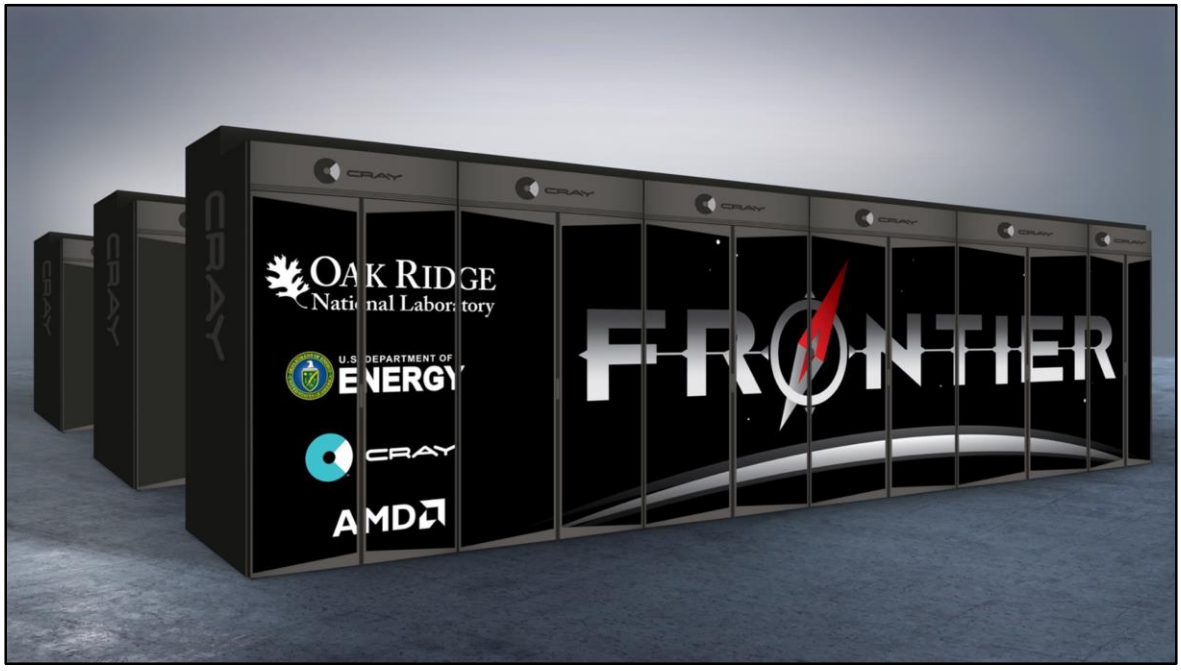
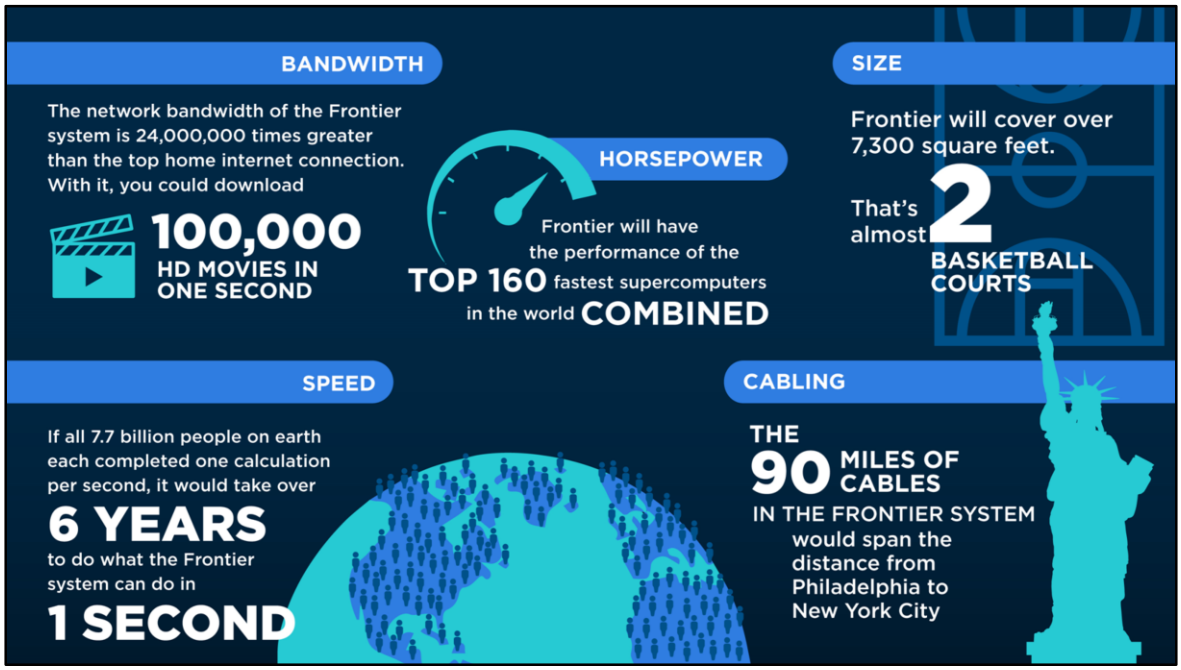
U.S. DEPARTMENT OF ENERGY AND CRAY TO DELIVER THE WORLD'S LEADING EXASCALE SYSTEM

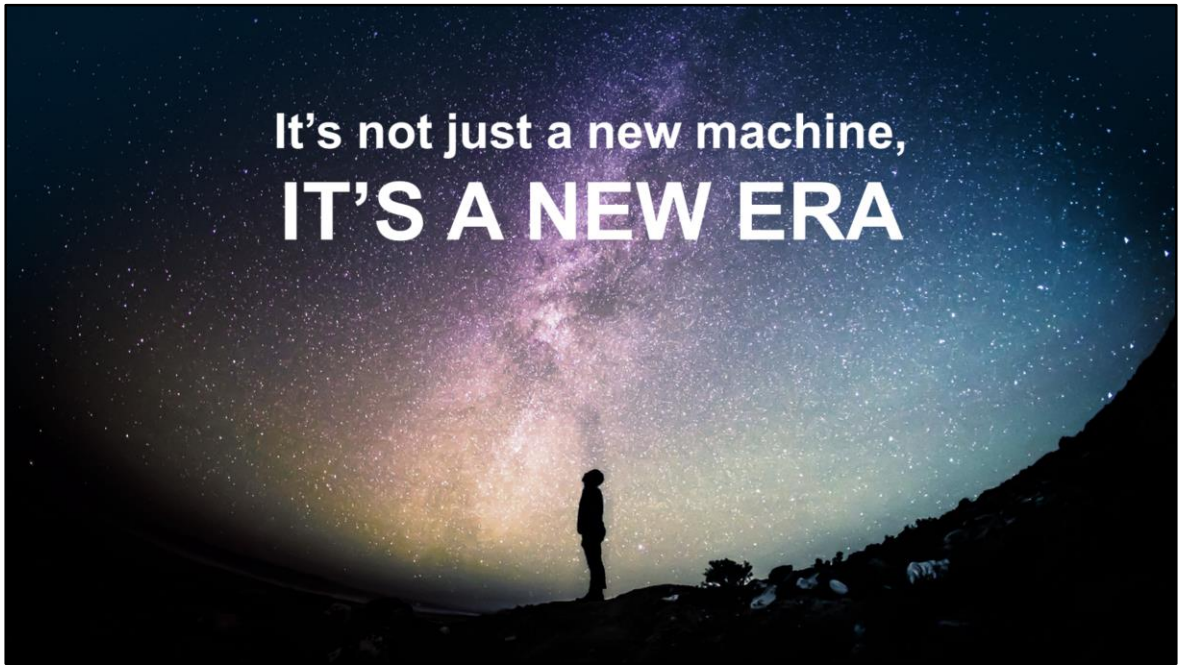
OAK RIDGE National Laboratory

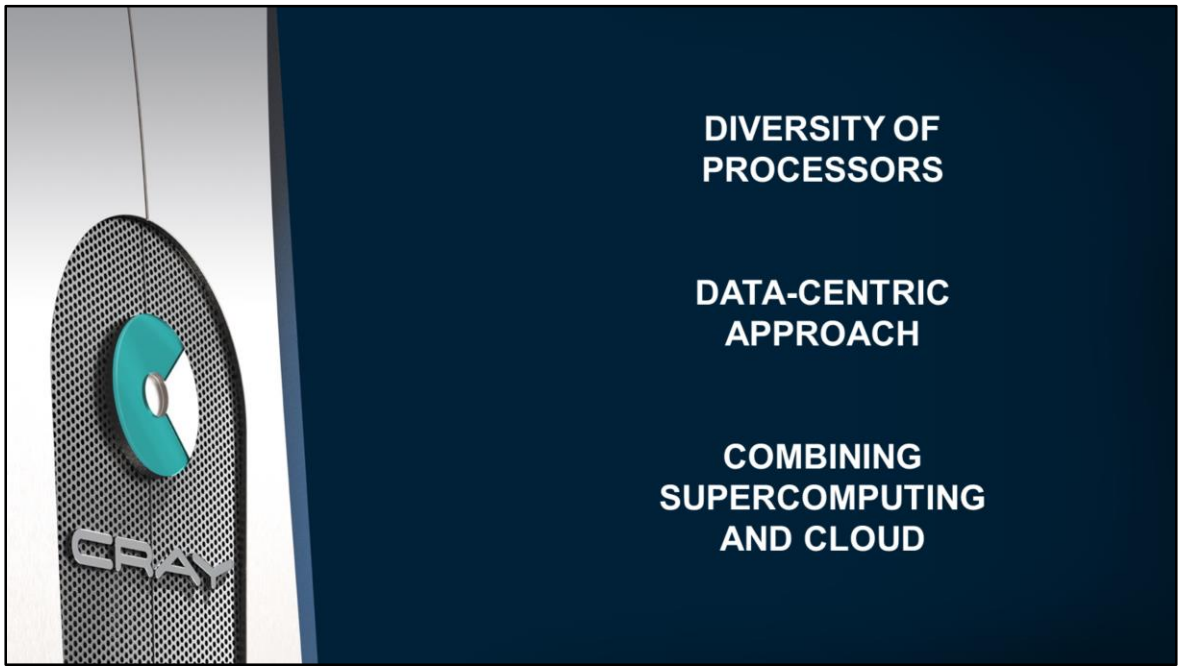
U.S. DEPARTMENT OF ENERGY

CRAY


OAK RIDGE
National Laboratory
U.S. DEPARTMENT OF
ENERGY
CRAY
AMD
FRONTIER


BANDWIDTH
The network bandwidth of the Frontier system is 24,000,000 times greater than the top home internet connection. With it, you could download
100,000
HD MOVIES IN ONE SECOND
HORSEPOWER
Frontier will have the performance of the
TOP 160 fastest supercomputers in the world COMBINED
SIZE
Frontier will cover over 7,300 square feet.
That's almost 2 BASKETBALL COURTS
SPEED
If all 7.7 billion people on earth each completed one calculation per second, it would take over
6 YEARS
to do what the Frontier system can do in
1 SECOND
CABLING
THE 90 MILES OF CABLES IN THE FRONTIER SYSTEM would span the distance from Philadelphia to New York City


It’s not just a new machine,
IT’S A NEW ERA


DIVERSITY OF PROCESSORS
DATA-CENTRIC APPROACH
COMBINING SUPERCOMPUTING AND CLOUD
CRAY

CRAY
AMD

AMD

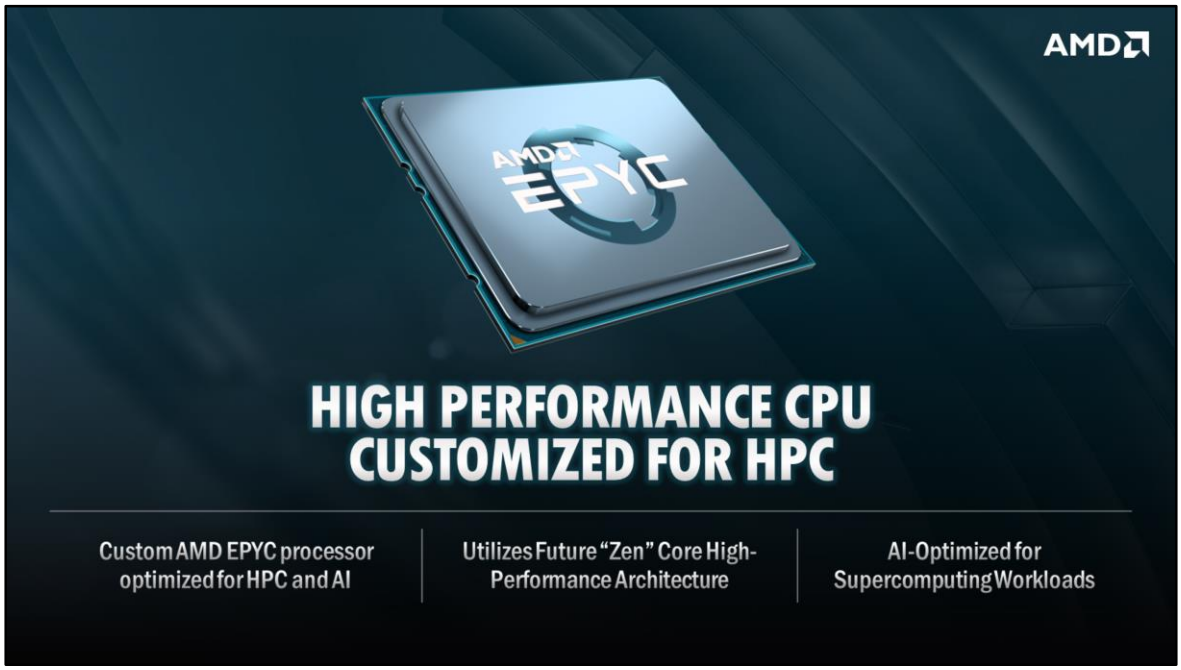
AMD

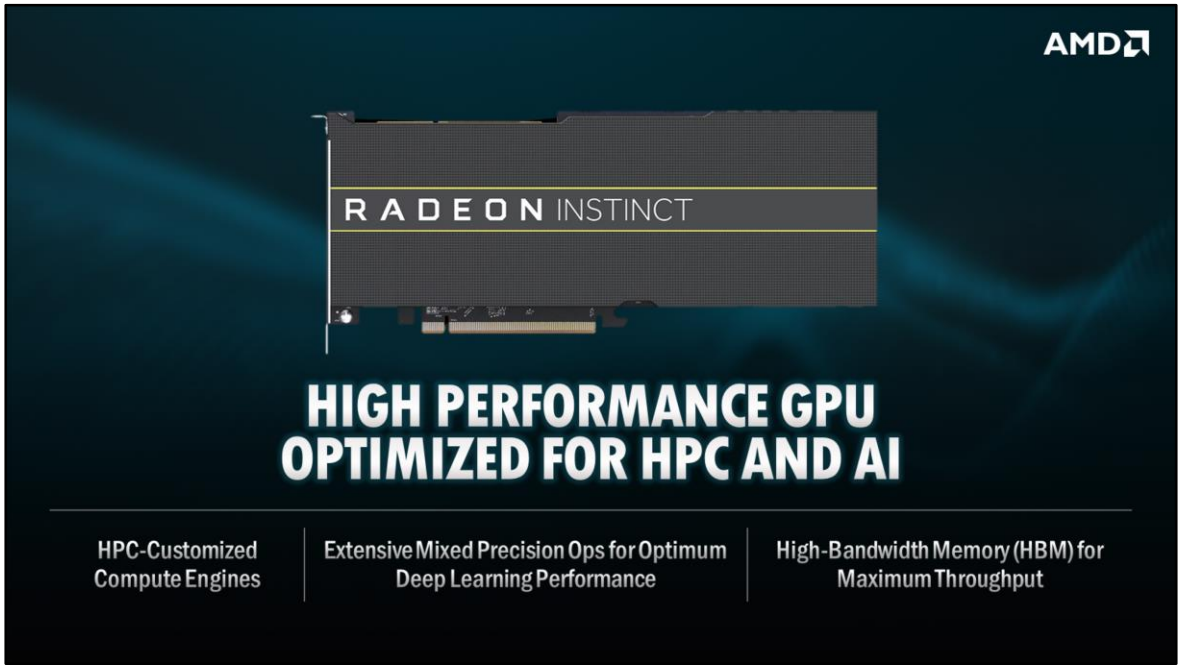
EXASCALE COMPUTING
REQUIRES NEW THINKING

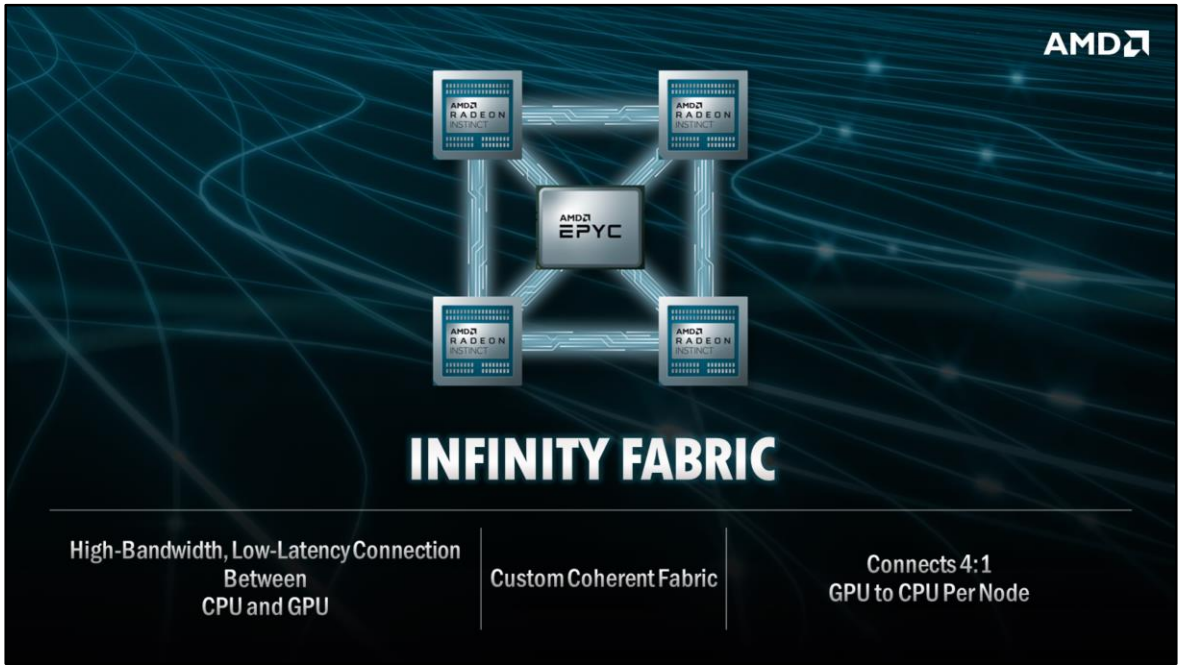
First Fully Optimized CPU and GPU Design for Supercomputing

Leadership Interconnects for System Performance

Open Software Tools to Unlock the Performance


AMD
AMD EPYC
HIGH PERFORMANCE CPU
CUSTOMIZED FOR HPC
Custom AMD EPYC processor optimized for HPC and AI
Utilizes Future "Zen" Core High-Performance Architecture
AI-Optimized for Supercomputing Workloads


AMD
RADEON INSTINCT
HIGH PERFORMANCE GPU
OPTIMIZED FOR HPC AND AI
HPC-Customized Compute Engines
Extensive Mixed Precision Ops for Optimum Deep Learning Performance
High-Bandwidth Memory (HBM) for Maximum Throughput


AMD
AMD RADEON INSTINCT
AMD RADEON INSTINCT
AMD EPYC
AMD RADEON INSTINCT
AMD RADEON INSTINCT
INFINITY FABRIC
High-Bandwidth, Low-Latency Connection Between CPU and GPU
Custom Coherent Fabric
Connects 4:1 GPU to CPU Per Node

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