

OPEN POSSIBILITIES.

Cooling Environments Open Discussion



NOVEMBER 9-10, 2021

Cooling Environments Open Discussion

Data Center Facilities – Advanced Cooling Facilities

Don Mitchell
John Menoche
John Musilli
John Gross

Advanced Cooling Facilities Co-Lead
Advanced Cooling Facilities Co-Lead

Victaulic
Vertiv
Integra/CPS
JMGross Engineers

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OCP Advanced Cooling Facilities



Data Center Facility

Sub-Projects:

Modular Data Center

Advanced Cooling Facilities - Incubation

OCP Ready™ Facility Recognition Program

Operation Technology Security - Incubation



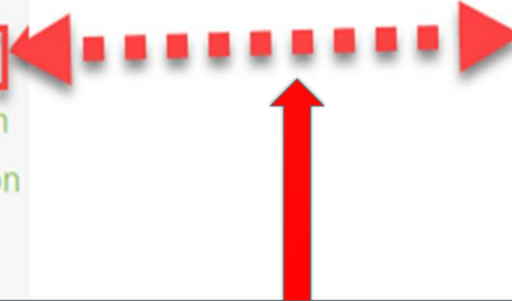
Rack & Power

Sub-Projects:

ACS Immersion

ACS Cold Plate

ACS Door Heat Exchanger



**Advanced Cooling Facilities
the Bridge between DCF and ACS**

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Agenda part 2: Facilities & Logistics

1:20 pm

Cooling Environments Open Discussion

By Don Mitchell, John Gross, John Musilli

2:00 pm

PANEL: Data Center Liquid Distribution Guidance & Reference Desi...

By John Menoche, John Gross, John Musilli, Don Mitchell

3:00 pm

Risk and Reward: How to Mitigate Liquid Cooling Concerns in Adva...

By Fred Rebarber, Matthew Archibald

3:25 pm

PANEL: OCP ACF - Guidelines for Connection of Liquid Cooled ITE

By John Menoche, John Gross, John Musilli, Don Mitchell

4:00 pm

Liquid cooling Integration & Logistics

By Nigel Gore, Matthew Archibald

4:25 pm

Introducing advanced cooling solutions into existing data centers: ...

By Yueming Li, Kiran Somanchi, Dennis Trieu



ADVANCED
COOLING
SOLUTIONS



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FACILITIES

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#DontFearLiquidCooling
#PlanForIT

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Risk...Science Vs Mythology



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Liquid Cooling Mythology **VS** **Liquid Cooling Reliability Science –**



FMEA – Failure Mode & Effects Analysis
MTBF – Mean Time Between Failure
MOPs, SOPs

Failures are famous Reliability is unnoticed

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Where Will You Run The Pipes?

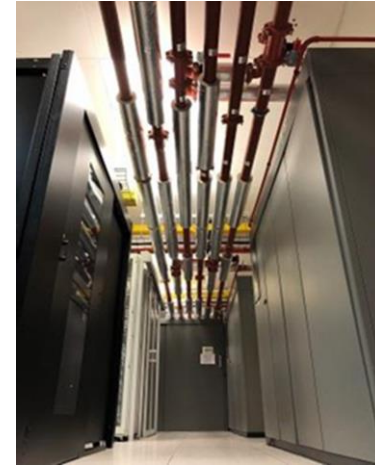


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Raised Floor

“Step” Floor, integrated CDU

Above Floor



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Beyond PUE – The Liquid Path to New Opportunities



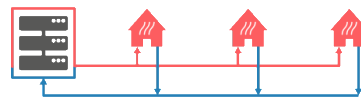
RESIDENTIAL HEATING + DHW

23-60 °C



DISTRICT HEATING

30-60 °C



SWIMMING POOL

40-60 °C



FIELD HEATING

25-45 °C



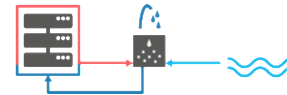
GREENHOUSE HEATING

3-60 °C



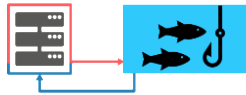
SEAWATER DESALINATION

33-60 °C



FISH FARMING

15-25 °C



WOOD DRYING

30-60 °C



COOLING ENERGY

50-60 °C



SUSTAINABILITY



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COOLING
FACILITIES

CLOUD
& HEAT

CLOUD&HEAT DESIGNS ARE ADAPTED TO COOL DOWN THE DATA CENTER BY REUSING THE HEAT FOR OTHER PURPOSES,
WITHOUT COMPROMISING THE OPERATION OF THE IT COMPONENTS.

PUE VALUES CAN BE PUSHED UNDER 1.0 IF WASTE HEAT UTILIZATION IS CONSIDERED IN THE TOTAL ENERGY BALANCE.

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Call to Action

- Get involved in OCP
 - Weekly OCP ACF calls Tuesdays 1100 ET (UTC-4)
<https://global.gotomeeting.com/join/952298085>
 - https://www.opencompute.org/wiki/Data_Center_Facility/ACF-Advanced_Cooling_Facilities
- Heat ReUse Global Opportunities & Success Stories
- Mail List: <https://ocp-all.groups.io/g/ocp-acf>

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