

TIMO KONTTURI, MARCH 3RD 2020

Data Centers – Digital Factories of Our Time

Ministry of Transport and Communication Event March 5th 2020



The future of data centers

Global trends changing the data center landscape



©ABB

March 4, 2020

A Simplified Design, Build, Operate Process

Technical Infrastructure System Approach



©ABB

Example of general energy efficiency metrics

More metrics can be found from industry and academic sources







Three measurement levels of PUE

Three levels of the PUE measurement				Placement of the measurement equipment			
Measurement		Total facility energy	IT equipment energy	Measurement interval			Backup generators Generator paralleling
Level 1 (L1) Basic	Required	Utility input	UPS output	Monthly	Main Distributic	on board	switchboard
	Recommended	Utility input	UPS output	Weekly	(L2)>		
Level 2 (L2) Intermediate	Required	Utility input	PDU outputs	Daily		.2)>	
	Recommended	Utility input UPS input / output Mechanical inputs	PDU outputs	Hourly	Sub distribution board RPPs	-	Mechanical switchboard
Level 3 (L3) Advanced	Required	Utility input	IT equipment input	15 minutes	PDUs (L	.3) →	L1 = Level 1 L2 = Level 2
	Recommended	PDU outputs	input	15 minutes or less	IT board Me	↓ echanical load	L3 = Level 3 □ = Required I ○ = Recomm

Placement of the measurement equipment

©ABB



L1 = Level 1 L2 = Level 2 **L3** = Level 3 = Required O = Recommended

Automated, Hyperscale and Secure

The Industrialized Data Center

- Industrial, real-time, remote monitoring at component, device, and system levels, including environmental and IT conditions.
- A unified alarm management system of the entire data center (i.e. power, cooling, IT) with embedded analytics.
- Secure, centralized control and automation of the facility. Supports full BMS, EPMS and PMs capabilities.
- Plug-in modules for **Condition-based Monitoring, Operations Management, Energy Management and Cooling Optimization.**



Eliminate the Silos

Converged DevOps and Management

All physical and virtual infrastructure as one



Comprehensive management of the 3 Cs in your data center:

Capacity

Control

©ABB March 4, 2020 | Slide 7 Cost

ABB

Energy Management

Actionable and automated enterprise energy efficiency



Monitoring, reporting and analytics of energy utilization including the optimization of the use of supply resources to meet the predicted consumption at minimum total cost.

IT asset Monitoring

ABB Ability[™] Data Center Automation delivers IT asset monitoring and management with Intel® DCM

- Monitor & Optimize from:
 - Power consumption
 - Temperature
 - Workload





- There are two main challenges when it comes to the energy efficiency of a data center:
 - to build an energy efficient data center and
 - to be able to maintain or improve data center efficiency over the years.
- There can already be found various products, technologies, tools and solutions to improve overall data center energy efficiency
- The industry and ecosystem is ready therefore let us take actions



