The Shared Data Centre Project

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The Shared Data Centre Project

The Shared Data Centre Project

Why do we need it?

1. Additional data centre capacity .
2. The opportunity to provide a higher level of resilience (thus lower risk) for critical IT services by creating the ability to split services between the current Data Centre and the new Shared Data Centre.
3. Energy Efficiency
4. Growing demand for a shared facility, the current OUCS Data Centre and Begbroke host on a “goodwill” basis.

The Shared Data Centre Project

Why do we need it?

5. Consultation carried out in November 2008 in association with Romonet Ltd (http://www.romonet.co.uk)
6. Designed in line with the University's sustainability strategy.
7. Read more at: http://www.oucs.ox.ac.uk/greenit/

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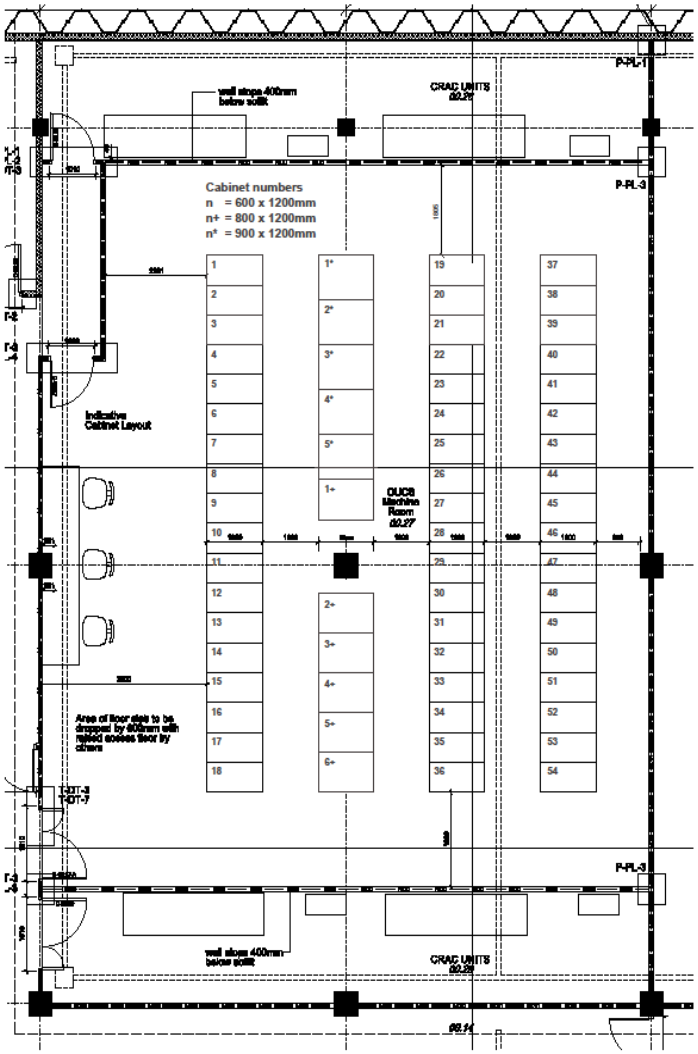

- 4 X Denco 83kW (332kW N+1) chilled water data centre air conditioner units
- 4 X 400A three phase Power Distribution Units
- 2 X 400kVA Borri UPS units
- Hi –Fog pressurised water fire suppression system
- Digital Leak detection

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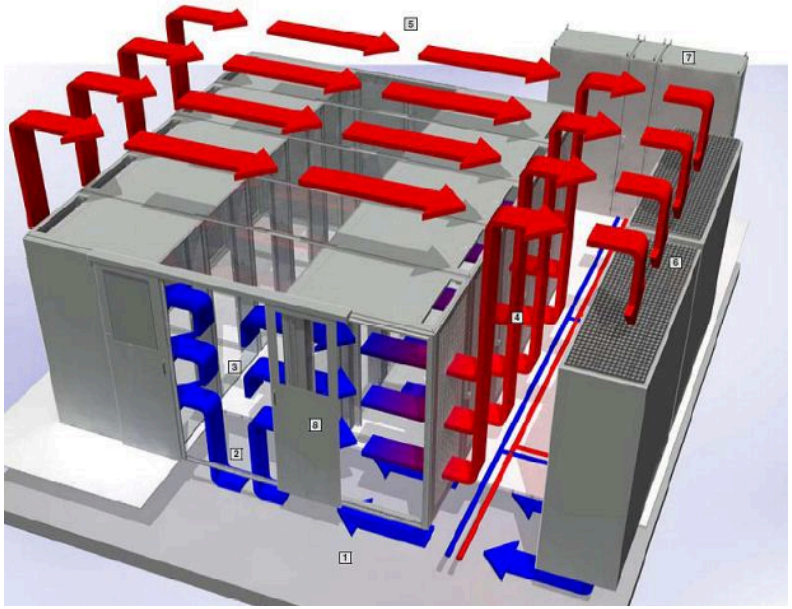
- Cold aisle containment to maximise cooling efficiency. Air conditioning works more efficiently when there is a large temperature differential (Δ) between the return air (hot) and the outlet air (cold).
- Free air chillers complemented by conventional DX air conditioning, potential 40% power saving
- 700mm raised floor plenum allows air to be channelled from below the equipment.
- ‘Lights out’ approach with PIR motion sensing lighting, bios level remote management via KVM over IP including remote power on/off
- Lone worker safety provisions – tilt switch alarm
- Use of virtualised server services to minimise hardware required



The Shared Data Centre Project
Access Control

Anti-tailgating
security portal

Biometric
Proximity Reader

Cabinet door
showing
proximity reader

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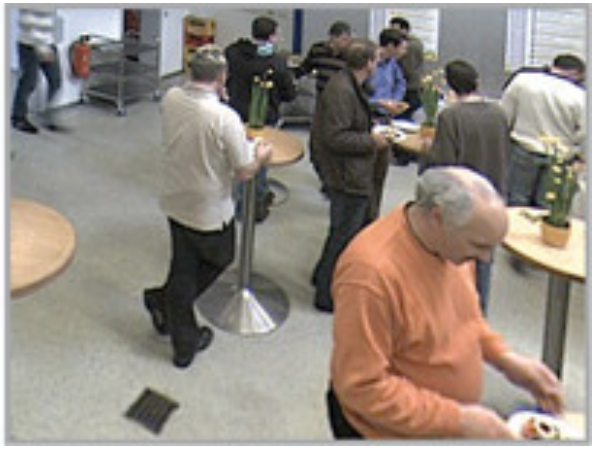
CCTV

3 mega pixel hemispherical camera with digital pan, tilt and zoom



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Fire Suppression

	Typical drop size range (mm)	Number of droplets per litre of water	Surface area (m^2)
Conventional sprinkler / water spray	1...5	15 thousand to 2 million	1...6
Low-pressure water mist	0.2...1	2 million to 250 million	6...30
HI-FOG®	0.025...0.2	250 million to 150 billion Superior cooling and local inerting	30...250 Superior blocking of radiant heat

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How ‘green’ are we?

We’ve got a ~400m^2 space consuming 1½MW of power at full capacity (electrical load and cooling)

So what are we doing about it!!

a. Trigeneration (CCHP - Combined Cooling, Heating and Power Generation)

b. Free Air Cooling Chillers

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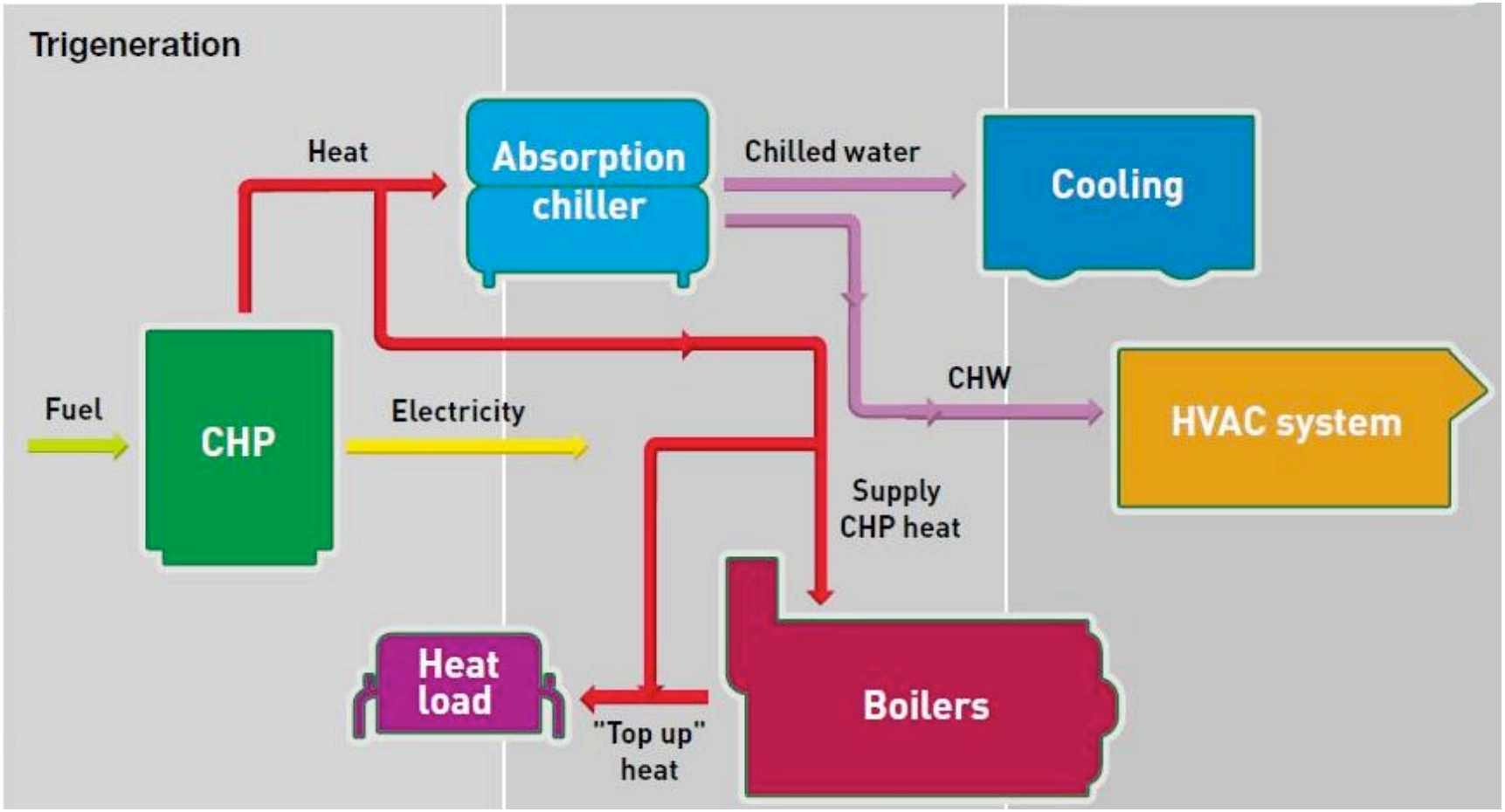

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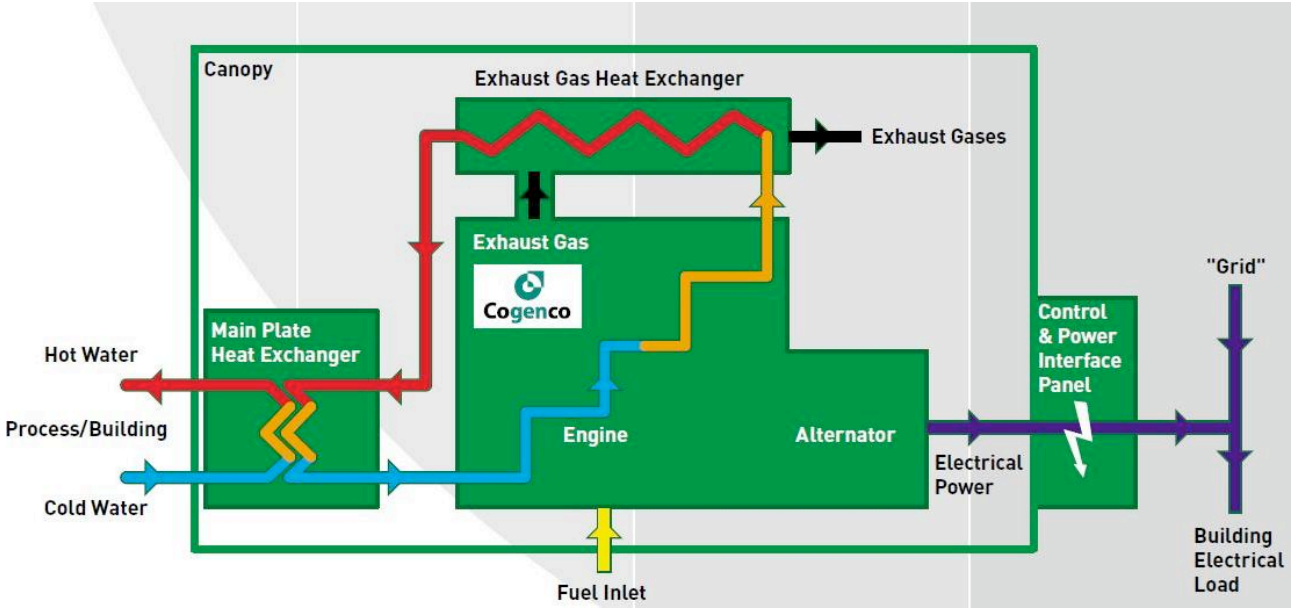
- What is CHP (**C**ombined **H**eat & **P**ower)
  In our case it's a gas powered diesel engine powering a 3-phase alternator. It's around 90% efficient compared to about 52% for traditional methods



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- The building was designed “holistically” with the data centre in mind from day one rather than as a later addition.
- Absorption Chiller – converts waste heat to cooling.
- Waste heat used to heat the building in winter months and hot water all year round.
- Free Air Cooling Chillers

  The roof mounted chillers use free-air cooling and pull in ambient air when it’s cold enough. DX Refrigeration is only used when the temperature is too high to use free air chilling

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- Initially offering co-location and virtualised infrastructure services to the Collegiate University from 1st August 2011.
- Private “cloud” for the University of Oxford
- Possibly offering the space to other HEI’s from 2012

The Shared Data Centre Project In Summary

- Dual resilient Uninterruptible Power Supplies (UPS).
- Dual power bars to each cabinet from separate feeds.
- Power usage monitored on a per socket basis
- Secure Location - Biometric access control, monitored CCTV
- Localised high pressure water vapour fire suppression system in the floor and ceiling
- No single point of failure for University Backbone network as OUCS critical services will be dual-honed (i.e. Exchange email system)
- Energy efficient
- Will give us the space to carry out a refurbishment of the existing OUCS data centre to make this facility more energy efficient.
- Available as a service to the Collegiate University from 1st August 2011.

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Thank You

Any Questions?