Shifting to DC Power Distribution in Data Centers: A Collaborative Journey

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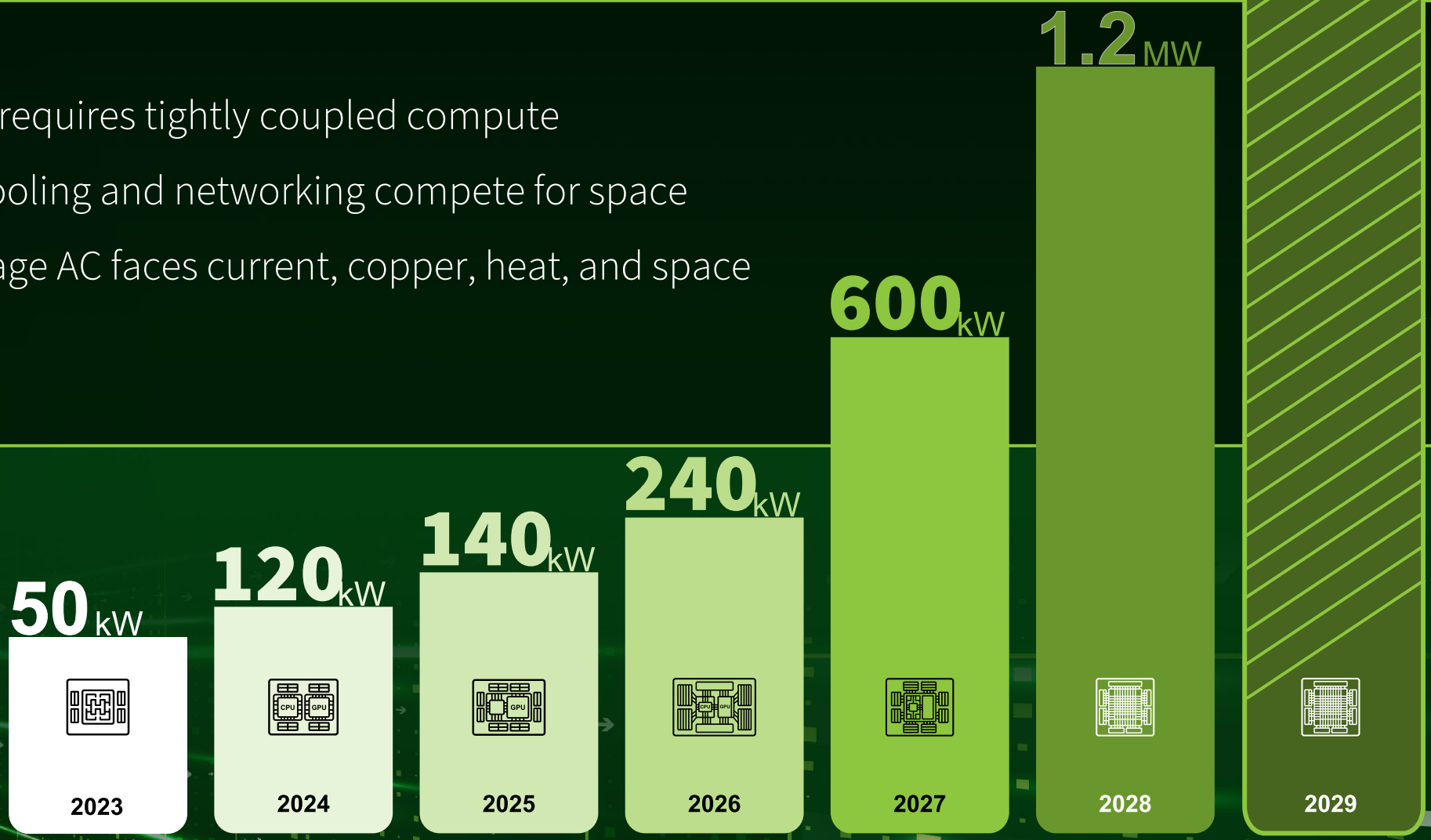
OCP GLOBAL SUMMIT

October 12-15, 2026
San Jose, California



AI RACK DENSITY

- Scale-up requires tightly coupled compute
- Power, cooling and networking compete for space
- Low-voltage AC faces current, copper, heat, and space limits



The Shift

DC

- Fewer conversions
- Higher power density
- Smaller footprint

800 V

- At same power
  - ✓ 16× less current
  - ✓ 256× less power losses
  - ✓ Less copper
  - ✓ Less heat

MORE COMPUTE

How do we enable DC ?

GRID

34.5kVac

SOLID STATE TRANSFORMER

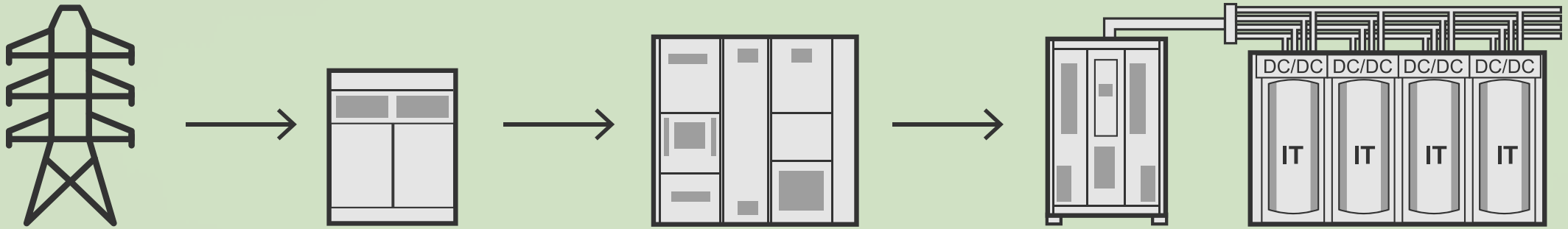
MVAC/800Vdc

MAIN POWER DISTRIBUTION

800Vdc

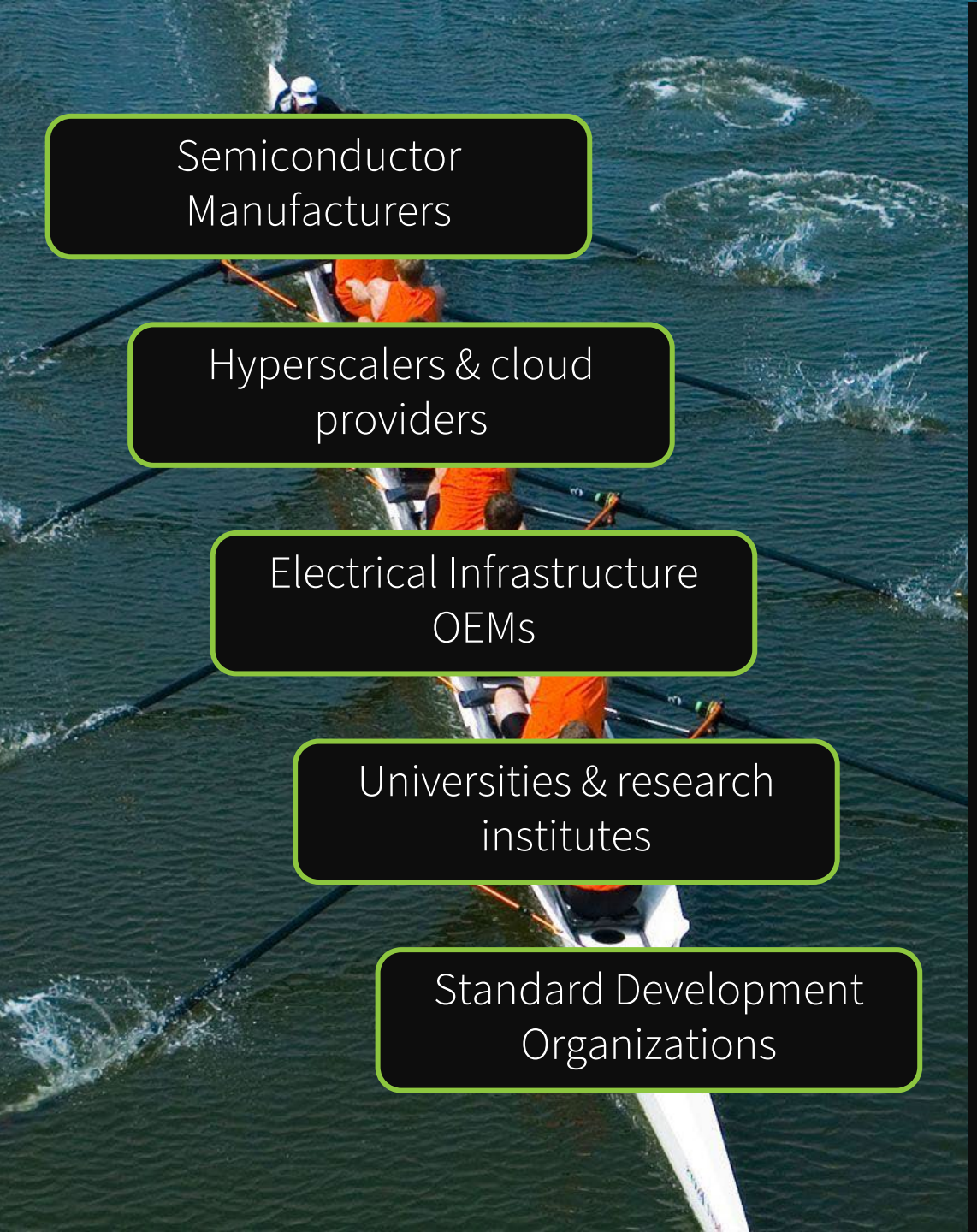
LOCAL DISTRIBUTION TO RACKS

800Vdc, +/- 400Vdc



..an architecture is needed


If you want
to go far,
go together



The OCP Power Distribution sub-project

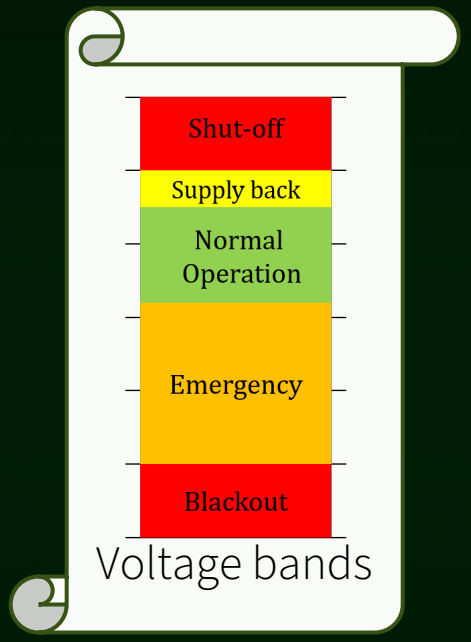
800+
community size

100
active contributors

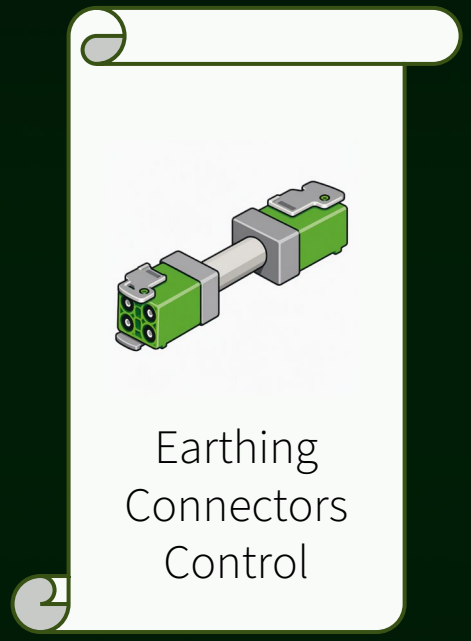
250
white paper pages

10 / 2
months / paper releases

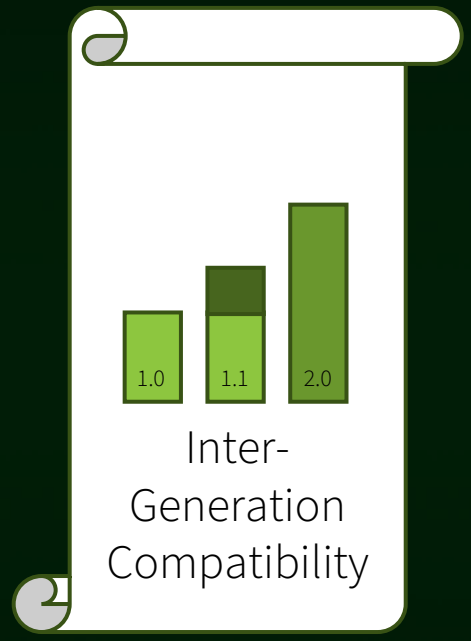
Interoperability Standards



COMMON FRAMEWORK



LOWER INTEGRATION RISK



SAFEGUARDING INVESTMENTS

Safety by Design, Standardized

Industry-proven protection for direct current interruption

- ✓ DC is not new: Solar, Batteries, Electric Vehicles, Ships have deployed DC architectures

- ✓ Different short-circuit behavior
- ✓ New standards (e.g. IEC 60947-10 & UL 489I)

- ✓ Typically, much lower fault energy
- ✓ DC as safe as AC





Path to more power

- Direct Current power distribution:
  - Industry-proven
  - Resilient & efficient
  - Safe

- Whitepaper #1 most clicked contribution in OCP

Looking Ahead

- Challenges & Opportunities ahead…
  - Develop Base System Specification
  - Develop Base Components Specifications
  - Continue Codes & Standards work
  - Engage new stakeholders

- Join the Power Distribution community

