Smarter technology for all

LENOVO WORKSTATIONS

P-SERIES

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Lenovo Workstations

Customer-Driven Innovation

Delivering greater performance with options for every workflow, even the most extreme use cases

Legendary Reliability

Tested for 12 MIL-SPEC methods and 22 procedures covering extreme environment variables

Technical Expertise

Dedicated team focused on helping customers maximize performance and productivity

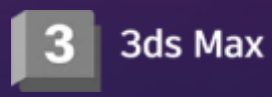
Empowering Emerging Technologies

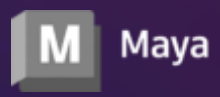
Implementing digital transformation and artificial intelligence workflows has never been easier

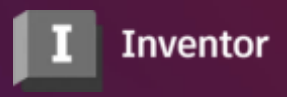
The Fastest Growing Workstation Provider in the Industry

Lenovo

ISV Certification Brings the Highest Quality Solution







Lenovo

Workstation Portfolio ThinkPad P Series

P14s
Lenovo's Lightest Mobile Workstation

P1
Premium Power, True Mobility

P16v
Accessible Power

P16
Performance Unpacked

P16s
On-The-Go Power and Performance

Lenovo ThinkPad

Lenovo

ThinkPad P Mobile Workstations 2023

	P14s Gen 4	P16s Gen 2	P16v Gen 1	P1 Gen 6	P16 Gen 2
Display	14“	16“	16“	16“	16“
Processor	Intel Core i / AMD Ryzen Pro (U)	Intel Core i / AMD Ryzen Pro (U)	Intel Core i / AMD Ryzen Pro (H)	Intel Core i (H)	Intel Core i (HX)
Max. Memory	64 GB	64 GB	96 GB	96 GB	192 GB
Max. Graphics	RTX A500	RTX A500	RTX 2000 Ada	RTX 5000 Ada / GeForce RTX 4090	RTX 5000 Ada
Touch Display (opt.)	●	●	●	●	●
Max. Drives	1	1	2	2	2
Max. Power supply	100 / 65 W	135 / 100 W	170 W	230 W	230 W
Weight (Starting)	1.35 kg	1.7 kg	2.2 kg	1.8 kg	2.95 kg

P14s Gen 4 & P16s Gen 2
What's New for 2023

- 16:10 Display Optimized Form Factor
- Available in metal finish w/ tone match KBD
- 14":17.9mm thin/ 1.34kg(2.97lb) *
- 16": 20.5mm thin / 1.70kg (3.76lb)*

- Intel Raptor Lake P28
- DDR5 & LPDDR5x Memory Options
- RTX Nvidia Discrete Graphics Option (Intel)

- All-Day Battery Life & Scalable Battery Options
- Separate 5MP RGB + IR camera for an immersive video experience
- Ultrasonic HPD enabled

UXD

- OLED Panel Offerings (2.8k on 14" and 4k on 16") for more efficient viewing
- Responsible Design
- 115mm Glass-like TouchPad
- Service Friendly D Cover Design

ThinkShield

- BIOS Signing with Hardware Security Module
- Capsule-based Firmware Updates

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Blue indicates 2023 changes

* Based on "CS23 Weight Measurement Method_20221222"

P14s Gen 4 & P16s Gen 2 AMD

What's New for 2023

- 16:10 Display Optimized Form Factor
- Available in metal finish w/ tone match KBD
- 14":17.9mm thin/ 2.97lbs / 1.34kg*
- 16": 20.5mm thin / 3.76lbs / 1.70kg*

- New AMD Phoenix Pro FP7 R5/R7 CPUs
- LPDDR5x Memory up to 64GB

- All-Day Battery Life & Scalable Battery Options
- Separate 5MP RGB + IR camera for an immersive video experience
- Ultrasonic HPD enabled
- Added 1 USB4 Port on AMD Versions

- OLED Panel Offerings (2.8k on 14" and 4k on 16") for more efficient viewing
- Responsible Design
- 115mm Glass-like TouchPad
- Service Friendly D Cover Design

- BIOS Signing with Hardware Security Module
- Capsule-based Firmware Updates

EMEA: Storm Grey not available

Blue indicates 2023 changes

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* Based on "CS23 AMD Weight Measurement Method_20230130 "

ThinkPad P16v – Power for the People

- Intel RPL-H & AMD Phoenix-H @45W
- NVIDIA RTX Ada + Intel UMA
- PCIe Gen 4 storage – up to 4TB
- 5600MHz* DDR5 memory – up to 96GB (Intel only)
- 2x TBT4/USB4
- Wi-Fi 6E + 4G LTE WWAN

design.

- 16:10 16" displays
- New full-size keyboard w/ NumPad
- FPR in PWR for clean palmrest
- P16 and DTWS design language

UXD

- Large wide touchpad
- KBD air intake & dual fan cooling
- FHD/5MP + IR camera w/ HPD
- User facing speakers
- Big 90Whr battery

ThinkShield

- FW resiliency 3.0
- Certificate based BIOS authentication
- BIOS modification and event log
- MOC FPR

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Intel RPL-H or AMD Phoenix-H CPUs

45W, Up to 14 cores

NVIDIA Graphics

Up to NV RTX 2000 Ada

Up to 96GB Memory

DDR5, Dual DIMMs, 5600MHz*

Up to 4TB SSD Storage

2x PCIe Gen 4 Slots

Starting at: 365mm x 262mm x 24.66mm
Starting at: 4.85lbs / 2.2kgs

16” 16:10 Display

FHD+ and UHD+ options

HDR400 Dolby Vision FCC

(on UHD+)

Ultra Performance Mode

Windows 11 & Linux

Wi-Fi 6E

4G LTE

NFC

FHD or 5MP Camera

With IR and privacy shutter

Dolby Audio

Dolby Voice

90Wh Battery

135W/170W power adapter

2x USB-A, 2x USB-C TBT4, HDMI 2.1, SD Express 7.0, Smart Card Reader, Audio Jack

ISV Certified & MIL-SPEC Tested

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ThinkPad P1 G6 – Premium Thin & Light

Smarter technology for all

- Intel Raptor Lake H @45W
- NVIDIA RTX Ada and GeForce
- PCIe Gen 4 storage – up to 8TB
- 5600MHz DDR5 memory – up to 96GB
- 2x TBT4
- Wi-Fi 6E + 4G LTE WWAN

- 16:10 16" displays
- Narrow bezels and high STB
- Thin & light, <4lbs, <18mm
- Excellent I/O selection

- Re-introduce OLED Touch
- FHD/5MP + IR camera w/ HPD
- User facing speakers
- Liquid metal & vapor chamber
- 90Whr battery

- Increased SPI ROM size
- Certificate based BIOS Authentication
- BIOS Modification and Event Log
- MoC FPR

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Intel 13th Gen Raptor Lake H CPUs

45W, Up to 14 cores

NVIDIA Graphics

Up to NV RTX 5000 Ada 16GB or GF RTX 4090 16GB

Up to 96GB Memory

DDR5, Dual DIMMs, 5600MHz

Up to 8TB SSD Storage

2x PCIe Gen 4 Slots
RAID 0/1

Starting at: 359.5mm x 253.8mm x 17.7mm
Starting at: 3.99lbs / 1.81kgs

16” 16:10 Display

FHD+ | QHD+ 165Hz | UHD+ OLED Touch

Low Blue Light

Dolby Vision

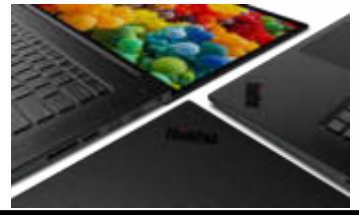
X-Rite FCC

Liquid Metal

Vapor Chamber

UP Mode

Windows 11 & Linux



4G LTE

Wi-Fi 6E

NFC

FHD or 5MP Camera

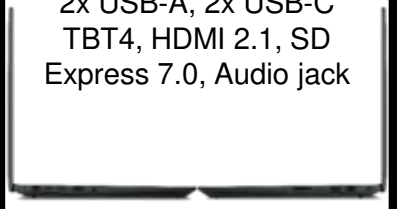
With IR and privacy shutter

Dolby Atmos

Dolby Voice

90Wh Battery

170W/230W power adapter



2x USB-A, 2x USB-C TBT4, HDMI 2.1, SD Express 7.0, Audio jack

ISV Certified & MIL-SPEC Tested

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ThinkPad P16 G2 – Highest Level of Power

Smarter technology for all

- Intel Raptor Lake HX @55W
- NVIDIA RTX Ada + Intel DG2/UMA
- PCIe Gen 4 storage – up to 8TB
- 5600MHz* DDR5 memory – up to 192GB
- 2x TBT4
- Wi-Fi 6E + 4G LTE WWAN

design.

- 16:10 16" Displays
- 4-Side Narrow Bezel Displays
- FPR in PWR
- Aluminum top-cover

UXD

- New 165Hz QHD+ | 800nit UHD+
- GPU daughter board
- FHD + IR camera w/ HPD
- User facing speakers
- 94Whr battery
- Vapor chamber

ThinkShield

- FW resiliency 3.0
- Certificate based BIOS Authentication
- BIOS Modification and Event Log
- MoC FPR

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Intel 13th Gen Raptor Lake HX CPUs

55W, Up to 24 cores

NVIDIA & Intel Graphics

Up to NV RTX 5000 Ada 16GB, GPU Daughter Board

Up to 192GB Memory

DDR5, 4x DIMMs, 5600MHz*, ECC/non-ECC

Up to 8TB SSD Storage

2x PCIe Gen 4 Slots
RAID 0/1

Starting at: 364mm x 266mm x 30.23mm
Starting at: 6.5lbs / 2.95kgs

16” 16:10 Display

FHD+ | QHD+ 165Hz | UHD+ | UHD+ OLED Touch

Pen Support

TUV Eyesafe LBL

Dolby Vision

X-Rite FCC

Dual Vapor Chamber Cooling

UP Mode

Windows 11 & Linux

4G LTE

Wi-Fi 6E

NFC

1080p FHD Camera

With IR and privacy shutter

Dolby Atmos

Dolby Voice

94Wh Battery

170W/230W power adapter

2x USB-A, 3x USB-C (2x TBT4), HDMI 2.1, SD Express 7.0, Smart card reader, Audio jack

ISV Certified & MIL-SPEC Tested

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Workstation Portfolio ThinkStation P Series

P3 Tiny
World's Smallest Workstation

P3 Ultra
Redefining the Power of Small

P3 Tower
Power of a Workstation Price of a Desktop

P5
Performance Champion

PX
The Pinnacle of Lenovo Technology

P7
Superior Thermals, Maximum Performance

P620
Game Changing Power, and Speed

P358
Power of a Workstation, Price of a Desktop

Lenovo
ThinkStation

Lenovo

Ultimate Workstation Performance

ThinkStation PX

Up to **120*** Cores

Up to **4** High-End GPUs

PCIe Gen 5 Ready

Up to **2TB** 4800MHz Memory

8ch. Memory Architecture

5U Rack Optimized

Front Access Storage

Onboard **10Gb** Ethernet

1850W Redundant* PSU

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ThinkStation PX

ThinkStation P7

Up to **56** Cores

Up to **3** High-End GPUs

PCIe Gen 5 Ready

Up to **1TB** 4800MHz Memory

8ch. Memory Architecture

4U Rack Optimized

Front Access Storage

Onboard **10Gb** Ethernet

1400W PSU

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ThinkStation P620

AMD THREADRIPPER PRO

Workstation

Bis zu **64** Cores

Bis zu **128** PCIe Lanes

Onboard **10**Gb Ethernet

8ch. Memory Architecture

Bis zu **1TB** 3200MHz Memory

Industry's 1st **PCIe Gen 4**

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ThinkStation P5

Up to
24
Cores

Up to
2
High-End GPUs

Up to
512TB
4800MHz Memory

PCIe
Gen 5
Ready

Front
Access
M.2

Up to
1000W
PSU

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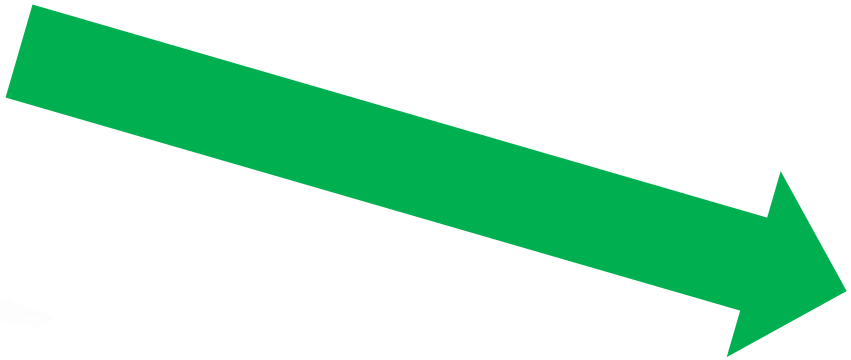
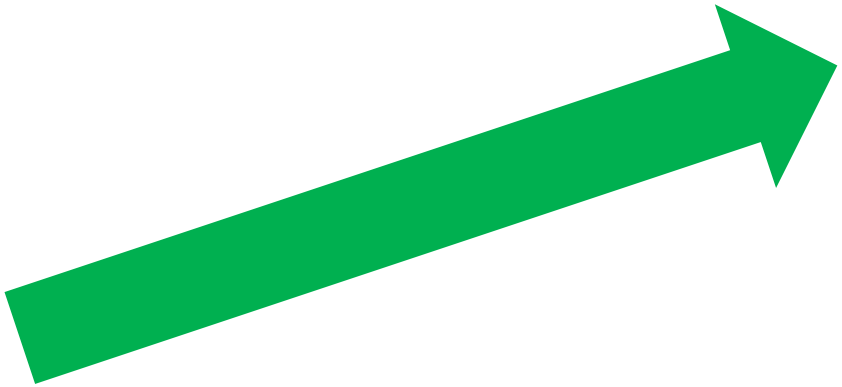
Product Transition

P360
Tower
(17L, 750W)

P520
Tower
(25L, 625W)





P3
Tower
(27L, 1100W)

Intel Xeon W-2245, 8C,3.90GHz,16.5MB,DDR4-2933

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ThinkStation P3 Tower

Up to 24 Cores	Up to A5500 High-End GPU	PCIe Gen 4 Ready
Up to 128GB 4800MHz Memory	2ch. Memory Architecture	1100W PSU

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ThinkStation P3 Ultra

Up to 24 Cores

Up to T1000

PCIe Gen 4 Ready

Up to 128GB 4800MHz Memory

2 ch. Memory Architecture

300W PSU

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ThinkStation P3 Tiny

Konnektivität

-	Serial	Serial	Serial	Serial	Serial	USB-A	Serial	Thunderbolt (DP Input)	3x mini DP 4x mini DP	4x RJ45	2x RJ45	4x Serial (RS232)
-	USB-C	VGA	HDMI	DP	Serial	USB-A	RJ45					
Add On Card	-	-	-	-	-			Thunderbolt Card	NVIDIA T400 NVIDIA T1000	Intel i350-T4	Intel i350-T2	4-Port Serial Card

Abbildungen ähnlich

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ThinkStation P3 Ultra

Up to 20 Cores

Up to A5500m High-End GPU

PCIe Gen 4 Ready

Up to 128GB 4800MHz Memory

2 ch. Memory Architecture

300W PSU

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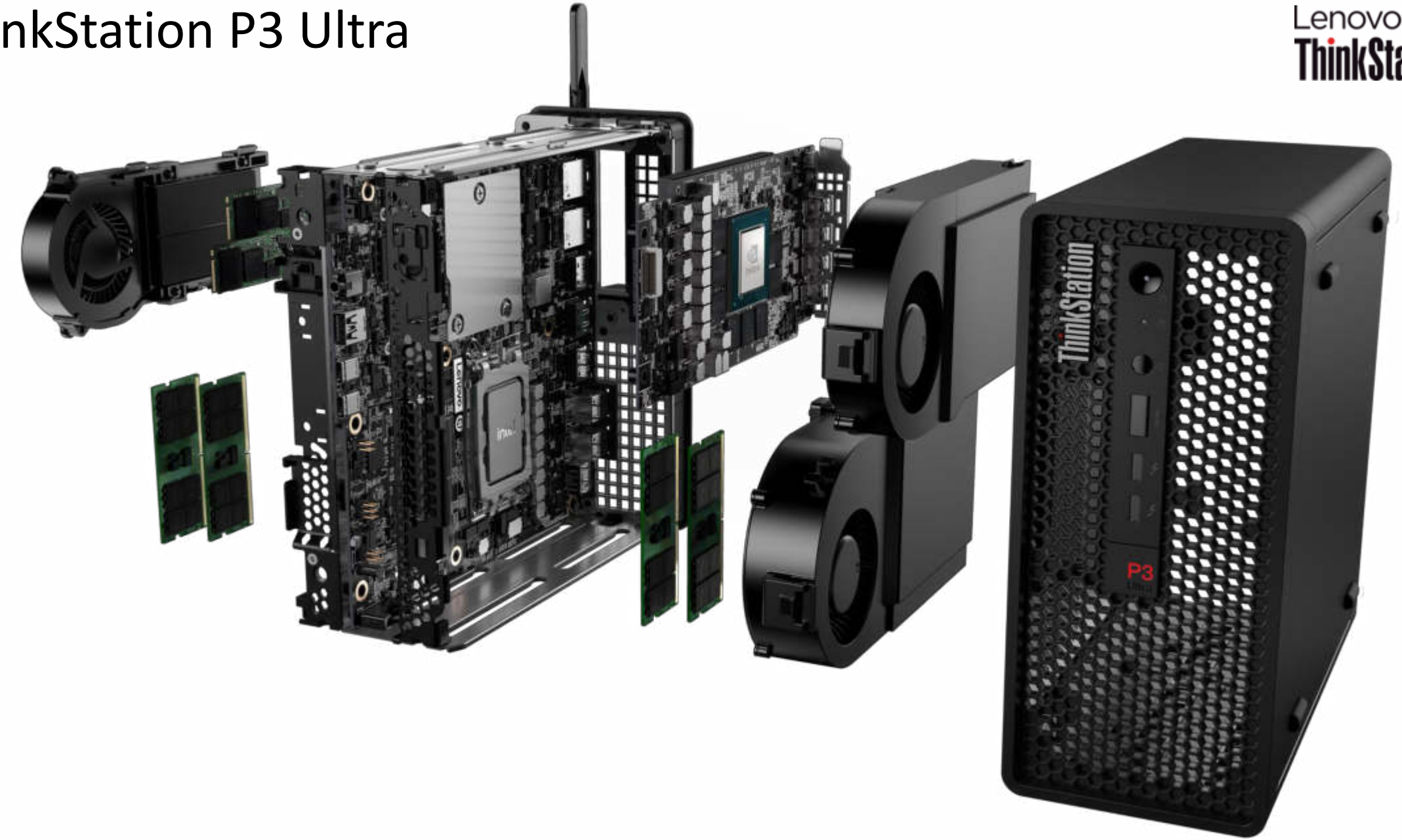
ThinkStation P3 Ultra



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Warum Remote Workstation Sinn macht !

Vorteile Workstation Rack Solution:

- Hardware inhouse aber nicht unterm Tisch
- Sparen bei der Plattform
- Sparen bei der ISV Software
- Sparen bei Nvidia Grid Lizenzen

P5
P620
P7
PX

P360 / P3 Ultra

Vorteile Remote Workstation TGX Software:

- ✓ Sehr geringe Latenz für ein flüssiges arbeiten
- ✓ ISV Support gewährleistet
- ✓ Peripherie und mehrere Displays unterstützt

P360 / P3 Tiny

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ThinkStation P-Series

ThinkPad P-Series

NVIDIA QUADRO RTX

TGX

Remote Workstation Software

ThinkStation Rack

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+

TGX **Remote Workstation Software**

Mechdyne
ENABLING DISCOVERY

RESOLUTIONS
Supports Large Multi-Monitor, Ultra-High Resolution with as Like Local Experience

KEEP DATA & IP SECURE
Reduce Risk & Delivery Greater Security & Performance

COLLABORATORS
Shared Keyboard & Mouse with Separate Encoding Streams; Delivery Maximum Performance

ULTRA RESPONSIVE
Minimizes Additional Latency for As Local Like Desktop Experience ~10ms

SOFTWARE AGNOSTIC
Works with ALL ISV Software Applications, ANY Industry Vertical, ANY Project

BANDWIDTH UTILIZATION
Uses Much Less Network Bandwidth; Providing 2x Faster Frame Rates than Competitor Solutions

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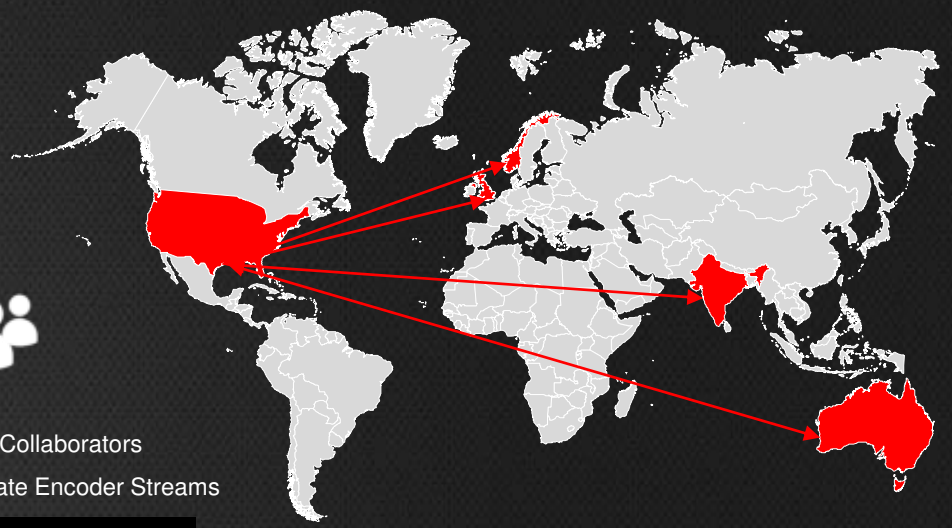
RESOLUTION

COLLABORATION

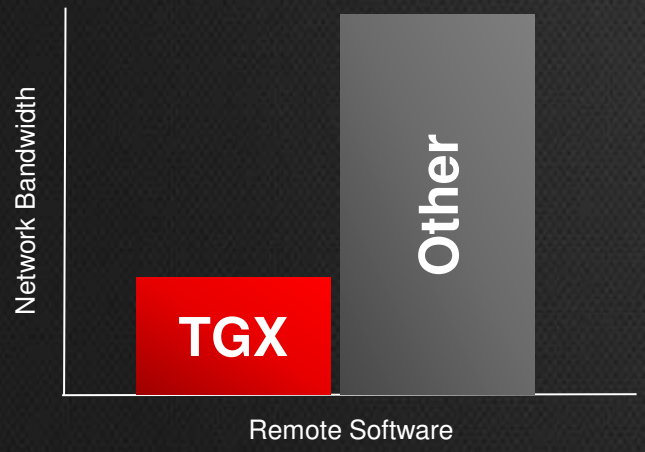
NVIDIA



- Multiple Collaborators
- + Separate Encoder Streams

THE TGX DIFFERENCE

LOW BANDWIDTH



FAST & RESPONSIVE

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Sender
ThinkStation P Series

TGX

Reciever
ThinkPad | ThinkStation P Series

Office / Backend

ThinkStation

NVIDIA QUADRO RTX

TGX | Sender

Optional

Connection Broker

INTERNET

TGX | Receiver

ThinkPad

ThinkStation

Home

NVIDIA QUADRO RTX

Accelerated End to End by the Power of NVIDIA Quadro GPUs

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THE SENDER

NVIDIA Quadro® GPU Optimized

Leverage NVIDIA® Optimizations for Capturing Pixels, Encoding and Decoding (NVFBC, NVENC, NVDEC)

NVIDIA® Dedicated Processing

TGX does not compete with graphical software apps running on the workstation. NVIDIA GPUs have their own built in h.264 encoder/decoder, removing any additional CPU or GPU workloads

Supports Physical & Virtual Workstations

NVIDIA vGPU Software Enables the GPU to be Virtualized Across Multiple Virtual Machines (*if needed*)

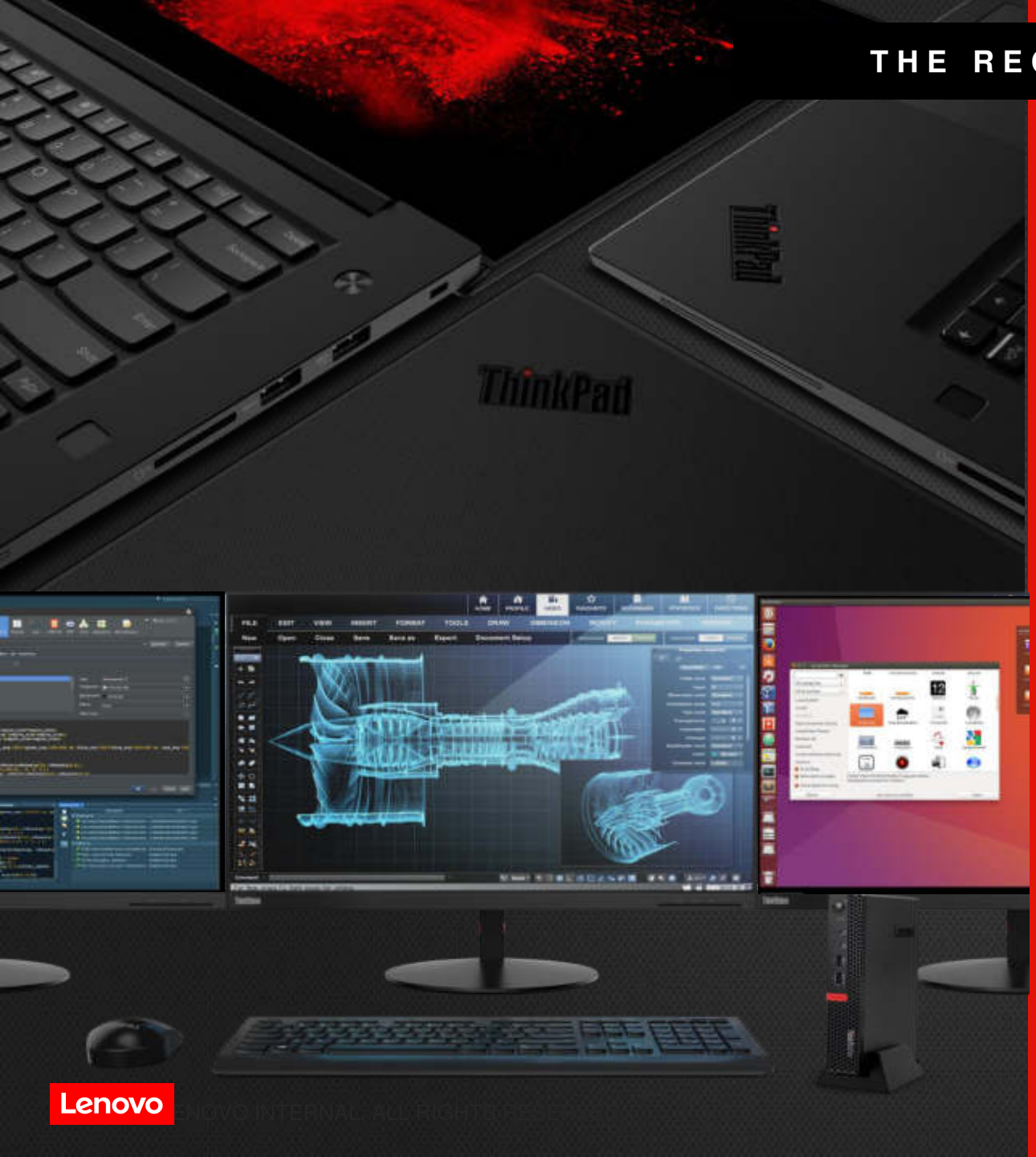
Multiple OS Platforms Supported

Lenovo & TGX Remote Workstation Software Support both Microsoft Windows & Linux Operating Systems.

No Special Hardware Required

Customers already use NVIDIA Quadro® GPUs as part of their ISV Software Application Workflow

THE RECEIVER



Hardware Decoding
TGX Remote Workstation uses Hardware Decoding and can Leverage the Power of NVIDIA Quadro® GPUs

Superior Speed & Performance
Fastest Performance, Always When Leveraging NVIDIA® GPUs end-to-end for Encoding and Decoding

Best User Experience
Ultimate User Experience for Large Multi-Monito/Desktop Configurations & Project Workflows

USB Device Support
Continue to use Wacom Tablets, 3DConnexion Devices and More with Direct USB Pass-Through

Multiple OS Platform Support
Support for Windows or Linux Client Operating Systems

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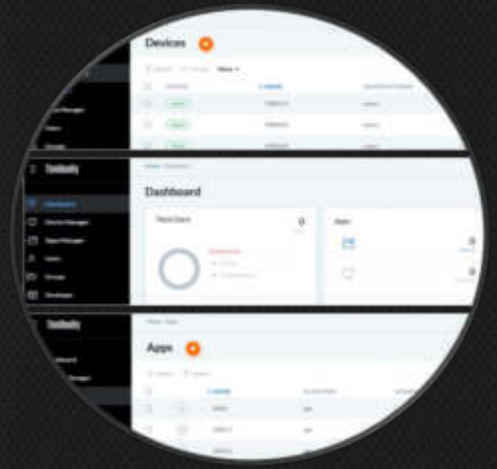
Commercial AR/VR Solutions Portfolio

PC-AR

Enterprise AR

Enterprise VR



AR/VR Platform

Smarter technology for all

Lenovo ThinkReality

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AR Use Cases

Lenovo 2023 Lenovo Confidential

Introducing
RealWear Navigator™ 500

Assisted Reality: Users and Use Cases

Frontline worker

- Completely hands-free use
- Situational awareness
- Fits to security equipment

Search and Rescue

- Full focus on what counts
- Intelligent remote support
- Advanced collaboration

Remote support

- Completely hands-free use
- Advanced remote expertise
- Advanced documentation

ThinkReality A3 PC Edition

Productivity on a whole new scale

- Bis zu 6 virtuelle Bildschirme mit integrierter GPU
- Bis zu 8 virtuelle Bildschirme mit diskreter GPU

Plug-and-play ready

- Lenovo Virtual Display Manager zur Verwaltung und Steuerung der virtuellen Displays (in der PC Edition enthalten)

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ThinkReality A3 PC Edition

Transforming workflow delivery

TechViz Share&Viz wechselt von der Anzeige eines CAD-Modells auf dem PC zu seiner 3D-Darstellung auf dem A3 in Echtzeit (separate Lizenz erforderlich)

ThinkReality A3 PC Edition key features

Hardware
- Qualcomm® XR-1 SmartViewer
- Dual 1080p AR displays
- Integrated speakers and microphone
- Dual fisheye cameras
- 8MP RGB camera
- USB-C connection to PC
- Lightweight (4.6 oz./130 gm)
- Ergonomic fit kit
- IP54 rating

Software
- Lenovo Virtual Display Manager
- TechViz Share&Viz (separate license required)
- Windows 11 Pro

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ThinkReality VRX

Six degrees of freedom (6DoF) all-in-one VR headset

43%
reduced risk of workplace injury

"80+ Virtual Reality Statistics 2022," May 2022

4x
faster training on soft skills compared to classroom training

PwC, "VR Soft Skills Training Efficacy Study," 2020

275%
of employees were more confident about applying new skills after VR training

PwC, "VR Soft Skills Training Efficacy Study," 2020

Organizations taking advantage of:

- Technical skills training
- Interpersonal skills training
- Remote collaboration
- Engineering and design

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Engineered to impress

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Engineered for enterprise

- Engineered for long life
- Supports 6DoF, 3DoF, and mixed reality (MR) experiences with full-color pass-through
- Secure supply chain and manufacturing process

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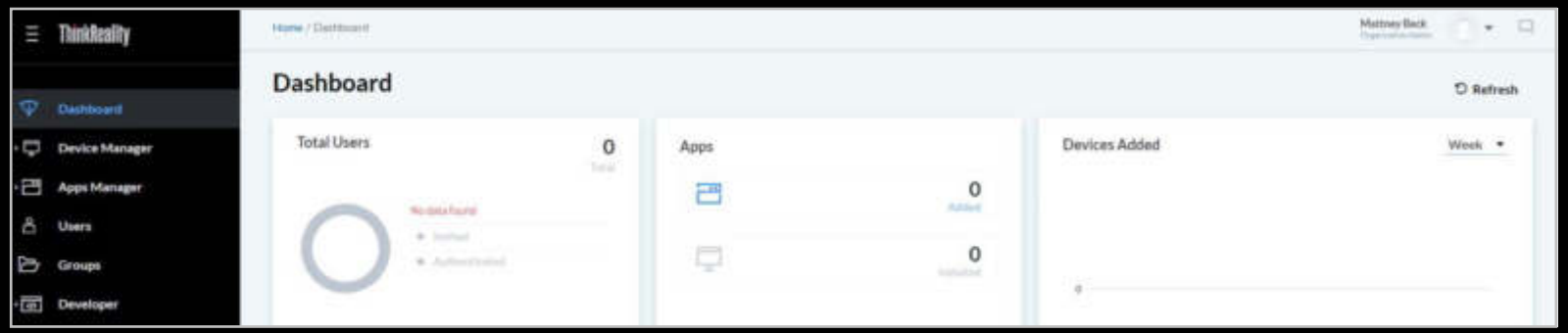
ThinkReality Platform

Cloud Portal



Agnostic Platform

CLOUD AGNOSTIC

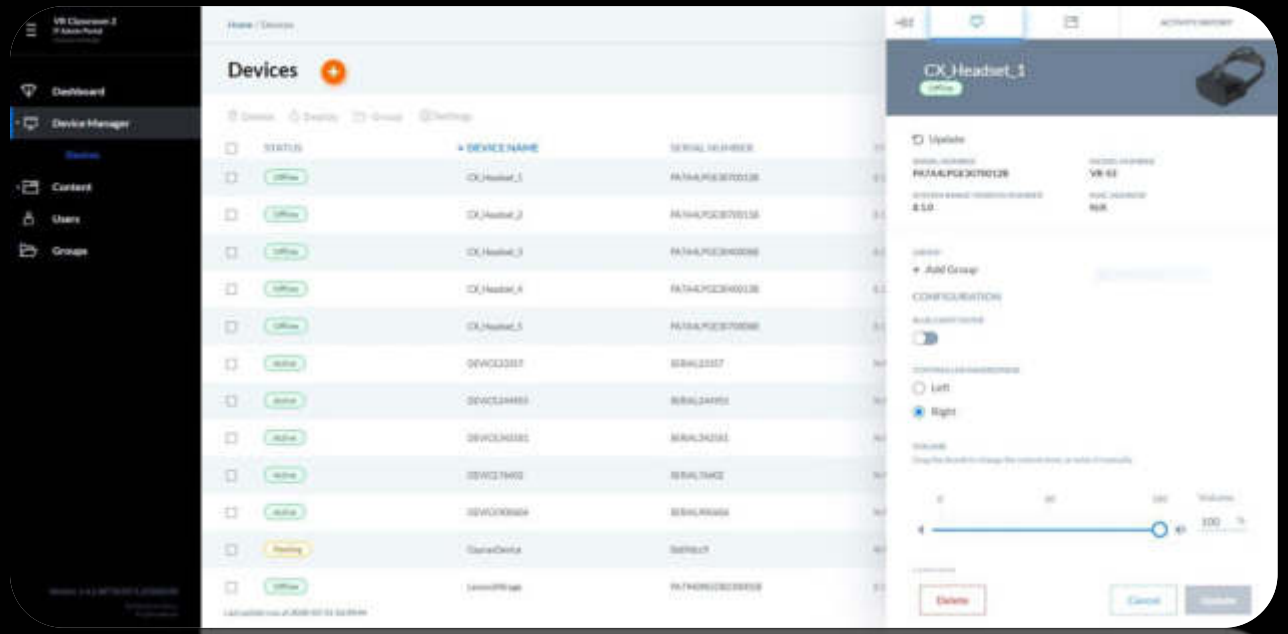
Cloud I Private | On-Premise

DEVICE AGNOSTIC

3rd Party Device Interoperability

Lenovo

ThinkReality



Mass provisioning of devices

+

Update devices simultaneously

+

Access devices over Wi-Fi anywhere

+

One secure cloud platform to manage

Lenovo

Total Enterprise Solution

SOFTWARE

TURNKEY APPS & SOLUTIONS
- Certified third-party apps
- Variety of use cases
- Android Mobile Device Support

CLOUD PLATFORM & SERVICES
- Management portal
- MDM support
- User and app provisioning
- Microservices
- Hosted or on-prem
- **Asset Pipeline**

DEVELOPMENT PLATFORM
- Unity SDK
- Extendable Sample Apps
- Mixed Reality Support
- Voice
- Gesture
- Gaze
- **3DoF Controller Support in SDK**
- **Image Recognition with Extended tracking included in SDK**

Partners: sensory | Clay | wikitude

HARDWARE

Lenovo | 3rd Party

A3

realwear

VRX

VARJO

HARDWARE
- Enterprise-ready devices
- Third-party device support

Partners: Qualcomm | intel

To learn more, please visit:

www.lenovo.com/thinkreality

SERVICES

xR Deployment Services

xR Strategic Consulting

xR Managed Services

Lenovo

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