

“Implementing Digital Building Strategies and Applications within the Hospitality Space”

Panel Discussion



Panel Participants



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Digital Building & Hospitality Environment



Sinclair Autograph Collection
The Connected Building

SINCLAIR

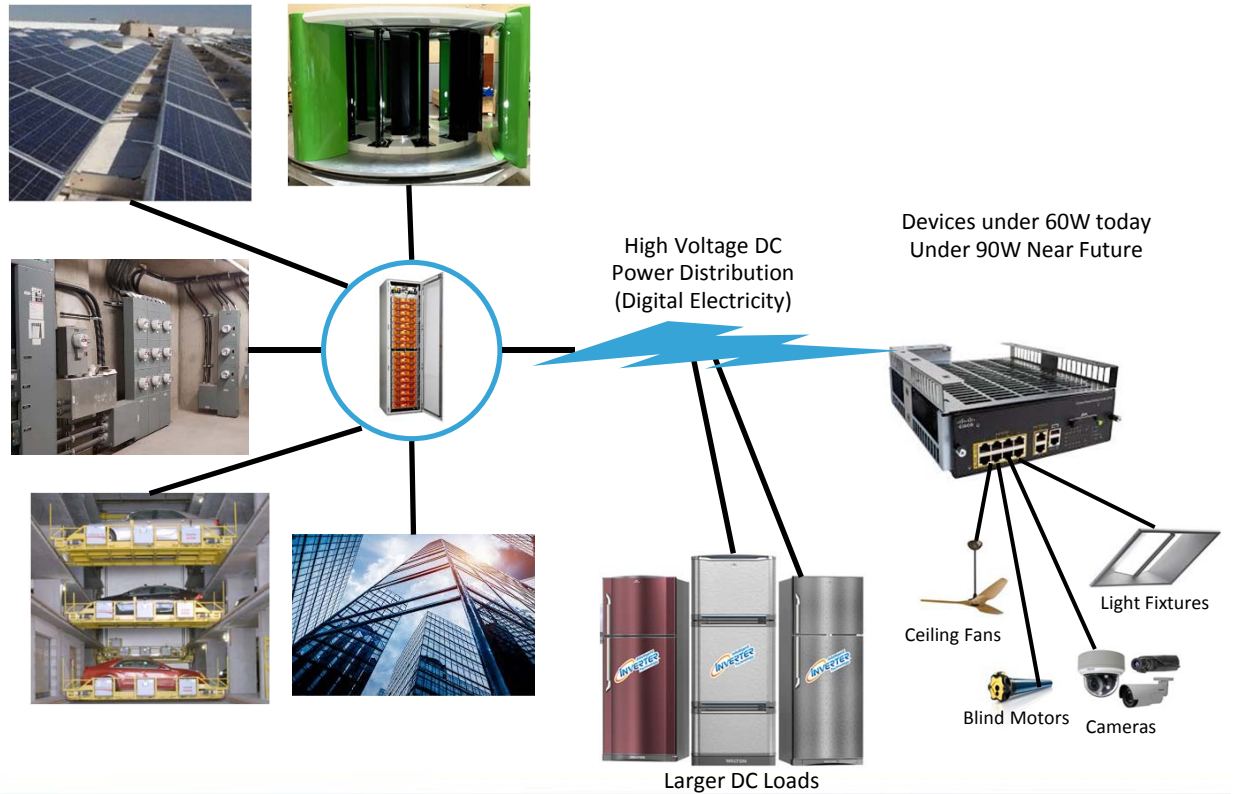
PoE and Networks

Standard	IEEE 802.3af	IEEE 802.3at	IEEE 802.3bt		HDBaseT
	PoE	PoE+	PoE++	4PPoE	PoH
Type	1	2	3	4	N/A
Status	2003	2009	Publish Date: 12/26/2018		Exists today
Maximum number of energized pairs	2	2	4	4	4
Maximum DC current per pair	350 mA	600 mA	600 mA	960 mA	1000mA
Maximum power delivered by the Power Sourcing Equipment (PSE)	15.4 Watts	30.0 Watts	60.0 Watts	90.0 Watts	>100W
Minimum required power at the Powered Device (PD)	12.95 Watt	25.5 Watt	51.0 Watt	71.0 Watt	>100W
Maximum Data Rate	1000BASE-T	1000BASE-T	10GBASE-T		Varies



A Path to a Building DC Microgrid

- **Building Materials Science continues to improve:**
 - DC Powered
 - Connected
 - Sensor Rich
- **Commercial Inverter Based Appliances Continue to Emerge**
- **Many Variable Speed/Frequency Drives can be DC Powered today** (check with Manufacturers)
- **The DC Microgrid Emerges in the Building**



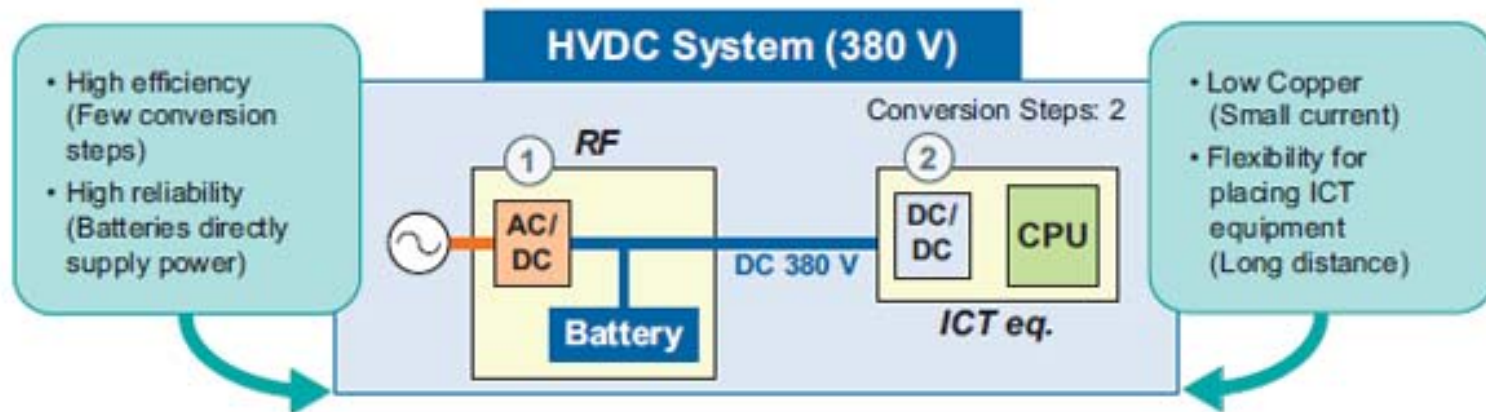
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HVDC in the Data Center

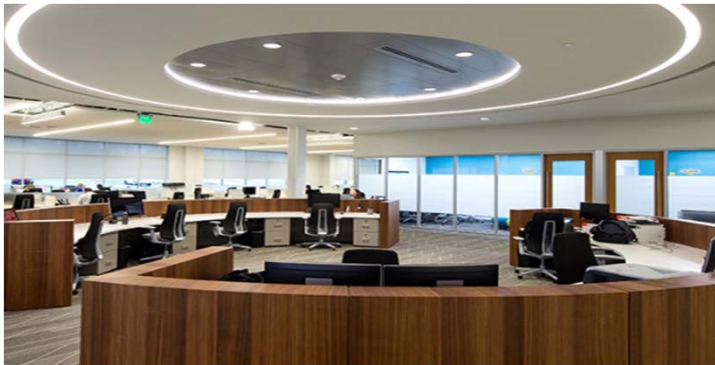
- Data Centers are moving on the DC Path



- HV DC is **more energy efficient** (eliminates Double Conversion), compatible with UPS
- Buildings will **mimic these trends** to gain efficiencies



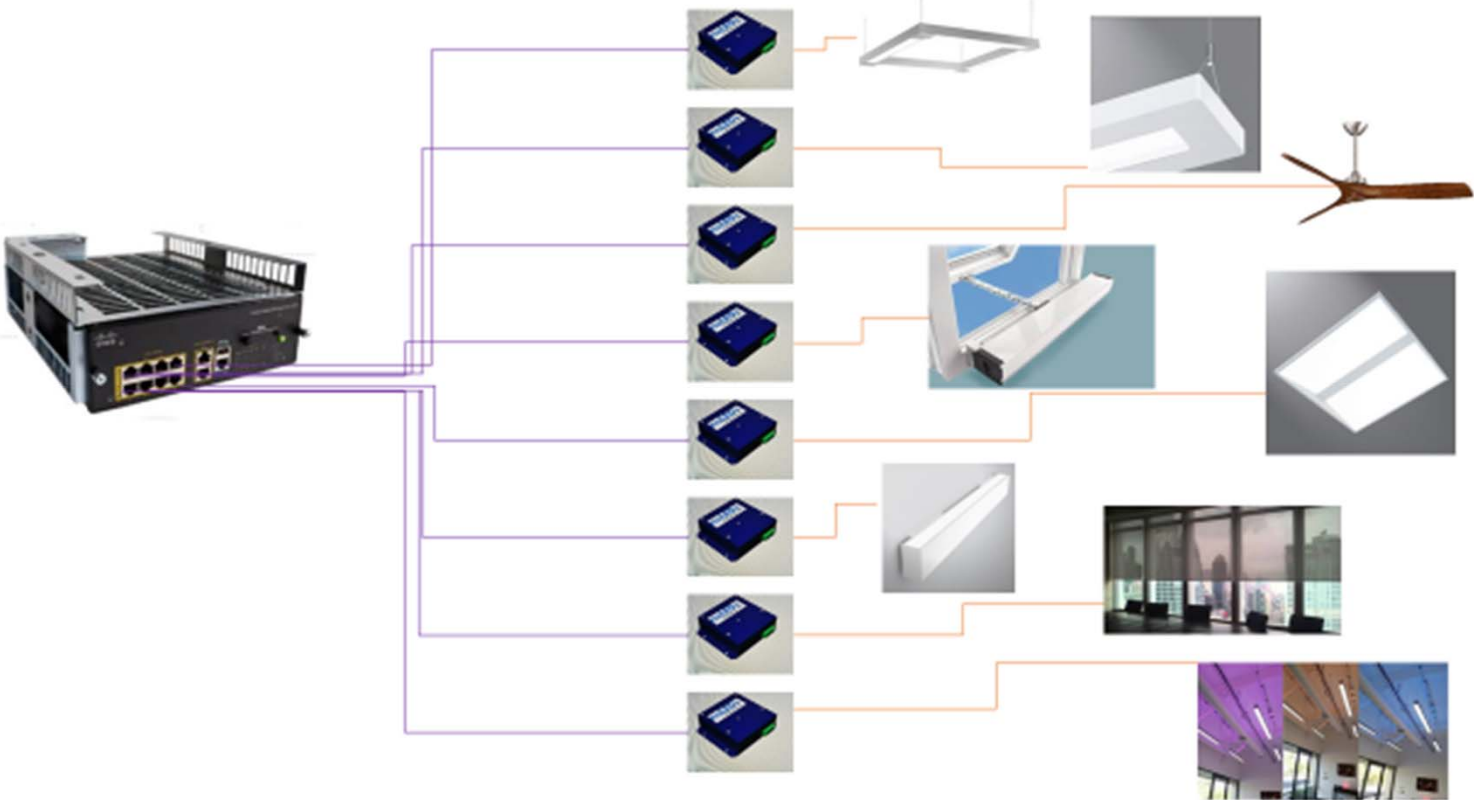
PoE Lighting



Design Possibilities of PoE



Beyond Lighting

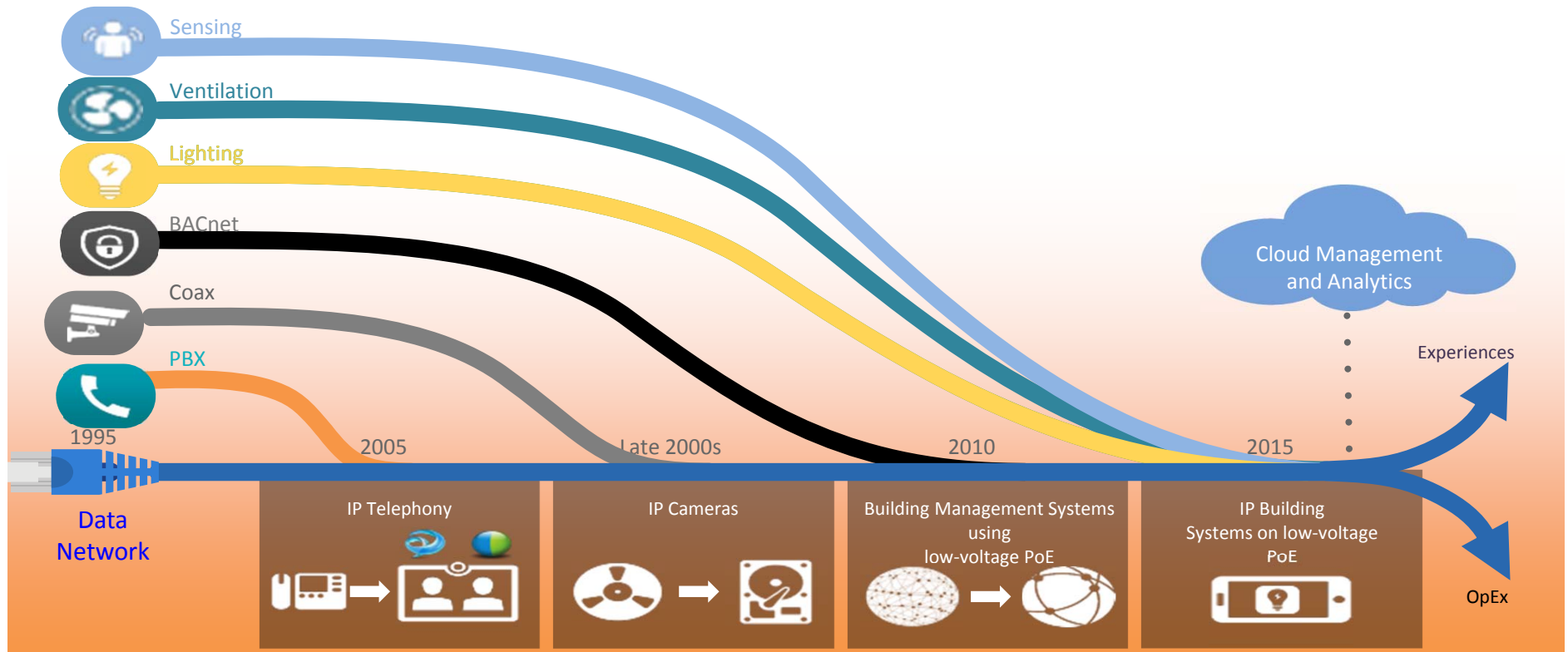


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IP Convergence for Digital Building Technologies

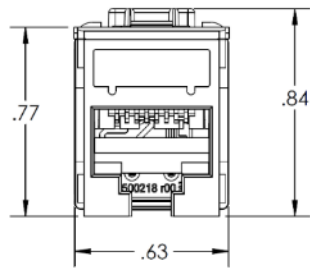


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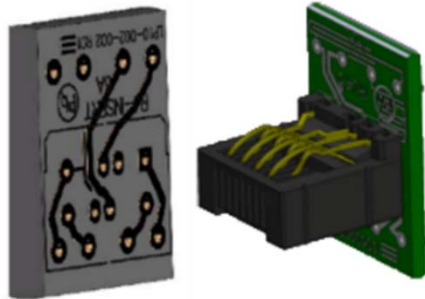
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Connectivity Design Considerations



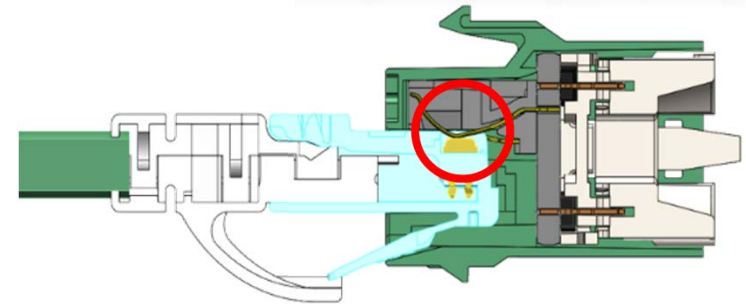
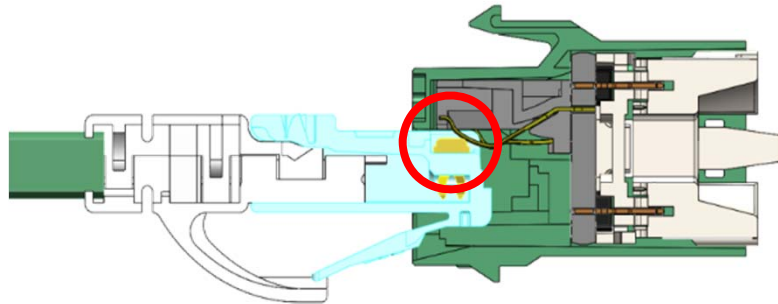
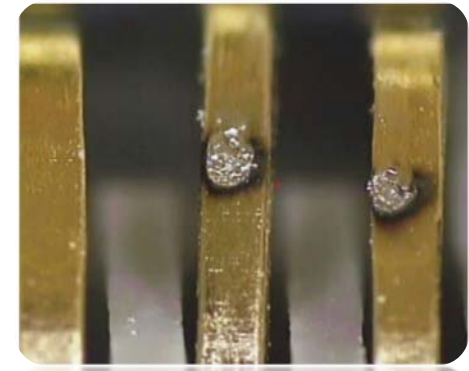
- Pick connectivity ready for emerging end points, designed to withstand stressors, and backed with a warranty for extended life cycles.
- Connectivity should be designed to support more than 1A
- Patchcord selection matters



Connectivity Design Considerations

Spark Gap Concerns When Un-mating Under PoE Load

- *Connectivity designs that locate the last point of contact away from the fully mated connection protecting area of the mated connection from any arch damage*

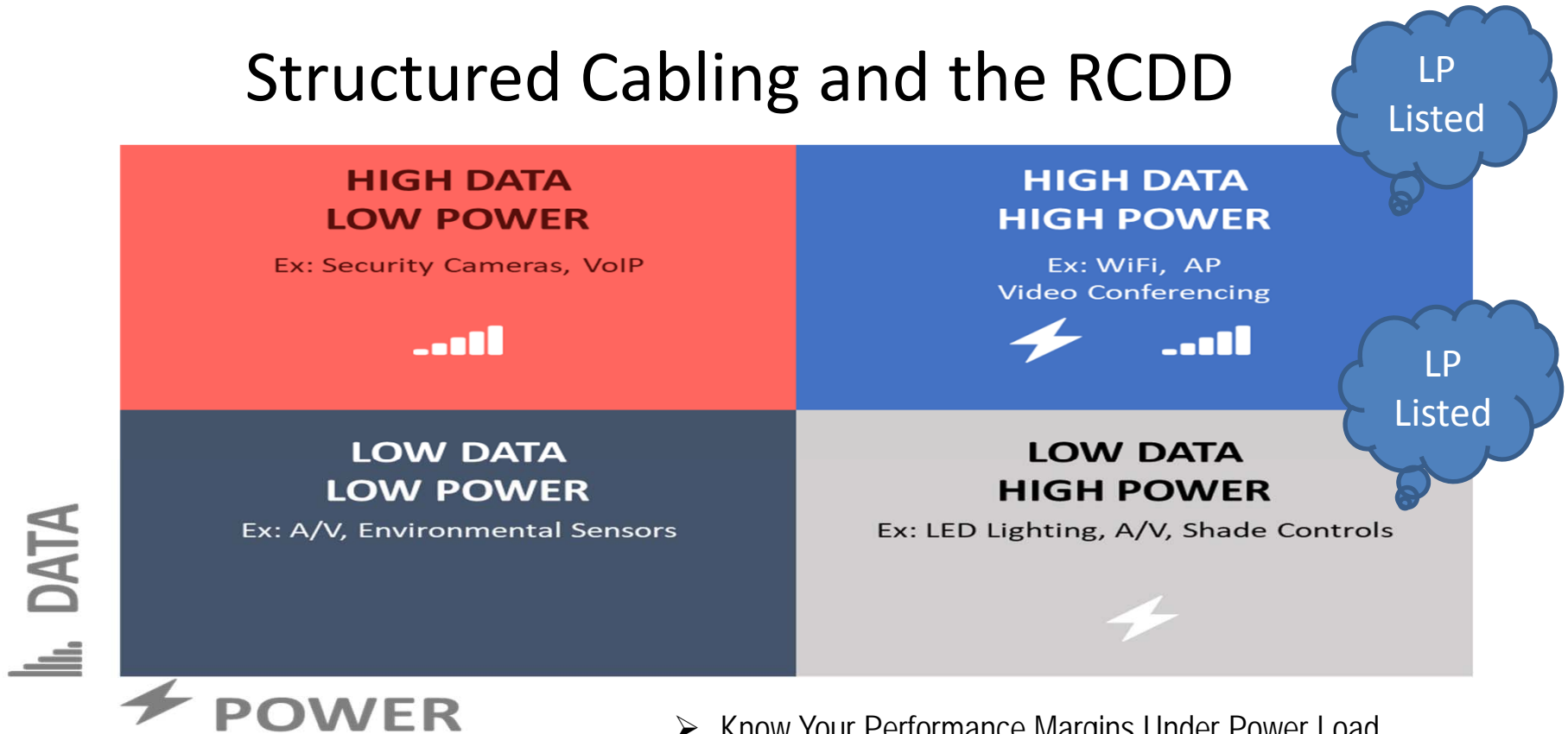


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Structured Cabling and the RCDD



- Know Your Performance Margins Under Power Load
- Higher Temperatures = Higher Attenuation

IP Convergence for Digital Building Technologies



Reduced
Installation Costs

Increased
Installation Safety

More
Agile Deployments

Enhanced Productivity



Digital Building Advancements

Intelligent Back-Up Systems, Advanced PoE Lighting



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Replacement of Diesel Generator as Elevator Back-up

- Diesel Generator **increases life-safety hazard**, requires **constant maintenance**, requires **large servicing room**, emits **smoke and other fumes**



350 KW Diesel Generator

Requires 515 ft² for clearance



UPS Lithium Ion Battery Elevator Back-up

- Advancement in Lithium ion Batteries creates **compact, sustainable, and easily maintained** backup power supply
- Innovation that creates unique guest experience

Tesla 100 KWh Battery Pack



FF91 130 KWh Battery Pack



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Which do you prefer?



Centralized Energy Storage System (ESS)

- For the first time in the world, a diesel generator used for **emergency power backup** will be replaced with a **Lithium Ion Battery Pack**
- Diesel generators are loud, unsafe, and require frequent maintenance
- Energy Storage Systems are already being used in Korea to shave peak loads, integrate with renewable energy solutions, and back up power for different applications.



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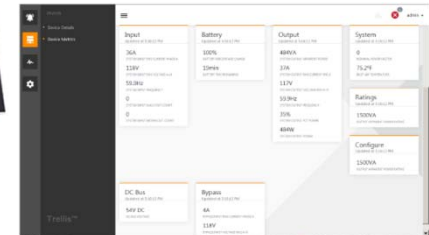
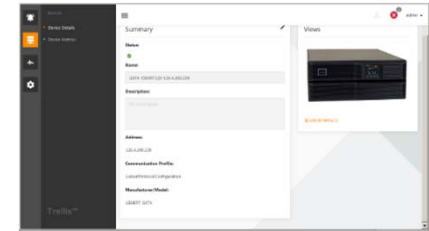
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Which do you prefer?



Finding out your battery doesn't work *when there is a failure?*

or



Finding out *real time* anything about your battery you need to know?

Intelligent Information Analysis

- Uninterruptible Power Supplies (UPS) can give you *real time information* as to the status of their power supply, and keeps track of maintenance requirements.
- Most backup failures occur from *human error*. Why not have a system that tells you when it needs maintenance instead of realizing it doesn't work when there's an outage?



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LG OLED Lighting

- Structure & Principle
- Premium Light Quality
 - Minimal or **No Ductwork**
 - High **Energy Efficiency**
 - Lowest Life Cycle cost on the market
- Extremely Thin and Light
- Truly Flexible

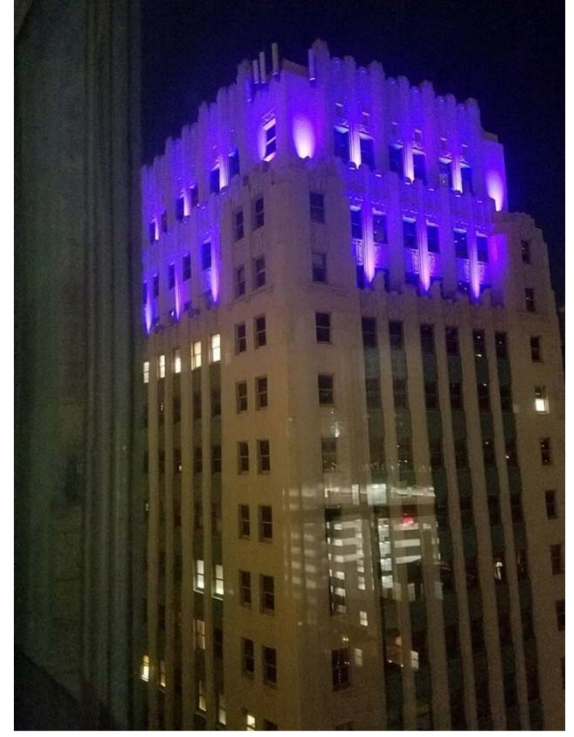
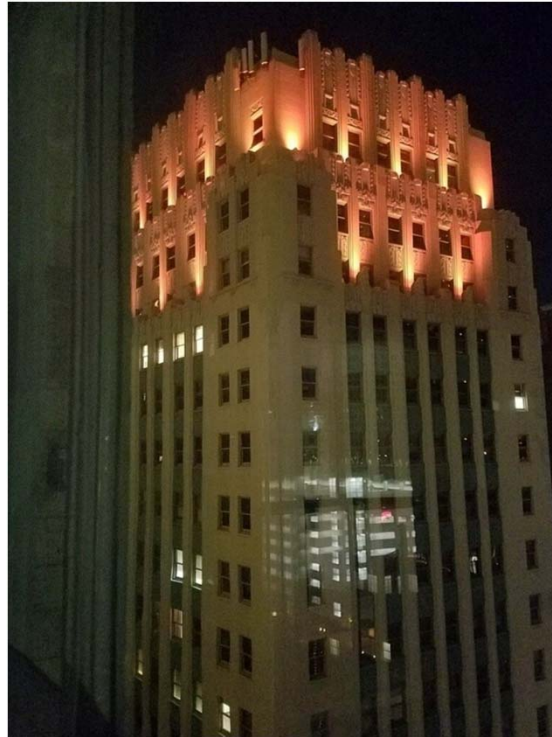


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THANK YOU!

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