Legrand Datacenter Solutions

Efficacité Energétique

Redouane SAIDI Data center Business Développement Manager: Afrique, DOM-TOM, Moyen-Orient Nouvelle Zélande et Australie.

Key Challenges in today's Data Centers

EFFICIENCY

- Reduce the carbon footprint of a Data Center
- Improve Power Usage Effectiveness
- Reduce Power losses

SCALABILITY

- Optimization based on current and future needs
- Future proof your installations
- Modularity for quick adaptation to changes

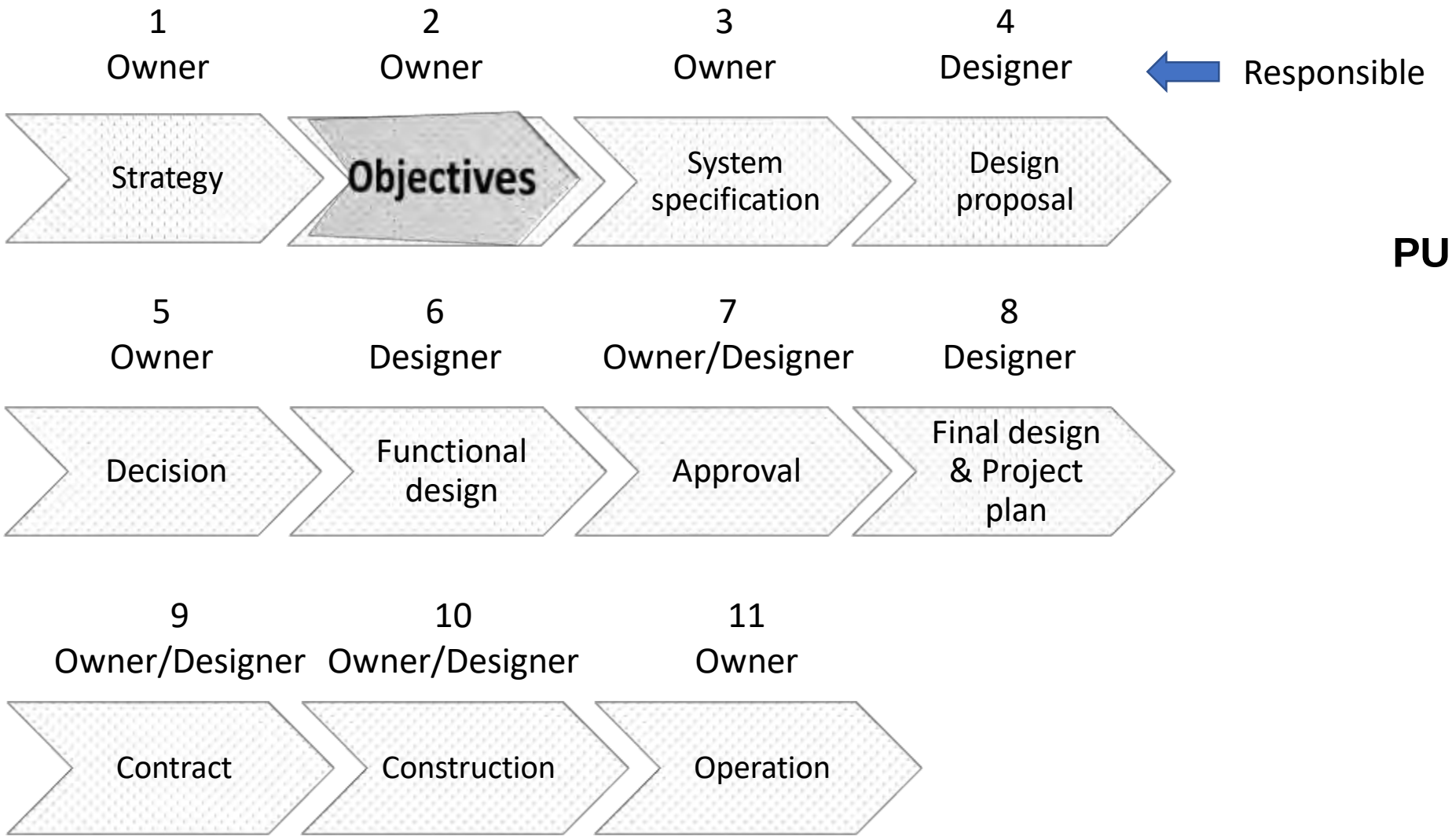
SECURITY

- Protect your equipment (including the data in it) against intrusion
- Safe operation and detection of internal/external environmental events (fire system --> e.g. GEM2, environmental sensors --> water leakage, flooding, overheating, vibrations, lighting, ...)
- Ensure the safety of people working in the DC

AVAILABILITY

- 100% Business Continuity
- System Redundancy
- Guaranteed continuity of service

Design Phases ISO/IEC 22237-1 or EN 50600-1



PUE is a Choice

Design Phases ISO/IEC 22237-1 or EN 50600-1

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Chose your PUE

Capgemini opens Merlin data center in UK with PUE of 1.1

Google data center PUE performance

Our fleet-wide PUE has dropped significantly since we first started reporting our numbers in 2008. The TTM energy-weighted average PUE for all Google data centers is 1.12, making our data centers among the most efficient in the world.

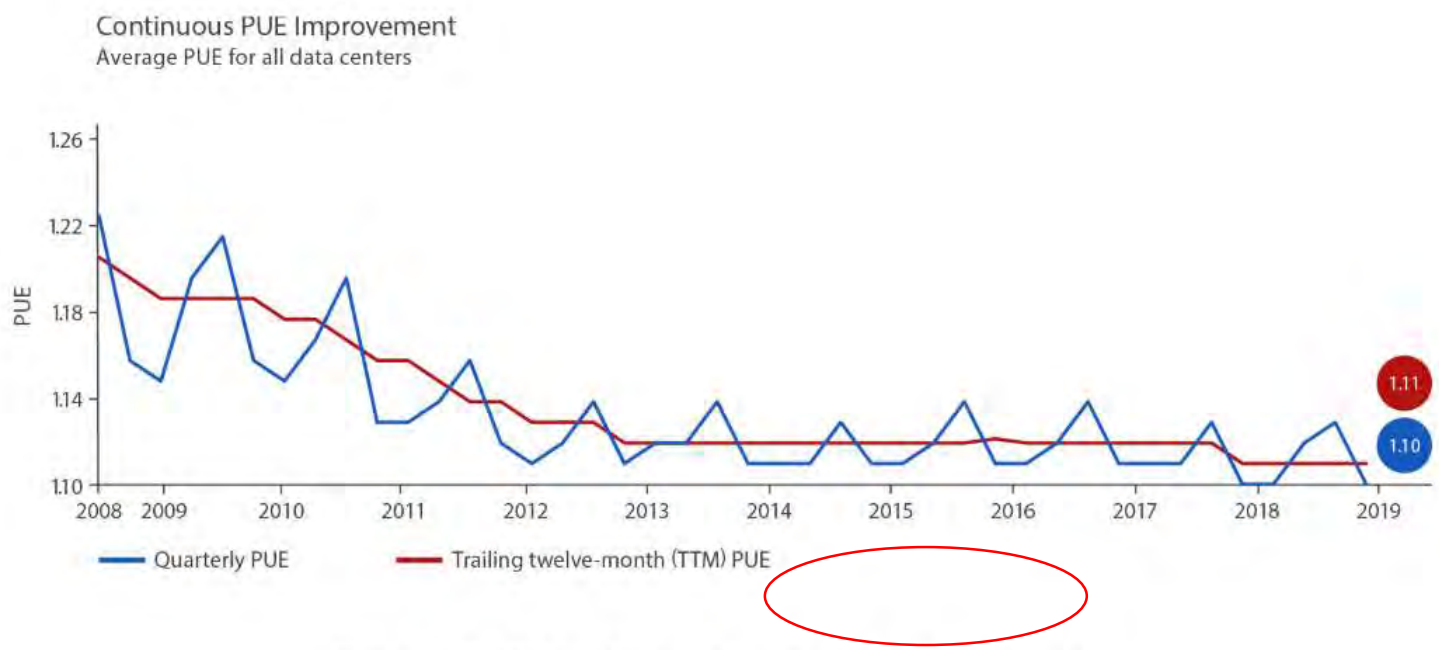


Figure 2: PUE data for all large-scale Google data centers

become operational by pairing our facilities with sources of renewable energy.

Energy Efficiency, dPUE ISO/IEC 30134-2 or EN 50600-4-2

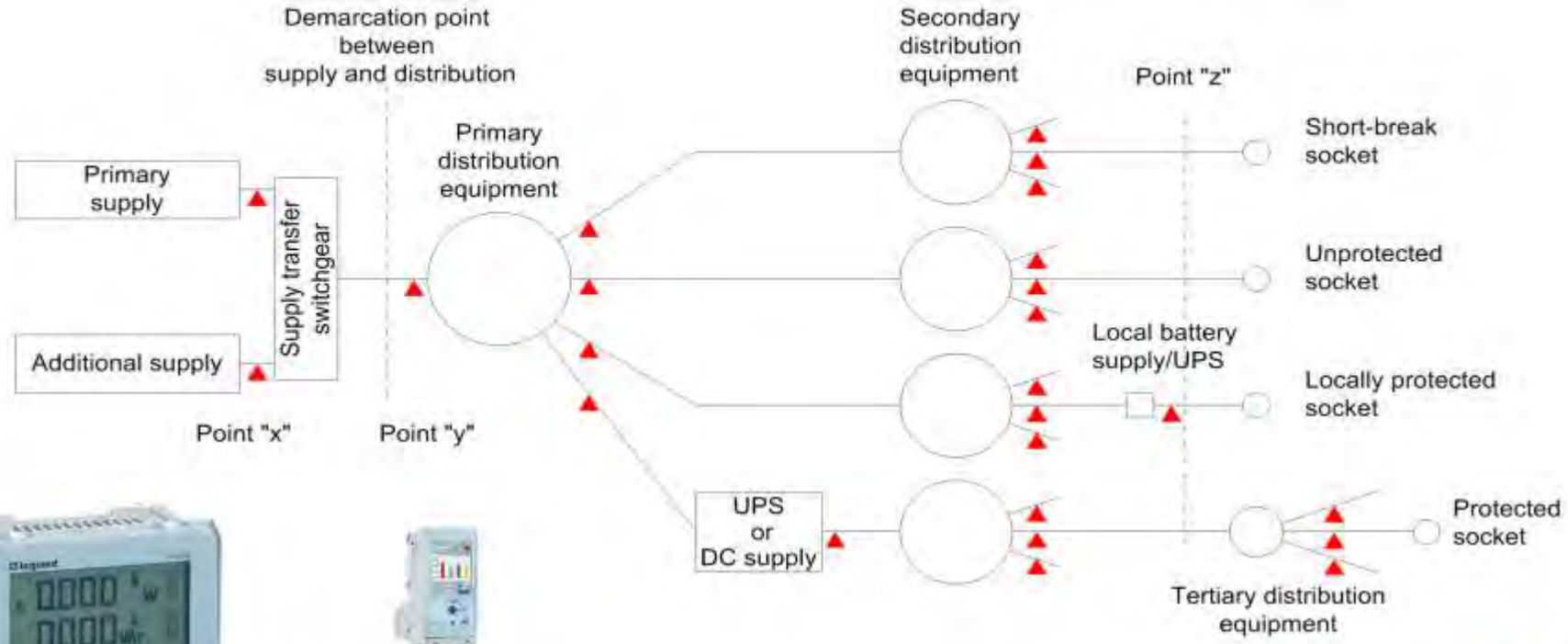
Table C.1 — Example of dPUE calculation

Month		IT equipment		Cooling/ ventilation/ humidification		Power distribution	UPS	Lighting	Remaining support	Total energy used in data centre	idPUE3
Nr	Duration	Average load	Energy used[a]	Average load[a]	Energy used	Energy used	Energy used	Energy used	Energy used		
#	Days	kW	kWh	kW	kWh	kWh	kWh	kWh	kWh	kWh	
1	31	50	37 200	6	4 464	221	3 720	248	744	46 597	1,25
10	31	160	119 040	20	14 880	2 278	5 952	248	744	143 142	1,20
11	30	160	115 200	16	11 520	2 108	5 760	240	720	135 548	1,18
12	31	160	119 040	15	11 160	2 154	5 952	248	744	139 298	1,17
											dPUE
Total	365		1 191 240		144 840	20 329	66 214	2 920	8 760	1 434 303	1,20

[a] Forecasted use or estimate.

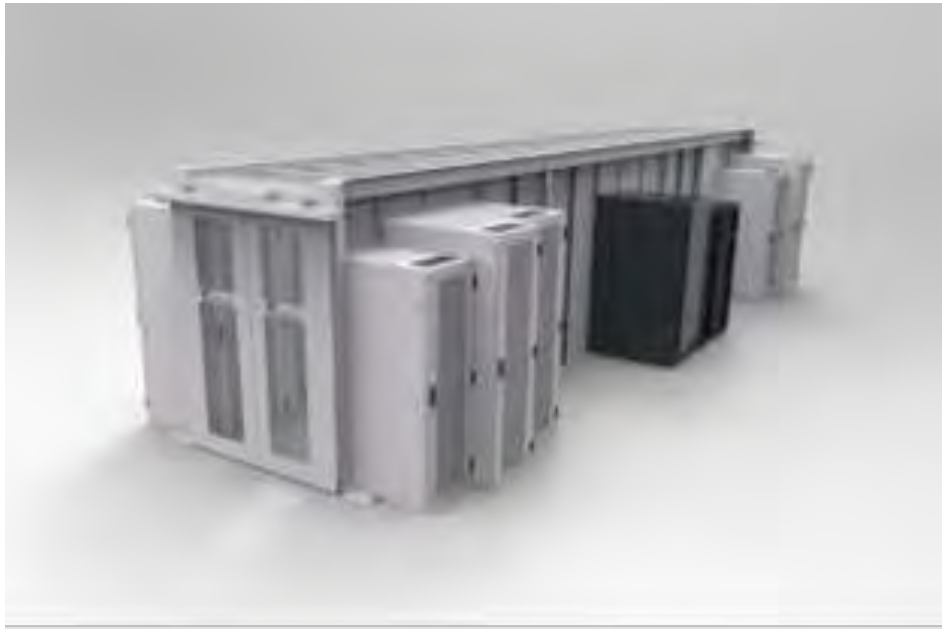
Measuring locations

ISO/IEC 22237-3 or EN 50600-2-2



Energy Efficiency:

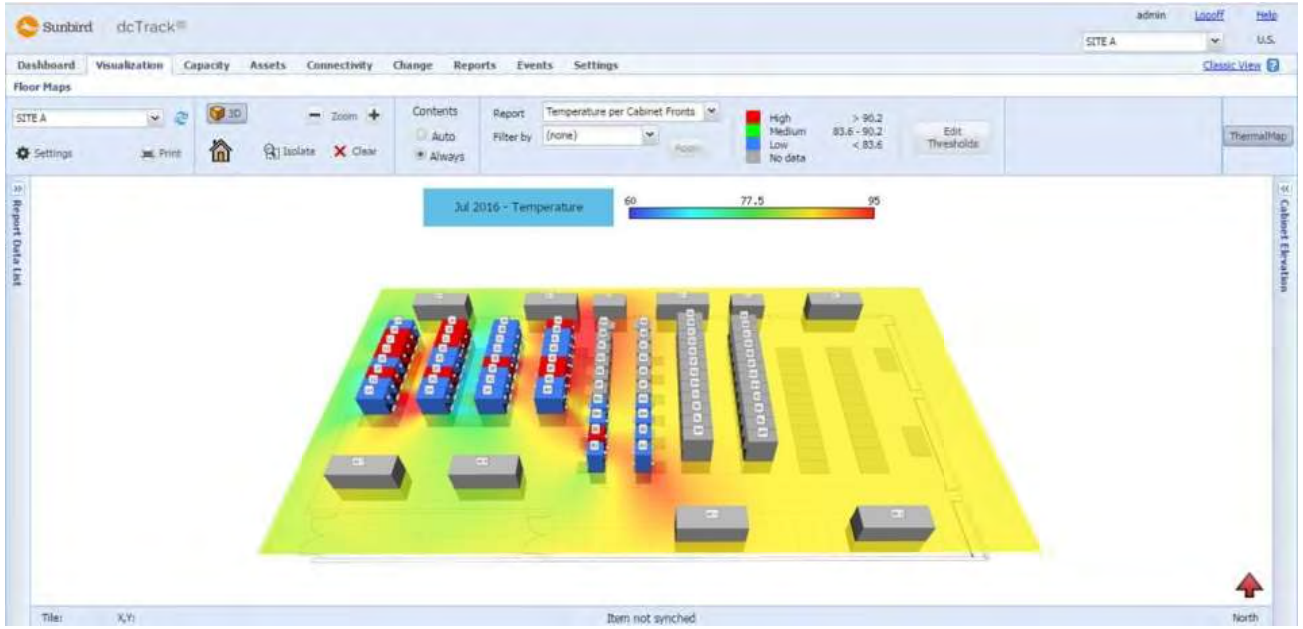
- Standard (Hot & Cold)
- Free Standing (Hot & Cold)
- Vertical Exhaust Duct = VED



Measuring locations ISO/IEC 22237-4 or EN 50600-2-3

Table 2 — Measurement requirements by Granularity Level

Requirement	Granularity Level		
	Level 1	Level 2	Level 3
Inlet Air Temperature	Single sensor in proximity to IT equipment	One sensor per cold aisle	One sensor per 10 cabinets or racks (5 on each side of the aisle)
Return Air Temperature	Single sensor in proximity to intake of return air to the cooling equipment	One sensor at the air intake per CRAH	One sensor at the intake per CRAH



EU Code of Conduct on Data Centre Energy Efficiency

https://e3p.jrc.ec.europa.eu/sites/default/files/documents/publications/jrc123653_jrc119571_2021_best_practice_guidelines_final_v1_1.pdf

White papers

https://www.minkels.com/whitepapers