UNLEASHING THE POSSIBILITIES IN THE DATA CENTRIC WORLD

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DIRECTOR, INTEL OPTANE PERSISTENT MEMORY
SALES AND MARKETING GROUP

THE DATA-CENTRIC WORLD

OVER **HALF** OF THE WORLD'S DATA

WAS CREATED IN THE LAST **2 YEARS**

LESS THAN **2%** HAS BEEN ANALYZED

Source: Data Age 2025, sponsored by Seagate with data from IDC Global DataSphere, Nov 2018

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INDUSTRY MEGA TRENDS

PROLIFERATION OF
CLOUD COMPUTING

GROWTH OF
AI & ANALYTICS

CLOUDIFICATION OF THE
NETWORK & EDGE

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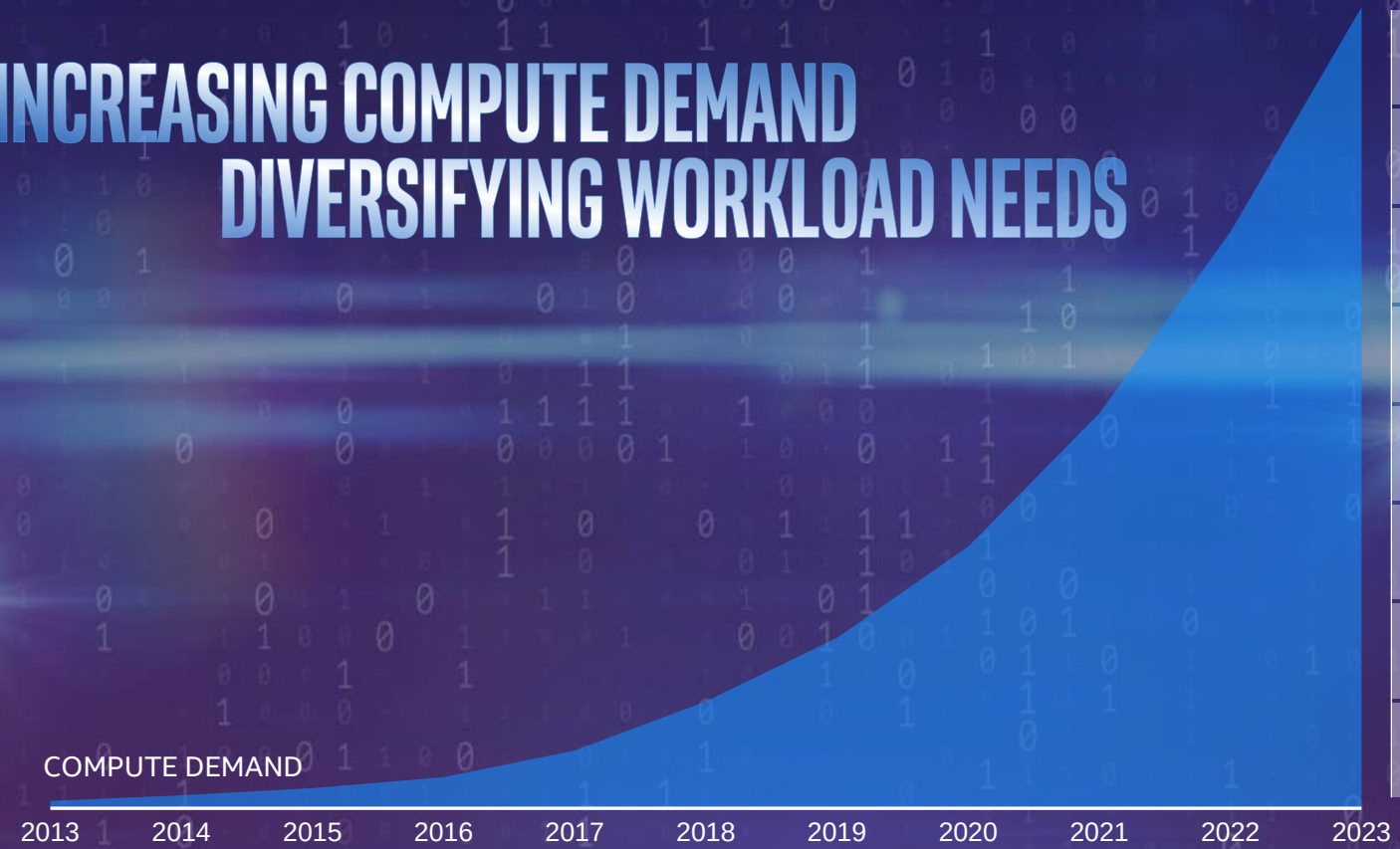
EXPLOSION IN DEMAND FOR COMPUTE

INCREASING COMPUTE DEMAND
DIVERSIFYING WORKLOAD NEEDS



- AI
- ANALYTICS
- HPC
- MULTI-CLOUD & ORCHESTRATION
- NETWORK
- DATABASE
- VIRTUALIZATION
- SECURITY

Source: Intel analysis

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INVESTING IN OUR TRANSFORMATION

DATA CENTER
~$11B

MOBILE / 5G
~$12B

MEMORY
~$15B

M&A
~$30B

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INTEL'S DATA-CENTRIC FUTURE

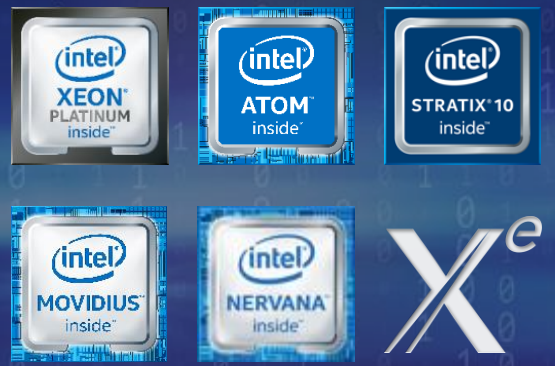
MOVE FASTER

- intel ETHERNET
- intel SILICON PHOTONICS
- intel OMNI-PATH FABRIC

STORE MORE

- intel OPTANE™ DC PERSISTENT MEMORY
- intel OPTANE™ DC SOLID STATE DRIVE

PROCESS EVERYTHING



SOFTWARE & SYSTEM-LEVEL OPTIMIZED

intel select solution

* Source: Intel

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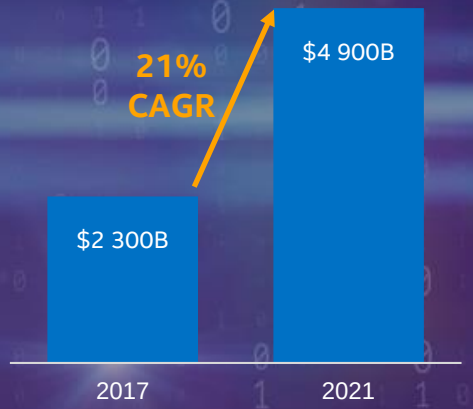
CLOUD IS EVERYWHERE... GROW

Digital services

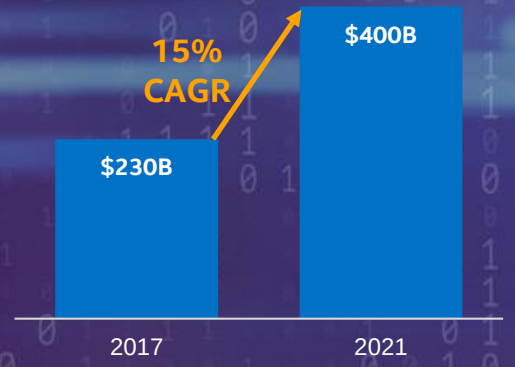
XaaS
(IaaS, PaaS, FaaS, & SaaS)



amazon

ebay

ozon.ru выбирайте

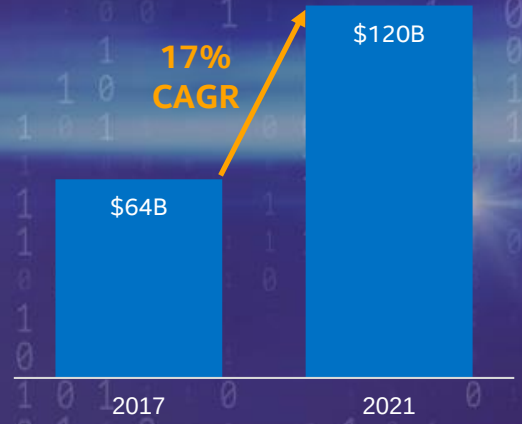


Google

facebook

twitter

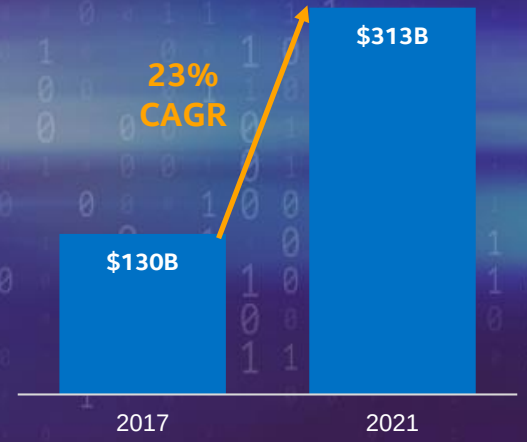
Yandex



NETFLIX

ОНЛАЙН-КИНОТЕАТР

twitch



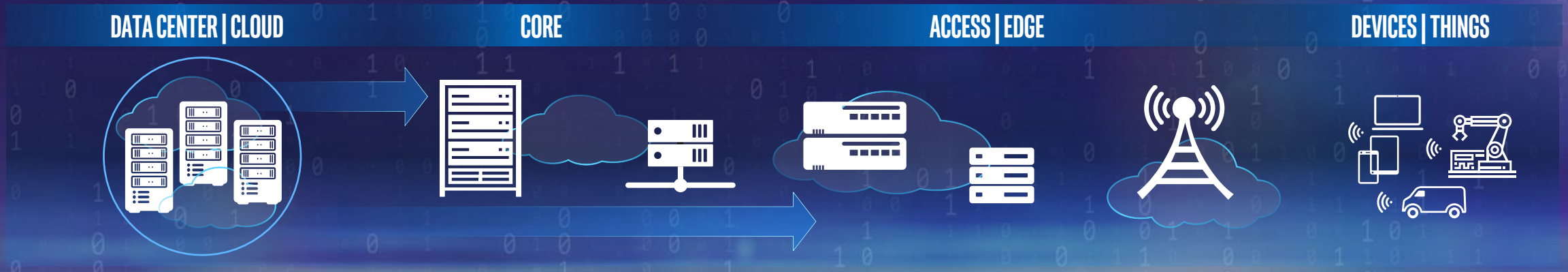
Microsoft Azure

Dropbox

Selectel

intel

CLOUDIFICATION OF THE NETWORK



THE NETWORK MOVES TO IA

2011 — **NFV** DEFINED

2013 — **1ST NFV** PROOF OF CONCEPTS

2015 — **20%** OF COMMS SPS ADOPT NFV

2017 — **DPDK** MOVES TO LINUX FOUNDATION

2018 — **65%** NETWORK IS VIRTUALIZED — at&t

2019 — **1ST 100%** CLOUD-NATIVE NETWORK — Rakuten

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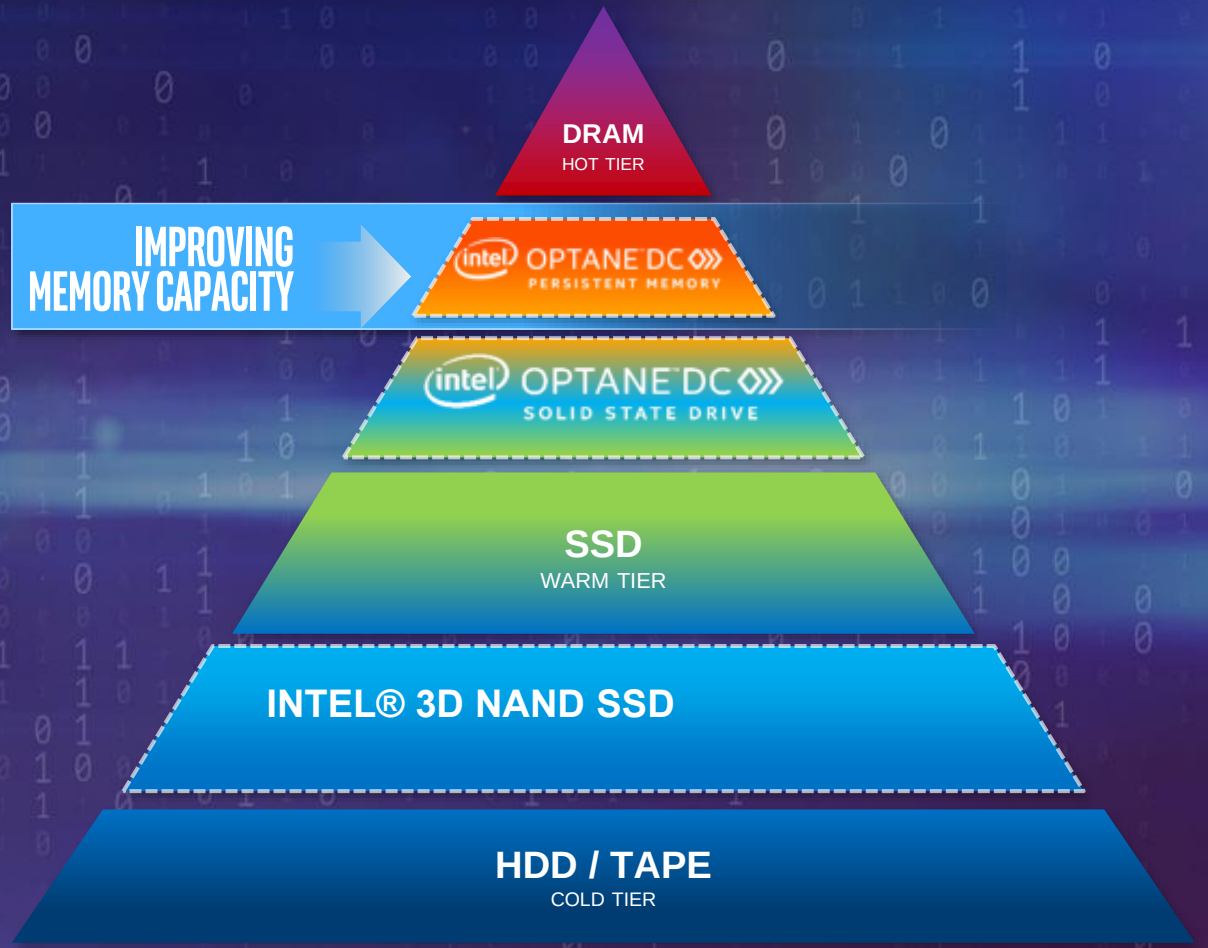
RE-ARCHITECTING THE STORAGE TIER

BIG MEMORY BIGGER INSIGHTS

intel OPTANE™ DC PERSISTENT MEMORY

[1] Based on Intel internal estimates



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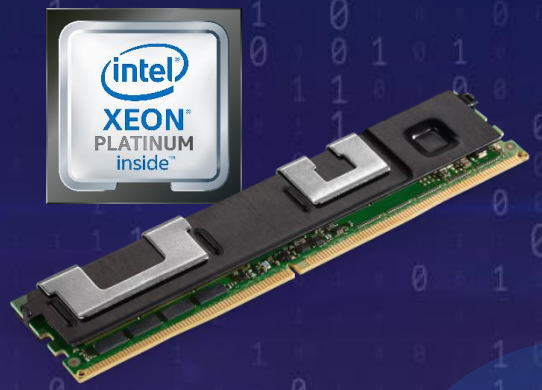

INTEL® OPTANE™ DC PERSISTENT MEMORY

MEMORY INNOVATION 10 YEARS IN THE MAKING

ECOSYSTEM SUPPORT

SOLUTION OPTIMIZATION

TECHNOLOGY INNOVATIONS

UP TO **36TB**
8 SOCKET SYSTEM

9.1B
SAP BW ON HANA RECORDS
NEW WORLD RECORD

redis
UP TO **8X** MORE VM INSTANCES
MEETING SUB-mS SLA

Performance results are based on testing: 8X (2/19/2019), and may not reflect all publicly available security updates. No product can be absolutely secure. See configuration disclosure for details. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to www.intel.com/benchmarks.

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INTEL® OPTANE™ DC PERSISTENT MEMORY DELIVERS...

EFFICIENT IN-MEMORY DATABASES

SAP®

35% LOWER COST PER DB TERABYTE

DENSER HYPER-CONVERGED INFRASTRUCTURE

vmware®

33% MORE VSAN VMS PER NODE

REDUCED IO BOTTLENECKS

cassandra

UP TO **9X** MORE READ TRANSACTIONS (OPS/SEC)

FASTER ANALYTICS INSIGHTS

APACHE Spark™

8X FASTER QUERIES VS. DRAM+SSD

CONSOLIDATED INFRASTRUCTURE

Microsoft® SQL Server

50% NODE CONSOLIDATION

LOWER TCO

SAS® Viya®

UP TO **34%** LOWER MEMORY COST

FOR MORE COMPLETE INFORMATION ABOUT PERFORMANCE AND BENCHMARK RESULTS, VISIT WWW.INTEL.COM/BENCHMARKS.

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MOMENTUM: INTEL® OPTANE™ DC PERSISTENT MEMORY

Alibaba Group 阿里巴巴集团 IN-HOUSE APPS	ATB Financial SAP HANA	CERN IN-HOUSE APPS	COMCAST CDN
epcc HPC	GEBERIT SAP HANA	Google Cloud SAP HANA	Kingsoft Cloud IMDB
Microsoft Azure SAP HANA	panzura ELASTICSEARCH, VMWARE VSPHERE	phoenixNAP GLOBAL IT SERVICES VMWARE ESX	TACC HPC
T-Systems SAP HANA	UC San Diego MSQL, LMDB, ROCKSDB, MONGODB, MEMCACHED, REDIS	University of Science and Technology of China AUTOMATION, REDFISH INTEGRATION	ZTO 中通快递 ZTO EXPRESS SPARK, AI

SAP

SAP + Intel Joint Innovation Center

"Intel, a great company, and SAP have entered into a partnership to optimize the features and technologies in SAP HANA for Intel Xeon Scalable processors and Intel Optane DC persistent memory. This will deliver customers' industry leading performance and TCO advantage for SAP S/4 HANA."

Bill McDermott
Chief Executive Officer
SAP AG

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DREW PETERSON
TECHNICAL SPECIALIST, INTEL OPTANE PERSISTENT MEMORY
SALES AND MARKETING GROUP
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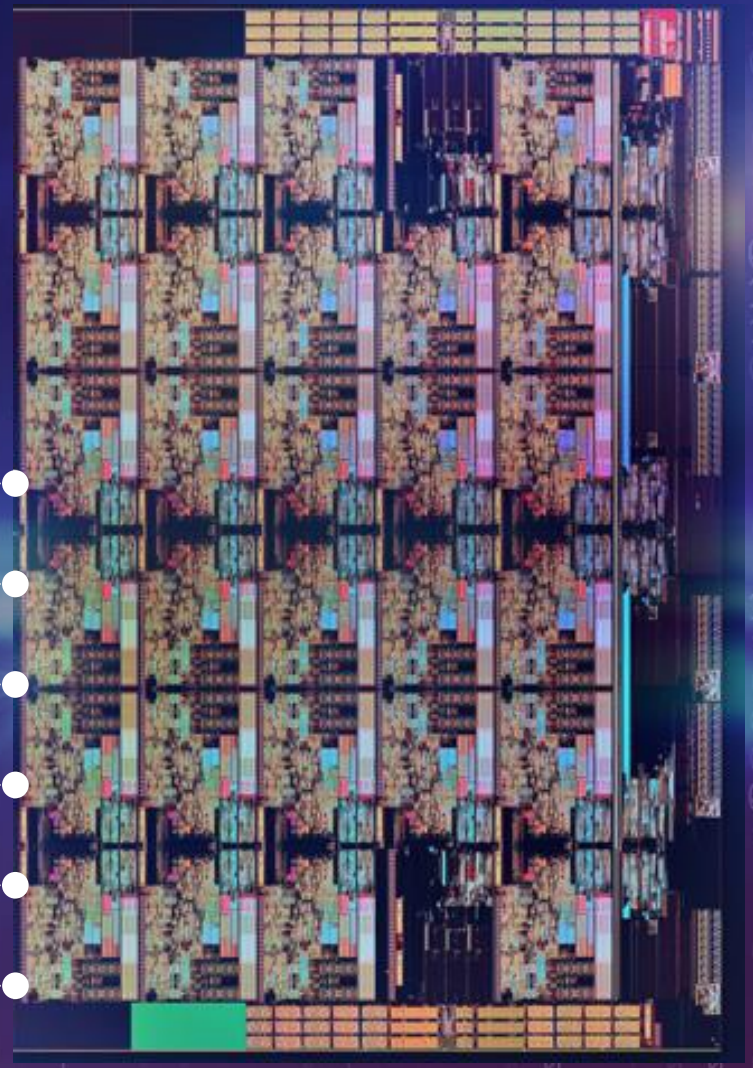
2ND GENERATION
INTEL® XEON® SCALABLE PROCESSORS

>50	DOZENS	8 TO 56	4.5TB	1 TO 8
STANDARD SKUS	CUSTOM SKUS	CORES PER SOCKET	MEMORY PER SOCKET	SOCKETS

- INTEL® OPTANE™ DC PERSISTENT MEMORY
- INTEL® DEEP LEARNING BOOST
- INTEL® SPEED SELECT TECHNOLOGY
- NETWORK-OPTIMIZED SKUS
- CLOUD-OPTIMIZED SKUS
- SECURITY MITIGATIONS



BUILDING ON **20 YEARS** OF DATA CENTER PROCESSOR INNOVATION

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WORLD RECORD + REAL WORKLOAD
PERFORMANCE LEADERSHIP

LAMMPS
BUSINESS ANALYTICS
2.19X
9242 VS 8160

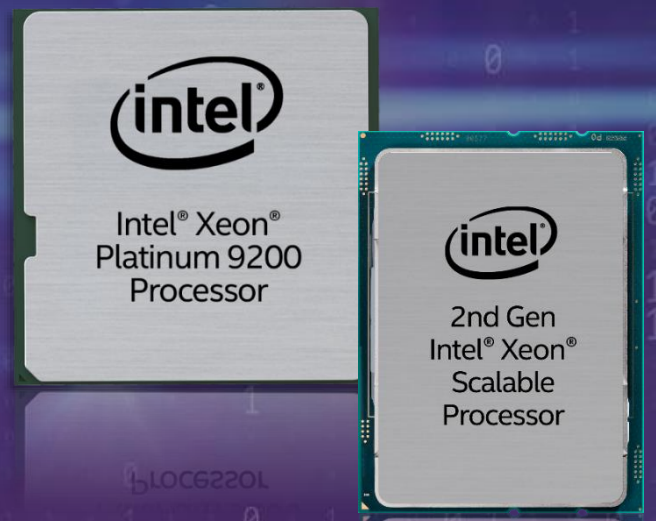
LS-DYNA
BUSINESS ANALYTICS
2.01X
9242 VS 8160

宝信软件 BAOSIGHT
BUSINESS ANALYTICS
1.39X
8280+OPTANE PM VS DRAM

AsiaInfo 亚信科技
BUSINESS ANALYTICS
1.54X
8280+OPTANE PM VS DRAM

MAXIMIZING MAINSTREAM SKUS

UP TO **1.33X** AVERAGE PERF GAIN GEN ON GEN



HUAWEI
CLOUD MANAGEMENT
1.42X MORE VMS
8260+OPTANE PM VS DRAM

GBASE®
IN-MEMORY DATABASE
1.35X
8260+OPTANE PM VS DRAM

云从科技 CLOUDWALK
BUSINESS ANALYTICS
3.38X LOWER LATENCY
8260 DLBOOST VS FP32

海鑫科金 HISIGN TECHNOLOGY
BUSINESS ANALYTICS
2.19X
8260 DLBOOST VS FP32

NOKIA
vNETWORK GATEWAY
2.0X
5218N+QAT VS 5118

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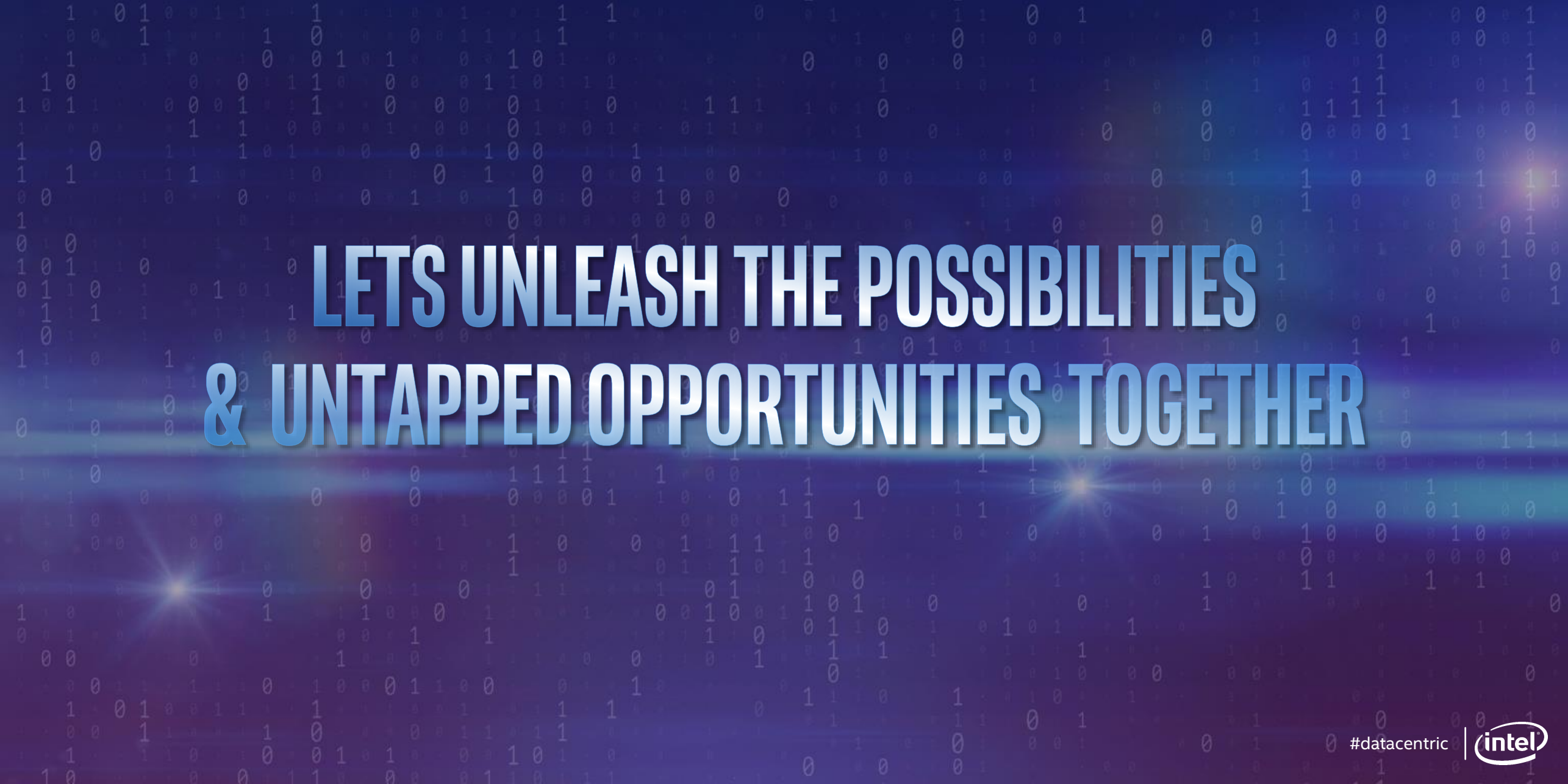
LETS UNLEASH THE POSSIBILITIES
& UNTAPPED OPPORTUNITIES TOGETHER
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