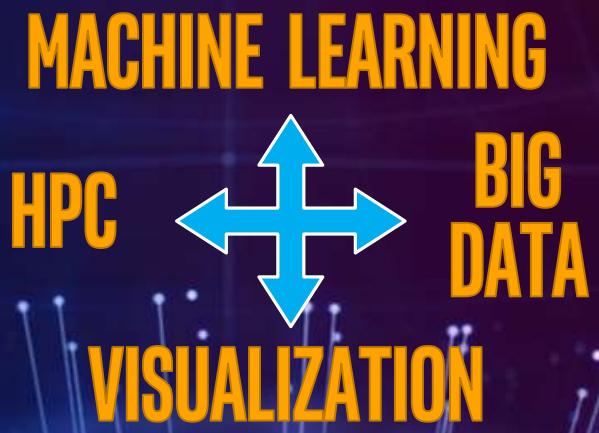
ACCELERATING THE AI REVOLUTION

Growing Challenges in HPC

System Bottlenecks
"The Walls"

Memory | I/O | Storage
Energy Efficient Performance
Space | Resiliency |
Unoptimized Software

Divergent Workloads



RESOURCES SPLIT AMONG MODELING AND SIMULATION | Big Data Analytics | MACHINE LEARNING | Visualization

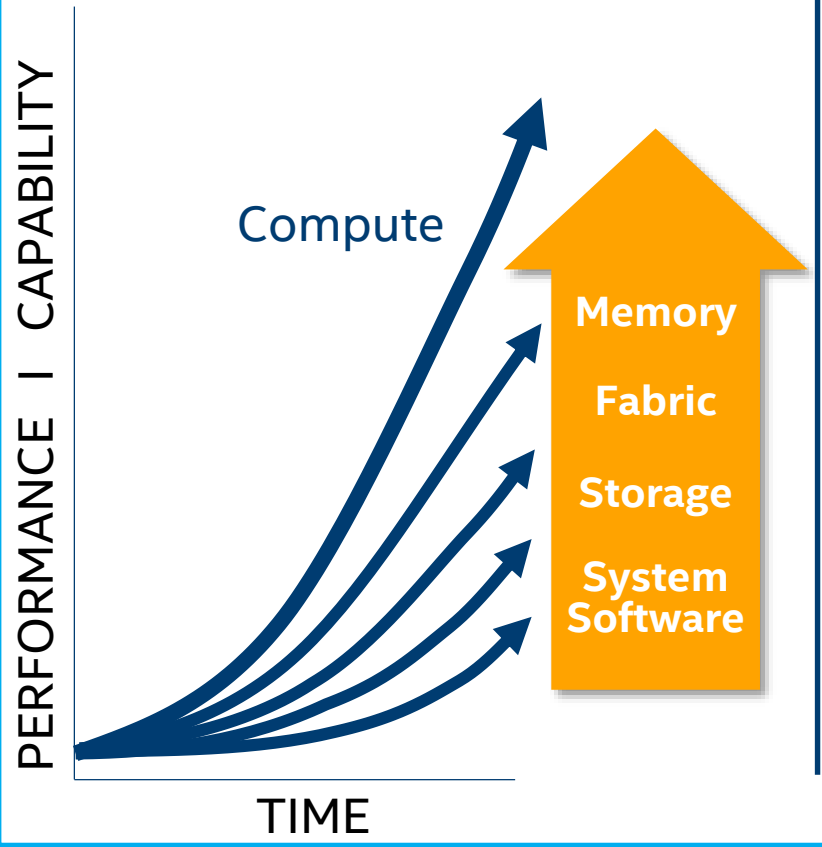
Barriers to Extending Usage

Democratization at Every Scale | Cloud Access | Exploration of New Parallel Programming Models

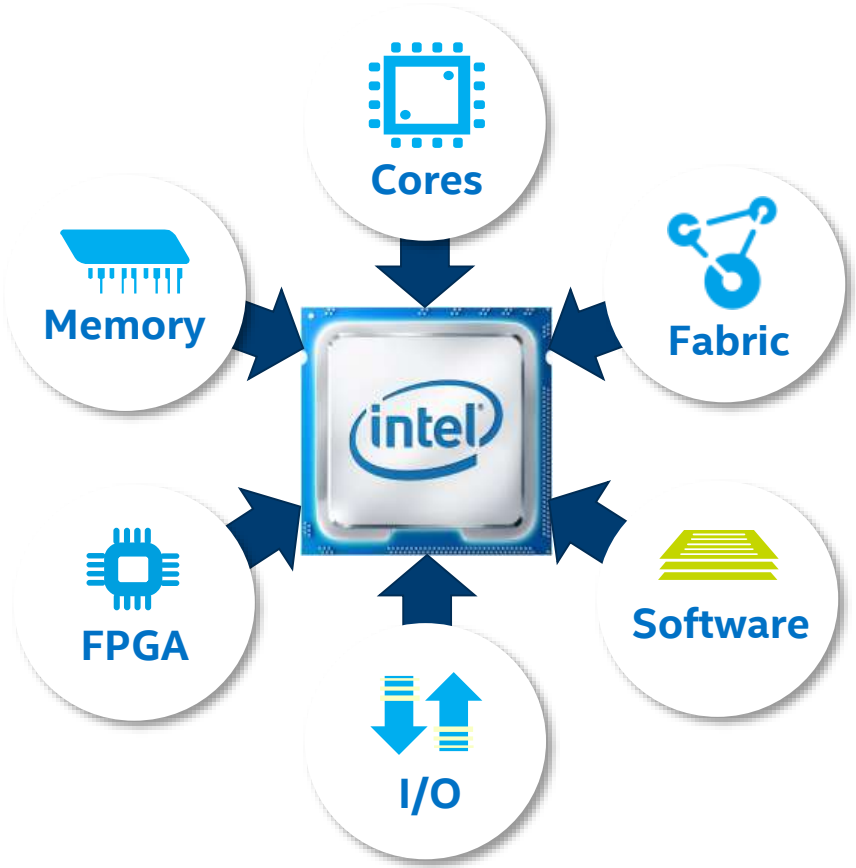
A Holistic Architectural Approach is Required

System

Innovative Technologies



Tight Integration



Software

Modernized Code

INTEL® SCALABLE SYSTEM FRAMEWORK

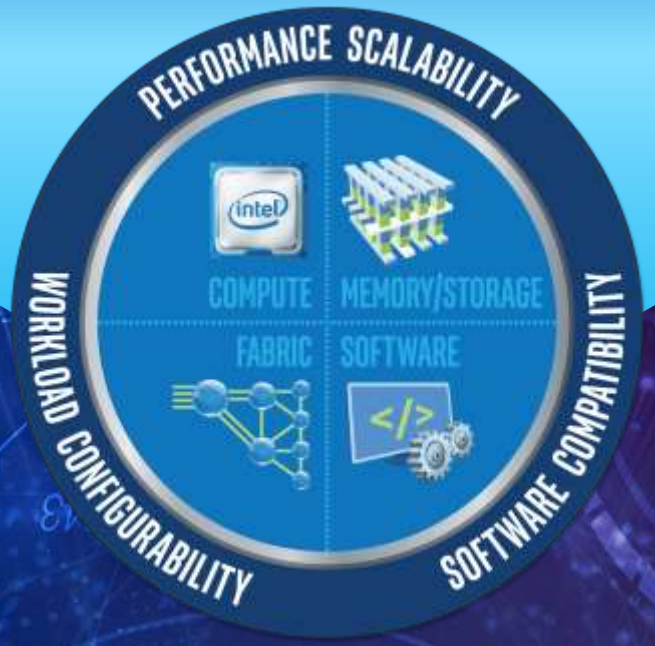
MODELING & SIMULATION

HPC DATA ANALYTICS

ARTIFICIAL INTELLIGENCE

VISUALIZATION

MANY WORKLOADS – ONE FRAMEWORK



A Flexible Framework for Today & Tomorrow

Enabling Breakthrough System Performance

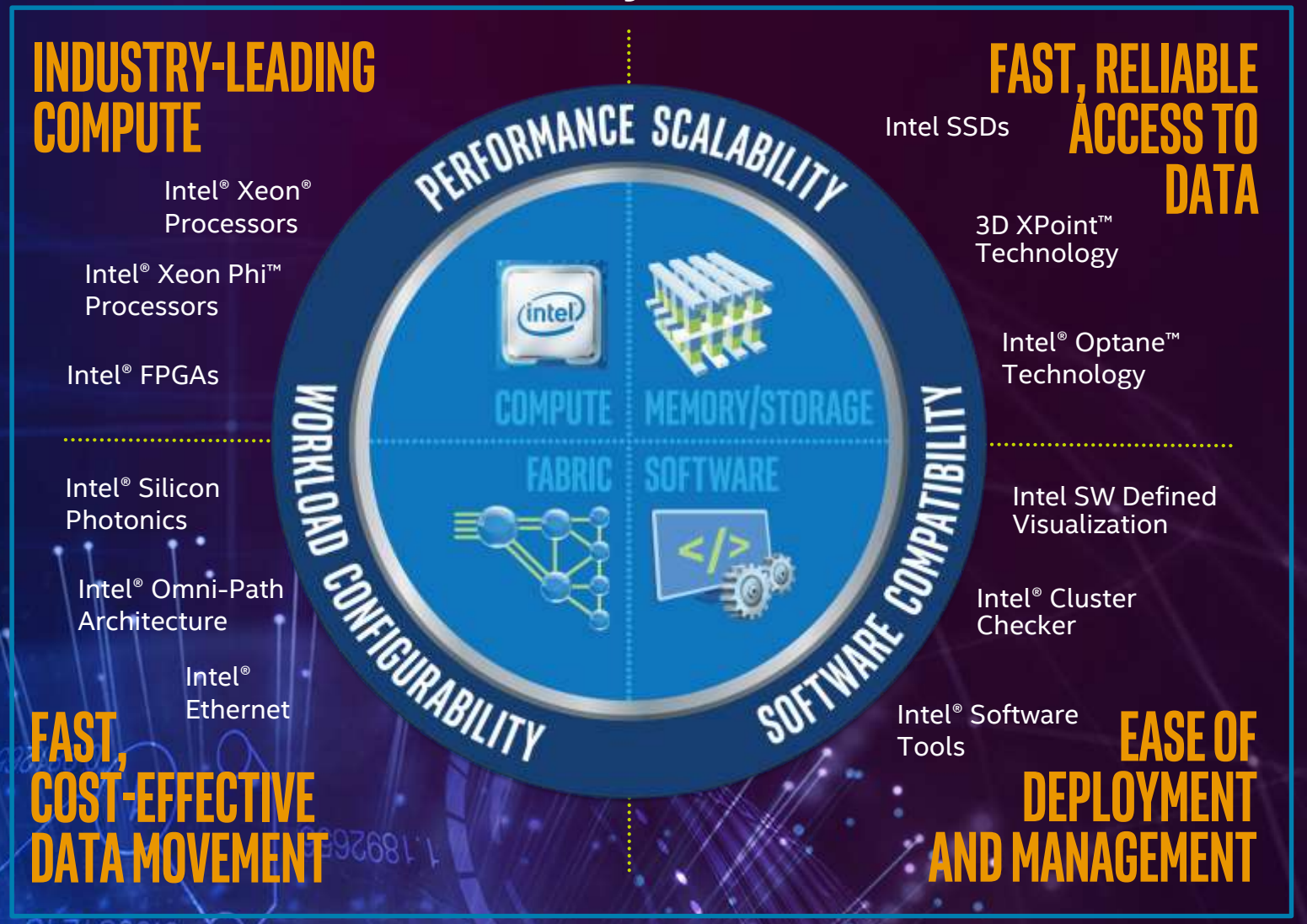
How It Works?

INNOVATIVE TECHNOLOGIES

+

TIGHTER INTEGRATION AND CO-DESIGN

Intel® Scalable System Framework



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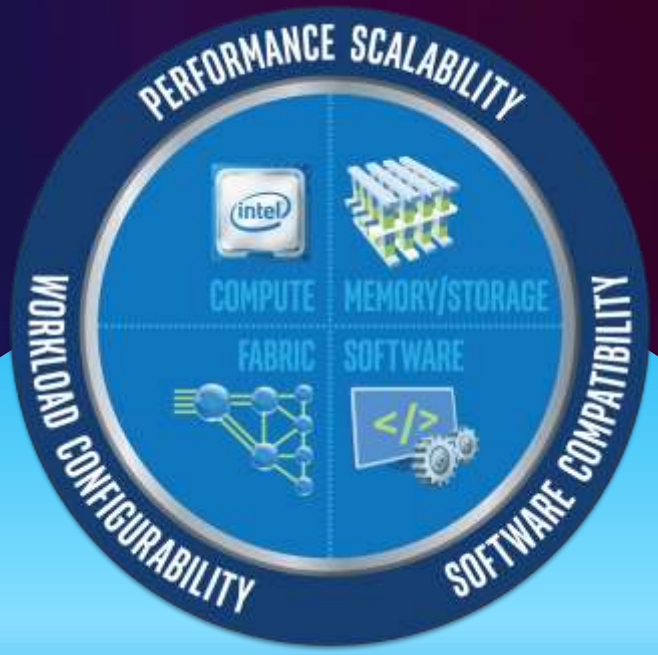
Key Elements of Intel® SSF



INTEL® SCALABLE SYSTEM FRAMEWORK

- MARKET LEADING[1] — Intel Xeon inside
- HIGHLY PARALLEL — Intel Xeon Phi inside
- COST ADVANTAGE[2] — Intel® Omni-Path Architecture
- INTEL CONTRIBUTED — Open HPC
- FLEXIBILITY & STABILITY[3] — Intel SSD inside

* Other names and brands may be claimed as the property of others. [1]*Source: Intel estimates.* [2]See slide 6 for details. [3]See slide 20 for details. [4]See slide 19 for details.

AI WILL USHER IN A BETTER WORLD

ON THE SCALE OF THE AGRICULTURAL, INDUSTRIAL AND DIGITAL REVOLUTIONS

ACCELERATE
Large-Scale Solutions

Cure Diseases
Eliminate Fraud
Unlock Dark Data

UNLEASH
Scientific Discovery

Explore Deep Sea/Space
Solve Particle Physics
Decode the Brain

AUGMENT
Human Capability

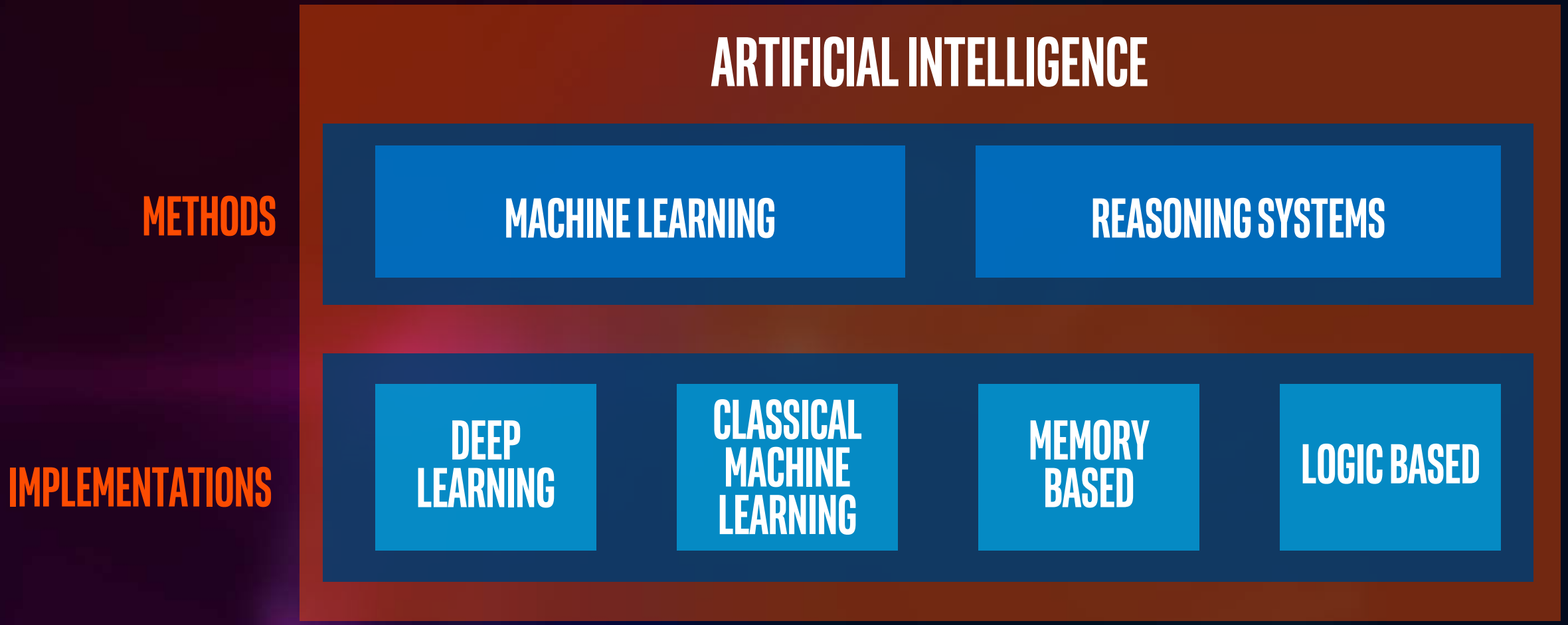
Personalized Guidance
Enhance Decisions
Prevent Crime

AUTOMATE
Risky/Tedious Tasks

Automate Driving
Search & Rescue
No More Chores

Source: Intel

THE DIVERSITY OF AI

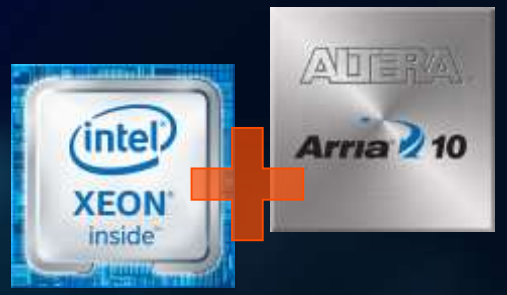


INTEL® AI PORTFOLIO

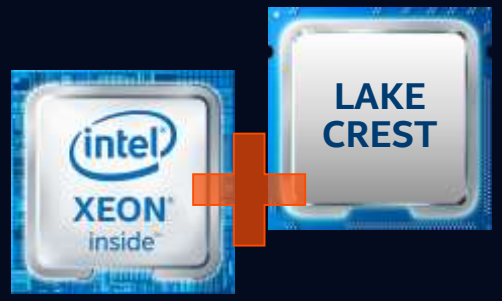
Common architecture for AI implementations

Most widely deployed machine learning solution

High performance, general purpose machine learning



Programmable, low-latency inference



Best in class neural network performance[1]

TARGETED ACCELERATION

Other names and brands may be claimed as the property of others

1. Results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling, and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance. Competitive performance data based on publicly available projections.

INTEL® AI PLATFORM
FOR DEEP LEARNING

ANNOUNCED

INTEL NEURAL NETWORK PROCESSOR

Discrete accelerator
First silicon in 2017

ANNOUNCED

KNIGHTS CREST

Bootable Intel Xeon Processor with integrated acceleration

DELIVERING 100X REDUCTION IN TIME TO TRAIN BY 2020

COMPARED TO 2016 FASTEST SOLUTION[1]

1. Results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling, and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance

AI TRANSFORMING HEALTHCARE

THE MICHAEL J. FOX FOUNDATION FOR PARKINSON'S RESEARCH

OICR Ontario Institute for Cancer Research

OREGON HEALTH & SCIENCE UNIVERSITY OHSU

DANA-FARBER CANCER INSTITUTE

NATIONAL CANCER INSTITUTE

U.S. DEPARTMENT OF ENERGY

Penn Medicine

BROAD INSTITUTE

TREATING PARKINSON'S DISEASE

COLLABORATIVE CANCER CLOUD

NEW DRUG DISCOVERY

REDUCING HOSPITAL READMISSIONS

ANNOUNCING

SCALABLE GENOMICS CENTER

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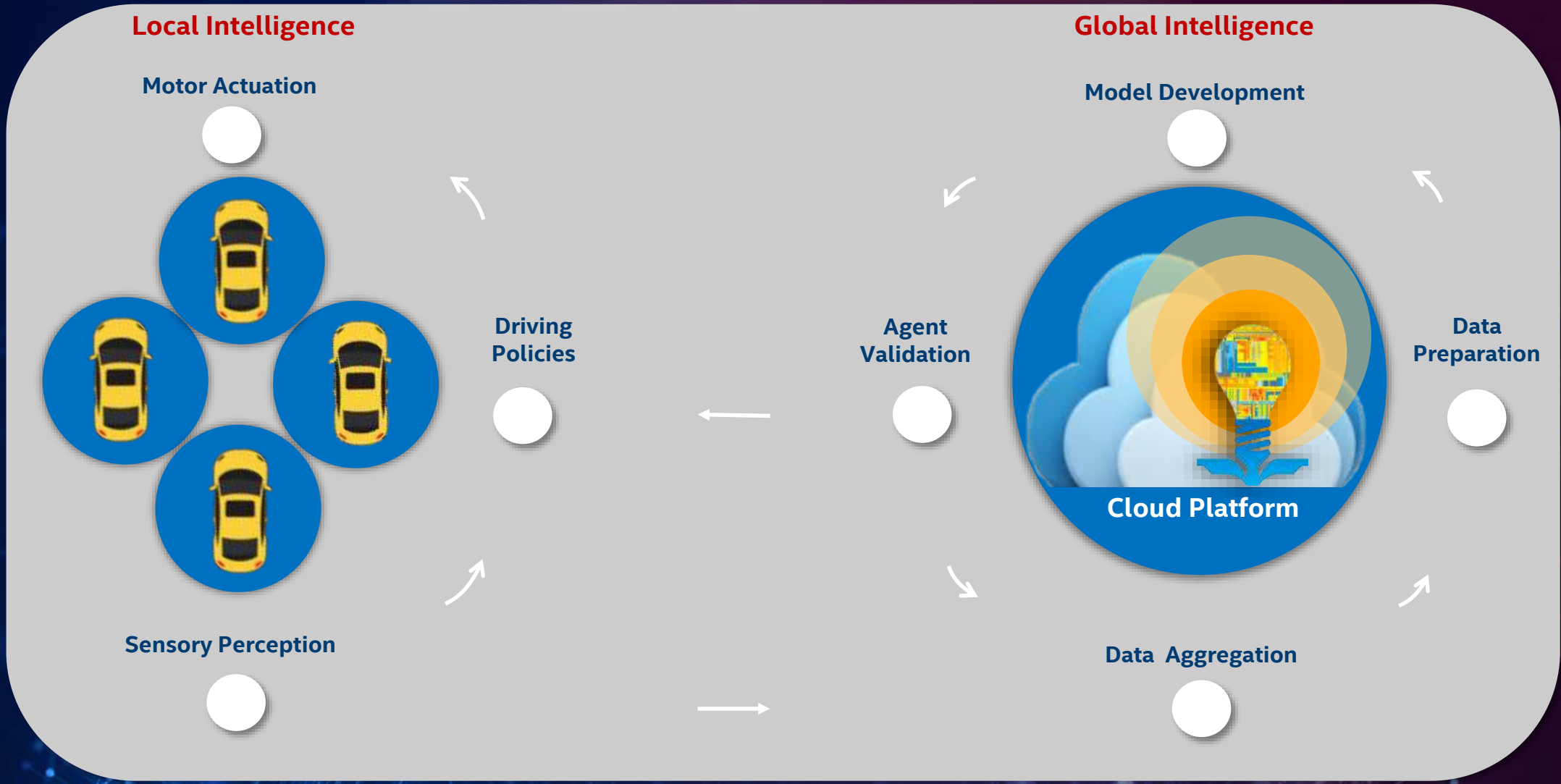
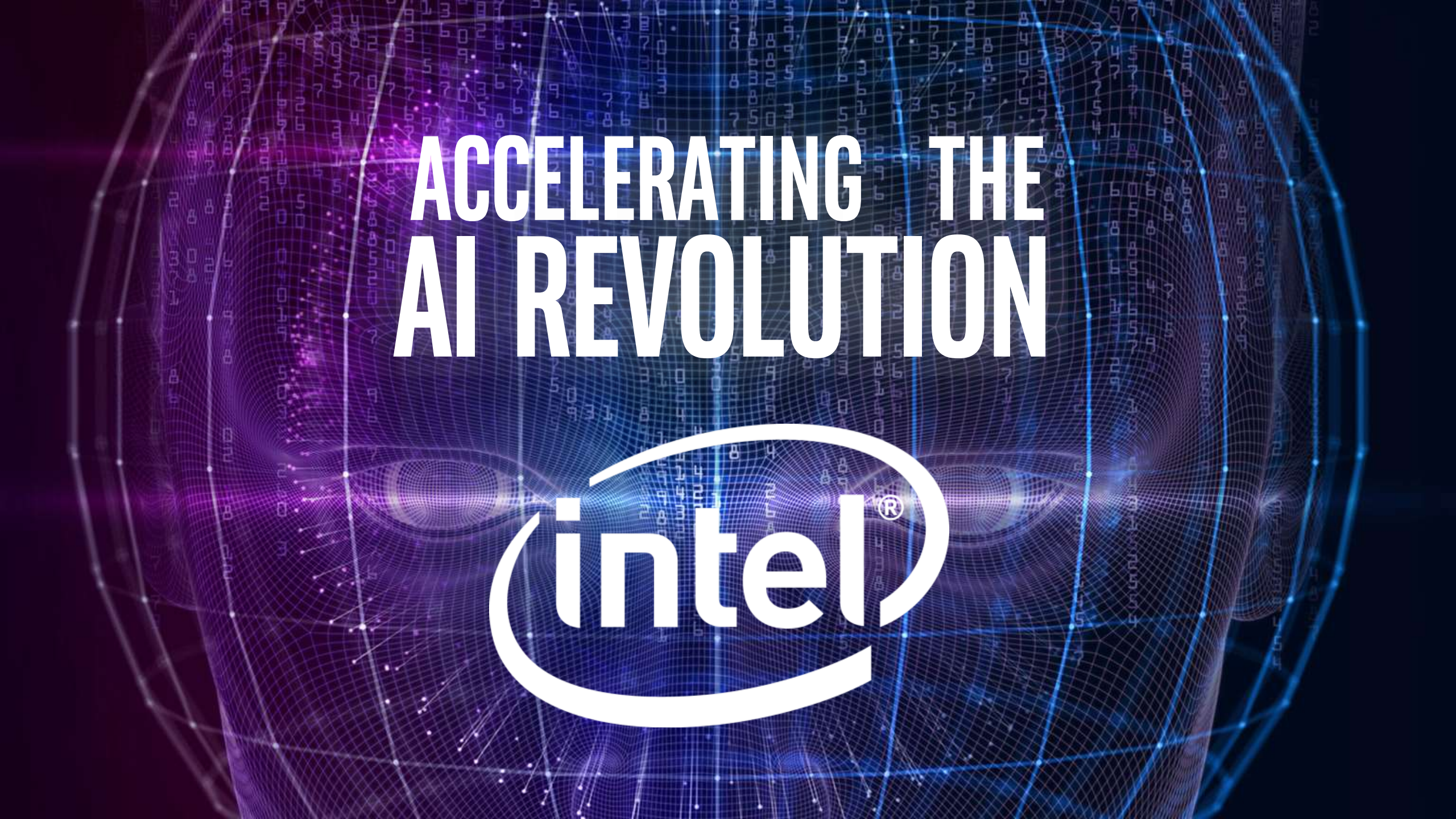
AUTONOMOUS DRIVING




ACCELERATING THE
AI REVOLUTION
intel®

intel
THANK YOU