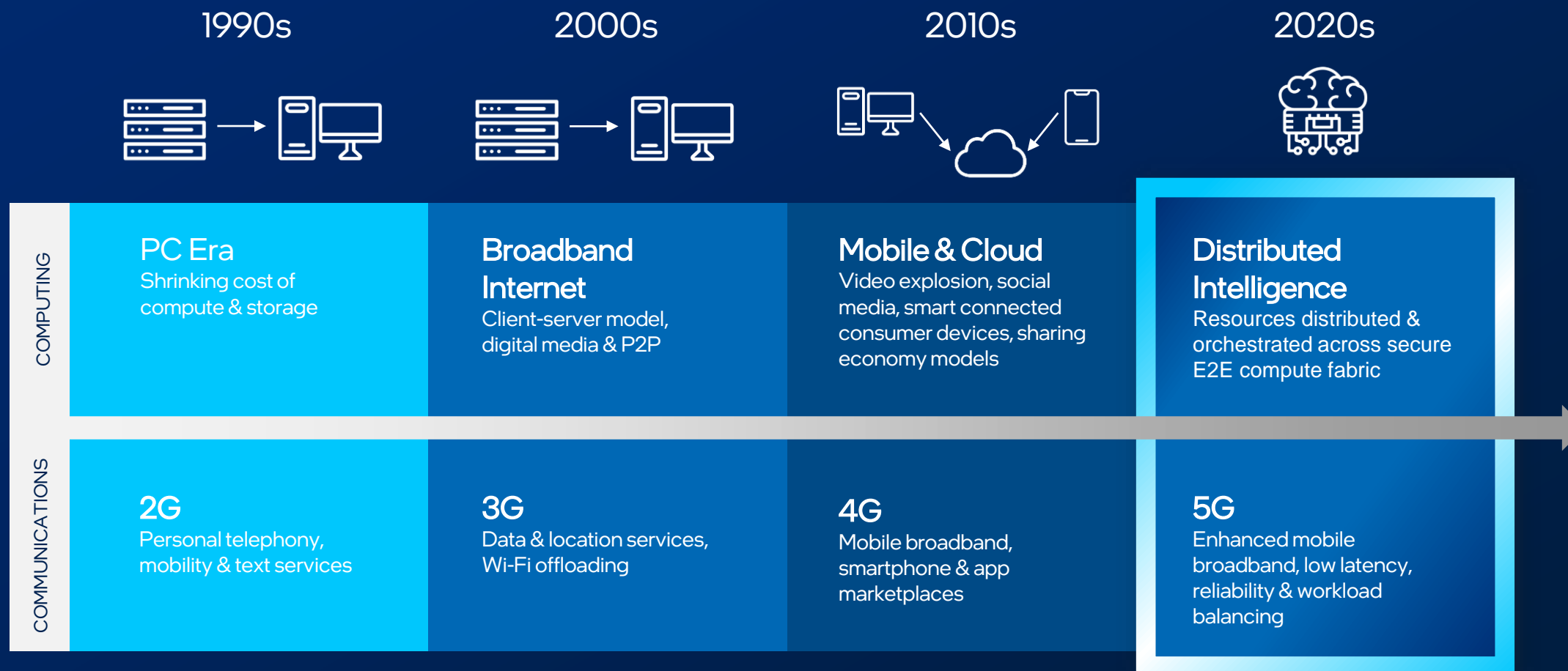
78%

think 5G technology is
crucial to keep pace
with innovation.

70%

expect to spend 5% or
more of their IT budget
on 5G technology over
the next 3 years.

The Convergence of Computing and Communications Advances 5G



5G Unleashes New Use Cases and Business Opportunities



Ultra-Reliable Low Latency
Communication for
Mission-critical IoT



Connectivity for Massive
Machine-Type
Communication



Enhanced Mobile
Broadband for High Capacity,
Throughput, and Efficiency



Speeding the Path to Flexible, Scalable, Cloud-native Networks

Cloudification of Everything

5G Network
Transformation



AI
Revolution

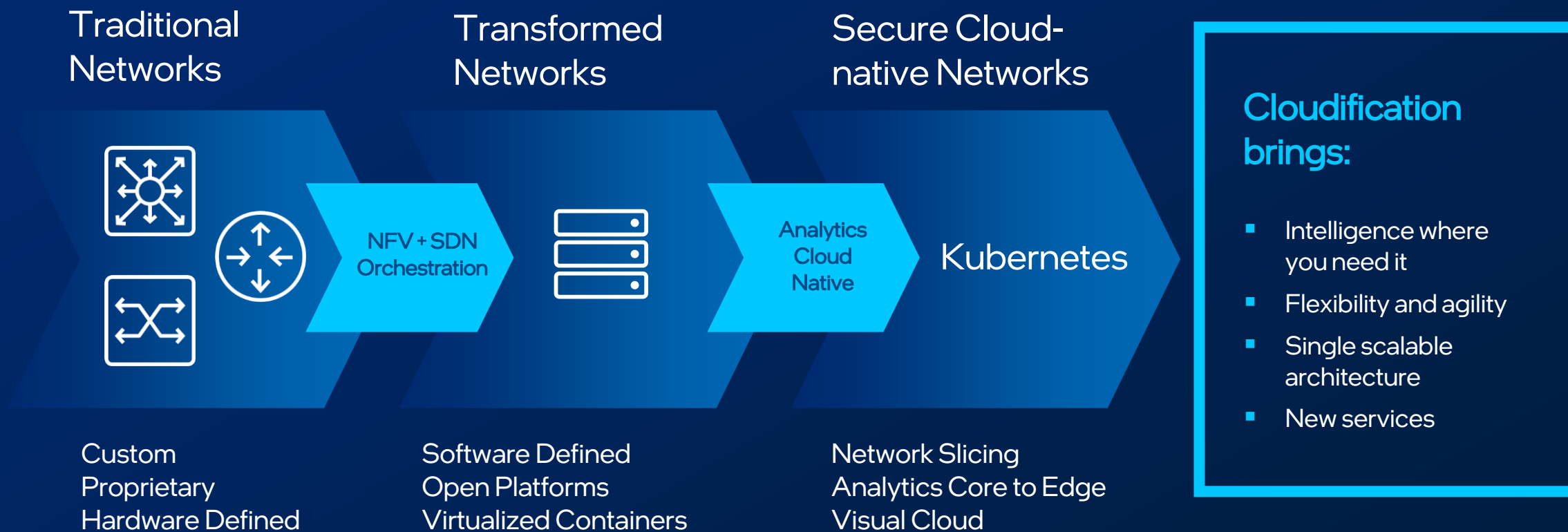


Edge
Explosion



Industry Inflections Drive Growth

5G Infrastructure Foundation for Network Transformation



Fueling 5G and Edge Through Virtualized Networks

2012

NFV

defined by the industry

2020

50%

of core network deployments
virtualized¹

2024

>80%

of core network deployments
virtualized¹

2025

75%

of data created outside of
central data centers²

Deploying Network Workloads from the Telecom Cloud to the Public Cloud

Telecom Cloud



Public Cloud



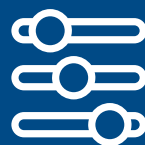
Private Networks Gain Momentum as Spectrum Policies Unlock Deployment Models

20,600 private networks forecasted by the end of 2026¹

59% CAGR 2020-2026



Enhance network **coverage** by tapping into increased performance and reduced latency

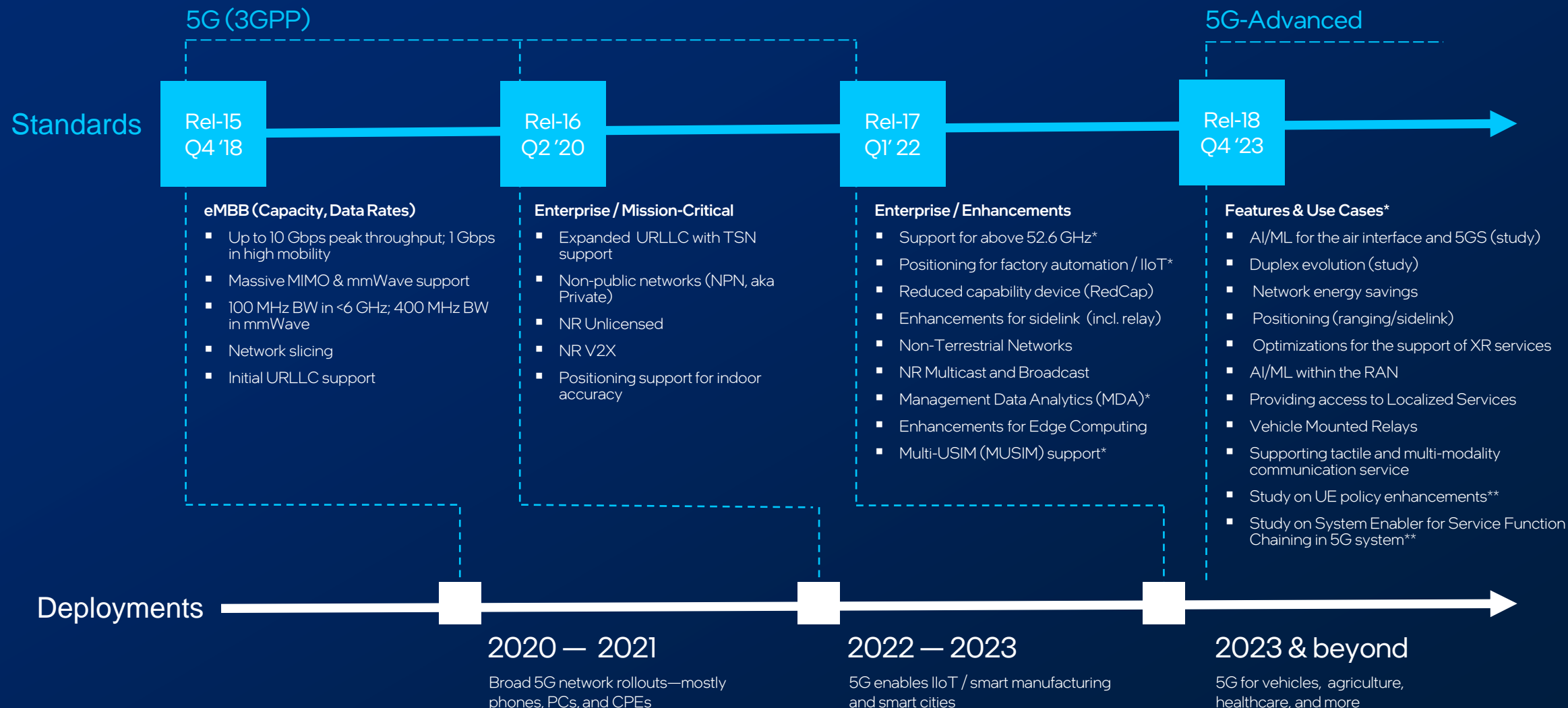


Take **control** of data with analytics and enhanced data security and sovereignty



Improve network **costs** and efficiency via an agile and scalable architecture

5G: Evolutionary and Revolutionary



The background features several squares in two shades of blue (light and dark) scattered across the slide. A large light blue square is in the top left, a medium dark blue square is below it, a small light blue square is to the right, a medium dark blue square is below that, a small light blue square is in the bottom left, a medium dark blue square is in the bottom right, and a large dark blue square is on the right side.

Intel Enables a Network of Possibilities from Edge to Cloud

Customers Choose Intel for Proven Expertise, Technology, and Our Vast Ecosystem

81M+

Intel® Xeon® processors
deployed in the past 3
years

10+

years of experience
transforming your network
to realize the possibilities of
5G and edge

500+

software and solutions
providers with thousands
of real-world
implementations

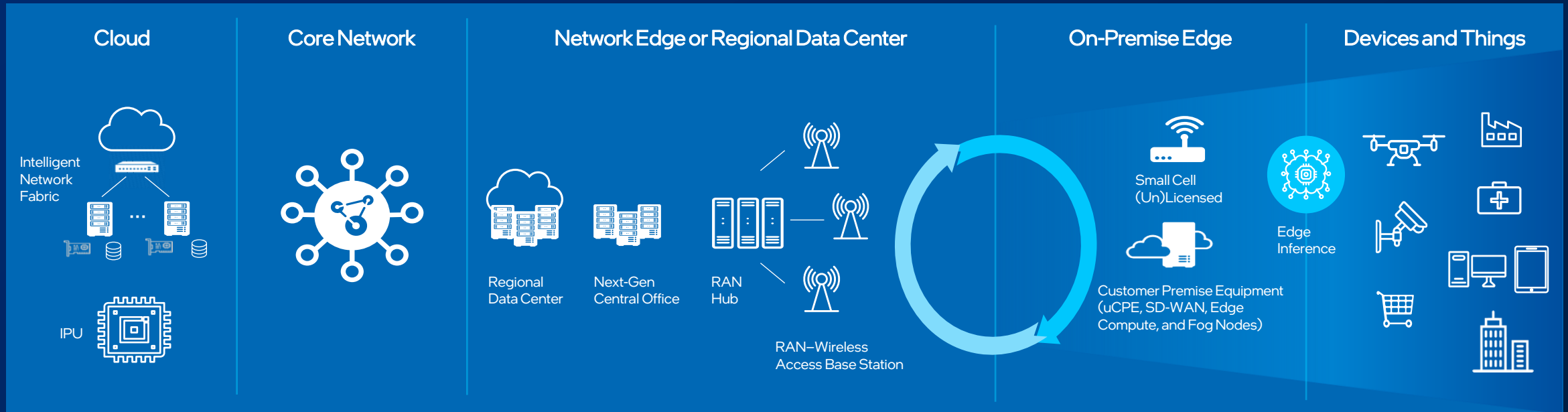
Based on Intel internal data

Intel Fuels the Network from the Cloud to the Edge

Data Center

Network

IoT Edge



DC Infrastructure,
Compute and
Connectivity

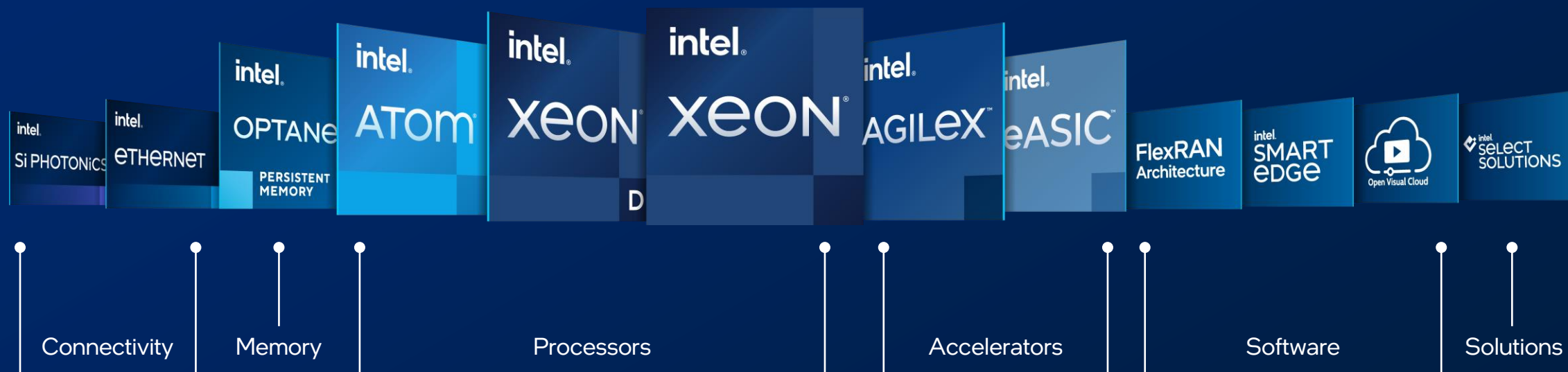
Wireless Core and
Network Backbone

Connections to Users and
Central Offices

Customer and Data Center
Networking Equipment

Micro DCs, IoT Gateway,
and Intelligent Agents

The Most Complete Set of Network Technology Solutions for the Industry to Build On



Intel's Approach to 5G Network Security from Edge to Core

Platform integrity

Use hardware-based root of trust to protect platform, firmware, code, and data

Solutions: Intel® Trusted Edge Platform (TEP), Intel® Secure Device Onboarding (SDO), SASE

Protected data, keys, and IDs

Provide tamper-resistant storage for sensitive information

Solutions: Intel® Software Guard Extensions (SGX), Intel® vPro Platform

Crypto

Enable hardware-accelerated cryptography and DRM protection

Solution: Intel® 3rd Gen Xeon Scalable processors

Trusted execution

Protect applications and workloads while they're being executed

Solutions: Intel® SGX, SASE

Advance Network Transformation Through Solutions and Ecosystem Collaboration

Invest Open Source and Standards



Industry Collaboration Intel Network Builders

500+

Members

50+

CoSPs

300+

POCs/Trials/Deployments
Based on Member Solutions

52K+

Network Builder
University Program
Members

125+

Network Edge
Ecosystem Program
Members

intel SELECT SOLUTIONS

intel XEON	uCPE	Universal Customer Premises Equipment ADVA ubuntu® CentOS
intel XEON GOLD	NFVI	Network Functions Virtualization Infrastructure ubuntu® Red Hat
intel XEON GOLD	NFVI Forwarding Platform	NFVI Forwarding Platform Red Hat
intel XEON GOLD	Visual Cloud	Delivery Networks CentOS Red Hat

The Intel logo is centered on a solid blue background. It features the word "intel" in a white, lowercase, sans-serif font. A small, light blue square is positioned above the letter "i". To the right of the word "intel" is a small white registered trademark symbol (®).

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Backup

Leverage the Intel Advantage

Invest

Vertical Segment
Subject Matter
Experts & Architects

Optimize

Experience Kits &
Reference Platforms

Upstream

- Industry Training
- Virtualization & Container Optimizations & Software
- Libraries & Frameworks
- Industry Input/Output Advancements
- Long-Life Reliability & Long-Life Manufacturability

Roadmap

- Device Drivers
- Product Validation
- Silicon Development & Instruction Set Improvements
- Silicon Manufacturing Process Improvements

Enhanced Support from Intel

3rd Generation Intel® Xeon® Scalable Processors



Deliver High Performance and Flexibility

Designed for Diverse Workloads from the Core Data Center to the Edge

Intel® SGX, Intel® Crypto Acceleration and Intel® QuickAssist Technology

Intel Xeon-D Platform for Networking



Performance Gen Over Gen

- Significant performance improvement with new Intel® Architecture, resulting in greatly improved signaling and user plane performance
- Performance improvements vs. previous generation on Data Plane Development Kit (DPDK) due to improved Intel® AVX-512, built-in accelerators

Networking up to 2x100 GbE connectivity

- Up to 8-port Ethernet with up to 100 Gbps packet processing capabilities
- Ensure line rate requirement is supported while adding more value via additional services and features

Lower TCO Perf/\$ & Perf/W

- Increased I/O bandwidth, with PCIe 4.0 (16 GT/s) with up to 32 lanes
- Increase throughput per subscriber by >20% over SKX-D

Acceleration up to 100 Gbps Crypto

- Improved Intel QAT—better acceleration vs. previous generation
- New instructions for AI workload acceleration

Scalability up to 20 Cores

- Single standard architecture : For Scalable NFV product portfolio
- Reduced total platform investment with application, control, and data plane workload consolidation

2020: The Beginning of 5G Stand-alone Core



1. IHS Markit, "The mobile infrastructure is poised for 3.5% growth," page 3, 2020.

2. ABI Research, [5G Core Platforms Set to Generate US\\$8 Billion as MSPs Transition to More Software-Centric Networks](#), July 25, 2019.

Custom RAN, vRAN and Open RAN

System Platform Architecture

Custom RAN

Integration, apps

Integrated appliances

Custom ASICs

Proprietary and customized solutions by TEMs

vRAN

5G services

Infrastructure software
(orchestration, management)

VNF software (vRAN, vCore)

Server with standard Si

Implementation of technologies leveraging server-based architecture and software to perform traditional RAN function

Open RAN

Orchestration & automation

RAN Intelligent controller near-RT

Multi-RAT CU protocol stack

NFVI Platform

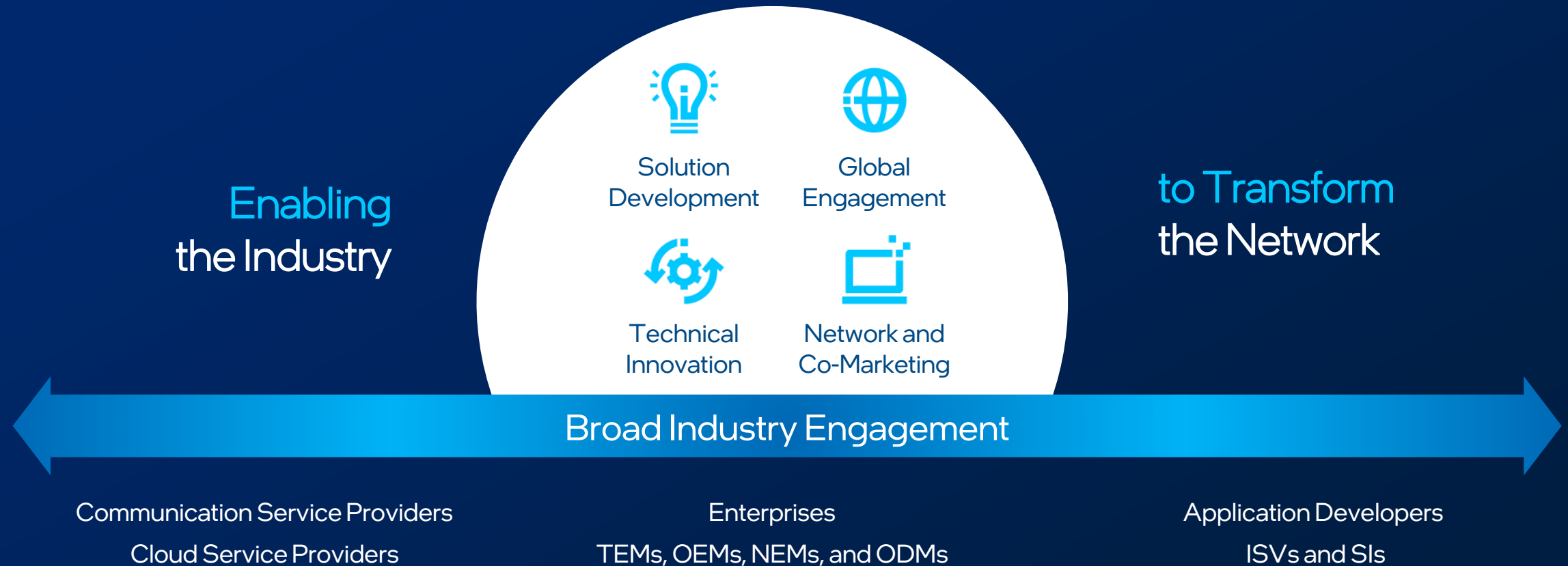
O-DU

O-RU

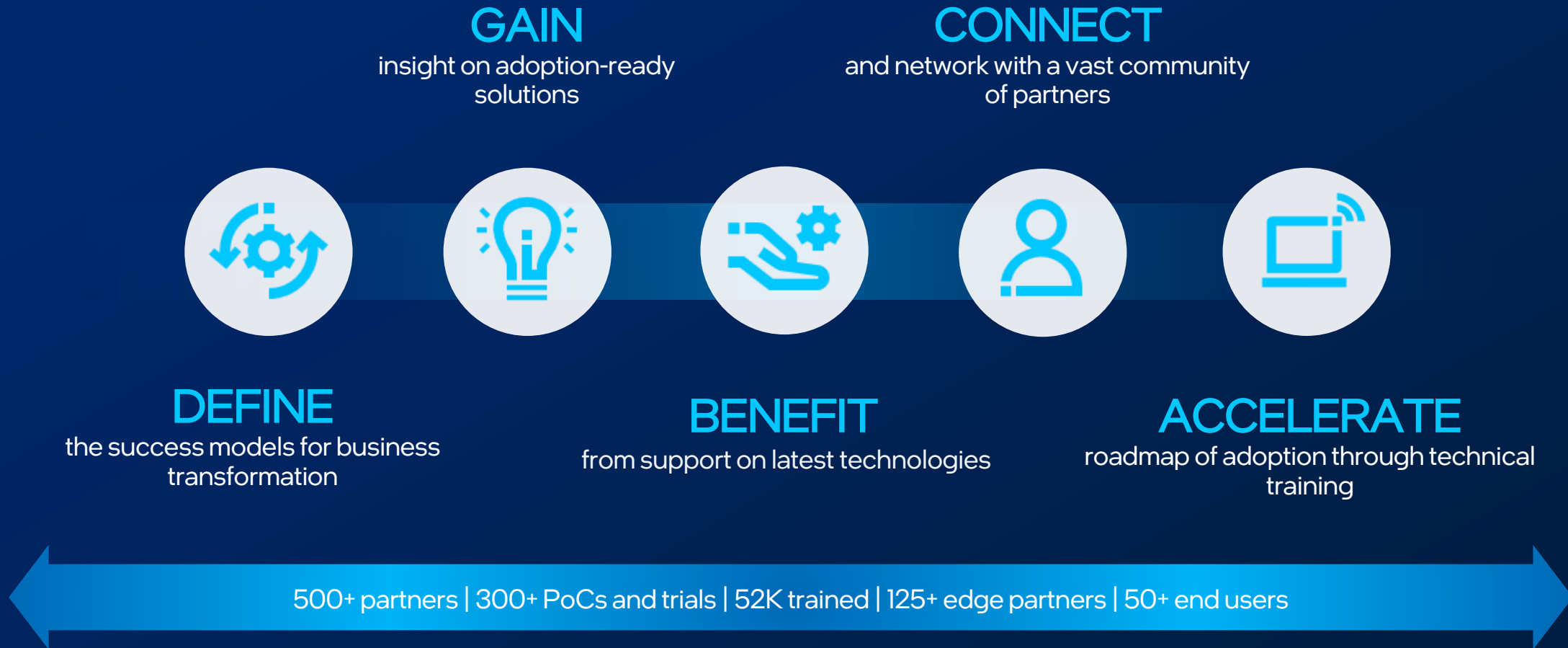
Standardized interfaces—set of specifications defining interfaces between radio and base station RAN

Intel® Network Builders

Accelerating Network Innovation and Transformation



Intel® Network Builders



Intel® Network Builders Marketing Reach

79K

vSummit
Impressions

65K+

Webinar
Views

24K+

Individual
Members

656

Solutions &
Documents

190

Partner
Microsites

48K+

Technical
Publication Views

2.8M

Podcast
Engagement