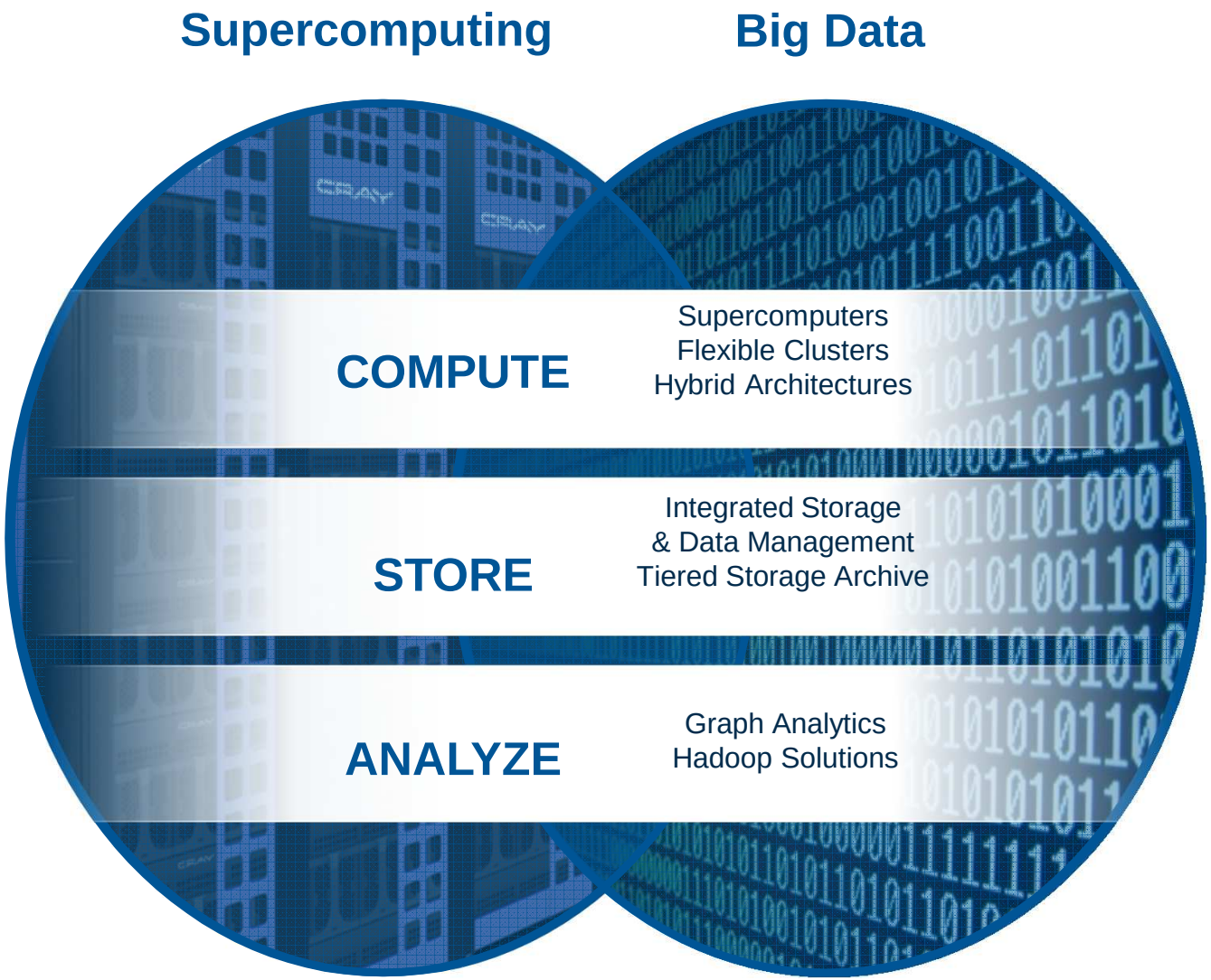
第十四回 PCクラスタシンポジウム
「クレイ・ソリューションのご紹介」

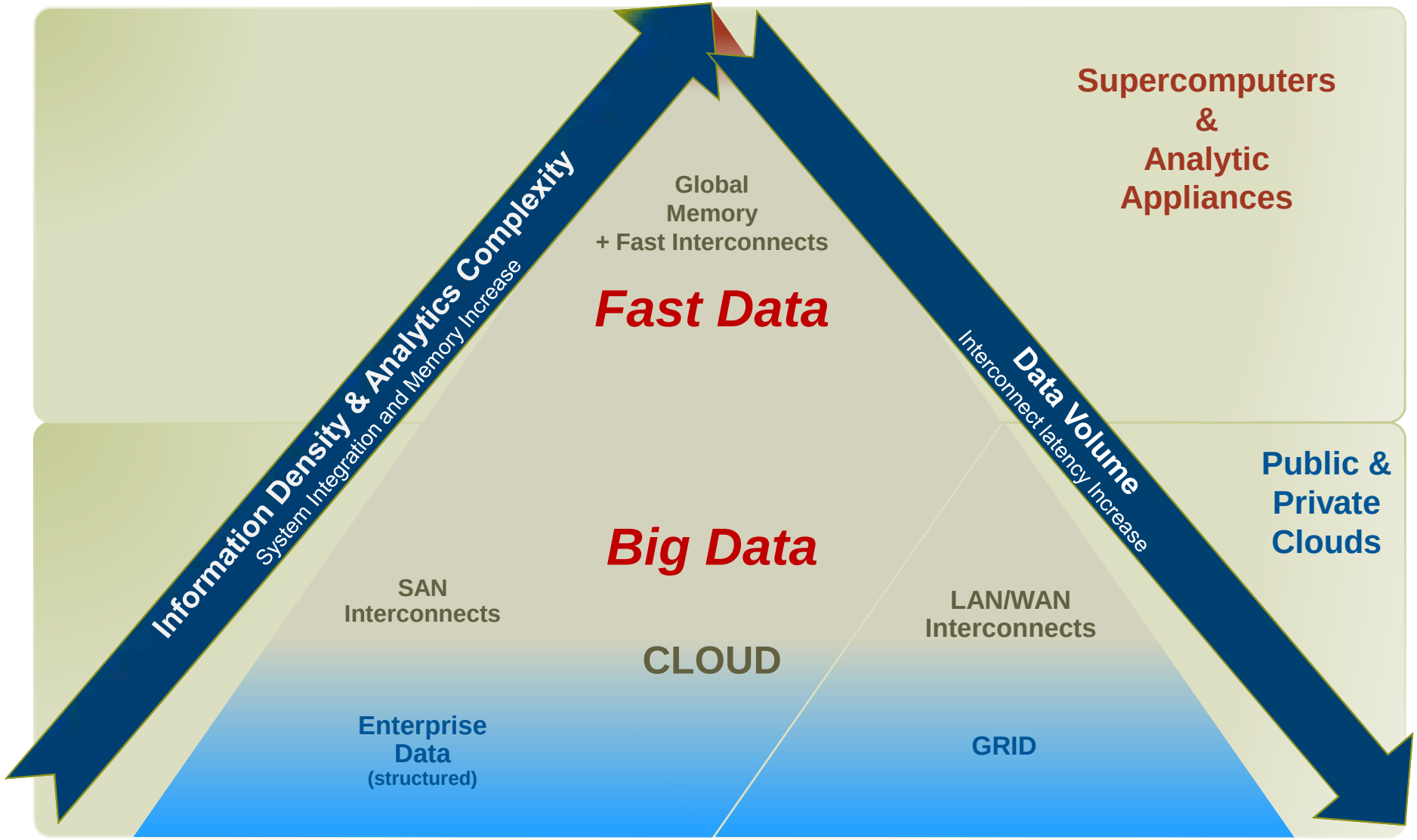
2014年 12月 12日
クレイ・ジャパン・インク

COMPUTE | STORE | ANALYZE

Merging Big Data and Supercomputing



Enabling More Complexity & Capability
…Big Data → Fast Data



Cray Industry Solutions

Compute

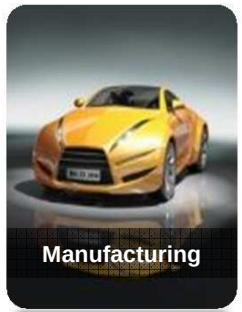
- Supercomputers
- Flexible Clusters
- Hybrid Architectures

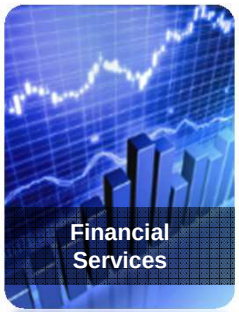
Store

- Integrated Storage
- Data Management
- Tiered Storage Archive

Analyze

- Graph Analytics
- Hadoop Solutions





Anything that can be simulated needs a Cray

Sample Cray Customers

Cray Customers by Segment

Earth Sciences	Govt. & Defense	Higher Education	Life Sciences	Energy	Manufacturing	Financial Services
Met Office	NERSC	HLRS	ITM Institute for Translational Medicine	PETROBRAS	Undisclosed	FORTUNE 100
ECMWF	Los Alamos National Laboratory	EPSRC	noblis CMS	TOTAL	Undisclosed	Undisclosed
KMA Korea Meteorological Administration	Sandia National Laboratories	ivec.org iVEC	MAYO CLINIC	Undisclosed	Undisclosed	Undisclosed
INPE	OAK RIDGE National Laboratory	INDIANA UNIVERSITY		Undisclosed	Undisclosed	Undisclosed
CPTEC		NCSA	THE UNIVERSITY OF CHICAGO MEDICAL CENTER & BIOLOGICAL SCIENCES	Undisclosed		
NOAA	NNSA National Nuclear Security Administration	CSCS				
	University of California Lawrence Livermore National Laboratory	KTH VETENSKAP OCH KONST PDC Center for High Performance Computing	Undisclosed			

Cray's New Solutions and Technologies

Cray CS-Storm

- High Density, Innovative 8-GPU Powerhouse
- Government, Financial Markets, Medical imaging, Energy
- TCO leader for GPU optimized applications

Cray XC40 with DataWarp

- XC40 is two times more scalable than the XC30, Fully upgradeable
- New DataWarp Applications I/O Accelerator
- Integrated SSD tier option for extreme I/O applications

Cray Sonexion 2000

- Core foundation of Cray's end-to-end Lustre solutions for x86 Linux
- 50% more performance and capacity than the Sonexion1600
- Reduced TCO, complexity, data center footprint by over 50% compared to competing solutions

Cray Urika-XA

- Supercomputing architecture for Hadoop and Spark big data analytics
- Pre-integrated hardware and software, open and extensible analytics platform

Computing Solutions

CRAY CS400™

CRAY XC40

Capacity Computing Focus

- Industry-standard Technologies
- Flexible System Configurations
- Good Price/Performance

Capability Computing Focus

- Multi-petascale Performance
- Extreme Scalability
- Easy Upgradability

Storage Solutions

CRAY SONEXION

CRAY TIERED ADAPTIVE STORAGE

Scale-Out Lustre® Storage

- Integrated, Modular & Compact
- Simplified Deployment & Management
- Precision Performance

Open Archive & Tiered Storage

- Complete, Open Archiving
- Migrates Data Fluidly
- Familiar Tools

Analytics Solutions

Urika-GD

Graph Discovery Appliance

- Discover Unknown & Hidden Relationships in Big Data
- Real-time Data Discovery
- Realize Rapid Time-to-Value

Urika-XA

Extreme Analytics Platform

- Turnkey Advanced Analytics Platform
- Next-Generation System Architecture
- Engineered for Performance

Cray® CS400™ Cluster Supercomputers

Flexible Performance

Configurable

- **Designed for broad range of workloads**
- **Industry standards**-based
- Blades or rackmount server; multiple **interconnect** and **storage options**

Manageable

- Customizable **HPC cluster software stack**
- **Advanced Cluster Engine** system management software

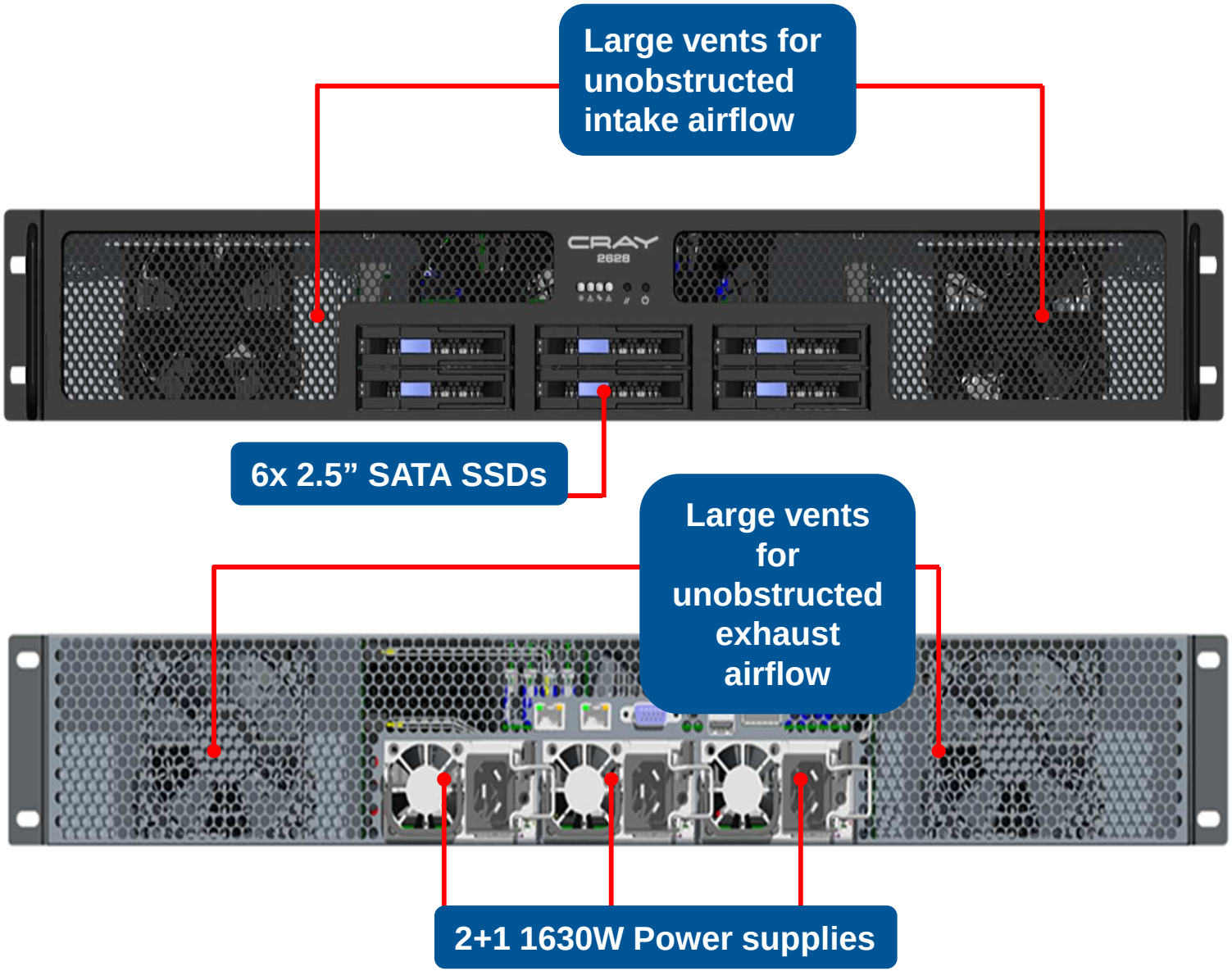
Reliable & Efficient

- Built-in and optional **energy efficiencies**
- **Designed for reliability**
- Multiple levels of redundancy

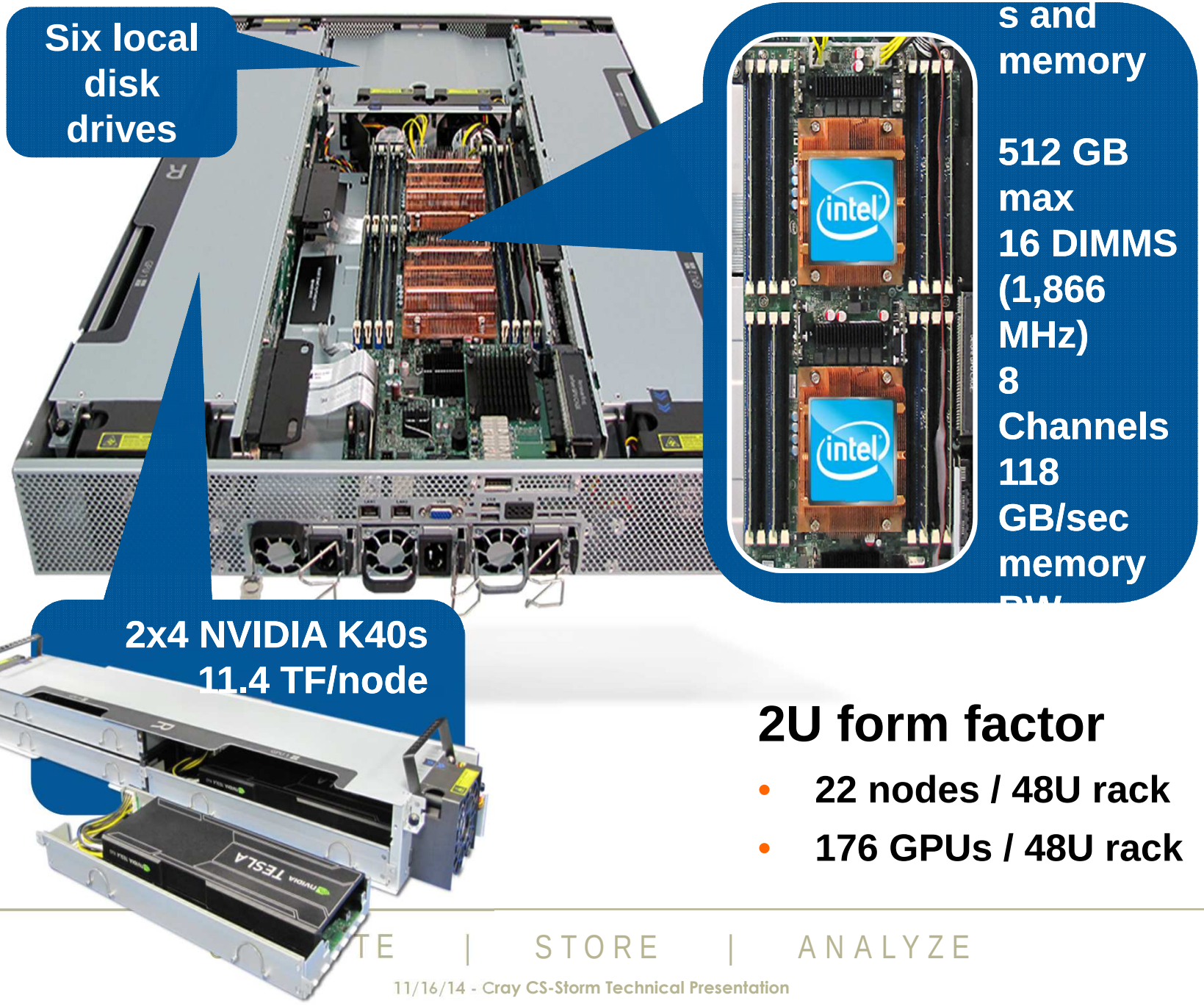
CS-Storm: 2U Rackmount Server
8-GPU compute node summary

- High-density GPU server
- 2RU 24” wide EIA rackmount standard
- Top bin host IVB CPUs
- **8** x high-powered GPUs – up to 300W each ! (K80 ready)
- 6 x 2.5” removable disk drives (SATA SSD)
- Up to 512 GB RAM (16 x 32 GB)
- Up to 3 x 1,630W power supplies in N+1 configuration
- 400-480 V to the rack
- One PCIe Gen3 x8 expansion slot or on-board IB

CS-Storm Server: Efficient 2U Design



CS-Storm: Innovative Design



2U form factor

- 22 nodes / 48U rack
- 176 GPUs / 48U rack

Cray® XC40™ Supercomputer

Adaptive

- **Flexibility** of x86 processors, coprocessors and accelerators
- **Investment protection,** upgradable by design

Integrated

- **Integrated** HPC software environment and storage

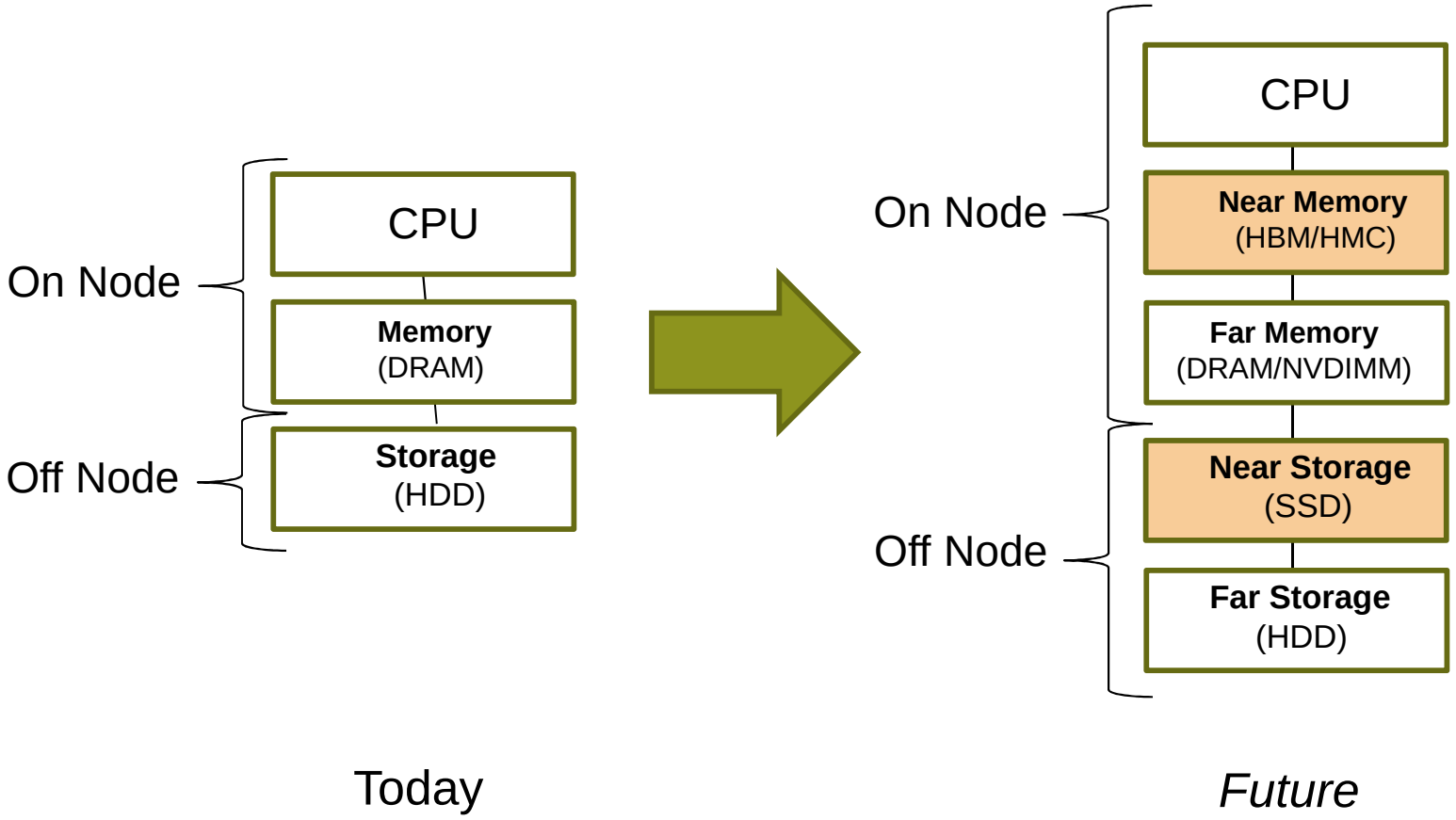
High Performing

- **Sustained, scalable** application performance
- Upgradable to **100 petaflops**
- **Extreme** performance interconnects, packaging, cooling and more

Scalable Performance


CRAY®
DATAWARP™

Exascale Computing Memory Trends



Recent NERSC8 and Trinity orders will contain both of these "future" technologies


CRAY®
THE SUPERCOMPUTER COMPANY