

A new generation

Campus Control



Initial Situation

Concept

Solution

Experience

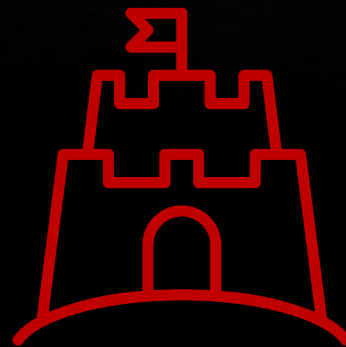
A new generation
Campus Control

What is the current situation?

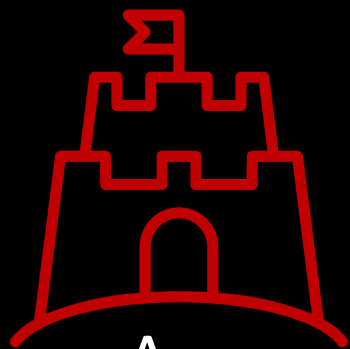


C...

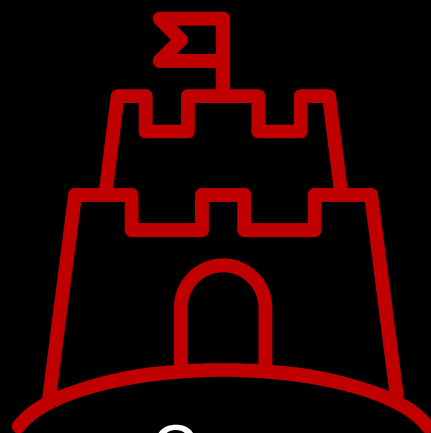
„Big Four“



E...



A...



Q...



We lose time & value with...

- ❖ .. proprietary hardware
- ❖ .. proprietary software
- ❖ .. proprietary communication
- ❖ .. once in, never out
- ❖ .. demand for a complete solution
- ❖ .. inertia in technological change
- ❖ .. delivery problems

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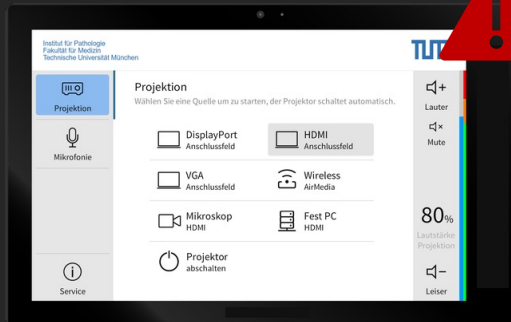
Where is our bottleneck?



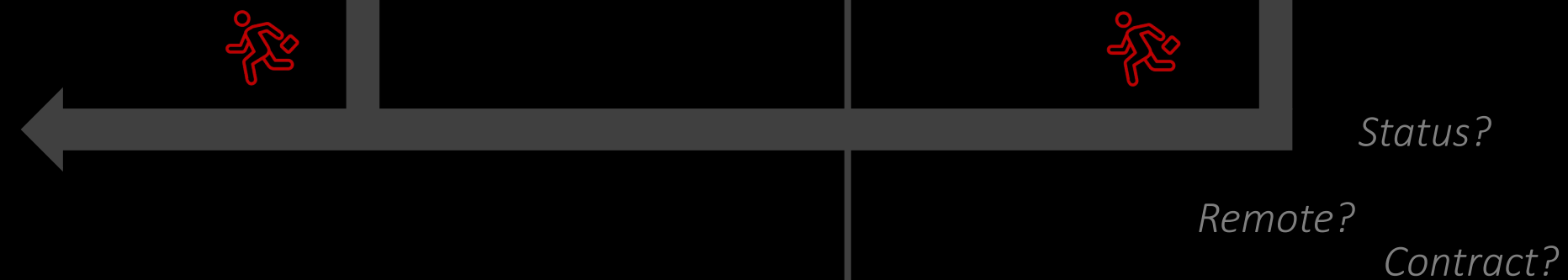
Sneaker - Technician



AV-Partner



User



Operation and maintenance strategy is based on guesswork, reactive phone calls and ad-hoc on-site interventions.

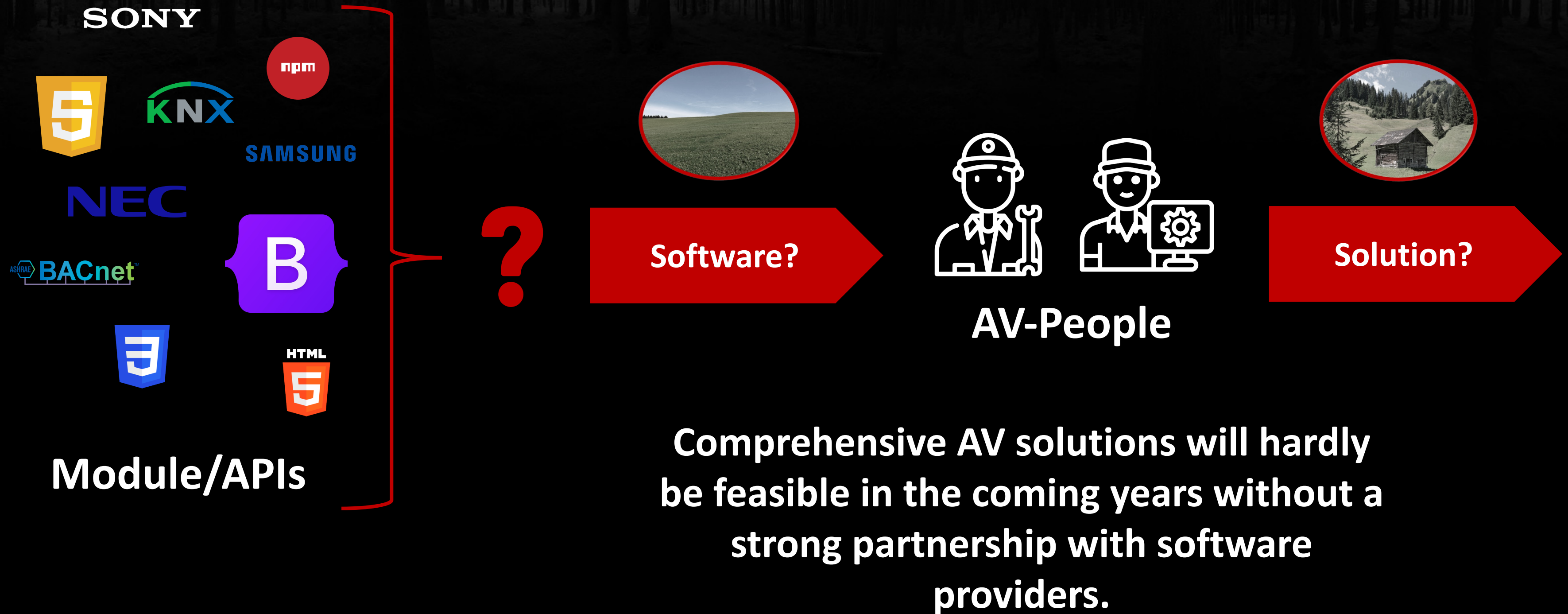
Initial Situation

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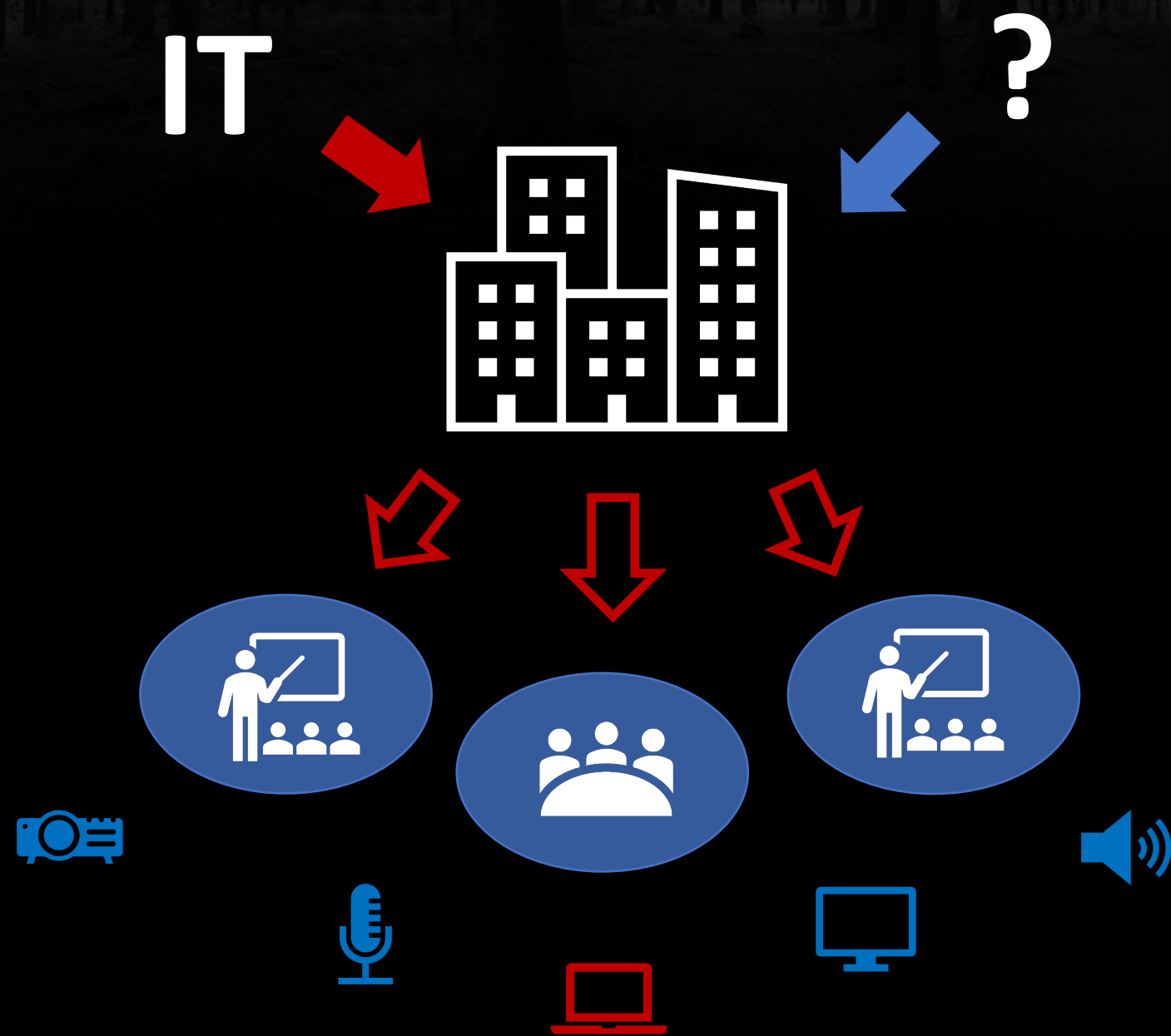
Solution

Experience

When does technology slow us down?



Central IT and local AV?

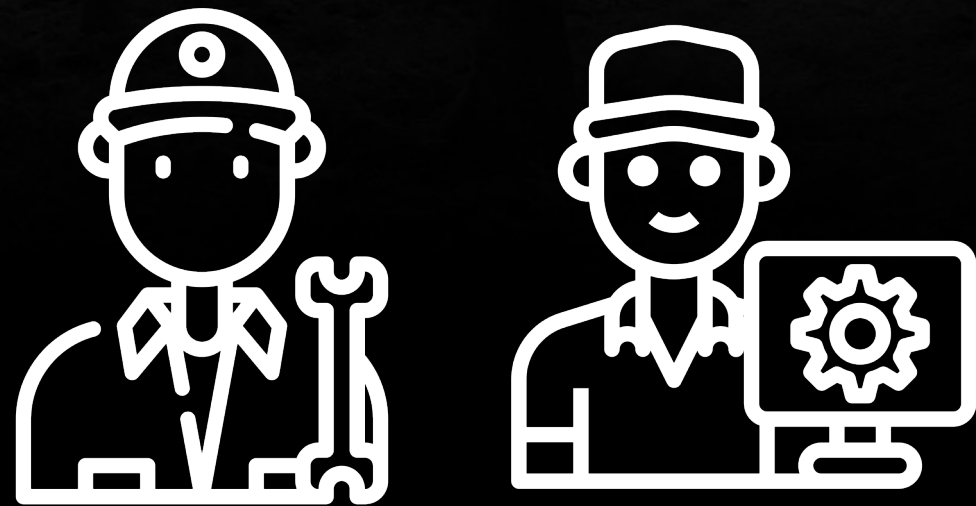


In the coming years, comprehensive media technology will hardly be able to fully fulfill its tasks without close alignment with the IT rollout strategy.



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What future are we striving for?



AV-People



We gain time & value with...

- ❖ .. flexible use of technology
- ❖ .. continuous update capability
- ❖ .. service with level 1-3 agreement
- ❖ .. proactive support
- ❖ .. advanced features and comfort
- ❖ .. standardized technology
- ❖ .. energy effectiveness

How do we solve our bottleneck?



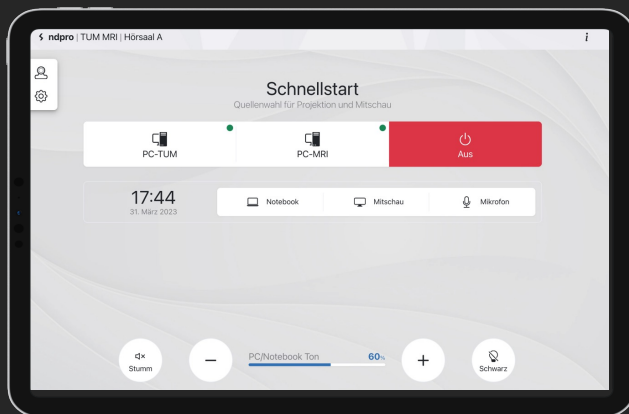
First Level Support



AV-Partner as Level 2 & 3 Support



1010110



User

With a campus control system, operations, service and management merge into a seamless overall concept.

Initial Situation

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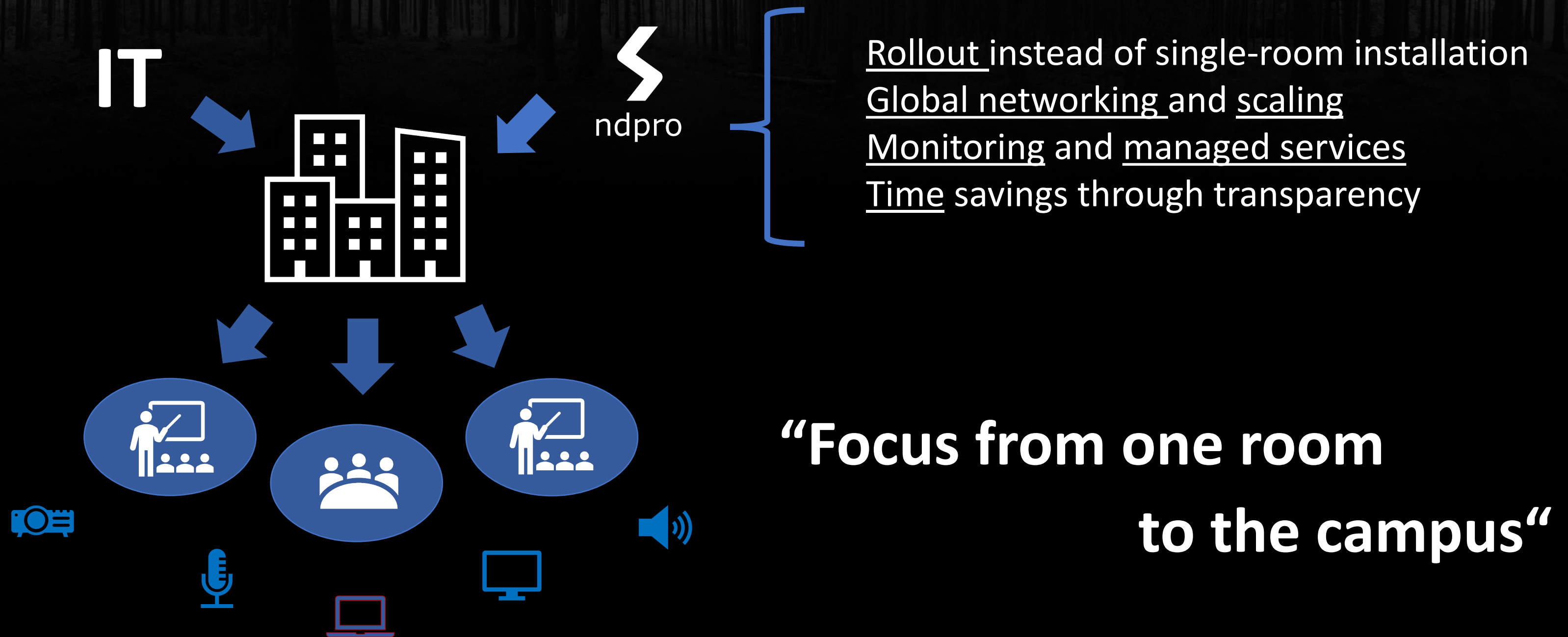
Solution

Experience

How can technology help us?



How can networking help us?





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Future-proof with HTML5 & node.js



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Promoting reproduction

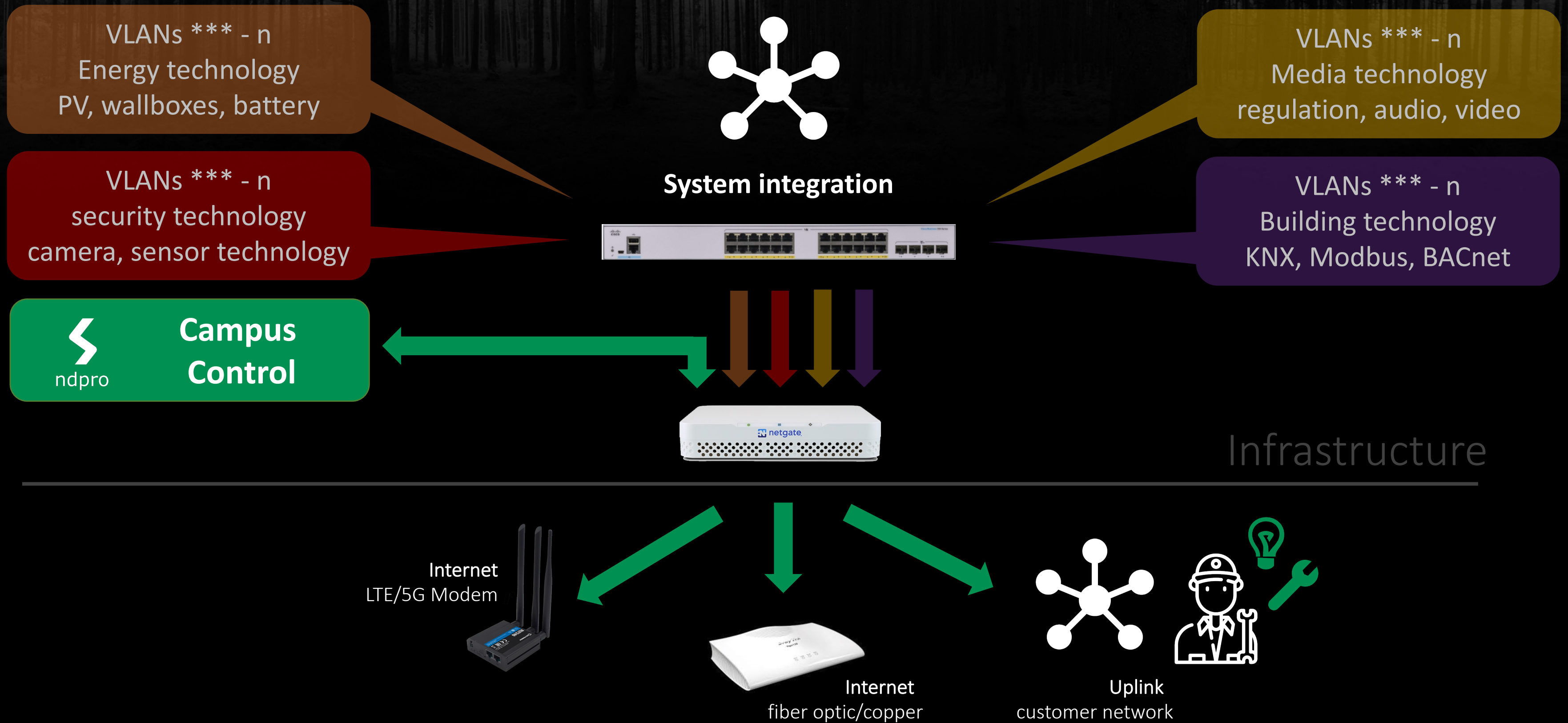
Seminar rooms 1-n

SR1	SR6	SR11	SR16	SR21
SR2	SR7	SR12	SR17	SR22
SR3	SR8	SR13	SR18	SR23
SR4	SR9	SR14	SR19	SR24
SR5	SR10	SR15	SR20	SR..



Rooms 100% identical!

Infrastructure in the network



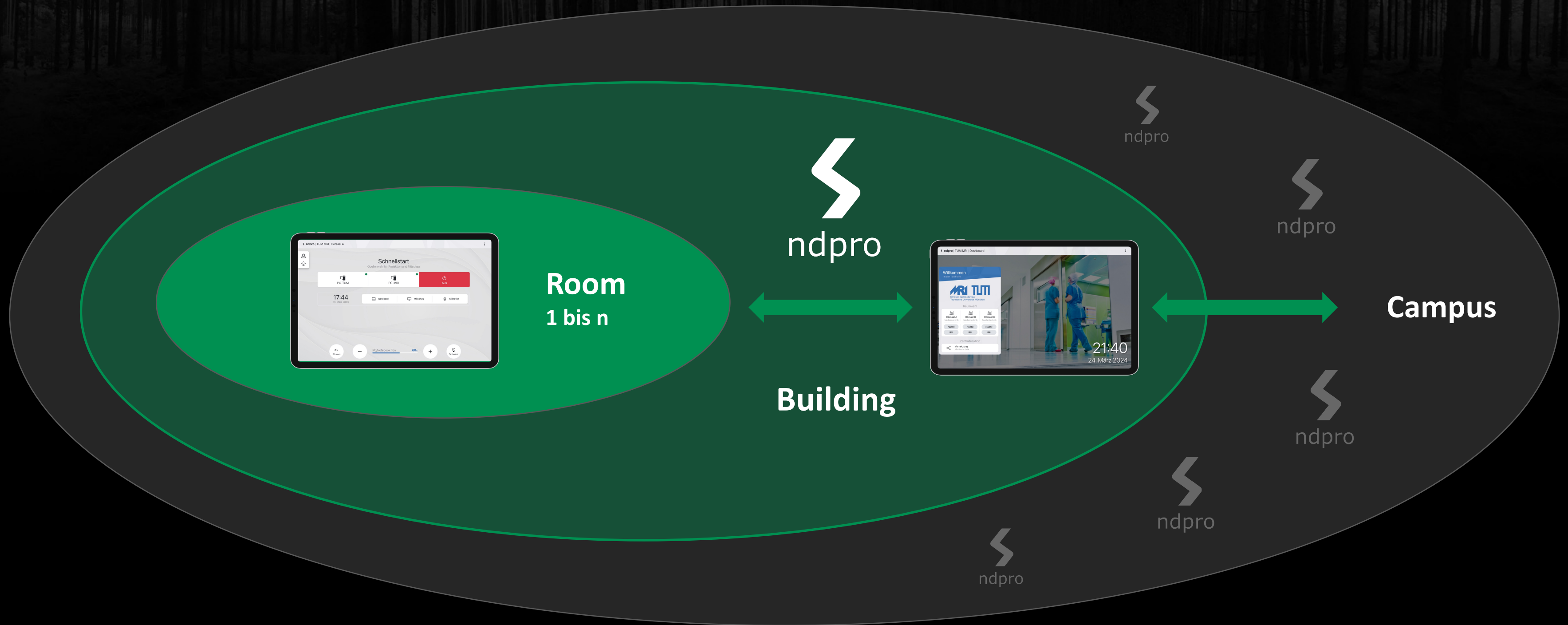
Initial Situation

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Expanding the field of vision



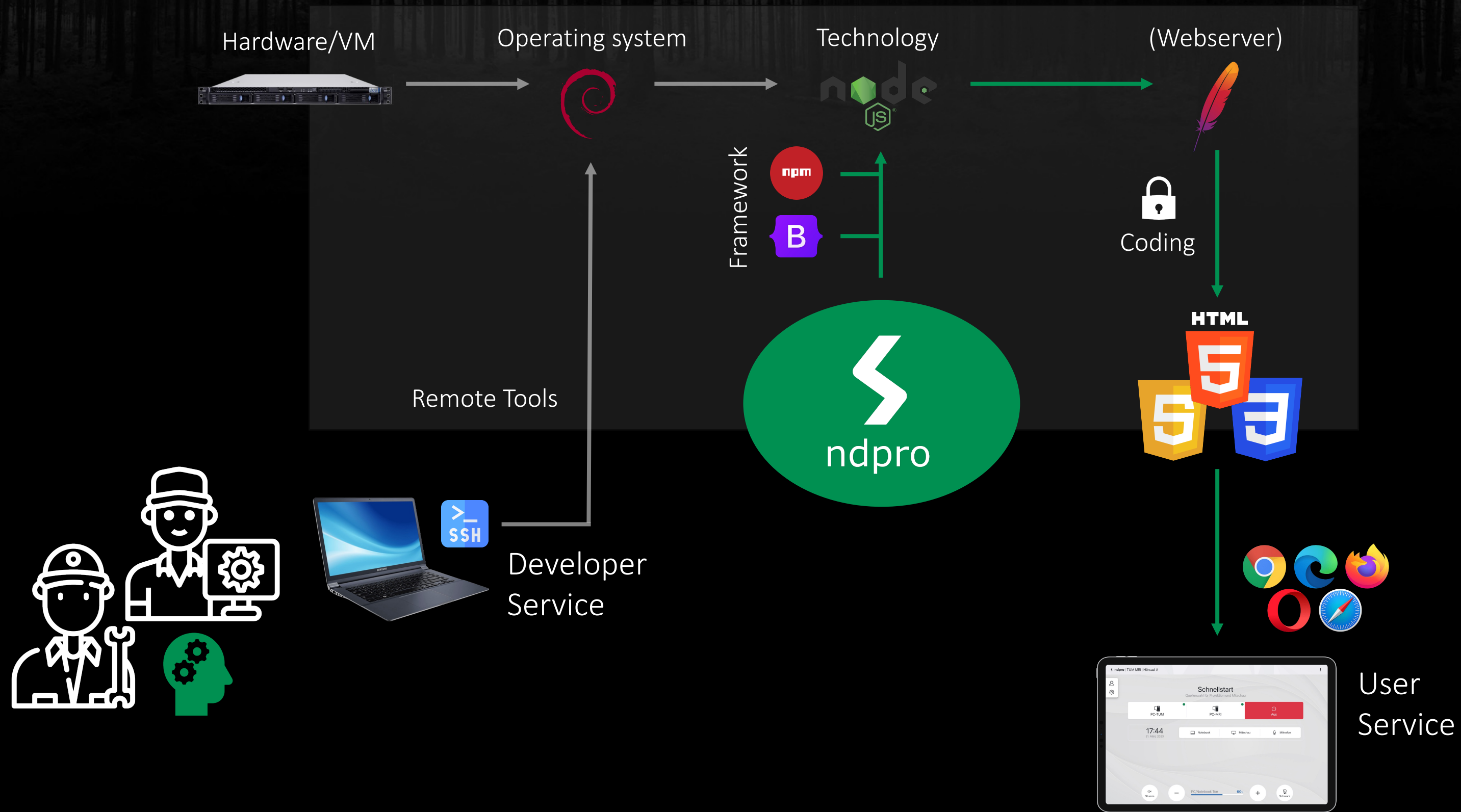
Initial Situation

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Use of modern server technology



Initial Situation

Concept

Solution

Experience



Initial Situation

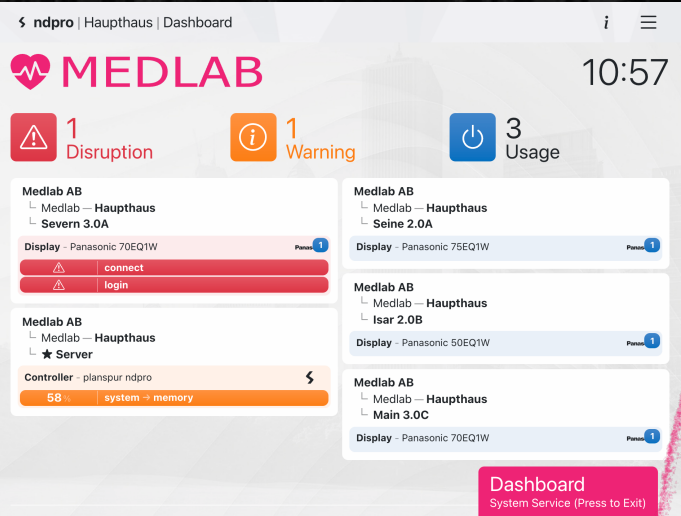
Concept

Solution

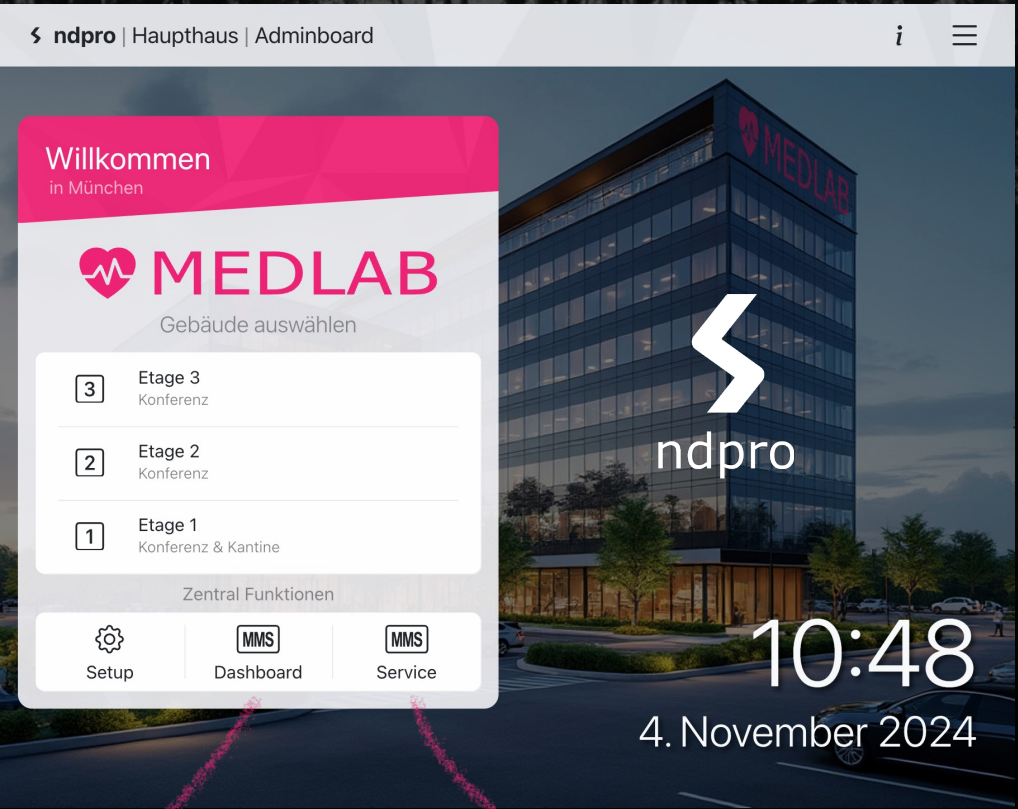
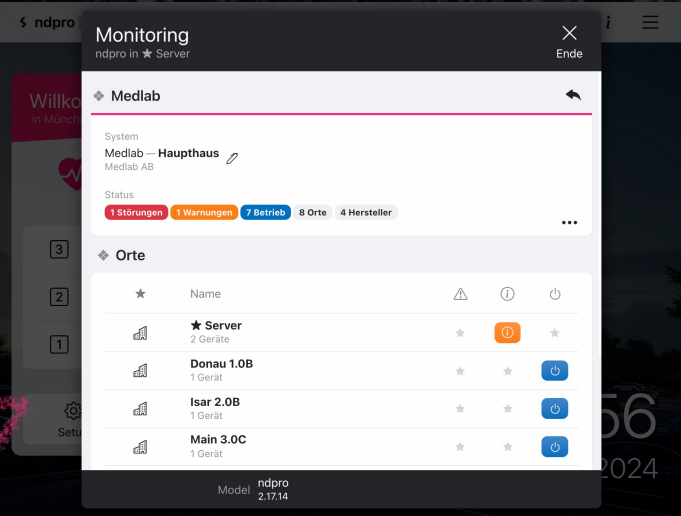
Experience

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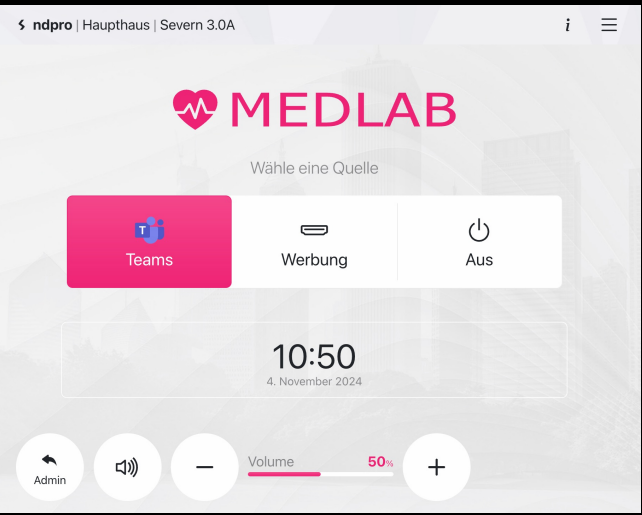
Dashboard UI



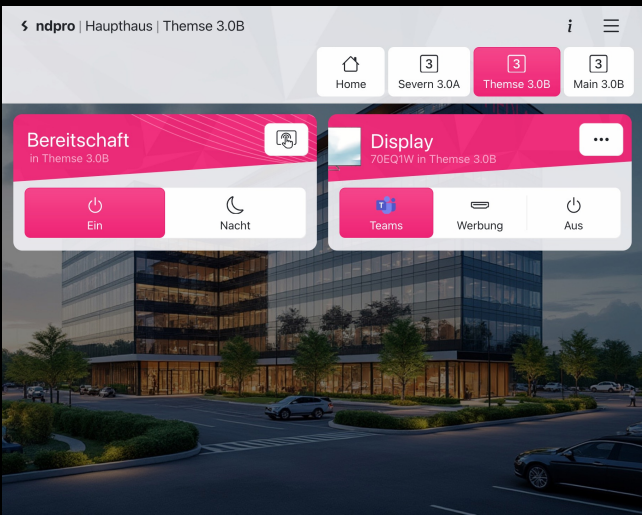
Service UI



User UI



Admin UI



1 Campus = 1 Solution



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ndpro

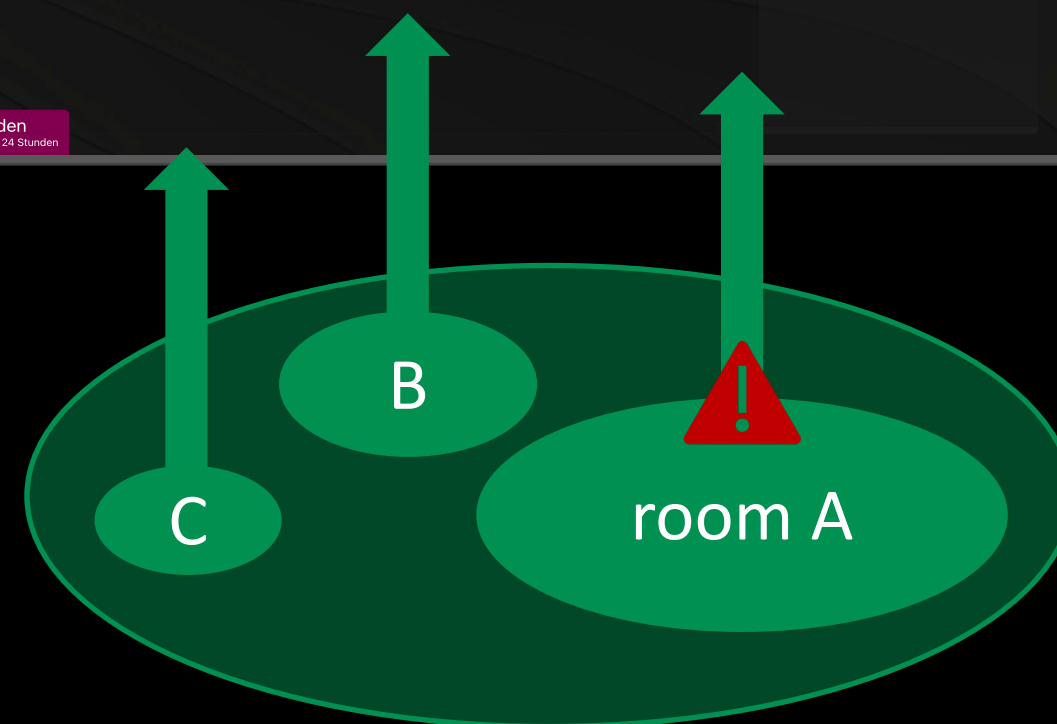
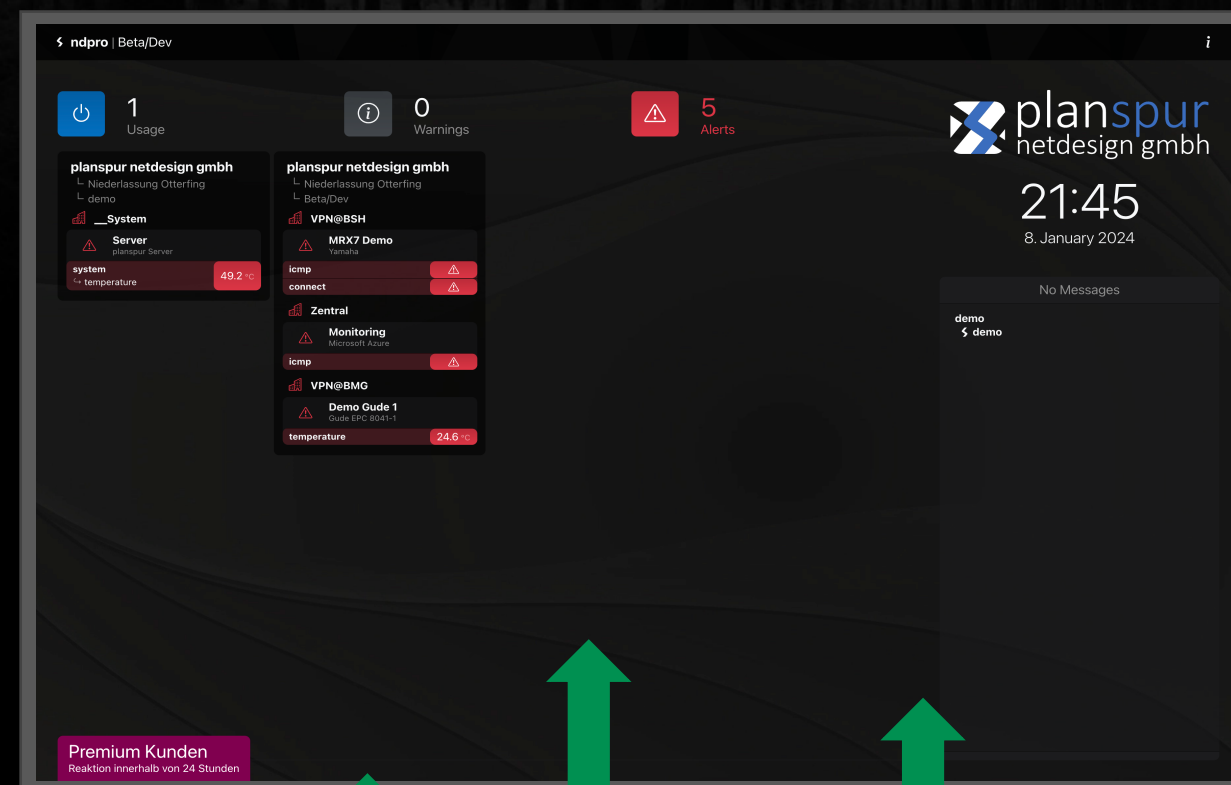
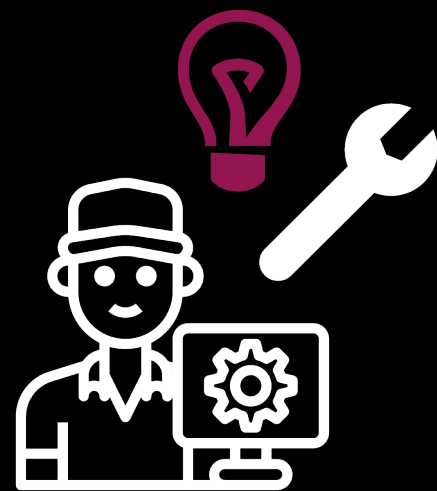
Attachment

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MMS Dashboard

Dashboard



Place / Name
Raum R101.1 Power Distribution
Identification
d_pdu → gude1
Service Heartbeat
Just now
Service Boottime
21 hours ago
Product
Gude EPC 8041-1
Version
1.3.0-R2
IP / Host
192.168.10.22

planspur netdesign gmbh

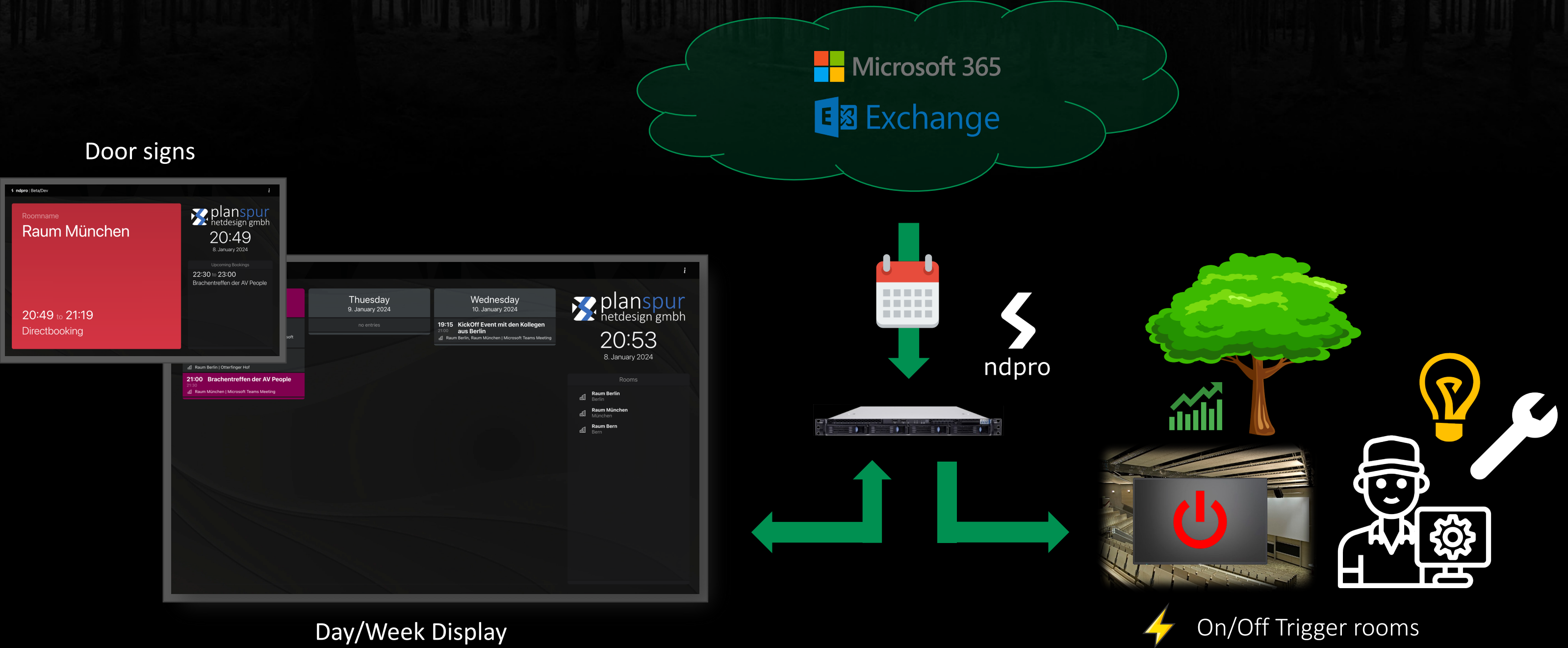
└ Niederlassung Otterfing
└ Conroller A

Raum R101.1

Demo Gude 1
Gude EPC 8041-1

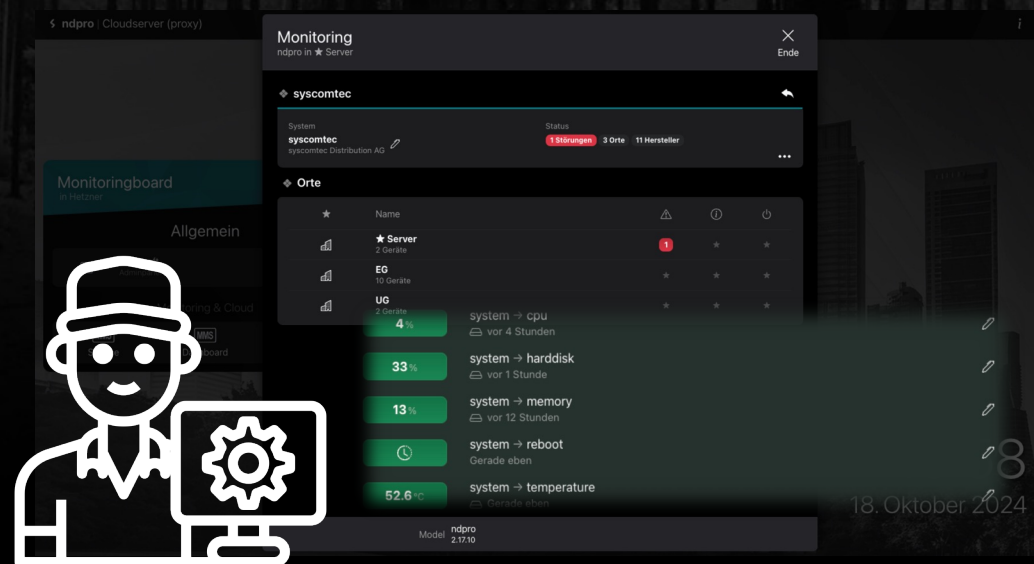
temperature 25 °C

M365 Integration



MMS Cloud Integration

MMS Serviceboard

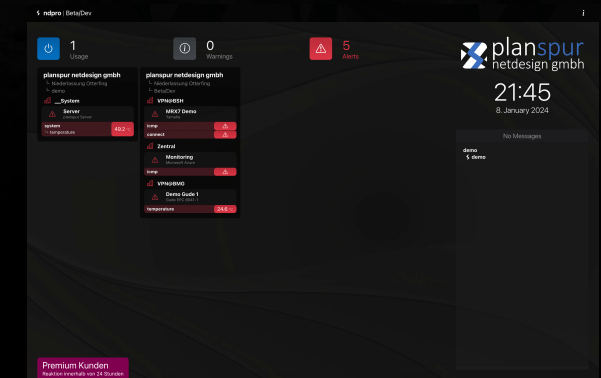


System partner

Partner server



MMS Dashboard



MMS Mailer



Internet

Option VPN
Remote-Access



client A



client B



client C

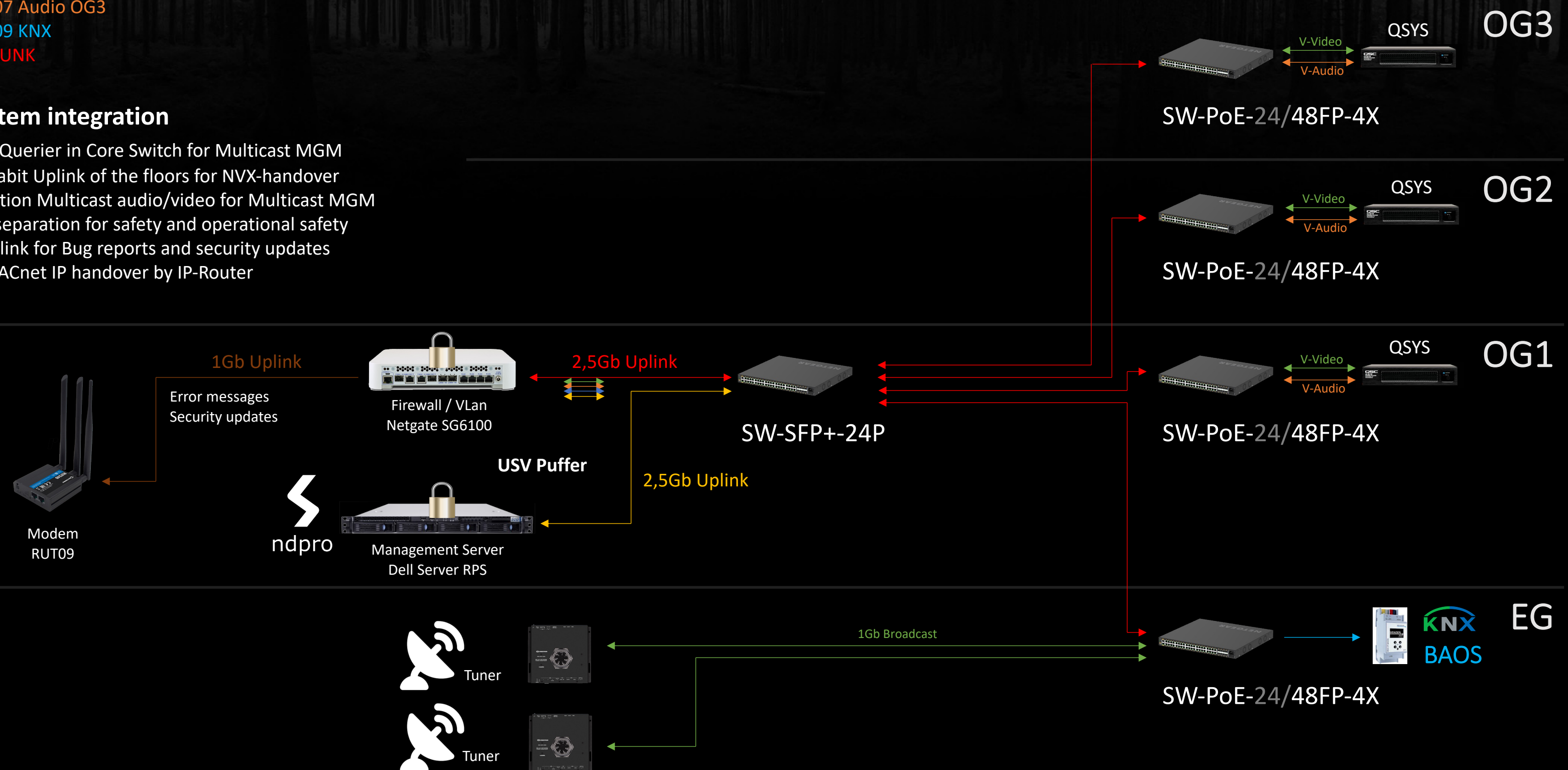
Network and safety

VLAN-Administration

VLAN1001 Control
VLAN1002 Management
VLAN1003 Video
VLAN1004 Audio EG
VLAN1005 Audio OG1
VLAN1006 Audio OG2
VLAN1007 Audio OG3
VLAN1009 KNX
VLAN-TRUNK

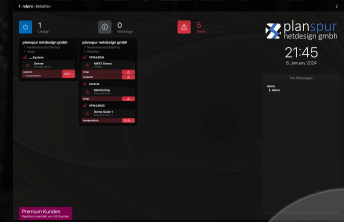
IT-System integration

- IGMP Querier in Core Switch for Multicast MGM
- 10 Gigabit Uplink of the floors for NVX-handover
- separation Multicast audio/video for Multicast MGM
- VLAN separation for safety and operational safety
- LTE Uplink for Bug reports and security updates
- KNX/BACnet IP handover by IP-Router



Network pattern with NDPro

MMS Dashboard



Online by
Transfer VLAN
(DSL-)Router
LTE/5G Modem



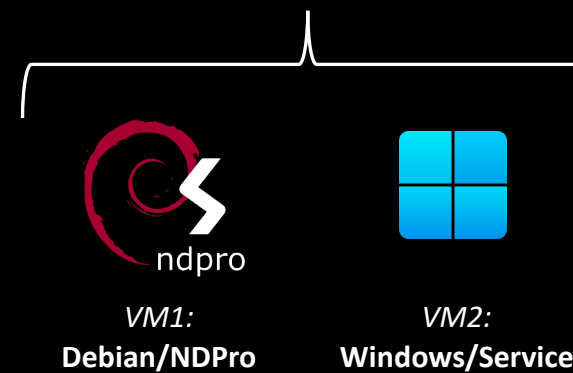
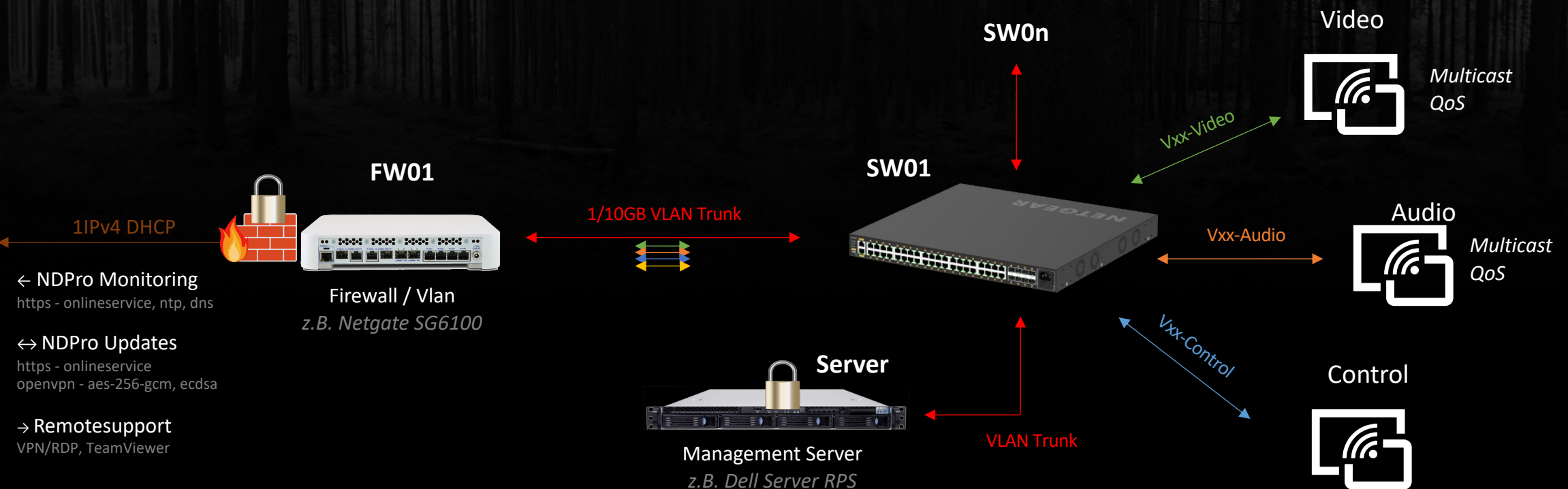
Microsoft 365

MMS Mailer



Description

The **NDPro** server centrally manages endpoints and media technology, while the pfSense firewall ensures the separation of network segments via VLANs. This interaction creates a tightly meshed, controlled network that guarantees secure and stable operation without requiring endpoints to access the internet unplanned. The NDPro server acts as a central interface for controlling and monitoring all network components.

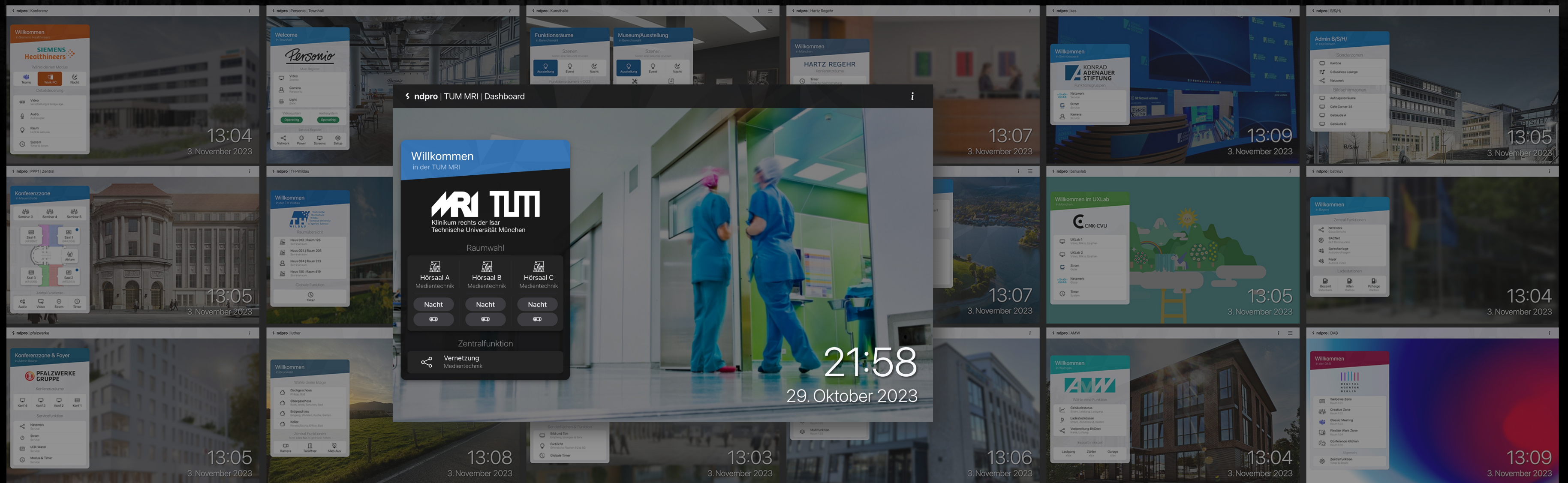


VLAN-Verwaltung

VLAN100* Control for Gateways, Outputs, PDUs, Switches, Accesspoints and suchlike.
VLAN100* Audio for DSPs, Audio Inputs, Audio Outputs, Dante/AES Quellen, Dante/AES AMPs with Multicast/QoS requirement.
VLAN100* Video for Encoder and Decoder Video in Matrix or Point to Point Solution with Multicast/QoS requirement.
VLAN-TRUNK as an uplink port that contains all VLANs and can provide them via tagging.

References

ndpro fulfills the tasks set today.



Installation

ndpro enables quick and uncomplicated installation.

1. Server



Example configuration with Debian as OS

Large server (e.g., conference center, university with multiple rooms)
CPU: Minimum quad-core, e.g., Intel Xeon or AMD EPYC, optionally with virtualization support.
RAM: Minimum 16 GB, expandable.
Hard drive: RAID 1 configuration with at least 2x 1 TB SSDs.
Network: Dual 1 GbE LAN interfaces.
Operating system: Debian (latest stable version).
Graphics: Onboard graphics is sufficient.
Chassis: Standard rack-mount chassis with good cooling.
Power supply: Dual power supplies for redundancy.
Optional remote management: Integrated Lights-Out (iLO) or similar technologies for remote access and management.

Alternatively, via virtualization: ProxMox/VMWare

2. Installation ndpro



**A simple installation script
enables operational
installation in 5 minutes**

<https://planspur.de/media/starten-mit-ndpro>

[LV Text Download](#)



Toolbox

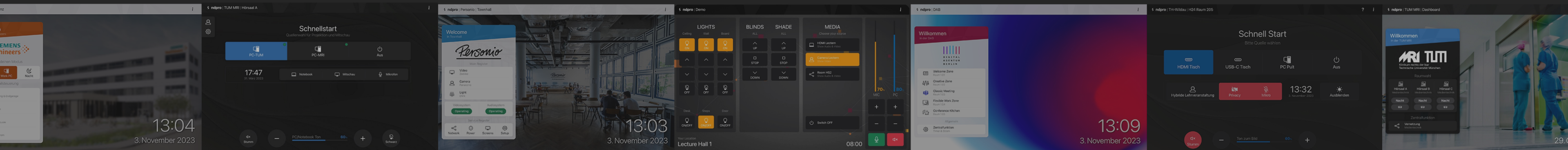
ndpro offers a wide range of standard tools.

- Encrypted backups
- SQLite database manager
- Certificate management
- Integrator help as part of the platform
- PDF support for Roomhelp
- Version update management
- Backend & project data logs
- Microservice management
- User Management
- Device Management
- Permissions Management
- Sample Code for UI and Devices
- Proxy for Video, Images, and Events
- BACnet, ModbusTCP, and M365 Support
- Watchdog for Services and Core
- ...and much more

Device library

ndpro provides a tested database for third-party integrations.

- alfen
- allnet
- analogway
- artnet
- audiocontrol
- aver
- benq
- biamp
- brightsign
- cisco
- clevertouch
- crestron
- ctouch
- cue
- cyp
- dreambox
- epiphan
- epon
- expromo
- exsys
- extreme
- extron
- fohhn
- gude
- humax
- legamaster
- lg
- lightware
- lunatone
- magewell
- microsoft
- nad
- nec
- netgear
- netio
- novastar
- p5automation
- panasonic
- pcharge
- planspur
- qsc
- samsung
- sedna
- sennheiser
- shure ...



planspur netdesign gmbh | Stützenfeldweg 17 | DE-83624 Otterfing
For further questions about the product, training and support,
please contact us at service@planspur.de