

Red Hat – Intel Open Tour – Stockholm 6th Sep 2022

Build on Open Run on Intel

Jon Jädersten

Global CTO - Communications solutions, Network and Edge Group (NEX) Sales
Intel Corporation



intel®



Red Hat



“Most strategic and closest partner since the beginning of Red Hat”

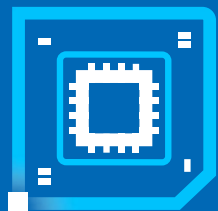
Paul Cormier, Red Hat CEO



“Intel and Red Hat are the beating heart of the Open-Source community”

Pat Gelsinger, Intel CEO

The Entire World is Becoming **Digital**



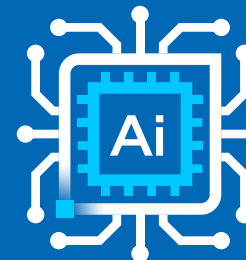
Ubiquitous
Compute



Pervasive
Connectivity



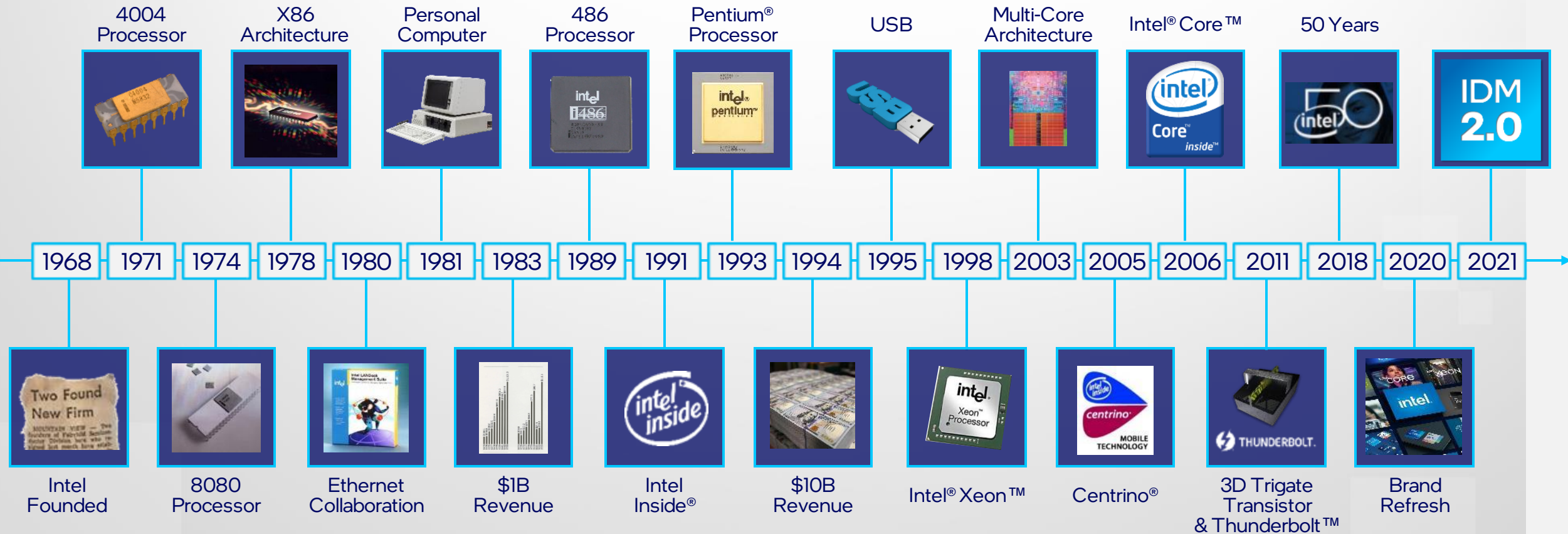
Cloud to
Edge Infrastructure



Artificial
Intelligence

Semiconductors are the underlying technology
empowering developers and powering our customers' innovations

Intel Journey



Intel End-to-End Product Portfolio and Solutions



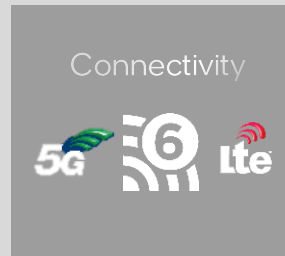
AUTONOMOUS DRIVING



5G NETWORK



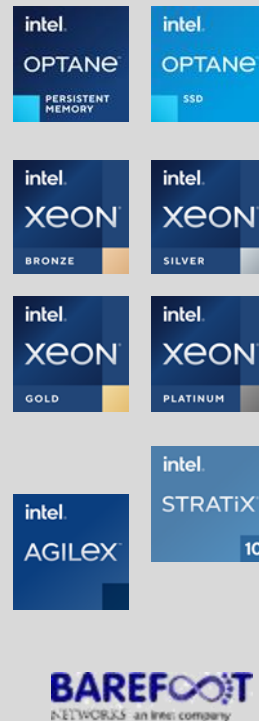
CLIENT CONNECTIVITY



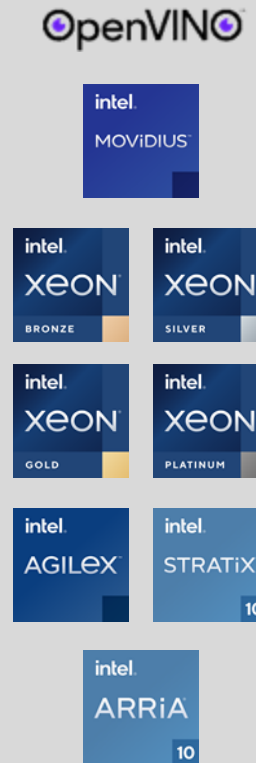
Intel® Wireless Bluetooth®
Intel® Wi-Fi 6 solutions



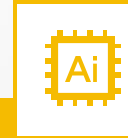
CLOUD COMPUTING



IOT



EDGE COMPUTING



AI AND ANALYTICS



Delivering Leadership Manufacturing: IDM 2.0

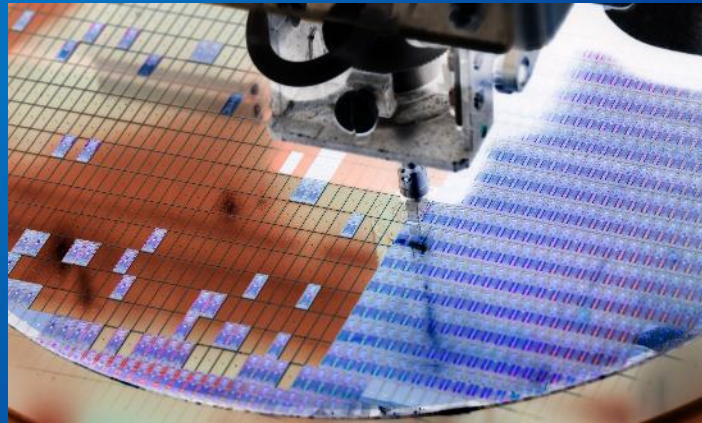
Product Leadership, Supply Resilience, Superior Cost

Internal Factory Network



Intel's global, internal factory network for at-scale manufacturing

External Foundries



Expanded use of third-party foundry capacity

Intel Foundry



Building a world-class foundry business, Intel Foundry Services

Leveraging Intel's leading-edge packaging & process technology & world-class IP portfolio

2022-01-15 15:58

Här är Intels massiva Europasatsning – lägger 800 miljarder på nya chippfabriker



PRO Processorjätten Intel ska satsa 800 miljarder kronor i Europa de kommande tio åren. Bland annat ska de bygga två nya fabriker i Tyskland. "Vi ska ta den mest avancerade tekniken till Europa och hjälpa EU att bygga nästa generations europeiska chipp-ekosystem", säger vd Pat Gelsinger.

Intel to invest up to \$100 billion in Ohio chip plants

PUBLISHED FRI, JAN 21 2022 5:37 AM EST | UPDATED FRI, JAN 21 2022 12:20 PM EST

REUTERS

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KEY POINTS

- Intel said on Friday it would invest up to \$100 billion to build potentially the world's largest chip-making complex in Ohio.
- The move is part of Chief Executive Officer Pat Gelsinger's strategy to restore Intel's dominance in chip making and reduce America's reliance on Asian manufacturing hubs, which have a tight hold on the market.
- An initial \$20 billion investment - the largest in Ohio's history - on a 1,000-acre site in New Albany will generate 3,000 jobs, Gelsinger said.

Building Manufacturing Capacity in Europe & US



Oregon

Arizona

New Mexico

Ohio

Costa Rica

Ireland

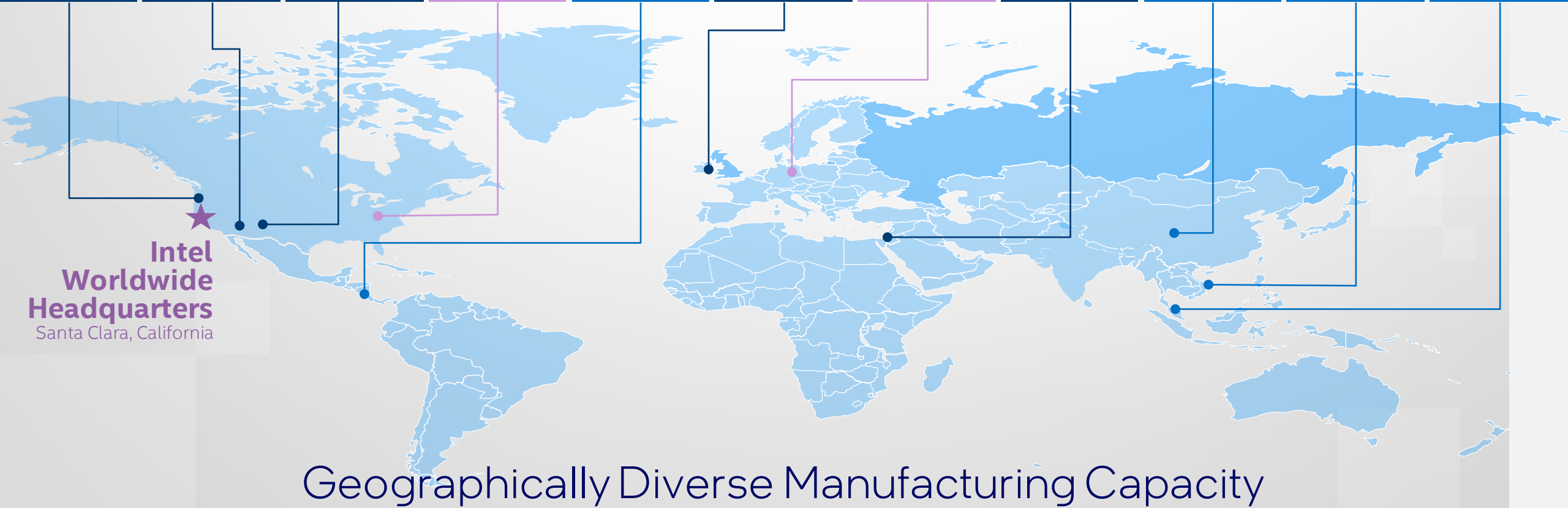
Germany

Israel

Chengdu

Vietnam

Malaysia



**Intel
Worldwide
Headquarters**
Santa Clara, California

Geographically Diverse Manufacturing Capacity

■ Wafer Fabs ■ Assembly & Test ■ Future Site

Our People



Customer First



Fearless
Innovation



Results Driven

Our Values



One Intel



Integrity



Quality



Inclusion

121,000+
employees

89%
technical

20,000
Software Engineers

~70,000
patent assets worldwide

"We push forward at a torrid pace with our purpose at the heart of everything we do — creating world-changing technology that improves the life of every person on the planet."

Pat Gelsinger
Intel CEO

Open Platforms

Optimize more than
100
different operating
systems

#1
contributor
to the Linux kernel

Top-3
contributor to
Chromium OS

Top-10
contributor to
OpenStack

Deliver open & secure software and hardware platforms
with industry-defining standards



Floating Point
Standard



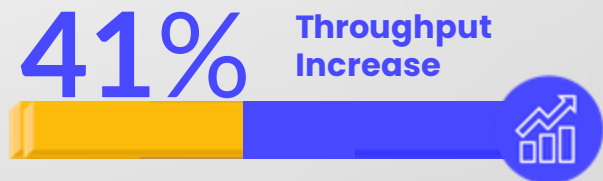
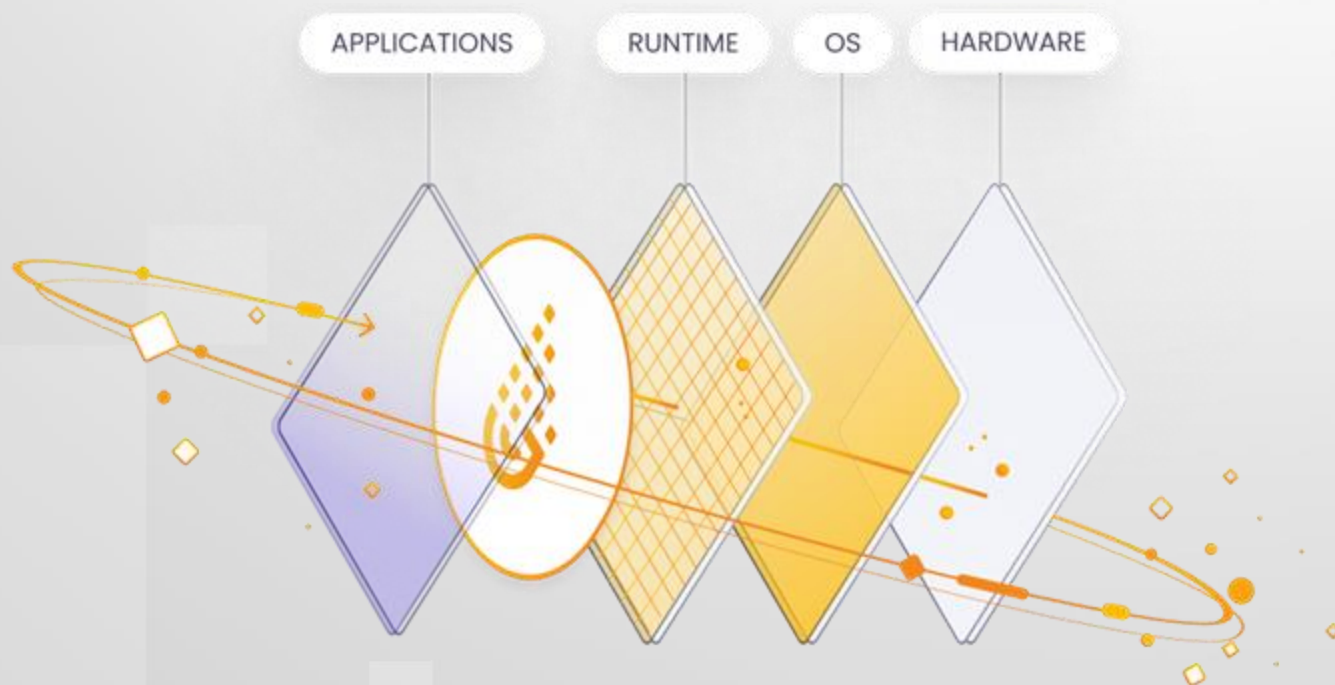
DDR_x



GRANULATE: A recent Intel aquisition

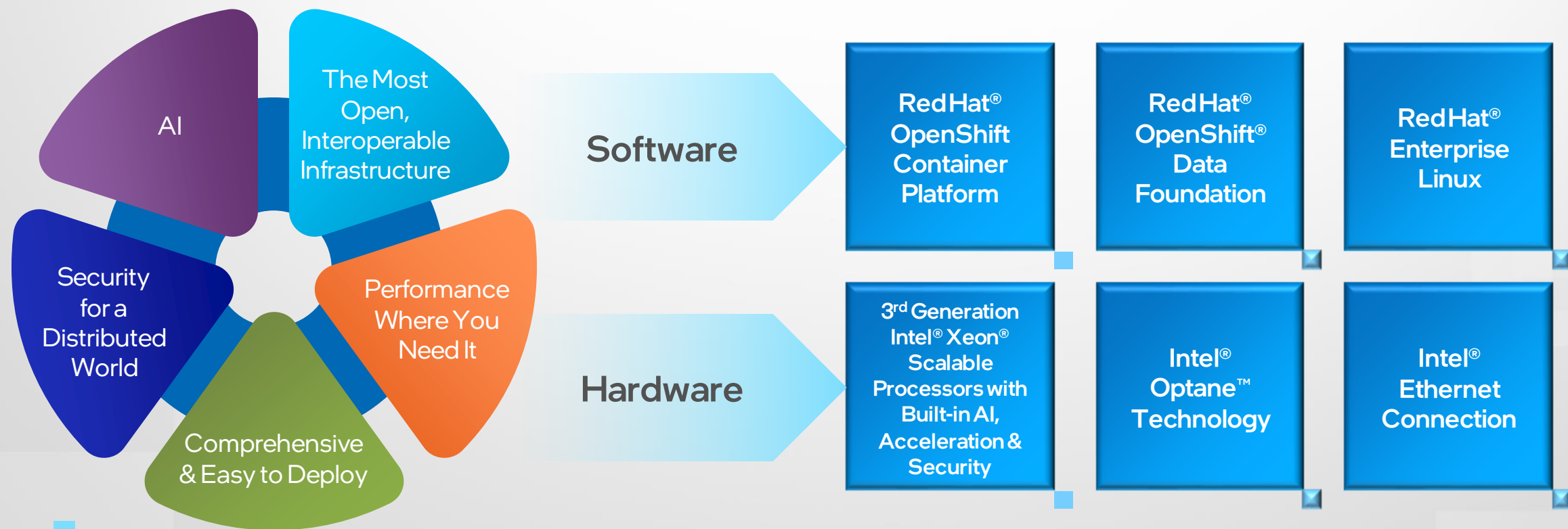
AUTONOMOUS, CONTINUOUS WORKLOAD **OPTIMIZATION**

GRANULATE IMPROVES PERFORMANCE AND REDUCES COSTS BY OPTIMIZING **OS** AND **RUNTIME RESOURCE MANAGEMENT** – WITH **NO R&D** EFFORTS.



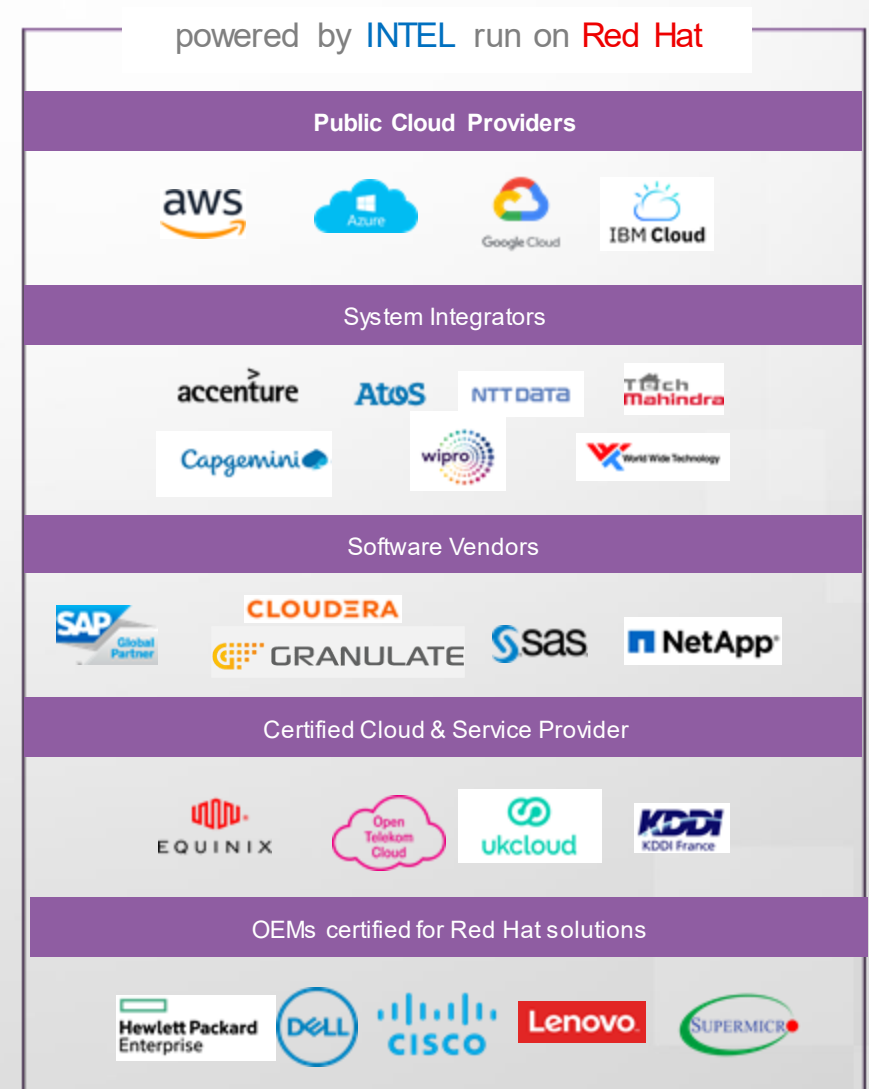
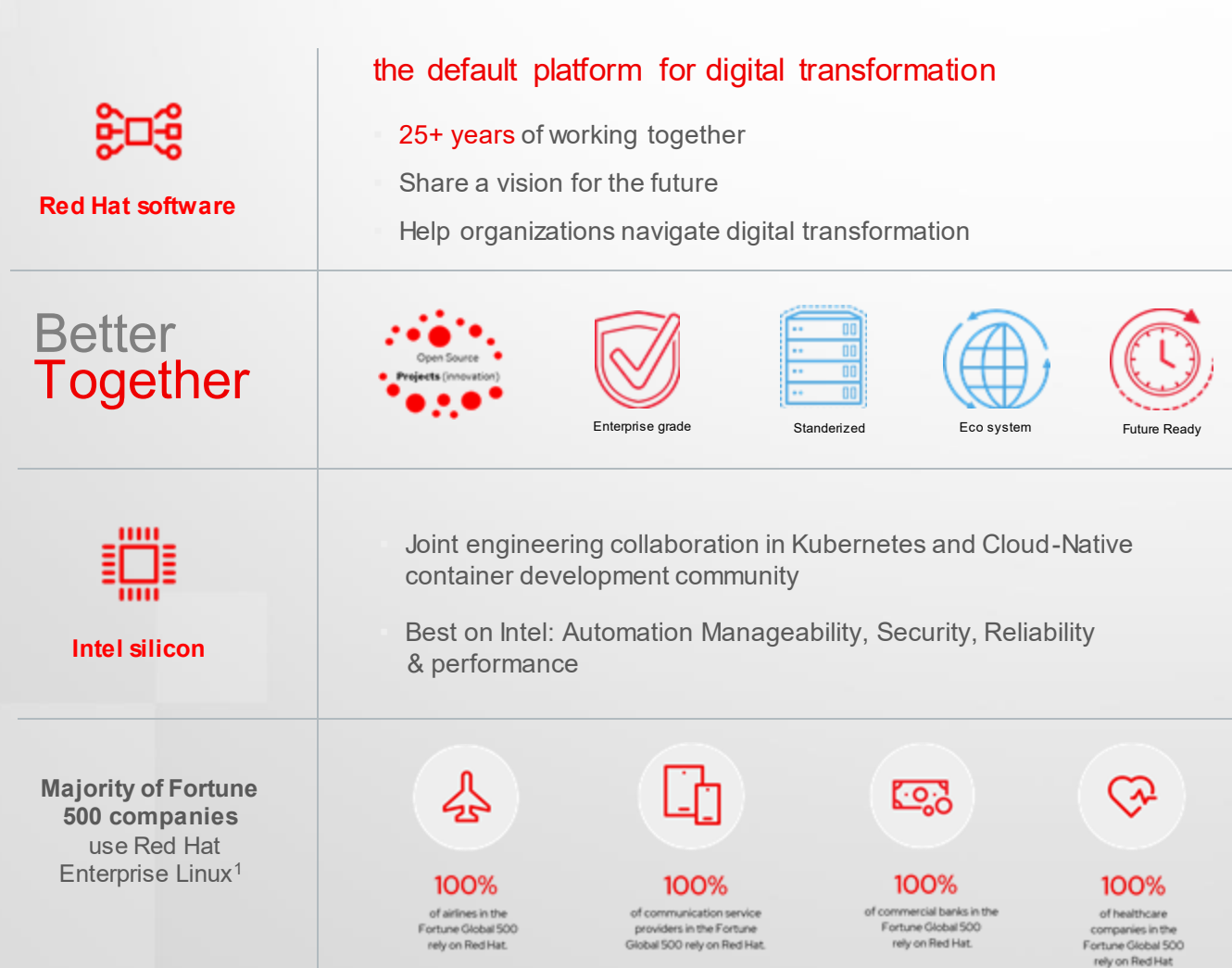
A New Digital Infrastructure Tailored for You

The Intel® solution for Red Hat OpenShift Container Platform scales for today & tomorrow



Red Hat & Intel combine best-in-class technologies for a new era of digital everything
"Day 0 verification and certification"

The Intel + Red Hat Partner Ecosystem



Easily Scale Your Apps and Data Services

Intel and Red Hat have co-developed workload-optimized data node configurations for Red Hat® OpenShift® Data Foundation, based on Intel® Xeon® Scalable processors and Intel® Optane™ technology

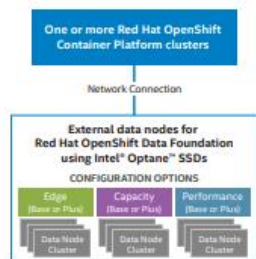


Figure 1. Predefined hardware-plus-software data node configurations eliminate guesswork and let you focus on scaling your apps and data services rather than infrastructure details.

In this era of digital transformation, data volumes are exploding while performance requirements escalate. Data pipelines and data access are increasingly complex. To keep up, your containerized apps must serve up data more quickly. But you don't have time to evaluate and test various combinations of hardware and software to determine if they meet your data services' needs. You just need your data services to work—on premises, in the cloud, or across multiple clouds.

Deliver Data Services with Ease

Red Hat delivers an automated, complete cloud-native development and deployment platform with integrated data services¹ through its Red Hat OpenShift and Red Hat OpenShift Data Foundation products. OpenShift Data Foundation delivers persistent storage through a data service and orchestration layer that's fully integrated with and built for Red Hat OpenShift. It natively includes all common storage services, including file, block, and object and also provides deterministic performance at scale to deliver a consistent user experience across any platform where Red Hat OpenShift is deployed. Red Hat and Intel combine cutting-edge software and hardware technologies to deliver a workload-optimized data services solution that uses an external data node featuring Intel® Xeon® Scalable processors and Intel® Optane™ SSDs.

Intel Optane SSDs serve as a cache tier in front of the capacity tier, speeding access to hot data and taking the write pressure off the capacity drives to create a solution that is optimized for both performance and cost. Intel Optane SSDs are fundamentally different from other types of SSDs because they feature a memory-like capability inside an SSD form factor. This provides lower latency, higher IOPS, and greater endurance. Data-centric workloads are I/O-intensive and benefit from Intel Optane SSDs' ability to support up to 100 drive writes per day (DWPD).² Intel Optane SSDs provide the performance, endurance, and reliability necessary to accelerate today's most demanding workloads, such as latency-sensitive big data analytics, machine learning/deep learning, and databases.

OpenShift Data Foundation data nodes are easy to deploy and configure, and are portable across clouds. They offer simplicity and flexibility, and streamline the process of going cloud-native using containers.

Self-Identification Experiment
Reproduction Instructions 16

Scalable processors

Intel® NAND-based SSDs

Optane™ and
Intel® Ethernet
Network Adapters

Red Hat | intel

intel

OpenShift Platform 4.6 Data Services

OpenShift platform for enterprise
data services for Red Hat OpenShift
Scalable processors is the answer

Cloud-native data center infrastructure is
gaining, telecommunications, and other
industries are distributed across private
clouds. Ninety-two percent of enterprises have a

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Cloud Workload Solution



Optane™ and
Intel® Ethernet
Network Adapters

Modern IT

In today's markets, organizations must embrace digital business practices. In fact, 54% of organizations cite digital transformation as one of the top priorities for 2020. To support your SAP environment, you must migrate your underlying databases to SAP HANA by 2027. This migration presents an opportunity to modernize your SAP environment with overall IT digital transformation.

Applications.

Learning models.

Digital business demands.

Intel help you navigate digital transformation and modernization with ease, flexibility, and innovation.

Enterprise and IT foundation with Red Hat and Intel

Intel engineering relationships with each other and SAP, Red Hat can help you build a standardized, consistent architecture throughout your SAP landscape. The companies combine open source platform, SAP technologies with innovative processors, storage, and network performance infrastructure for critical workloads. All components work together with high reliability, stability, and manageability.

Increase business agility. Support fast, agile development with containers. Simplify and speed operations by connecting on using advanced integration capabilities. Support unique and scaling your environment with certified third-party products.

Master, more accurate insight from your data. Achieve greater integrated solutions that are engineered and optimized together. SAP performance.³ Analyze large datasets quickly with persisted analytics workloads.

Strategic Planning Report," 2020.

Intel's newest Xeon processors posts record performance results across a range of workloads.

© 2019 Intel

With integrated tooling, data science projects and delivery a more secure, well-planned and training of data are highly portable for on-premise-based deployment to the hybrid cloud.

For workloads and configurations visit www.intel.com/PerformanceIndex. Results may vary.

intel

Work Provides Functionality

Red Hat

5G network
Intel® Xeon®

with
Toolkits

to develop
Science.

capabilities.

with

spanning data
collection and development/
red, data scientists
using containers and
manage operations and
networks. This can
development teams.
ce delivers managed
resources across multiple
t have to contend
ures and can focus on
latest open-source

es to common AI toolkits
development of data
support for core open-
source, and more. The
nShift cloud service is
vides a core platform
n and preparation,
g other tasks.

ed as an add-on
ice on AWS. Within this
ers can take advantage
able from independent
with Red Hat, Intel
d to Intel® architecture-
red (AI Kit) and OpenVINO™
tools and technologies.

with integrated tooling
data science projects and
delivery a more secure, well-
planned and training of
data are highly portable for
on-premise-based deployment

Understand better how
spectrum becomes
more affordable and

connectivity, and low
create separate networks
private 5G network can
as internet of things (IoT)
low bandwidth sensors.

g factor for private 5G, but
rs (MNOs) increasingly
are unlicensed spectrum
their own networks. New
S - 3550 MHz to 3700
ency C-band (4 to 8 GHz) in
Europe are providing the
ke private 5G networks

with the emergence of edge
customer premises to offer
ta center with much less
ions need to be made or
bination of private 5G and

ilar technology skill
networks has always been
ology (IT). In addition,
limited availability of
system. This technology
utilize IP data packets,
ing on Intel® architecture
working projects better
em of vendors to choose

cost-effective solution
leverage this technology.



Red Hat + IBM

over low
automated,

branch offices across
n built around

computing workloads—
ins technology (CT), and
dy evolution in recent years.
an environment that stretches
multicloud services require
king resources fluidly to
recent of enterprise data is
2022, and that is expected
h in data processing at the
puting and distributed

ressure to monetize 5G
rtunities for CSPs to fulfill
es like ultra-reliable
customer experience.
of these models represents a
Edge use cases.⁴

active means for meeting
loring the use of a converged,
echnology and microservices
w-latency, high-bandwidth

d network hardware
it expenses and develop
virtual machines to balance
ime success across the
ds on the network running
ployed on universal customer
iner technology and open
manageable solution.



Red Hat & Intel Resources


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- Red Hat & Intel Reference Architecture
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- Visit: www.redhat.com/Intel

#IntelRedHat

Intel 5G Innovation Center Stockholm




5G NETWORK
TRANSFORMATION


ARTIFICIAL
INTELLIGENCE


INTELLIGENT
EDGE

<https://5GIC.intel.com>



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