

N2N

The World's First H.264 / H.265-Based KVM-Over-IP Solution

N2N KVM is a SmartAVI network-based KVM platform that lets users access and control remote computers from one central workstation. Operators can view, manage, and switch between connected systems over the network instead of moving between separate computers or equipment rooms.

The system sends video, keyboard, and mouse control over IP, helping teams manage multiple computers with fewer physical workstations. With H.264 and H.265 video compression, N2N delivers clear video and responsive control while reducing bandwidth usage and making larger deployments easier to scale.

 **Designed and Manufactured in the USA**



FEATURES AND CAPABILITIES FOR REMOTE SERVER MANAGEMENT

Smart-AVI's IPDex™ delivers the out-of-band management depth of enterprise BMC platforms with the openness and security of OpenBMC — in a dedicated hardware appliance for any server, anywhere.



Control multiple computers from one workstation



Use less network bandwidth with H.265 compression



View several systems on one screen with multiview



Switch between computers quickly



Manage devices through desktop software or a web browser



Support HDMI and DisplayPort systems



Choose single-screen or dual-screen setups



Add optional USB 2.0 support when needed



Adapt the platform for OEM or custom projects

APPLICATIONS

Command & Emergency Operations —

- Operator stations reach dispatch, CAD, GIS, and surveillance systems housed safely in remote racks

Security Operations Centers — Monitor and

- control access, surveillance, and response systems from one organized station.

Broadcast Facilities — Control and monitor

- production equipment from a cleaner, quieter workspace.

Corporate IT — Support and switch between

- company systems efficiently from a single location.

Multi-Agency Coordination — Role-based

- access gives each team only the systems it is cleared to view and control.

Data Centers — Manage servers and

- infrastructure without standing in front of every machine.

Industrial Automation — Reach computers tied

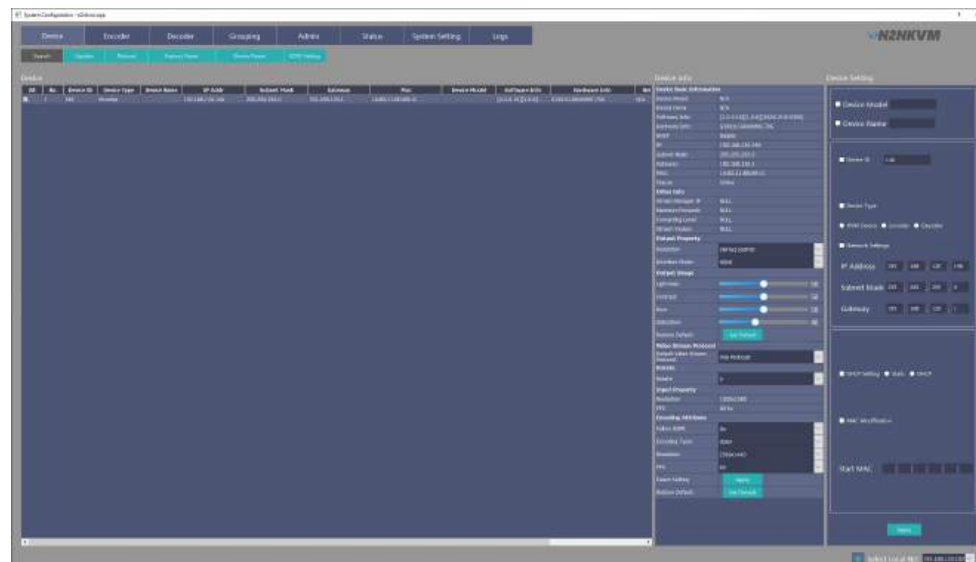
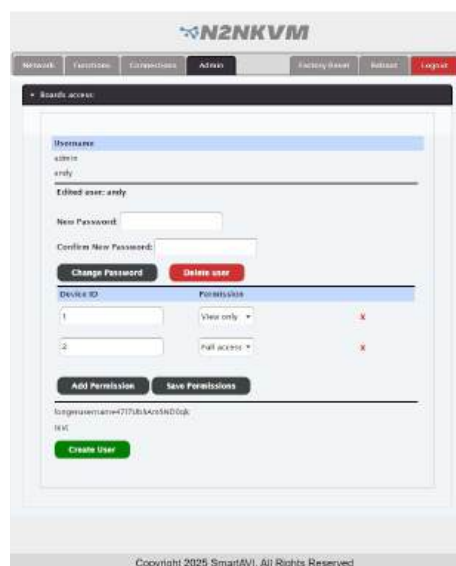
- to manufacturing, process control, and facility systems.

Crisis & Disaster Operations — Add endpoints,

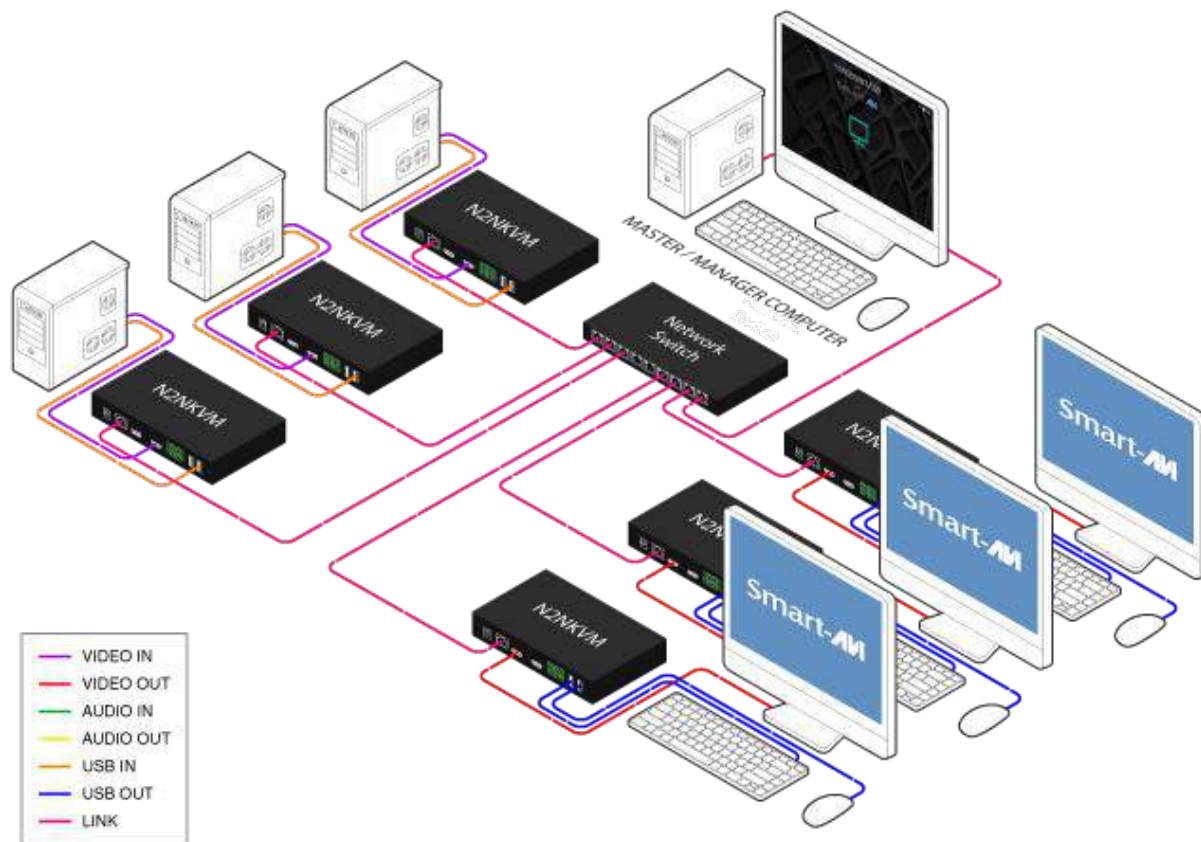
- agencies, and operators as an incident grows — no operations-floor redesign.

HOW IT WORKS

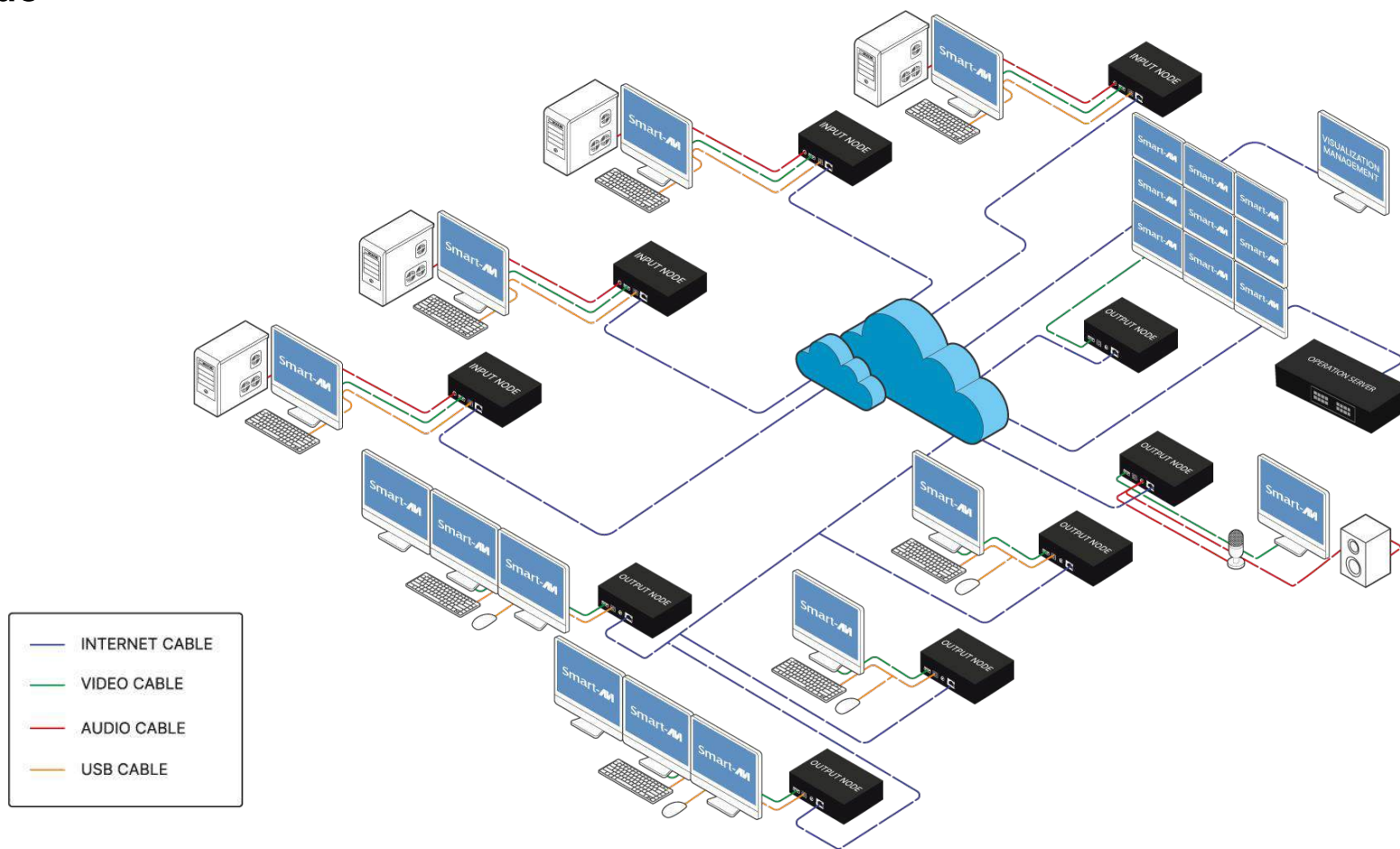
Connect IPDex™ to your network and to the target server's management port. Access full KVM, power control, sensor monitoring, virtual media, and serial console from any browser, no software installed anywhere.



APPLICATION DIAGRAM — CONNECTION OVERVIEW



Matrix Mode



Connection Topology

Connections at a Glance	
Encoder (Input Node)	Connects to a source computer's HDMI and USB; streams video, keyboard, and mouse over IP
Decoder (Output Node)	Drives an operator monitor and USB peripherals; pulls any permitted source from the network
Network	Standard Gigabit IP — UDP multicast for one-to-many, TCP unicast for point-to-point
CAT5 / CAT6	Copper links up to 100 m (328 ft) per device
Single-Mode Fiber	Extends links up to 10 km (6.2 mi) over an SFP module
Management	Desktop application or web browser — no agent installed on the source computers

What travels over the network:

- **KVM stream:** Live HDMI video delivered with H.264/H.265 compression for clear, low-latency control
- **Audio:** Stereo audio carried alongside video to the decoder
- **Matrix switching:** Any source routed to any display via desktop app, browser, or OSD
- **Keyboard & mouse:** Forwarded from the operator station to the selected source in real time
- **Multiview:** Several sources composited onto one display in flexible grid layouts
- **Video walls:** A single source stretched across multiple decoders and monitors

Low bandwidth. Real-time control. No source-side software. Designed and built in the USA.

SPECIFICATIONS

Video	
Format	HDMI 2.0
Video Resolution	3840 x 2160 @ 30Hz (4K UHD)
Color Depth	24-bit
Latency	Less than 1 ms
Video Bandwidth	Single-link 340 MHz (10.2 Gbps)
Input Interface	(1) HDMI 19-pin (female)
Output Interface	(1) HDMI 19-pin (female)
Max Output Distance	Up to 10 ft
Equalization	Automatic
Input TMDs Signal	1.2 Volts (peak-to-peak)
Input DDC Signal	5 Volts (peak-to-peak, TTL)
Data Rate	1.65 Gbps per color

Audio	
Format	Stereo
Input Interface	(1) 3.5mm L/R jacket (female)
Output Interface	(1) 3.5mm L/R jacket (female)

USB	
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub
Input Interface	(2) USB Type B
Keyboard and mouse	Keyboard and mouse emulation

System	
Interface & Type	CAT5 or Single-Mode Fiber
CAT5 Maximum Length	100 m (328 feet)
Fiber Cable Requirements	Dual
Fiber Maximum Length	Single mode: 10 km (6.2 miles) Multi mode: 500 m (1640 feet)

Other	
Power Adapter	100-240 VAC/ 12VDC @ 3A/15W
Dimensions	8.4° W x 1.4° H x 4.5° D
Weight	1.4 lbs
Approvals	UL, CE, ROHS Compliant
Operating Temp.	32-131°F (0-55°C)
Operating Humidity	20% to 80% (non-condensing)
Storage Temp.	-4-185°F (-20-85°C)
Storage Humidity	Up to 95% (non-condensing)
Compliance EMC	FCC (Class A), CE (Class A), ICES-003
Environmental Compliance	RoHS2 (CE)
Support Warranty	1-year

WHY UPGRADE? N2N VS. SOFTWARE REMOTE ACCESS TOOLS

Software tools like AnyDesk or TeamViewer need a working OS, installed agent, and network connection. IPDex™ works at the hardware level, giving you access from power-on over the network, with no OS, VPN agent, or target-side software required.

Feature	IPDex™ (IPDESK-PRO)	Software Remote Tools
Remote computer control	✓ Control multiple computers from one central workstation	✗ Often requires separate access points or more hardware
Video over IP	✓ Sends video, keyboard, and mouse control over the network	✓ Available, but often less efficient
Bandwidth usage	✓ Lower bandwidth with H.265 compression	✗ Higher bandwidth consumption
Video compression	✓ H.264 / H.265 support	✗ May rely on older or less efficient compression
Multiview monitoring	✓ View up to 9 systems at the same time	✗ Limited or not available
Fast system switching	✓ Quick switching between connected computers	✗ Switching may be slower or less flexible
On-screen controls	✓ Integrated OSD for source selection, status, settings, and network monitoring	✗ May require separate tools or more complex setup
Central management	✓ Desktop software and web-based administration	✗ Management can be harder to centralize
User/device control	✓ Manage users, devices, permissions, and performance from one point	✗ Often less flexible for larger deployments
Scalability	✓ Easier to expand with more endpoints over the network	✗ Expansion can become expensive or complex
Supported video formats	✓ HDMI and DisplayPort	✗ May be limited by platform or model
Display setups	✓ Single-head and dual-head support	✗ May require separate models or added hardware
USB support	✓ Keyboard/mouse control with optional USB 2.0 support	✗ USB support may be limited or inconsistent
OEM customization	✓ ARM-based architecture supports custom features, branding, and special projects	✗ Difficult OEM customization
Best fit	Command centers, SOCs, data centers, broadcast, industrial automation, corporate IT	Smaller or less scalable remote access setups



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Tel: (888) 994-7427 • (702) 800-0005

2917 E Alexander Rd. North Las Vegas, NV 89030