DC Distribution for Efficient Data Centers

**Impacts:**
- Low server density
- High energy costs (TCO)
- Cooling / Thermal constraints
- Difficult to meet energy standards

**Power delivery efficiency in data centers ~ 50%**

- Eliminate multiple conversion stages
  - 1 DC / AC conversion stage in the UPS; 1 AC / DC conversion stage in PSU; Eliminate the PDU
  - 380V DC from Uninterruptible Power Supplies (UPS)
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Demonstration Set Up

AC Input Power Supply

90 – 264VAC
50/60 Hz

DC Input Power Supply

280 – 400Vdc

AC fuse

Chassis

GND

DC fuse

Chassis

Enable

EMI Filter (AC)

EMI Filter (DC)

L_b

D_b

S_b

C_0

DC/DC

12V

400V DC

400V DC

12V

DC fuse

GND

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