

Energiebedarf- beeinflussende Kriterien, Beispiele

11/08/12





Bull ???

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ical Infrastructure



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Connect... automate.

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Panduit Advisory Services

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Unified Physical Infrastructure

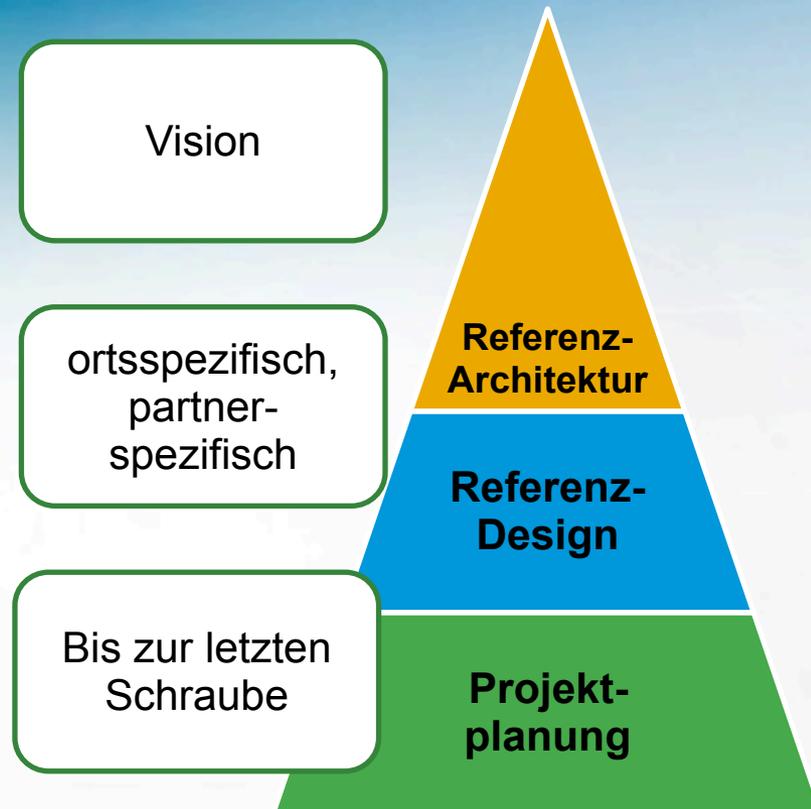


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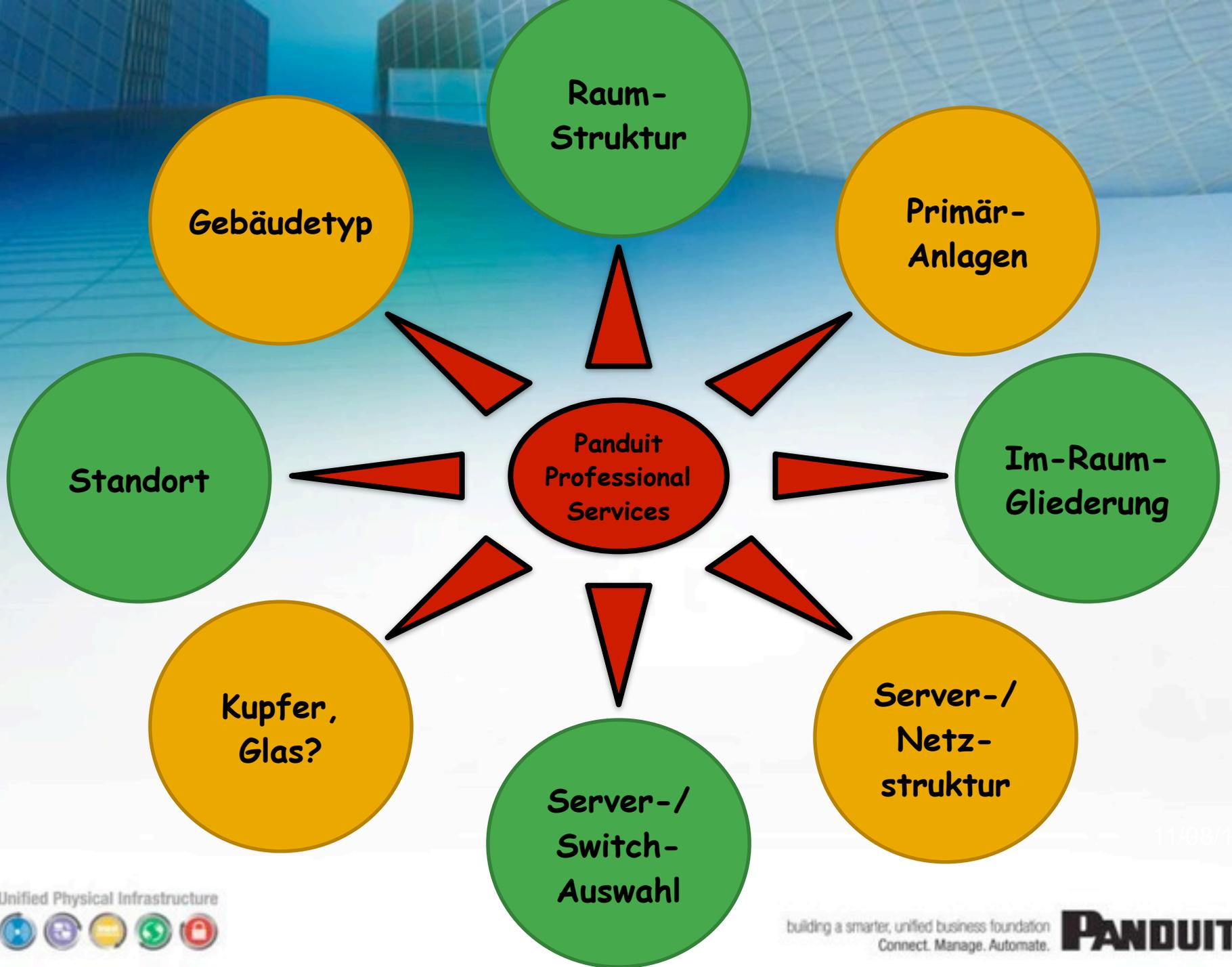
Panduit Advisory Services

- Panduit teilt die Erkenntnisse aus der Zusammenarbeit mit strategischen Allianzen wie Cisco, EMC und Stulz
 - Aktive + passive IT-Technik
 - ISO-Layer 2 ‚abwärts‘
- Panduit hat das durchgängige Produkt-, Software- und Service-Portfolio
- Panduit lebt die globale Unterstützung, globale Standards und Channel-Partnerschaften



*Das heißt unter anderem für
das Energiemanagement...*





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Beispiel: Standort

Standort

- Wir empfehlen Standorte:
- Erfahrungen aus anderen Ländern
 - Besonderheiten der Region, z.B. Geothermie/ Brunnen möglich?
 - Politisch motivierte Standortvorteile

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Beispiel: Primäranlagen

Primär-
Anlagen

Zahlreiche Optionen:

- (Direkte) freie Kühlung
- Kühlung in der Rackreihe
- Wasserkühlung
- Anlagenoptimierung

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Beispiel: Im-Raum-Gliederung

Zahlreiche Optionen:

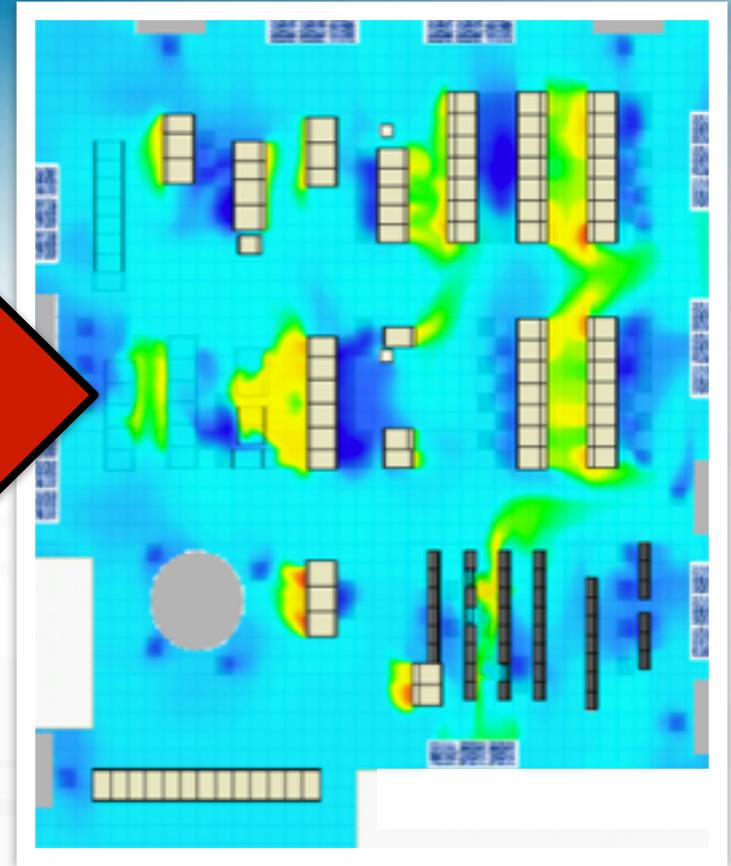
- Offene Racks
- Doppelboden ja/nein?
- Abgehängte Decke als Lüftungskanal
- Abschottungen (CoolBoot) und Schächte (Ducts)
- Kaltgangeinhausung
- Warmgangeinhausung

Im-Raum-
Gliederung

Cisco St. Allen Data Center

www.youtube.com/watch?v=r1Nt1z5uM44

Beispiel: Im-Raum-Gliederung



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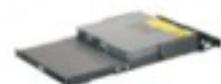
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Beispiel: Im-Raum-Gliederung

Inlet Ducts

- Cisco compatible
- Passive duct solutions do not require additional energy consumption
- Designed using CFD (Computational Fluid Dynamics) validating thermal performance

- Provides a consistent cold air path directly to the switch
- Allows access to power supplies and fan blades minimizing network downtime
- Black powder coat finish



CDE1



CDE2



CNLTD21B2



CNLTD52A2



CNLTD142A3



CNLTD72A3

Part Number	Part Description	Std. Pkg. Qty.
CDE1	One rack unit air inlet duct that resides below the switch provides cold aisle airflow to Cisco® 4948, 4928, and 4924. Optimized for use in server cabinet applications.	1
CDE2	Two rack unit air inlet duct that resides in-line and below switch provides cold aisle airflow to Cisco® Nexus N2K-C2148T-1GE, N2K-C2248TP-1GE, and N2K-C2232PP-10GE fabric extenders and Cisco® WS-C4948E-F, WS-C4948E-F-S, and WS-C4948E-F-E. Optimized for use in server cabinet applications.	1
CNLTD21B2	Two rack unit air inlet duct that resides below switch. Designed for Cisco® 4900M switch. Duct allows switch ports to face either hot or cold aisle depending on server or switch cabinet application.	1
CNLTD52A2	Net-Access™ Cabinet Air Inlet Duct for high heat density configurations. Duct solution includes two rack unit inlet ducts above and below the switch. Designed for Cisco® 6504E switch.	1
CNLTD142A3	Cisco® Nexus 7009 duct delivers cold air to the switch side inlet. This duct consists of 2 inlet ducts and 1 side duct.	1
CNLTD72A3	Net-Access™ or Net-SERV™ Cabinet Air Inlet Duct for high heat density configurations. Duct solution includes three rack unit inlet ducts above and below the switch. Designed for Cisco® 9506 switch.	1

*Cisco is a registered trademark of Cisco Technology, Inc.

Exhaust Ducts

- Cisco compatible
- Passive duct solutions do not require additional energy consumption
- Designed using CFD (Computational Fluid Dynamics) validating thermal performance

- Provides a consistent hot air exhaust path minimizing recirculation within the cabinet
- Allows access to power supplies and fan blades minimizing network downtime
- Black powder coat finish



CNAE1

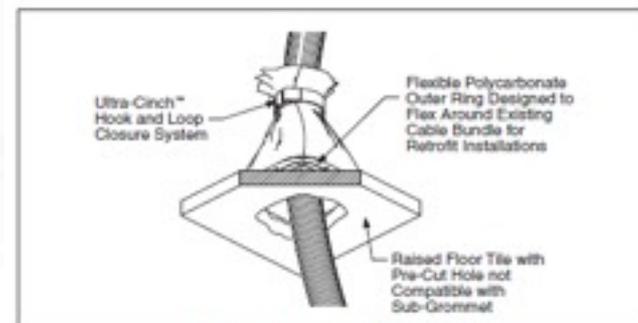
Part Number	Part Description	Std. Pkg. Qty.
CNAE1	Net-Access™ Cabinet Exhaust Duct for high heat density configurations. Designed for Cisco® 6509 switch.	1
CNAE2	Net-Access™ Cabinet Exhaust Duct for high heat density configurations. Designed for Cisco® 9513 storage area network switch.	1
CNAE3	Net-Access™ Cabinet Exhaust Duct for high heat density configurations. Designed for Cisco® 6513 switch.	1



RFG*X*SMY



RFG*X*Y



Beispiel: Server-/Netzstruktur

Diverse Layouts:

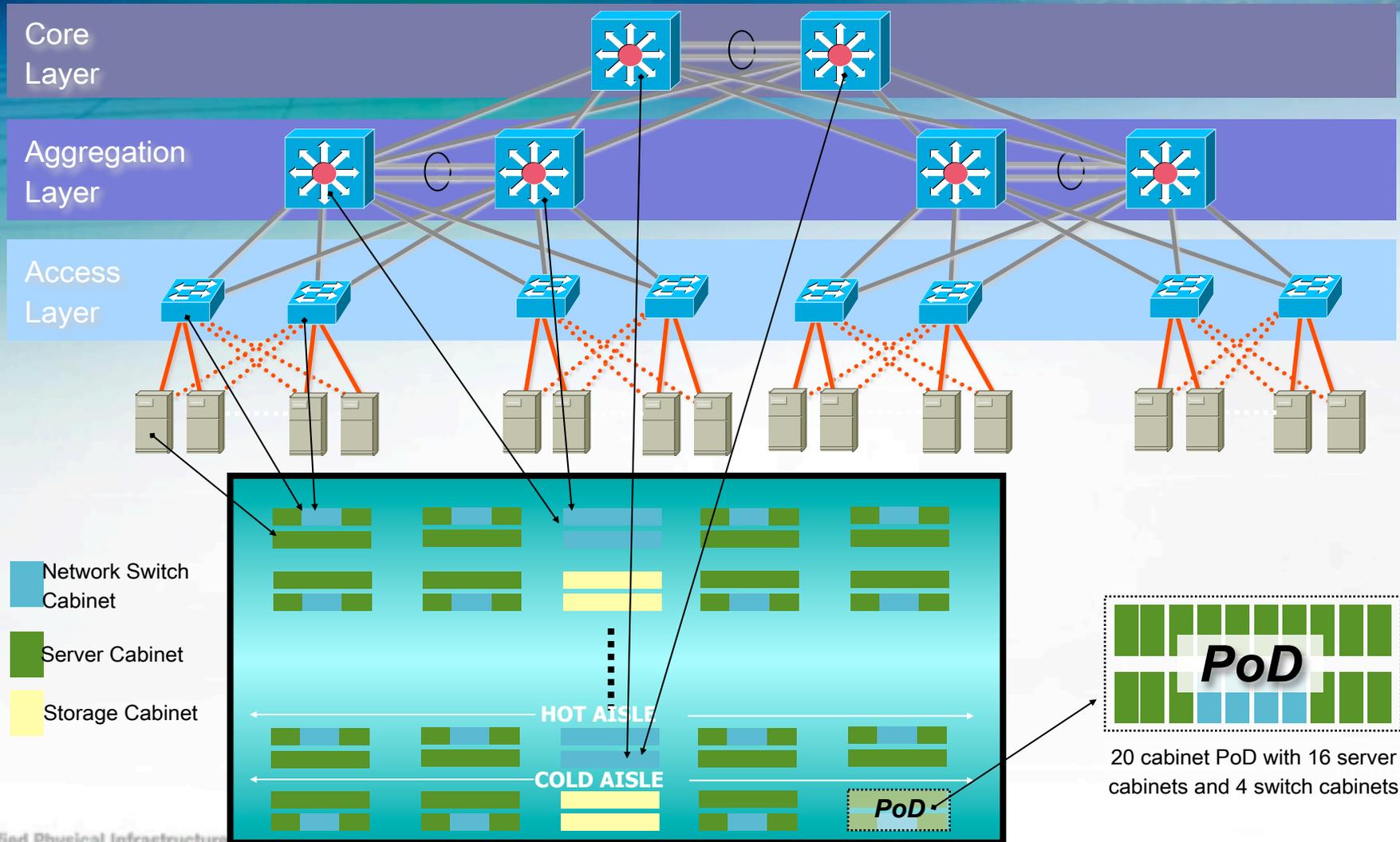
- Storigenverbindungen
- Middle-of-Row
- End-of-Row
- Top-of-Rack
- Compute Fabric
- Fiber Channel over Ethernet

Server-/
Netz-
struktur

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Beispiel: Server-/Netzstruktur



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Beispiel: Kupfer oder Glas?

Welcher Standard muss erfüllt werden? Was wird >wirklich< benötigt?

Kupfer,
Glas?

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SFP+ als 10GBase-T Alternative im Data Center



- 10GbE-Kupfer-Lösung
- preiswert
- geringe Leistungsaufnahme
- Bis zu 7 bzw. 15m vorkonfektioniert

Technologie	Kabel	Entfernung	Leistungsaufnahme (pro Seite)	Transceiver Latency
SFP+ CU Kupfer	Twinax	7m (passiv) 15m (aktiv)	~0.1W (passiv) ~0.5W (aktiv)	~0.25µs
10GBASE-T	Cat6 Cat6a/7 Cat6a/7	55m 100m 30m	~8W ~8W ~4W	2.5µs 2.5µs 1.5µs
SFP+ USR ultra short reach	MM OM2 MM OM3	10m 100m	1W	~0.1µs
SFP+ SR short reach	MM OM1 MM OM3	33m 300m	1W	~0.1µs



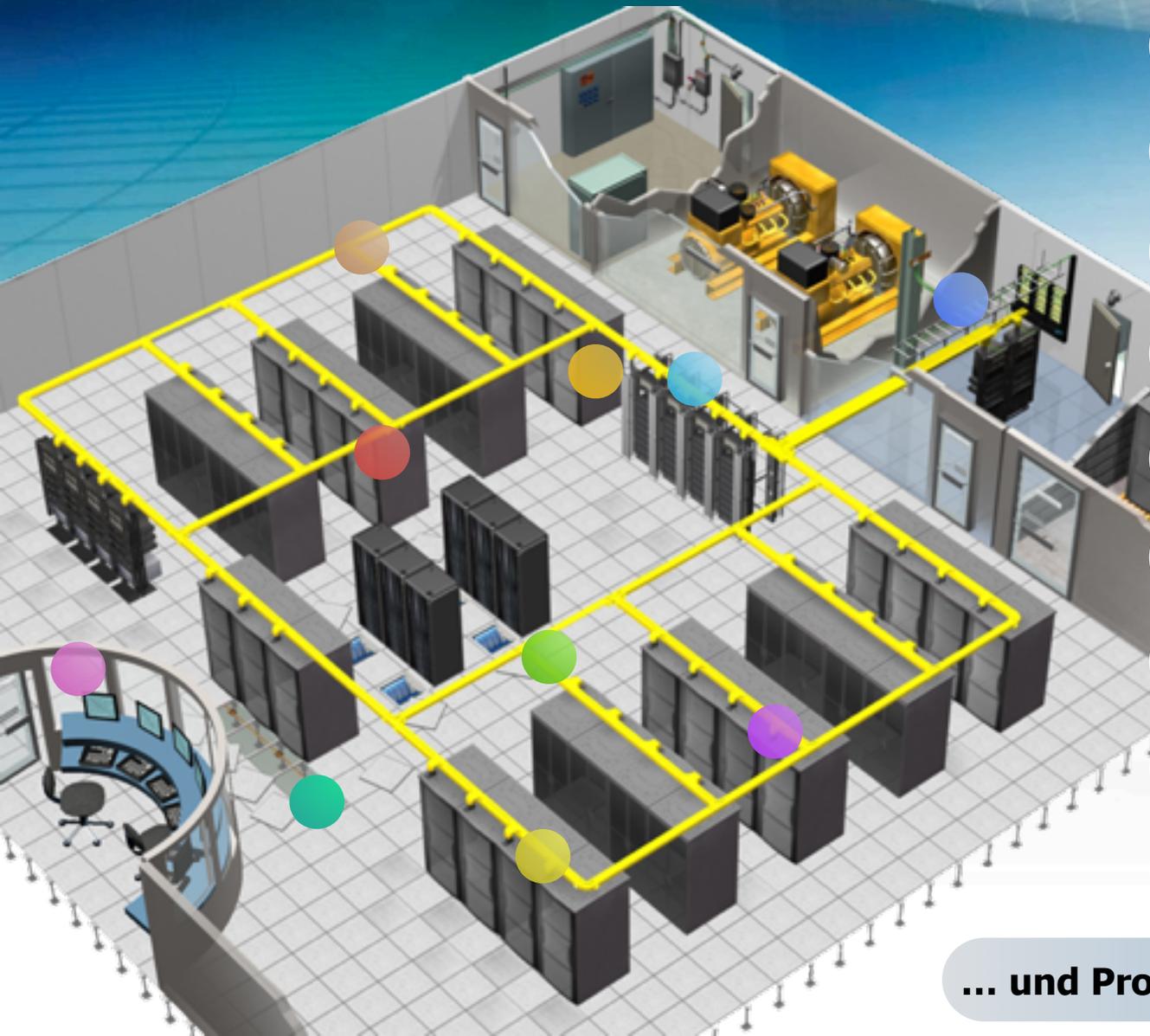
*Der Energieverbrauch
beginnt an jedem
einzelnen Port!*



*Ohne die Berücksichtigung
des einzelnen Ports & des
einzelnen Servers keine
durchgängige Optimierung.*



PANDUIT® Data Center Solution



Copper Cabling Systems



Fiber Cabling Systems



Cable Ties & Accessories



Identification & Labelling



Grounding & Bonding



Cable Management



Fiber & Cable Routing Systems



Zone Cabling Systems



Cabinet & Rack Systems



DC Management Software



... und Professional Services



Wir wollen noch besser werden: Panduit akquiriert Unite



TECHNOLOGIES LIMITED

22 Aug. 2012

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Date Search

Location Search

Plant Search

Current Selections

Country United Kingdom

City Usk

BuildingName Willow House

Today Yesterday

This Week Last Week

This Month Last Month

This Quarter Last Quarter

This Year Last Year

Bookmarks

Select Bookmark



Total KVA Load



Power Factor

0.97

KW Load



Alarm Summary

Alarm Message	
LVA Switchboard Mains Input Breaker Open / Closed	✓
LVA Switchboard Mains Input Breaker Normal / Tripped	✓
UPS Bank A UPS 1A Feed Breaker Open / Closed	✓
UPS Bank A UPS 1A Feed Breaker Normal / Tripped	✓
UPS A Bypass Breaker Open/Closed	✓
UPS A Bypass Breaker Normal/Tripped	✓
LVA Switch Panel High Temp Alarm	✓
LVA Switch Panel Control Circuit Fault	✓
LVA Switch Panel Mains Failure Alarm	✓
TX1A Transformer High temperature	✓
TX1A Transformer Mains Failure	✓

Feed A

Meter Reading - KWH
20275.00

KW
6.90



L1/L2 Volt
235.3

L2/L3 Volt
243.9

L3/L1 Volt
241.8

L1

L2

L3

Overload Status



Feed B

Meter Reading - KWH
37365.10

KW
3.10



L1/L2 Volt
234.6

L2/L3 Volt
241.7

L3/L1 Volt
244.5

L1

L2

L3

*Integrationsrelease erscheint
Mitte Dezember:
Panduit Infrastructure
Manager 5.0 (PIM)*



Sowie zahlreiche Appliances



QZ1B2G6BN06L1



PZ1B2G3BN03L1



QZ1B2G5BN2271



QZ1B1P3BN30P1

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*Fazit:
Wir wollen Ihre Optimierungs-
Anforderungen verstehen und
stellen dem das komplette
Portfolio gegenüber.*



Fragen?

Wo?

Wer?

Wann?

Antworten!

**Wo schaffen wir die
wichtigen Optimierung
bei Ihnen?**

*Zur Terminvereinbarung, für weitere Details:
Hayo Volker Hasenfus, +49 (173) 8881050, d-hvh@panduit.com
Panduit Deutschland, +49 (69) 770626-0, cs-emea@panduit.com*

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