Smarter technology for all

ISG Portfolio Overview

Anton Utkin
autkin@lenovo.com

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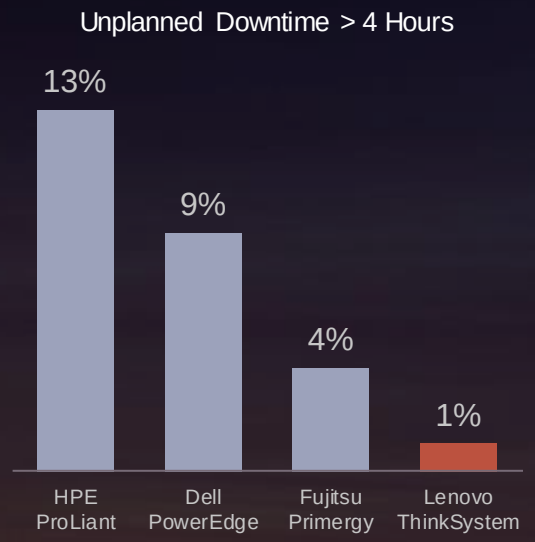
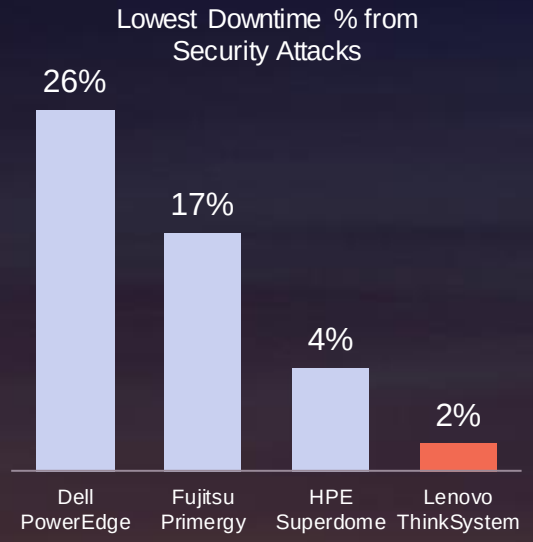
ISG Server Leadership





536

Current World Record Workloads

>6x as many #1 Results

#1

x86 Server Reliability for 9 Consecutive Years

#1

x86 Security for 4 Consecutive Years

#1

Current World Record Performance Workloads

#1

Top 500 Supercomputers for 6 Consecutive Years

Source: ITIC (Feb 2023), ITIC (Nov 2022), Benchmark Report (February 2024) & Top500.org (Nov 2023)

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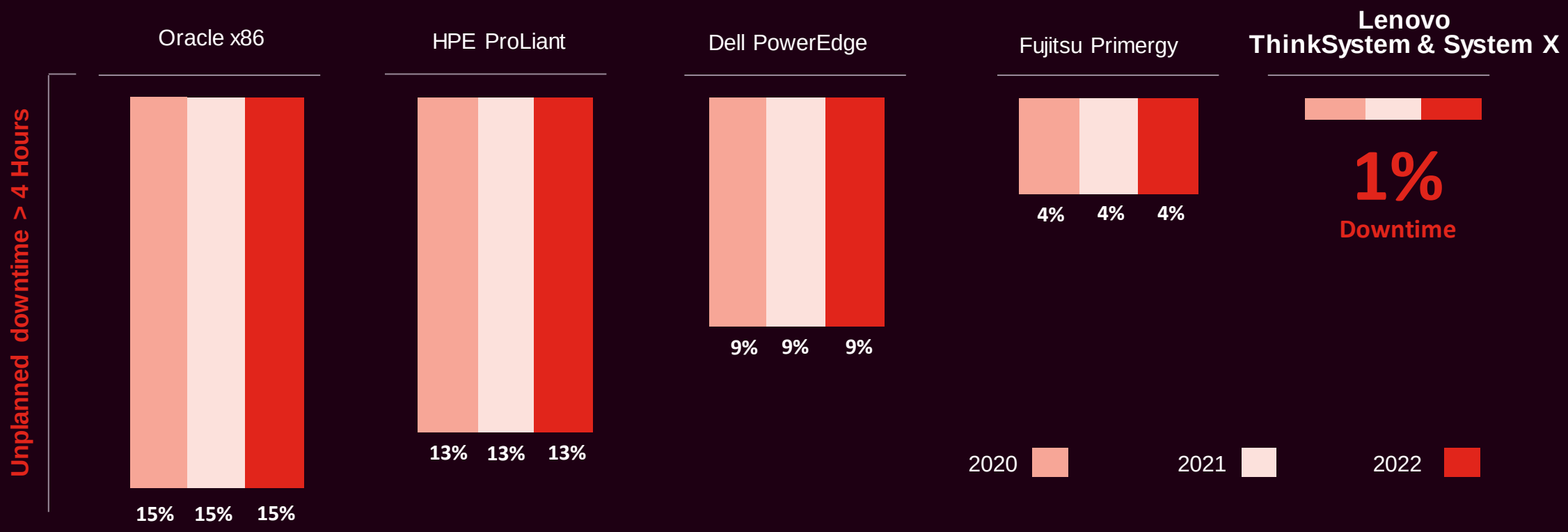
We are always on
Lenovo is #1 in server reliability – 9 years running



Lenovo ThinkSystem servers consistently achieved the **lowest actual x86 downtime according 1,650 corporations surveyed in 30+ vertical market segments worldwide.**

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Source: ITIC February 2023 Server Reliability Report

Current as of February 2024

We've achieved 6X as many current #1 world records as any other server vendor

536 World records in workload performance

233
World records
set by servers running 2nd 3rd and 4th Gen AMD EPYC™

303
World records
set by servers with Intel® Xeon® Scalable Processors

218
World records
set by servers with 3rd and 4th Generation Intel® Xeon® Scalable Processors

46
World records
set by servers with 2nd Generation Intel® Xeon® Scalable Processors

39
World records
set by servers using 1st Generation Intel® Xeon® Scalable Processors

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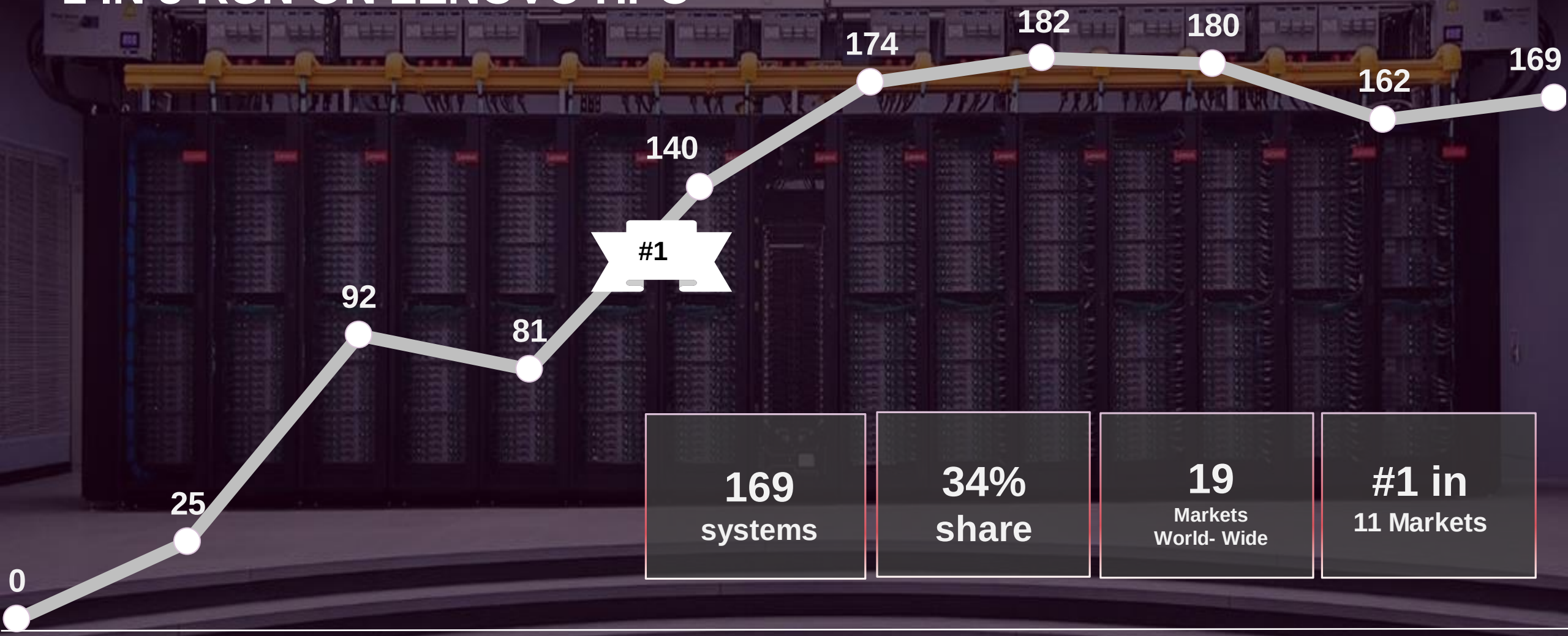
#1 PROVIDER OF SUPERCOMPUTERS IN THE WORLD

1 IN 3 RUN ON LENOVO HPC



169 systems

34% share

19 Markets World- Wide

#1 in 11 Markets

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Based on count of listing on the TOP500.org Nov 2023 list.

Liquid Cooling Technology

Smart Control Software

- Minimizes power consumption for each workload with SW

Thermal Transfer Module

- Special heat sink to transfer heat quickly
- Enables higher perf processors
- $2,100 / year per rack energy savings

Rear Door Heat Exchanger

- Rack option takes heat out of data center in chilled water
- Saves enough power to run 4,000 LED bulbs

Direct to Node

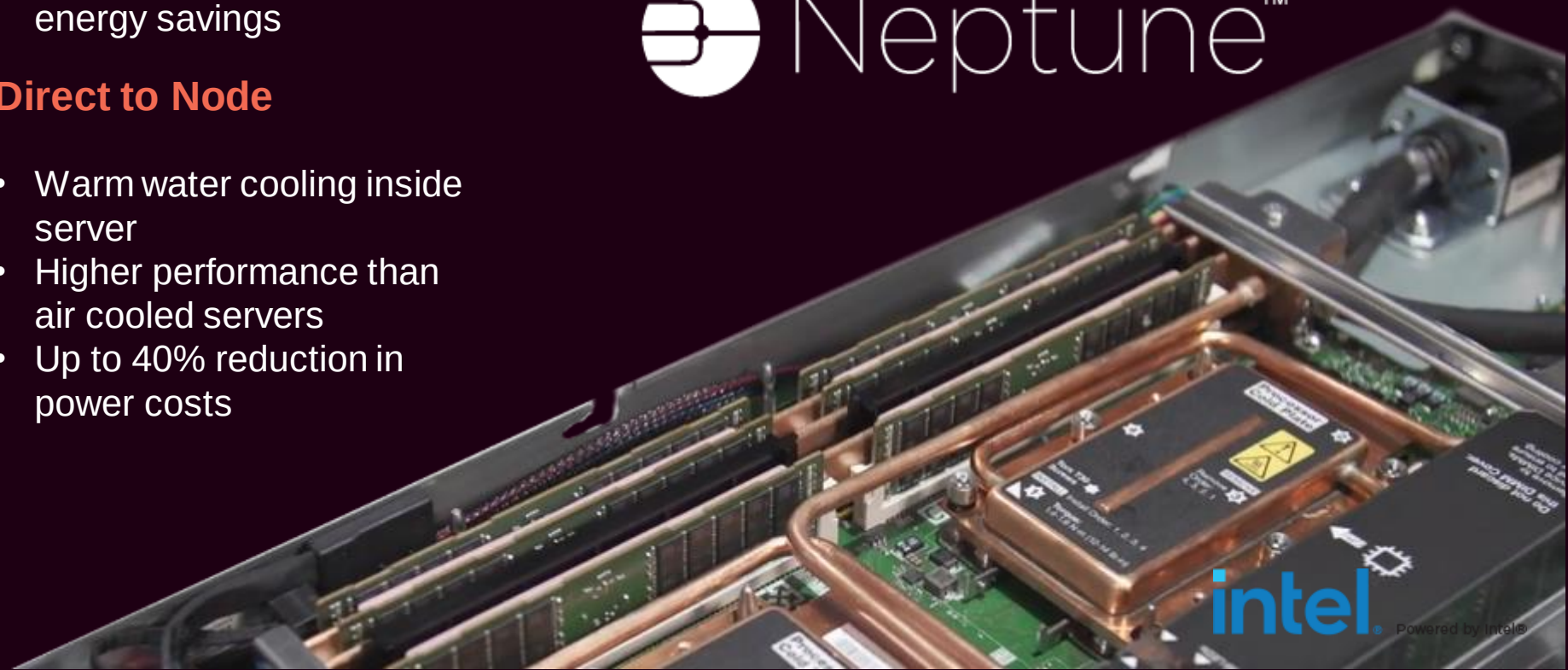
- Warm water cooling inside server
- Higher performance than air cooled servers
- Up to 40% reduction in power costs

A leader in innovative technology

Pioneering liquid cooling for the enterprise

Leadership born in HPC

Neptune™



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Enabling Smarter Technology for All with Flatiron Institute

#1

On Green500

Flatiron Institute

Lenovo

Lenovo 2024

Lenovo | NVIDIA

The world's most energy efficient supercomputer

THE GREEN 500

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Smarter technology for all

ISG Products Solutions & Software

Lenovo

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Infrastructure Solutions Group Portfolio

AI	Hybrid Cloud	Digital Workspace	Sustainability	TruScale
Building AI Solutions all over the world with 165+ AI solutions with 50+ AI innovators across every vertical market Leading Edge portfolio, from the far edge to the near edge, bringing AI to where our customers need it Empowering individuals, businesses, and governments with a full stack of pocket-to-cloud technology, enabling AI for all	Fully integrated ThinkAgile solutions enable edge-to-cloud agility, performance, and resilience for complex workloads Cost-efficient and infinitely simple single pane of glass management Security by design - keep your data on-prem or in the cloud	Provides end-to-end digital workplace solutions from the device to the data center Offers a wide range of building and workforce solutions for the new era of hybrid work Solutions available through traditional purchase or as-a-Service	Neptune™ Liquid Cooling reduces power and CO2 emissions Heat mitigation tactics on every level of the server Packaging containing recycled foam and plastic Factory-integrated racks reduce packaging waste	Subscription-based access to IT resources to provide cost-efficient, faster deployment, improved security, and better management Solutions for data management, Hybrid Cloud, HPC, and VDI Services include deployment, implementation, IT management

Lenovo Software

Lenovo XClarity

Lenovo Open Cloud Automation

LiCO

Strategic Software Partners

Microsoft

NUTANIX

SAP Global Partner

VEEAM

vmware

Infrastructure Solutions

Software Defined

ThinkAgile

Tower, Rack, & Dense Servers

Storage

ThinkSystem

ThinkEdge

Lenovo Services

Discover Design Implement Optimize Security Customer Support Retire Sustainability

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Процессор Intel® Xeon® Platinum

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ThinkSystem Servers

Lenovo 2024 Lenovo

LENOVO THINKSYSTEM SERVER PORTFOLIO

Comprehensive compute capabilities from the edge to the enterprise

ThinkSystem ST series

Powered by Intel®

ST650 V3

ST650 V2

ST250 V2

ST50 V2

ST250 V2

ST550

ThinkSystem SR series

1U	2U

Powered by AMD

SR645 V3

SR665 V3

SR635 V3

SR655 V3

SR645

SR665

SR635

SR655

Powered by Intel®

SR630 V3

SR650 V3

SR630 V2

SR650 V2

SR250 V3

HS350X V3

SR250 V2

SR250

ThinkSystem Modular

SD series (Multi-Node)

Powered by Intel®

SD530
2U 4N

SD630 V2
2U 4N

SD550 V3
2S2U

SD530 V3
2S1U

Powered by AMD

SD535 V3
1S1U

ThinkEdge

SE10

SE350

SE450

SE350 V2

SE360 V2

SE455 V3

SE30

SE50

SE70

ThinkSystem Mission Critical

Powered by Intel®

SR950 V3
8 CPUs

SR860 V3
4U up to 4 CPUs

SR850 V3
2U up to 4 CPUs

SR950
4U up to 8 CPUs

SR860 V2
4U up to 4 CPUs

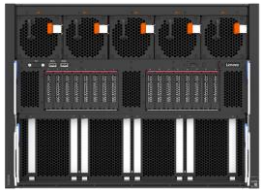
SR850 V2
2U up to 4 CPUs

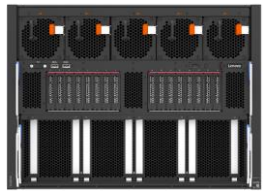
HR & MGX Systems

HR650
HR630
HG630N
HG650N
HG660X V3
HR650N

ThinkSystem Segment Optimized

8GPU AI Servers — AMD & Intel®


SR680a V3


SR685a V3

SR780a V3

HPC/AI Optimized — AMD & Intel®

SR670 V2 (GPU Rich),
SR675 V3 (GPU Rich,
Closed loop liquid option)

SD650 V3, SD650-I V3,
SD665 V3,
Liquid Cooled:
SD650-N V3 SD665-N V3

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New

Neptune liquid cooling models available

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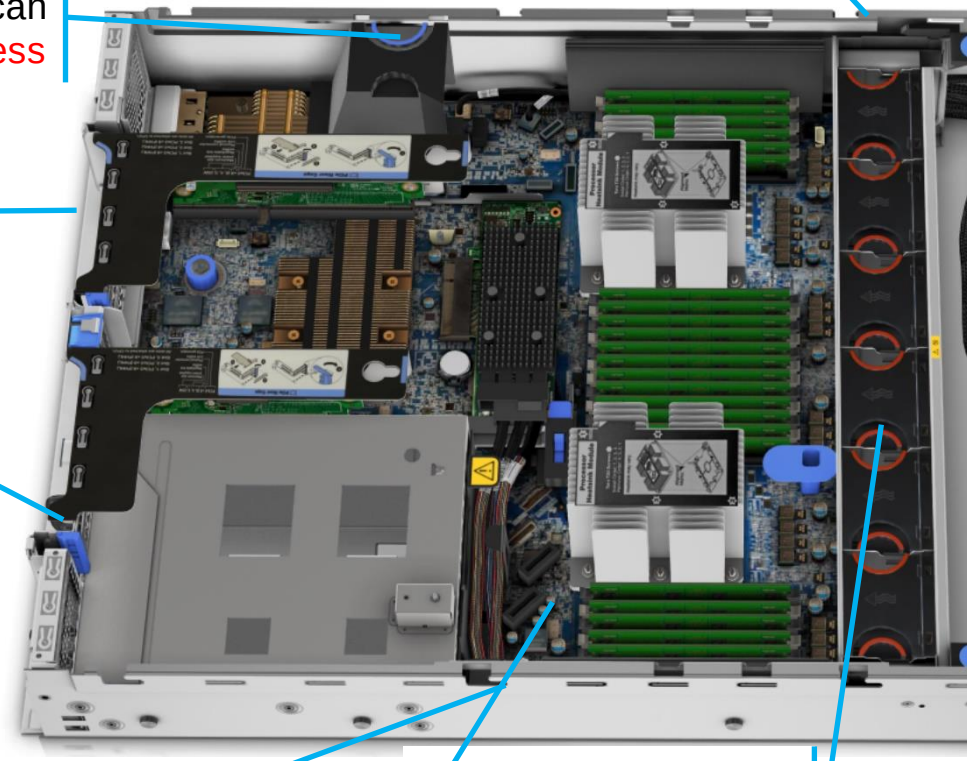
Industrial design and reduction of unplanned downtime

LCD diagnostic panel for easy interaction and troubleshooting

PFA failure prediction system to reduce downtime

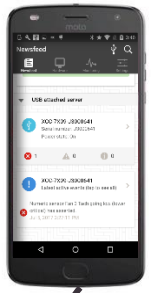
Extended temp mode 5 - 45C

Most components can be changed toolless



Single set of options to reduce spare parts inventory

User cold-swappable components are **highlighted in blue**



XClarity Virtual LCD Panel to interact with the system using smartphone

Lenovo XClarity

XClarity Dynamic Workload Evacuation load migration from a potentially faulty server to a working one during a PFA event

XClarity Call Home proactively submitting a request to service support

Set of technologies to optimize airflow

Light Path Diagnostics to quickly find a faulty component

Hot Swap Components highlighted in orange-red color and visible to colorblind people

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Smarter technology for all

Lenovo

Air Cooled Dense Servers

ThinkSystem D3 Chassis: SD530 V3, SD550 V3, SD535 V3

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Why 2U4N vs Standard Rack Servers?

Save Rack Space

2U4N takes half the rack space of a 1U rack server, packing incredible performance in a small data center space

Maximize Core Density

2U4N provides double the Core density of 1U rack servers

Power & Cost Efficiency

4x servers share 2-3 power supplies (vs 8 PSU). Improved thermals with 2U1S nodes lowers power consumption

Ability to mix Node Types

Mix nodes types within the same 2U chassis

Avoid Non-Uniform Memory Access Issues

Avoid 2S NUMA issues, improving latency and performance with 1S Nodes

Avoid Paying for Excess Storage and PCI

If 6x SSD and 1-2 PCIe Networking adapters is all you need

Pre-installed & Tested

Chassis with 2X or 4X installed and tested nodes, delivered and ready to go

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New Multi-Node Servers

- 2U 2S 5th Gen Intel® Xeon® Scalable Processor Node
- 16x DDR5 DIMMs
- 6x 2.5” SSD/NVMe
- 1x OCP slot
- 2x PCIe slots
- 3x fans

ThinkSystem SD550 V3

ThinkSystem SD530 V3

- 1U 2S 5th Gen Intel® Xeon® Scalable Processor Node
- 16x DDR5 DIMMs
- 2x E3.s
- 1x OCP slot
- 1x PCIe slot
- 4x fans

- 1U 1S 4th Gen AMD EPYC™ Processor Node
- 6x 2.5” SSD/NVMe
- 12x DDR5 DIMMs
- 1x OCP slot
- 1x PCIe slot
- 4x fans

ThinkSystem SD535 V3

ThinkSystem D3 Chassis

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Процессор Intel® Xeon® Platinum

ThinkEdge

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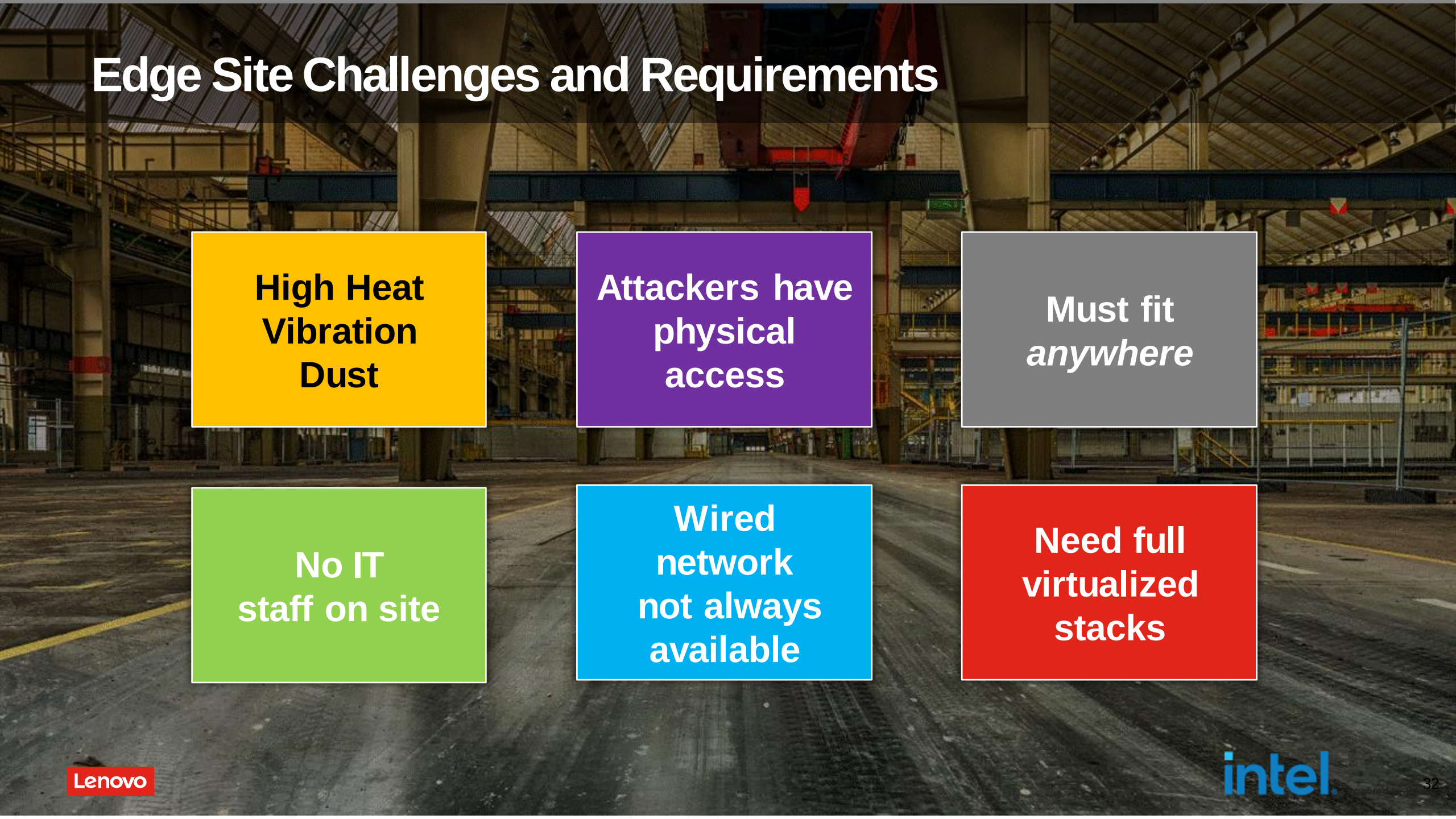
Edge Site Challenges and Requirements



Portfolio Overview - From Far Edge to Core

Edge Client

SE10

-20C to +60C
Intel ATOM
Up to 32 GB RAM

SE30

-20ºC to +60ºC
Core™ i3, i5
Up to 16GB RAM

SE50

0ºC to +50ºC
Core™ i3, i5, i7 Up to 32GB RAM

SE70

-20ºC to 60ºC
NVIDIA Jetson
Up to 16GB RAM

Edge Server

SE350*

0ºC to 55ºC
Xeon® D-2100
Up to 256GB RAM

SE350 V2

0ºC to 55ºC
Xeon® D-2700
Up to 256GB RAM

SE360 V2

-20ºC to 65ºC
Xeon® D-2700
Up to 256GB RAM

SE450

-5ºC to 55ºC
Xeon® SP 3rd Gen
Up to 1TB RAM

SE455 V3

-5ºC to 55ºC
AMD EPYC 8004
Up to 576GB RAM

Datacenter

SR650 V3 , SR665 V3 etc.

0ºC to 35ºC

Gateways | **Base Station / DC Closet** | **Data Center**

Diverse Portfolio
From ultra compact gateways to data center grade products.

Highest Performance
CPU & GPU rich systems for ultimate performance.

Flexible Deployment
In harsh environments with ruggedized devices & unique cooling capabilities.

Процессор Intel® Xeon® Platinum

* SE350 will continue to be available until 2025

ThinkAgile

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Lenovo ThinkAgile HCI Portfolio

Engineered and validated designs for confident deployment

Microsoft

ThinkAgile V3 MX and SX Series

- Integrated Appliance with Premier Support
- Integrated Microsoft or Azure Stack with Arc
- Hybrid cloud for Azure with VDI and Microsoft SQL optimization
- Rack scale solutions

NUTANIX

ThinkAgile V3 HX Series

- Integrated Appliance with Premier Support
- Integrated Nutanix Stack
- Datacenter and Edge solutions
- VDI Solutions, SAP HANA, Oracle, and SQL

vmware

ThinkAgile V3 VX Series

- Integrated Appliance with Premier Support
- Integrated VMWare Stack
- Datacenter and Edge solutions
- VDI Solutions, SAP HANA, Kubernetes, and VCF

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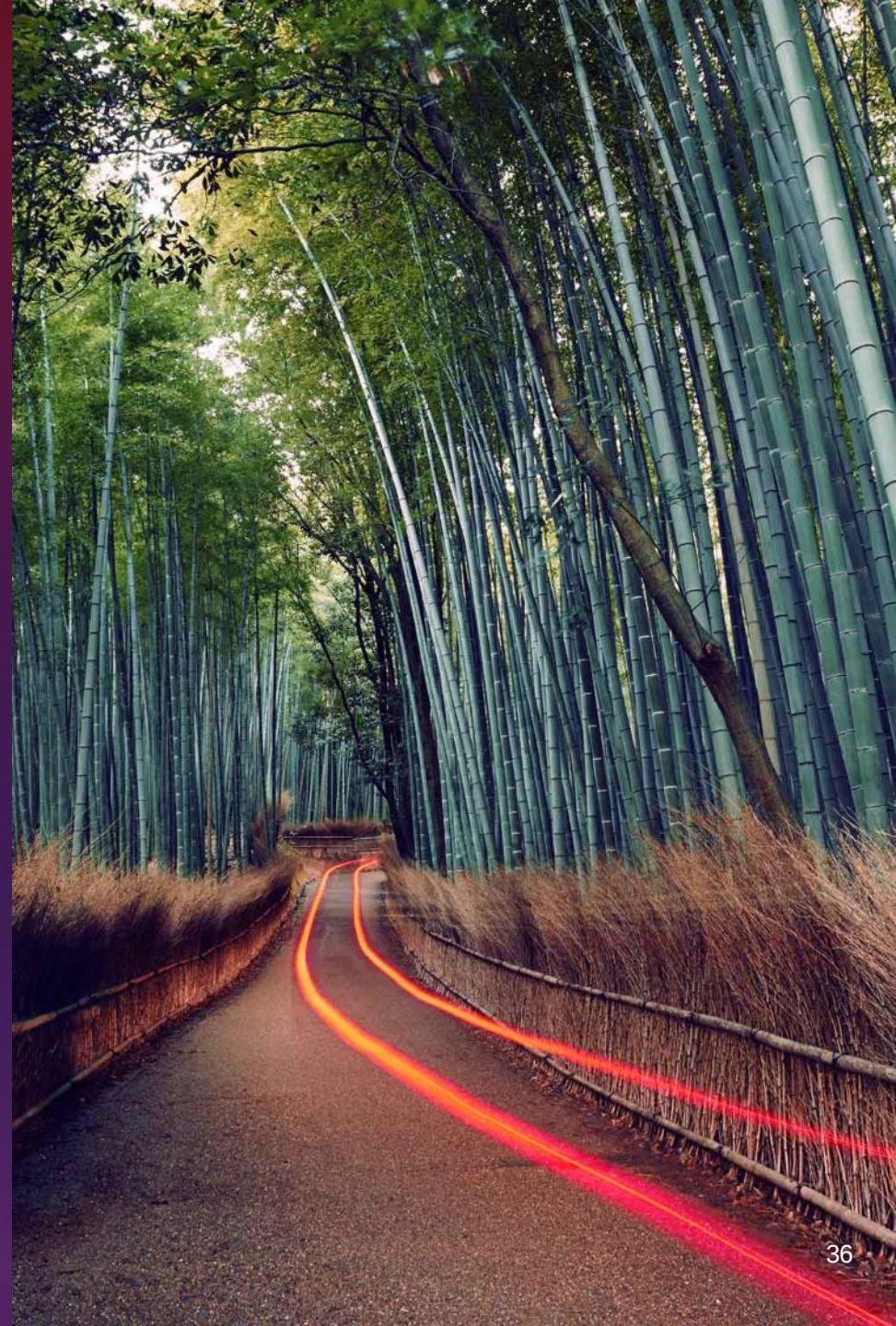
ThinkSystem Storage Data Management



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DATA MANAGEMENT PORTFOLIO

TruScale

Lenovo TruScale
Infrastructure as a Service

Lenovo TruScale
Infinite Storage

Lenovo TruScale
Backup as a Service with Veeam

ThinkSystem
Enterprise Storage

DM Series

DG Series

DE Series

D Series

Storage Networking

Tape Solutions

ThinkAgile
HCI
Hyperconverged Infrastructure

NUTANIX
HX

Microsoft
MX & SX

vmware
VX

ThinkSystem
SDS
Software Defined Storage

CLOUDIAN
WEKA

MagnaScale (China only)

Cloud Solutions

DSS

IBM

Solution Partners

Red Hat
NVIDIA
VEEAM
intel
Mellanox TECHNOLOGIES
COMMVAULT
aws
AMD
Microsoft Azure
SAP
openstack
ProLion
SUSE
Google Cloud Platform
IBM Cloud

Support Professional Services
Design | Implementation | Support

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Lenovo Data Management

Multi-Workload Enterprise Storage

Performance Tuned Storage Single-Workload Exa-scale

Tier 0

RPO 0, RTO 0, Sync Replication
Low Latency
High IOPS
NVMe
Application Integration for Snapshots

Tier 1

Integrated Workflow Automation
Snapshots Thin provisioning
Data Efficiency (Compression, Compaction, Deduplication)
Adaptive Quality of Service
Application Based Balanced placement (Performance)
Local Storage Caching

Tier 2

Scale out Storage Clusters
High Throughput
Dynamic capacity expansion
Remote Storage Caching
Asynchronous replication
Backup Software Integration

Tier 3

S3 Object Storage Integration w/ Cloud
Encryption & Trusted Platform Module (TPM) support
WORM (Write Once Read Many) Data protection
AWS, Google, Azure Integration and other Cloud Providers
Dual Parity RAID Protection, Enhanced Parity (Erasure Coding, etc.)
Ransomware Protection

ThinkSystem DM\DG Series

ThinkSystem DE Series

ThinkAgile VX HX MX

ThinkSystem Tape

Lenovo DSS-G

ThinkSystem WEKA

ThinkSystem CLOUDIAN

Millions of IOPS
100's Gbps of throughput
nVidia GPU Direct
Snapshots & Cloning

Cloud Bursting
Snap to S3
WORM protection
10's Gbps of throughput

Encryption
Data Immutability

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ThinkSystem Enterprise Storage Array Portfolio

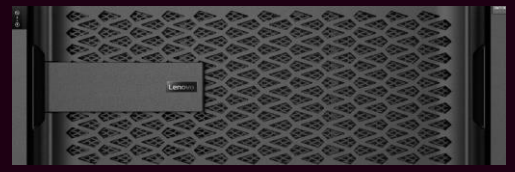
Efficient, secure solutions to maximize performance and value for AI and data intensive workloads

ThinkSystem DE Series

- Simplified data management
- Entry to High performance block
- Flash and Hybrid models
- Easy to configure, manage, and scale.

ThinkSystem DG Series

- Efficient all flash data consolidation
- Unified File/Block/Object
- All-Flash at HDD economics
- Secure hybrid cloud management
- Integrated ransomware protection



ThinkSystem DM Series

- Leadership flash performance
- Unified File/Block/Object
- Flash and hybrid models to optimize performance and scale
- Secure hybrid cloud management
- Integrated ransomware protection

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DM/DG - Advanced technologies in a single solution

Unified Storage	Storage optimization	Improved performance	Data protection	Monitoring and management
NFS	Thin Provisioning	Write Anywhere	Snapshots	System Manager
CIFaS/SMB	Deduplication	SSD/NVMe	Autonomous Ransomware protection	xClarity Administrator
FCP	Compression	Intelligent caching	Full clones	Intelligent Monitoring
iSCSI	Compaction		Replication and DR	REST API
NVMe/FC	Object Tiering		MetroCluster	
NVMe/TCP*			SM-BC	
S3				

*начиная с ONTAP 9.10.1

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Lenovo Software Defined Storage (SDS) Portfolio

High Performance File Solution (HPFS) powered by WEKA

- High-performance, large-scale workloads
- AI/Analytics, Finance High-frequency Training, Genomics/Life Science, Media & Entertainment

Increase productivity up to **90%** Improvement in deep learning time

Improve resource ROI **75%** Reduction in workload wall clock time

Lower storage costs **65%** Savings over traditional high-performance computing

Object Storage Solution powered by Cloudian

- Capacity-intensive enterprise workloads
- Backup/Archive, Video/Images, Healthcare/Life Sciences, Research, IoT, Video Surveillance, Data Lakes

Lower Storage costs **70%** Compared to traditional storage systems

Reduce primary backup tier cost up to **40%** Superior RTO/RPO for fast restore times

Reduce TCO by **33%** Compared to legacy storage systems

WEKA

ThinkSystem

CLOUDIAN

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Lenovo HPC/AI/ML SDS STORAGE

CLOUDIAN®

WEKA

HPC/AI/ML Storage

- AI / Machine learning
- Genomics Research
- Drug Discovery and Manufacturing
- High Frequency Trading
- Data Analytics

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Storage Portfolio Positioning

Scale-Out Object	Hybrid Flash	Capacity Flash	Performance Flash	Performance Flash	Scale-Out File
SDS Object	**DM Series**	**DG Series**	**DM Series**	**DE Series**	**SDS File**
5-10ms latency	5–10ms latency	2ms latency	<1ms latency	<0.5ms latency	<0.5ms latency
$$	$	$$	$$$	$	$$
Object Storage	Unified Storage (File, Block, Object)			Block Storage	File Storage

Increasing importance of latency

Value Prop	• Capacity-intensive workloads • Reduce primary backup tier costs • Superior RTO/RPO times	• Low-cost entry • Low starting capacity • Low $/GB	• TCO • Energy Efficiency • Infrastructure simplification	• Unified data management • Hybrid multi-cloud support • Simplicity of management	• Best $/IOP • Ease of deployment • SMB friendly	• Unlimited scaling • Linear performance growth • Global namespace
Workloads	**Tier 2 and 3** • Data protection • Data lakes • Data observability	**Tier 2** • Backup/archive • File share/object buckets	**Tier 1 and 2** • ERP • Microsoft Exchange • Data lakes	**Tier 0 and 1** • Databases • Mission-critical applications • Data Consolidation	**Small Tier 0 and 1** • HPC • Single databases • Streaming workloads	**Tier 1, Multi-PB Scale** • HPC • No SQL databases • AI & Machine learning

Software

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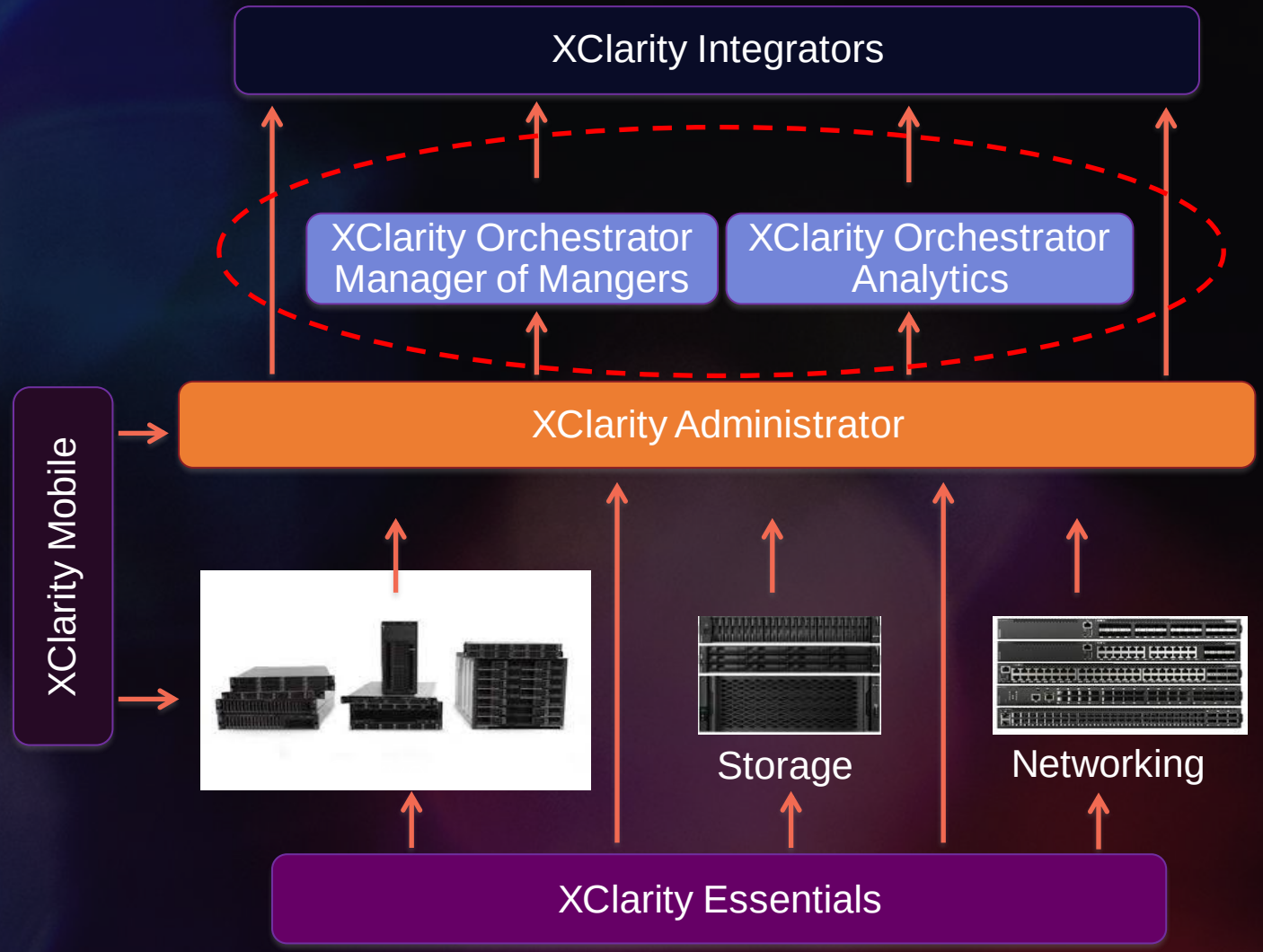
XClarity Family

- **XClarity Essentials**
  - 1 to 1 management and scripting tools for customers.
  - Some tools integrated into XClarity Administrator
- **XClarity Mobile**
  - Remotely monitor systems with integration into XClarity Administrator
  - Virtual LCD panel for Purley Systems forward
- **XClarity Administrator**
  - HW monitoring and Alerting
  - Updated Firmware, Configuration and OS deployment
  - Scalability to manage up to a 1000 Nodes
- **XClarity Orchestrator – Manager of Managers**
  - Enables management scalability for 10,000 servers and hundreds of chassis, across multiple domains
- **XClarity Orchestrator – Analytics**
  - Predictive Failure information learned will help all customers and lower overall service costs.
  - First step towards having self healing systems.
- **XClarity Integrators**
  - Integration into virtualization managers and upper level management tools. (ie. VMware, Microsoft, RedHat, Ansible, Chef, Puppet, Splunk, MS Azure Analytics, etc.)



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Services

- Premier **Foundation** 9x5 NBD Response
- Premier **Essential** 24x7 4Hrs Response
- Premier **Advanced** 24x7 6Hrs Fix Time – on request
- Spare warehouse in **Almaty, Baku, Tashkent**
- Onsite / remote **deployment**
- **Professional services** tokens

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Where to start?

Product descriptions, videos, solutions, configurations: https://lenovopress.com/

Lenovo Enterprise Technical Sales (LETS): https://lets.lenovo.com/

Webinars (Rus): https://lenovo-games.com/

Support center, firmware updates, downloads: https://support.lenovo.com/

Warranty lookup: https://datacentersupport.lenovo.com/ru/en/warrantylookup

Solution configurator : https://dcsc.lenovo.com/#/

3D Catalogue: https://www.lenovofiles.com/3dtours/products/index.html

Success stories: https://lenovosuccess.com/

YouTube: https://www.youtube.com/@LenovoDataCenter

Smarter technology for all

Lenovo

thanks.

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Server Portfolio – 4S Intel Based Racks

ThinkSystem	SR850	SR850P	SR850 V2	SR850 V3	SR860 V2	SR860 V3
Form Factor	2U	2U	2U	2U	4U	4U
CPU Sockets	4S 2nd generation Intel® Xeon® Scalable Processors	4S 2nd generation Intel® Xeon® Scalable processors	4S Intel® Xeon® Cedar Island Processor	4S Intel® Xeon® Eagle Stream Processors	4S Intel® Xeon® Cedar Island Processors	4S Intel® Xeon® Eagle stream Processors
DIMM Slots	48 DDR4	48 DDR4	48 DDR4	64 DDR5	48 DDR4	64 DDR5
PCIe slots	Up to 9 (G3)	Up to 8 (G3)	Up to 7 (G3)	Up to 12 (G4/G5)	Up to 14 (G3)	Up to 16 (G4/G5)
Drive Slots	Up to 16x 2.5”	Up to 16x 2.5”	Up to 24x 2.5”	Up to 24x 2.5” with 24x Direct Gen4/Gen5 NVMe	Up to 48x 2.5"	Up to 48x 2.5”
Acceleration	N/A	N/A	Up to 2x SW 75W GPU	Up to 2x DW 350W (NVIDIA A100 FO) or 4x SW 75W GPU	Up to 4x DW 300W GPU (NVIDIA V100S) or 8x SW 75W GPU	Up to 4x DW 350W GPU (NVIDIA A100 FO) or 8x SW 75W GPU
Cooling	6x 60mm hot-swap fans	6x N+1 redundant hot swap 60mm fans	6x N+1 redundant hot-swap 60mm fans	Redundant, Hot Swap Solution, (6) 60x38 single rotor or (6) 60x56 dual rotors	6x N+1 redundant hot-swap 60mm fans, one additional fan connected to each upper riser	Redundant, Hot Swap Solution, (12) 60x38 single rotor or (12) 60x56 dual rotors
PSU	Up to1600W Platinum	Up to 2000W Platinum	Up to 2400W; Platinum & Titanium	Up to 2600W; Platinum & Titanium CRPS (for PRC): 1300W/2700W Platinum	Up to 1800; Platinum & Titanium	Up to 2600W; Platinum & Titanium CRPS (for PRC): 1300W/2700W Platinum
Typical Workload	General business consolidation, Data analytics, Database virtualization, Dense computing, Scientific/technical	General business consolidation, Transactional database, Analytics, High Performance Computing, VDI, NUMA-aware applications	Enterprise virtualization and consolidation, Transactional database, Analytics, High Performance Computing	SAP HANA, ERP, CRM, Data Warehouse, Database, BI, Analytics, AI, Virtualization, Server Consolidation	Enterprise virtualization and consolidation, AI, Machine learning, VDI, Transactional database, Analytics, High Performance Computing	SAP HANA, ERP, CRM, Data Warehouse, Database, BI, Analytics, AI, Virtualization, Server Consolidation

Server Portfolio – 8S Intel Based Racks

ThinkSystem	SR950	SR950 V3
Form Factor	4U8S	8U8S
CPU Sockets	8S 2nd generation Intel® Xeon® Scalable Processors	8S Intel® Xeon® Eagle Stream Processors
DIMM Slots	96 DDR4	128 DDR5
PCIe slots	Up to 17 (G3)	Rear: Up 8x FHHL x16 G4 Front: Up to 6x FHHL x16 G4
Drive Slots	Up to 24 2.5”	Up to 16x E3.S 1T NVMe (per 8S) Up to 16x 2.5” SAS/SATA (per 8S)
Acceleration	N/A	N/A
Cooling	Up to 12 redundant hot-swap single-rotor fans	Redundant; N+2 with full performance to 35C (12) 60x56 dual rotor
PSU	4x PSUs, Redundant N+N (CFFv3) on left 1100W/1600W/2000W Platinum	12x PSUs, Redundant N+N CFFv4: 1800W Titanium
Typical Workload	Business analytics, Transactional and/or scale-up databases, Business logic, ERP/ CRM, Enterprise virtualization	SAP HANA, Mission Critical Applications, Databases, Big Data, Business Analytics, ERP & CRM, Business Logic, Virtualization

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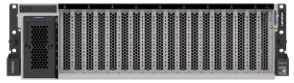
Server Portfolio – 2S 2U Racks

ThinkSystem	SR665	SR665 V3	SR675 V3	SR650	SR650 V2	SR650 V3	SR670 V2
							
Form Factor	2U	2U	3U	2U	2U	2U	3U
CPU Sockets	2S AMD EPYC™ 7002 / 7003 Series, up to 280W	2S AMD EPYC™ 9004 Series, up to 360W	2S AMD 320W	2S 1st and 2nd Generation Intel® Xeon® Scalable Processors	2S 3rd Generation Intel® Xeon® Scalable Processors	2S 4th Generation Intel® Xeon® Scalable Processors	2S 3rd Generation Intel® Xeon® Scalable Processors
DIMM Slots	32 DDR4	24 DDR5	24 DDR5	24 DDR4	32 DDR4	32 DDR5	32 DDR4
PCIe slots	8x PCIe + 1x OCP (G4)	12x PCIe + 1x OCP (G5/G4)	up to 8 (NVMe)	6x PCIe (G3)	8x PCIe + 1x OCP (G4)	12x PCIe + 1x OCP (G5/G4)	6x PCIe + 1x OCP (G4)
Drive Slots	Up to 20x3.5" or 40x2.5" drive	Up to 20x3.5" or 40x2.5" drive	Up to 8x 2.5" SAS/SATA/NVMe or 6x EDSFF	Up to 14x 3.5" or 24x 2.5" drives	Up to 20x 3.5" or 40x 2.5" drives	Up to 20x 3.5" or 40x 2.5" drives	Up to 4x 3.5" or 8x 2.5" or 6x E1.S drives
Acceleration	3DW / 8SW	3DW / 8SW	4x DW 300W or 8x DW 300W / 4x 400W SXM4	2DW / 5SW	3DW / 8SW	3DW / 8SW	8DW / 4x SXM
Cooling	Air-cooled	Air-cooled, Open loop water-cooled	Air (A4 ; A2 full perf.)	Air-cooled	Air-cooled	Air-cooled, Open loop water-cooled	Air-cooled
PSU	2x Redundant up to 1800W; Platinum & Titanium	2x Redundant up to 2400W; Platinum & Titanium	Up to 4x 2600W;Platinum & Titanium	2x Redundant up to1600W; Platinum & Titanium	2x Redundant up to 2400W; Platinum & Titanium	2x Redundant up to 2600W; Platinum & Titanium	2x or 4x Redundant up to 2400W; Platinum & Titanium
Typical Workload	AI, ML, cloud and virtualization	AI, ML, cloud and virtualization	AI Training, AI Inf., M&E, Technical Computing	Cloud, Virtualization, HPC, Analytics, Big Data, VDI, Database, IT Infrastructure, ML	Cloud, Virtualization, HPC, Analytics, Big Data, VDI, Database, IT Infrastructure, ML	Cloud, Virtualization, HPC, Analytics, Big Data, VDI, Database, IT Infrastructure, ML	AI Training, AI Inf., M&E, Technical Computing, HPC

Server Portfolio – 2S 1U Racks

ThinkSystem	SR630	SR630 V2	SR630 V3	SR645	SR645 V3
Form Factor	1U	1U	1U	1U	1U
CPU Sockets	2S 1st and 2nd Generation Intel® Xeon® Scalable Processors	2S 3rd Generation Intel® Xeon® Scalable Processors	2S 4th Generation Intel® Xeon® Scalable Processors	2S AMD EPYC™ 7002 / 7003 Series, up to 280W	2S AMD EPYC™ 9004 Series, up to 360W
DIMM Slots	24 DDR4	32 DDR4	32 DDR5	32 DDR4	24 DDR5
PCIe slots	3x PCIe (G3)	3x PCIe + 1x OCP (G4)	5x PCIe + 1x OCP (G5)	3x PCIe + 1x OCP (G4)	5x PCIe + 1x OCP (G5/G4)
Drive Slots	Up to 4x 3.5" or 12x 2.5" drives	Up to 4x 3.5" or 12x 2.5" or 16x E1.S drives	Up to 4x 3.5" or 12x 2.5" or 16x E1.S drives	Up to 4x3.5" or 12x2.5" drive	Up to 4x3.5" or 12x2.5" or 16x E1.S drive
Acceleration	2SW	3SW	3SW	3SW	3SW
Cooling	Air-cooled	Air-cooled	Air-cooled, Close/open loop water-cooled	Air-cooled	Air-cooled, Close/open loop water-cooled
PSU	2x Redundant up to 1100W; Platinum & Titanium	2x Redundant up to 1800W; Platinum &Titanium	2x Redundant up to 1800W; Platinum & Titanium	2x Redundant up to 1800W; Platinum & Titanium	2x Redundant up to 1800W; Platinum & Titanium
Typical Workload	Cloud, virtualization, analytics, computing, gaming	Cloud, virtualization, analytics, computing, gaming	Cloud, virtualization, analytics, computing, gaming	High performance computing, database, and virtualization	High performance computing, database, and virtualization

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Server Portfolio – 1S AMD Based Mainstream Racks

ThinkSystem	SR635	SR635 V3	SR655	SR655 V3
Form Factor	1U	1U	2U	2U
CPU Sockets	1S AMD EPYC™ 7002 / 7003 Series, up to 280W	1S AMD EPYC™ 9004 Series, up to 360W	1S AMD EPYC™ 7002 / 7003 Series, up to 280W	1S AMD EPYC™ 9004 Series, up to 360W
DIMM Slots	16 DDR4	12 DDR5	16 DDR4	12 DDR5
PCIe slots	4x PCIe +1x OCP (G4)	5x PCIe + 1x OCP (G5/G4)	9x PCIe + 1x OCP (G4)	12x PCIe + 1x OCP (G5/G4)
Drive Slots	Up to 4x 3.5" or 16x 2.5" drives	Up to 12x2.5" or 16x E1.S drives	Up to 20x 3.5" or 32x 2.5" drives	Up to 20x 3.5" or 32x 2.5" drives
Acceleration	3SW	3SW	2DW / 3SW	3DW / 8SW
Cooling	Air-cooled	Air-cooled, Close/open loop water-cooled	Air-cooled	Air-cooled, Open loop water-cooled
PSU	2x Redundant Up to 1100W; Platinum & Titanium	2x Redundant up to 1800W; Platinum & Titanium	2x Redundant up to 1100W; Platinum & Titanium	2x Redundant up to 2600W; Platinum & Titanium
Typical Workload	Virtualization, IT infrastructure, Cloud, Analytics, Database	Virtualization, Cloud, Hosting, Database	Virtualization, IT infrastructure, Cloud, Analytics, Database	VDI, Virtualization, Cloud, SDS

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Server Portfolio – 1S Intel Based Racks

ThinkSystem	SR250	SR250 V2
Form Factor	1U	1U
CPU Sockets	1S Intel® Xeon® E-2200 or Intel® Pentium® up to 95W	1S Intel® Xeon® E-2300 or Intel® Pentium® up to 95W
DIMM Slots	4 DDR4	4 DDR4
PCIe slots	3 (G3)	3 (G4)
Drive Slots	Up to 4x 3.5" or 10x 2.5" drives	Up to 4x 3.5" or 10x 2.5" drives
Acceleration	N/A	1SW
Cooling	Air-cooled	Air-cooled
PSU	Non-Redundant 300W Gold; 2x Redundant 450W Platinum	Non-Redundant 300W Gold; 2x Redundant 450W; Platinum & Titanium
Typical Workload	IT Infrastructure, Cloud, Virtualization, Database	IT Infrastructure, Cloud, Virtualization, Database

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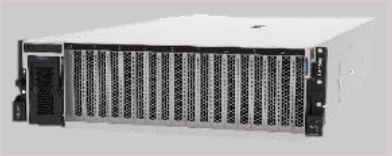
Server Portfolio – Towers

ThinkSystem	ST50	ST50 V2	ST250	ST250 V2	ST550	ST650 V2	ST650 V3
Form Factor	Tower (27.2L)	Tower (16.5L)	Tower (42L)	Tower (42L)	Tower or Rackmount (48L)	Tower or Rackmount (55.7L)	Tower or Rackmount (55.7L)
CPU Sockets	1S Intel® Xeon® E-2200 or Intel® Pentium® up to 95W	1S Intel® Xeon® E-2300 or Intel® Pentium® up to 95W	1S Intel® Xeon® E-2200 or Intel® Pentium® up to 95W	1S Intel® Xeon® E-2300 or Intel® Pentium® up to 95W	2S 1st and 2nd Generation Intel® Xeon® Scalable Processors	2S 3rd Generation Intel® Xeon® Scalable Processors	2S 4th Generation Intel® Xeon® Scalable Processors
DIMM Slots	4 DDR4	4 DDR4	4 DDR4	4 DDR4	12 DDR4	32 DDR4	DDR5
PCIe slots	3 (G3)	3 (G4)	4 (G3)	4 (G4)	7 (G3)	9 (G4/G3)	G5/G4
Drive Slots	Up to 4x 3.5"	Up to 1x 2.5" and 2x 3.5“ drives	Up to 16x 2.5" or 8x 3.5“ drives	Up to 16x 2.5" or 8x 3.5“ drives	Up to 20x 2.5" or 8x 3.5“ drives	Up to 32x 2.5" or 16x 3.5“ drives	Coming Soon
Acceleration	N/A	1SW	N/A	1SW	2DW	4DW / 8SW	
Cooling	Air-cooled	Air-cooled	Air-cooled	Air-cooled	Air-cooled	Air-cooled	
PSU	Non-Redundant up to 400W Gold	Non-Redundant up to 500W Gold	Non-Redundant 300W Gold; 2x Redundant 550W Platinum	Non-Redundant 300W Gold; 2x Redundant up to 750W Platinum & Titanium	Non-Redundant 450W Gold; 2x Redundant up to 1100W; Platinum & Titanium	2x Redundant up to 2400W Platinum & Titanium	
Typical Workload	IT Infrastructure, Database	IT Infrastructure, Database	IT Infrastructure, Cloud, Virtualization, Database	IT Infrastructure, Cloud, Virtualization, Database	IT infrastructure, Virtualization, Media Stream/Imaging, Database, Private Cloud	IT infrastructure, Virtualization, Media Stream/Imaging, Database, Private Cloud	IT infrastructure, Virtualization, Media Stream/Imaging, Database, Private Cloud

Lenovo Intel-based AI-Optimized Servers Comparison

ThinkSystem

Intel Systems	SR650 V3	SD650-N V3	SR670 V2	SR680a V3	SR780a V3
					
Size	2U Rack	1U within 6U DWC chassis	3U Rack	8U Rack	5U Rack
GPU	3x double width cards	4x NVIDIA H100 SXM	8x double width cards or 4x NVIDIA H100 SXM	8x NVIDIA H100/H200/B100 8x AMD Instinct™ MI300X	8x NVIDIA H100/H200/B100 8x AMD Instinct™ MI300X
GPU Interconnect	PCIe Gen5 up to 64GB/sec	NVLink up to 900 GB/sec	PCIe Gen5 up to 64GB/sec	NVLink up to 900GB/s Infinity Fabric up to 800GB/s	NVLink interconnects at 900GB/s
CPU	2x 64c Intel 4th Gen Intel® Xeon® Scalable Processors	2x 64c Intel 4th Gen Intel® Xeon® Scalable Processors	2x 40c 3rd Generation Intel® Xeon® Scalable Processors	2x 48c 5th Gen Intel® Xeon® Scalable Processors	2x 5th Gen Intel® Xeon® Scalable processors, up to 350W
Memory	32x DDR5 slots, RDIMM/3DS	16x DDR5 slots, RDIMM/3DS	32x DDR4 slots RDIMM	32x DDR5 slots, RDIMM/3DS	Up to 4TB using 32x DDR5 DIMMs with maximum frequency at 5600MHz
PCIe	12x PCIe 4.0/5.0, 1x OCP 3.0 slot 1x cabled internal HBA/RAID adapter doesn't occupy a standard PCIe slot	NVIDIA ConnectX-7 4-chip VPI PCIe Gen5 Mezz Board for GPUDirect I/O	Up to 4x PCIe Gen4 x16 adapters (2 front or 2-4 rear) and 1x PCIe Gen4 x16 OCP 3.0 mezz adapter (rear) depending on the config	8x PCIe 5 x 16 LP (Network - Direct connect to GPU) 2x PCIe Gen5 x16 FHFL	Up to 10x PCIe Gen5 x16 adapters
AI Workloads	Inference, Retraining for smaller models.	Model Development, Training, and Retraining. Primarily HPC	Model Development, Training & Retraining, Inference	Model Development, Training & Retraining, Inference	Model Development, Training & Retraining, Inference

Lenovo AMD-based Servers Comparison

AMD Systems	SR665 V3	SR675 V3	SR685a V3
Size	2U Rack	3U Rack	8U Rack
CPU	2x 96c 4th Gen AMD EPYC™ processor	2x 96c 4th Gen AMD EPYC™ processor	2x 64c 4th Gen AMD EPYC™ processor and Next Gen AMD EPYC™ processor
GPU	3x double width cards	8x double width cards 4x NVIDIA H100 SXM	8x AMD Instinct™ MI300X 8x NVIDIA H100/H200
Interconnect	PCIe up to 64GB/sec	PCIe up to 64GB/sec NVLink up to 900GB/sec	AMD Infinity up to 800GB/sec NVLink up to 900GB/sec
Max Memory	24x DDR5 slots, RDIMM/3DS	24x DDR5 slots RDIMM	24x DDR5 Up to 3TB, RDIMM/3DS
PCIe	12x PCIe 4.0/5.0, 1x OCP 3.0 slot 1x cabled internal HBA/RAID adapter doesn't occupy a standard PCIe slot	Up to 6x PCIe Gen5 x16 adapters (2 front, 4 rear) and 1x OCP NIC 3.0 (x16/x8/x4) (rear) depending on the configuration	8x PCIe 5 x 16 LP (Network - Direct connect to GPU) 2x PCIe Gen5 x16 FHHL OR 1x PCIe x16 + 1x OCP 3.0
AI Workloads	Inference, Retraining for smaller models.	Model Development, Training & Retraining, Inference	Model Development, Training & Retraining, Inference

Server Portfolio - Dense

ThinkSystem	SD630 V2	SD650 V2	SD650-N V2	SR670 V2	SD665 V3	SD665-N V3	SD650 V3	SD650-I V3
Form Factor	2U4N	6U12N	6U6N	3U	6U12N	6U6N	6U12N	6U6N
CPU Sockets	2S Intel 250W	2S Intel 270W	2S Intel 270W	2S Intel 270W	2S AMD 400W	2S AMD 400W	2S Intel 350W	2S Intel 350W
DIMM Slots	16 DDR4	16 DDR4	16 DDR4	32 / 16+16 DDR4	24 DDR5	24 DDR5	16 DDR5	16 DDR5
2.5‘ Drive Slots	up to 2 (NVMe)	up to 2 (NVMe)	up to 2 (NVMe)	up to 8 (NVMe)	up to 4 (NVMe)	up to 2 (NVMe)	up to 4 (NVMe)	up to 2 (NVMe)
Acceleration	n/a	n/a	4x 400W SXM4 (Redstone)	4x DW 300W PCIe or 8x SW 150W / 8x DW 300W PCIe / 4x 400W SXM4	n/a	4x 700W SXM (Hopper)	n/a	4x 600W OAM (Ponte Vecchio)
Cooling	Air (A4; 25°C full perf.)	Water (A4/W5 full perf.)	Water (A4/W5 full perf.)	Air (A4 on; A2 full perf.)	Water (A4/W5 full perf.)	Water (A4/W5 full perf.)	Water (A4/W5 full perf.)	Water (A4/W5 full perf.)
Cabling	Front	Front	Front	Front/Rear	Front	Front	Front	Front
Typical Workload	Technical Computing, Supercomp.	Supercomp.	Exascale Supercomp., AI Training	AI Training, AI Inf., M&E, Technical Computing	Supercomputing	Exascale Supercomputing , AI Training	Supercomputing	Exascale Supercomputing , AI Training

Server Portfolio – Edge Server

ThinkEdge	SE30	SE50	SE70	SE350	SE450
Form Factor (HxWxD)	179 x 88 x 51.5 mm	179mm x 182.9mm x 72mm	128mm x 65mm x 191mm	40mm x 214.6mm x 376mm	2U 360mm depth
CPU Sockets	Intel Core I3 / I5	Intel Core I5 / I7	NVIDIA Jetson NX	1S Xeon-D2100 up to 100W	1S 3rd Gen Intel Xeon up to 250W
DIMM Slots	Memory solder down	2	Integrated	4	8
PCIe slots	3 x M.2	1 x mPCIe & 3 x M.2	2 x M.2 for LTE & WIFI	1 x PCIe X16 low profile	Up to 4
Drive Slots	Up to 3 x M.2	Up 3 x M.2	1 x M.2 up to 2TB	Up to 10 x M.2	Up to 6x 2.5”
Acceleration	None	None	NVIDIA GPU	A2, T4	Up to 2x DW 350W (NVIDIA A100) or- 4x SW 75W GPU (NVIDIA T4)
Environmental	Fanless -20ºC to 60ºC MIL-STD 810H	Fanless 0ºC to 50ºC IP50	Fanless -20ºC to 60ºC IP51	5ºC to 45ºC, NEBS3 -5ºC to 55ºC (24x7) S&V (IEC vehicle)	5ºC to 45ºC, NEBS3 -5ºC to 55ºC (24x7)
PSU	9v to 48V DC or External 65W AC	9v to 48V DC or External 65W AC	9v to 48V DC or External 65W AC	External 240W or -48V DC	1100W/1800W Platinum, 1100W Titanium 1100W -48VDC (Reverse Airflow)
Typical Workload Market	Industrial Retail / Medical / Transportation	Industrial Retail / Medical / Transportation	Industrial Retail / Medical / Transportation	Edge AI & HCI Retail & Industrial	Enterprise, Industrial & Retail vRAN, MEC, Smart City

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