INCREASING CUSTOMER VALUE

INTEL® RACK SCALE DESIGN ARCHITECTURE
- Cloud Service Providers
- Comm Service Providers
- Enterprises

INTEL® SELECT SOLUTIONS
- Analytics
- Artificial Intelligence
- Hybrid Cloud
- Network Transformation
- HPC

INTEL SILICON FOUNDATION
- CPUs
- Chipsets
- Ethernet
- Fabric
- Network ASICs
- Silicon Photonics
- Persistent Memory
- Accelerators
- SSDs

INTEL® DCI Summit

#IntelDCISummit
INTEL® SELECT SOLUTIONS
Simplify & Accelerate Deployment of Workload-Optimized Infrastructure

Simplified Evaluation
- Eliminate Guesswork Through Tightly Specified HW and SW Components

Fast & Easy to Deploy
- Deploy Smoothly With Pre-defined Settings and System-wide Tuning

Workload Optimized
- Benchmarked for Specific Workloads to Deliver Optimal Performance
CREATION OF INTEL® SELECT SOLUTIONS

MARKET TRENDS
FOCUS WHERE THERE IS MARKET OPPORTUNITY | UNCERTAINTY | DIFFICULTY

- INTEL SILICON FOUNDATION
- SOFTWARE OPTIMIZATION
- SYSTEM CONFIGURATION & VALIDATION
- OPEN DOCUMENTATION

BROAD ECOSYSTEM ENABLING
INTEL® SELECT SOLUTION FOR VMWARE vSAN

MARKET TRENDS
SOFTWARE DEFINED STORAGE | ALL-FLASH ARRAYS

SILICON
- Intel® Xeon® Scalable Processors
- Intel® Optane™ DC SSD
- Intel® Ethernet

SOFTWARE
- VMware ESXi & vSAN 6.6, Optimized for:
  - Intel® AVX-512
  - Intel Optane DC SSD
  - Intel® VMD

CONFIGURATIONS
- Balanced Cache & Volume SSDs
- Optimized SW/FW Configuration
- Validation Rigor for Consistent Performance

DOCUMENTATION
- Intel Solution Brief
- Reference Architecture
- OEM Solution Briefs

UP TO 13X MORE VMs SUPPORTED1 vs. PRIOR-GEN VSAN CONFIG
UP TO 8X BETTER PRICE/PERFORMANCE1 vs. PRIOR-GEN VSAN CONFIG

Performance results are based on testing as of August ‘18 and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.
1. Config details on last slide
GENOMICS DATA CHALLENGES

SIZE
DATA MANAGEMENT
90 GB¹ OF DATA GENERATED BY ONE HUMAN GENOME

SPEED
WORKFLOW EFFICIENCY
TODAY: WEEKS
FUTURE: ONE DAY

SCALABILITY
INCREASING REQUIREMENTS
HUMAN GENOMES SEQUENCED²

COST
RETURN ON INVESTMENT
COST PER GENOME³

2. Source: "Big Data: Astronomical or Genomical?", PLoS Biology, Figure 1 http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002195
Ease deployment and speed time to genomic pipelines for life sciences research and healthcare insights – based on the BIGstack* 2.0 reference architecture.

SCALABILITY

UP TO

5X

MORE GENOMES¹
PROCESSED
WITH GenomicsDB

SPEED

UP TO

3X

FASTER¹
FROM 6 TO 2 WEEKS

1. Source: Data presented by, and slide courtesy of Broad Institute, Geraldine Van der Auwera, Ph.D., BioIT World May 24, 2017 https://software.broadinstitute.org/gatk/gatk4
For more information on Intel® Select Solutions for Genomics Analytics, visit https://builders.intel.com/docs/intel-select-genomics-analytics.pdf
For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

#IntelDCISummit

*Other names and brands may be claimed as the property of others.
INTEL® SELECT SOLUTIONS
BROAD PORTFOLIO TO ADDRESS KEY WORKLOADS

ANALYTICS
- MICROSOFT® SQL SERVER BUSINESS OPERATIONS
- MICROSOFT® SQL SERVER ENTERPRISE DATA WAREHOUSE
- GENOMICS ANALYTICS
- SAP® HANA CERTIFIED APPLIANCES

ARTIFICIAL INTELLIGENCE
- BIG DL ON APACHE SPARK®

HYBRID CLOUD
- MICROSOFT AZURE STACK®
- VMWARE CLOUD FOUNDATION®
- RED HAT OPENSFIFT CONTAINER
- VMWARE VSAN®
- WINDOWS SERVER® SDS
- BLOCKCHAIN: HYPERLEDGER FABRIC

NETWORK TRANSFORMATION
- UNIVERSAL CUSTOMER PREMISES EQUIPMENT
- NFVI: RED HAT®
- NFVI: UBUNTU®

HPC
- SIMULATION & MODELING
- PROFESSIONAL VISUALIZATION

DATA-CENTRIC INNOVATION SUMMIT

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

1. Source: Intel internal data
INTEL® SELECT SOLUTIONS
BROAD PORTFOLIO TO ADDRESS KEY WORKLOADS

ANALYTICS
- Microsoft* SQL Server Business Operations
- Microsoft* SQL Server Enterprise Data Warehouse
- Genomics Analytics
- SAP* HANA Certified Appliances

ARTIFICIAL INTELLIGENCE
- Big DL on Apache Spark*

HYBRID CLOUD
- Microsoft Azure Stack*
- VMware Cloud Foundation*
- Red Hat OpenShift* Container
- VMware vSAN*
- Windows Server* SDS
- Blockchain: Hyperledger Fabric

NETWORK TRANSFORMATION
- Universal Customer Premises Equipment
- NFV: Red Hat*
- NFV: Ubuntu*

HPC
- Simulation & Modeling
- Professional Visualization

10%
- Higher mix of Gold/Platinum CPUs

2X
- Adjacency attach

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

1. Source: Intel internal data

#IntelDCISummit
INTEL® SELECT SOLUTIONS
BROAD PORTFOLIO TO ADDRESS KEY WORKLOADS

ANALYTICS
- Microsoft® SQL Server Business Operations
- Microsoft® SQL Server Enterprise Data Warehouse
- Genomics Analytics
- SAP® HANA Certified Appliances

ARTIFICIAL INTELLIGENCE
- Big DL on Apache Spark®

HYBRID CLOUD
- Microsoft Azure Stack®
- VMware Cloud Foundation®
- Red Hat® OpenShift® Container
- VMware vSAN®
- Windows Server® SDS
- Blockchain: Hyperledger Fabric

NETWORK TRANSFORMATION
- Universal Customer Premises Equipment
- NFV: Red Hat®
- NFV: Ubuntu®

HPC
- Simulation & Modeling
- Professional Visualization

1. Source: Intel internal data

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

10% higher mix of Gold/Platinum CPUs

2X Adjacency Attach

#IntelDCISummit
INTEL® SELECT SOLUTIONS
BROAD PORTFOLIO TO ADDRESS KEY WORKLOADS

ANALYTICS
- Microsoft® SQL Server Business Operations
- Microsoft® SQL Server Enterprise Data Warehouse
- Genomics Analytics
- SAP® HANA Certified Appliances

ARTIFICIAL INTELLIGENCE
- Big DL on Apache Spark*

HYBRID CLOUD
- Microsoft Azure Stack*
- VMware Cloud Foundation*
- Red Hat OpenShift® Container
- VMware vSAN*
- Windows Server* SDS
- Blockchain: Hyperledger Fabric

NETWORK TRANSFORMATION
- Universal Customer Premises Equipment
- NFV: Red Hat*
- NFV: Ubuntu*

HPC
- Simulation & Modeling
- Professional Visualization

10%
- Higher mix of Gold/Platinum CPUs

2X
- Adjacency Attach

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

1. Source: Intel internal data
BRINGING CLOUD EFFICIENCIES TO MORE DATACENTERS
INTEL® RACK SCALE DESIGN
INTEL’S ARCHITECTURE VISION FOR THE DATA CENTER

CUSTOMER VALUE:
- Higher workload performance
- Pooled: increases utilization
- Disaggregated: late-binding and independent refresh
- Composable: software defined resource allocation

OPTIMIZED INTEL SI:
- Larger nodes: Intel® Xeon® Scalable processors & Intel® Optane™ DC persistent memory
- Faster, intelligent networks: SmartNICs, silicon photonics
- Pooling of accelerators and storage: Intel® FPGAs, Intel® Nervana™ NNP\(^1\), Intel Optane DC SSDs

\(^{1} \text{Future} \)
ALIGNED ECOSYSTEM

INTEL® SELECT SOLUTIONS

INTEL® RACK SCALE DESIGN

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

#IntelDCISummit
IN CONCLUSION

IT’S A NEW ERA OF DATA-CENTRIC COMPUTING

THE DATA-CENTRIC OPPORTUNITY IS MASSIVE

INTEL HAS UNPARALLELED ASSETS TO FUEL GROWTH
Statements in this presentation that refer to business outlook, future plans and expectations are forward-looking statements that involve a number of risks and uncertainties. Words such as "anticipates," "expects," "intends," "goals," "plans," "believes," "seeks," "estimates," "continues," "may," "will," "would," "should," "could," and variations of such words and similar expressions are intended to identify such forward-looking statements. Statements that refer to or are based on projections, uncertain events or assumptions also identify forward-looking statements. Such statements are based on management's current expectations, unless an earlier date is indicated, and involve many risks and uncertainties that could cause actual results to differ materially from those expressed or implied in these forward-looking statements. Important factors that could cause actual results to differ materially from the company's expectations are set forth in Intel's earnings release dated July 26, 2018, which is included as an exhibit to Intel's Form 8-K furnished to the SEC on such date. Additional information regarding these and other factors that could affect Intel's results is included in Intel's SEC filings, including the company's most recent reports on Forms 10-K and 10-Q. Copies of Intel's Form 10-K, 10-Q and 8-K reports may be obtained by visiting our Investor Relations website at www.intc.com or the SEC's website at www.sec.gov.

All information in this presentation reflects management's views as of the date of this presentation, unless an earlier date is indicated. Intel does not undertake, and expressly disclaims any duty, to update any statement made in this presentation, whether as a result of new information, new developments or otherwise, except to the extent that disclosure may be required by law.
NOTICES & DISCLAIMERS

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.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration.

No computer system can be absolutely secure.

Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. For more complete information about performance and benchmark results, visit http://www.intel.com/benchmarks.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

Intel does not control or audit third-party benchmark data or the web sites referenced in this document. You should visit the referenced web site and confirm whether referenced data are accurate.

© 2018 Intel Corporation.

Intel, the Intel logo, Intel Xeon, Intel Optane, Intel Nervana, Stratix and Arria are trademarks of Intel Corporation in the U.S. and/or other countries.

*Other names and brands may be claimed as property of others.
Intel Select Solution for Vmware vSAN

- **Source:** The Evaluator Group, August 2018. Report to be publicly available by September 1, 2018.

- **Baseline configuration:** Four-node cluster, based on four Intel® Server Boards S2600WTT, each with 2x Intel® Xeon® processors E5-2699 v4 (22 cores @ 2.2 GHz with Intel® Hyper-Threading Technology); tested with 256 GB DRAM, priced for comparison at 512 GB DRAM; 1x Intel® SSD DC S3700-400; 4x Seagate 1 TB HDD; VSAN 6.5; IOmark-VM-HC validated configuration. Performance: 88 IOmark-VM-HC. Price/performance: $1,862/IOmark-VM-HC.

- **Select Solution-compliant configuration:** Four-node cluster, based on four Intel® Server Systems R2208WF, each with 2x Intel® Xeon® Gold 6154 (18 cores @ 3.0 GHz with Intel® Hyper-Threading Technology); tested with 256 GB DRAM, priced for comparison with 2x Intel® Xeon® Platinum 8168 (24 cores @ 2.7 GHz) at 768 GB DRAM; Intel® Ethernet Converged Network Adapter X540 AT2; 2x Intel® Optane™ SSD DC P4800X Series; 4x Intel® SSD DC P4500 Series 4TB. VSAN 6.7. Configuration not IOmark VM-HC validated. Performance: 1,152 IOmark-VMs (Note: Measured as a storage system, not hyper-converged). Price/performance: $230/IOmark-VM (Note: Measured as a storage system, not hyper-converged).

Intel Select Solution for Genomics Analytics