

Carbon Management & ICT

David Cohen

Convergence & Carbon Reduction

ICT – Part of the CO₂ Problem?

- Western Consumer Culture
- Energy/CO₂ Costs
 - Manufacture
 - Ship
 - Operate
 - Dispose
- Inefficient Deployments

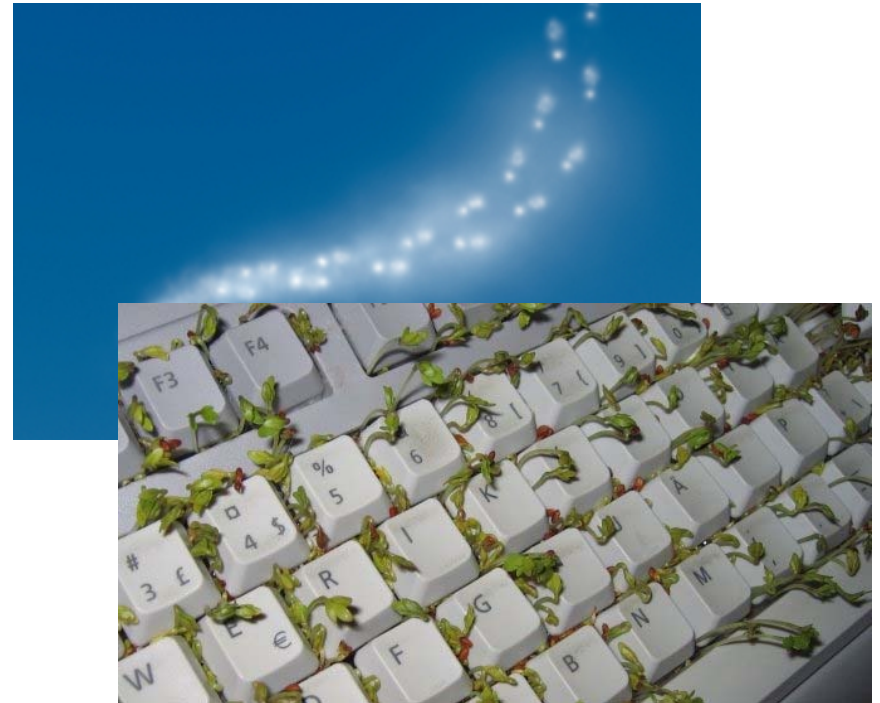


ICT – CO₂ Impact

- Globally, 2% of CO₂ emissions (McKinsey)
 - More than UK's current total CO₂ output
 - Will rise to 3% by 2020 – even with efficiencies
 - Adoption of ICT in the developing world
 - Data centre demand particularly high
- The West must lead by example in responsible ICT carbon management

Convergence – allows abatement of emissions from ICT

- Convergence can make an organisation more efficient
- Convergence can change working practices
- Knock on CO₂ emission savings of 500% globally (McKinsey)



Kirklees Council Convergence Strategy

- Converged network across Council
 - Single management and maintenance
 - Knock-on cost and operational efficiencies
 - Extended reach – mobile/wireless/broadband
- New applications on this platform
 - Voice, conferencing and video
 - Messaging, mail and integration
 - Collaboration tools
 - For the future – building management etc.

Convergence Strategic Outcomes

- Flexible Working
 - 20% reduction in Council office space requirements
 - Increased home working and better work/life balance
 - Associated reduction in travel
 - Public-facing improvements in service
- Associated carbon reductions to be monitored and measured

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Low Carbon Management Approach to ICT

Neil Spencer-Jones

The Lower Carbon Data Centre

Current Position

- ICT is responsible for 2% of global carbon emissions
- Data Centres make up 25% of all emission due to ICT
- A Data centre using 120Kwh of electricity will produce 630,720 Kg of CO₂ per year the same as about 270 average houses
- A 120Kwh data centre will cost circa £100k in energy to run depending on energy source and tariffs
- Typical data centres are “big fridges” designed for mainframe and mini computing and not the current server based computing
- A typical 2009 data centre may run 150-200 computers, while in 1994 this was probably 10-20
- Over its life a server will cost as much or more to run in electricity that it will cost to buy

What can be done?

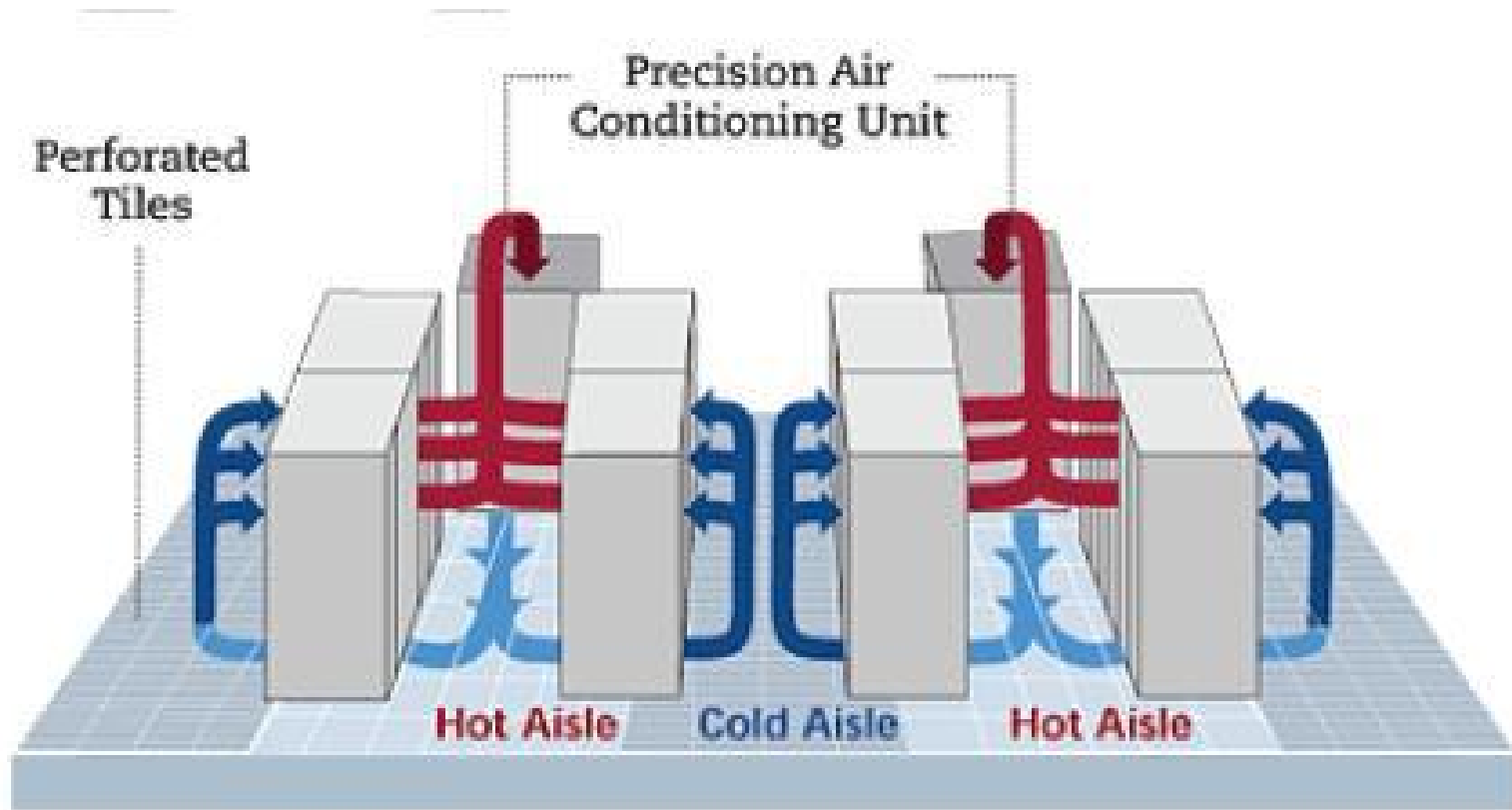
- Equipment selection not just based on ICT technical merit but energy efficiency.
- Efficient data centre cooling design can reduce the amount of time that cooling equipments needs to run by 98%
- An data centre based on an efficient cooling design can reduce energy usage by 30% reducing the carbon footprint by 189,000 Kg of CO₂
- Using server virtualisation can reduce energy used by computing by at least 20%.

Issues

- Often not possible to retrofit an energy efficient design on to an existing facility
- Paradigm shift in thinking by users and ICT suppliers
- Different mind-set for the ICT staff
- New constraints on ICT

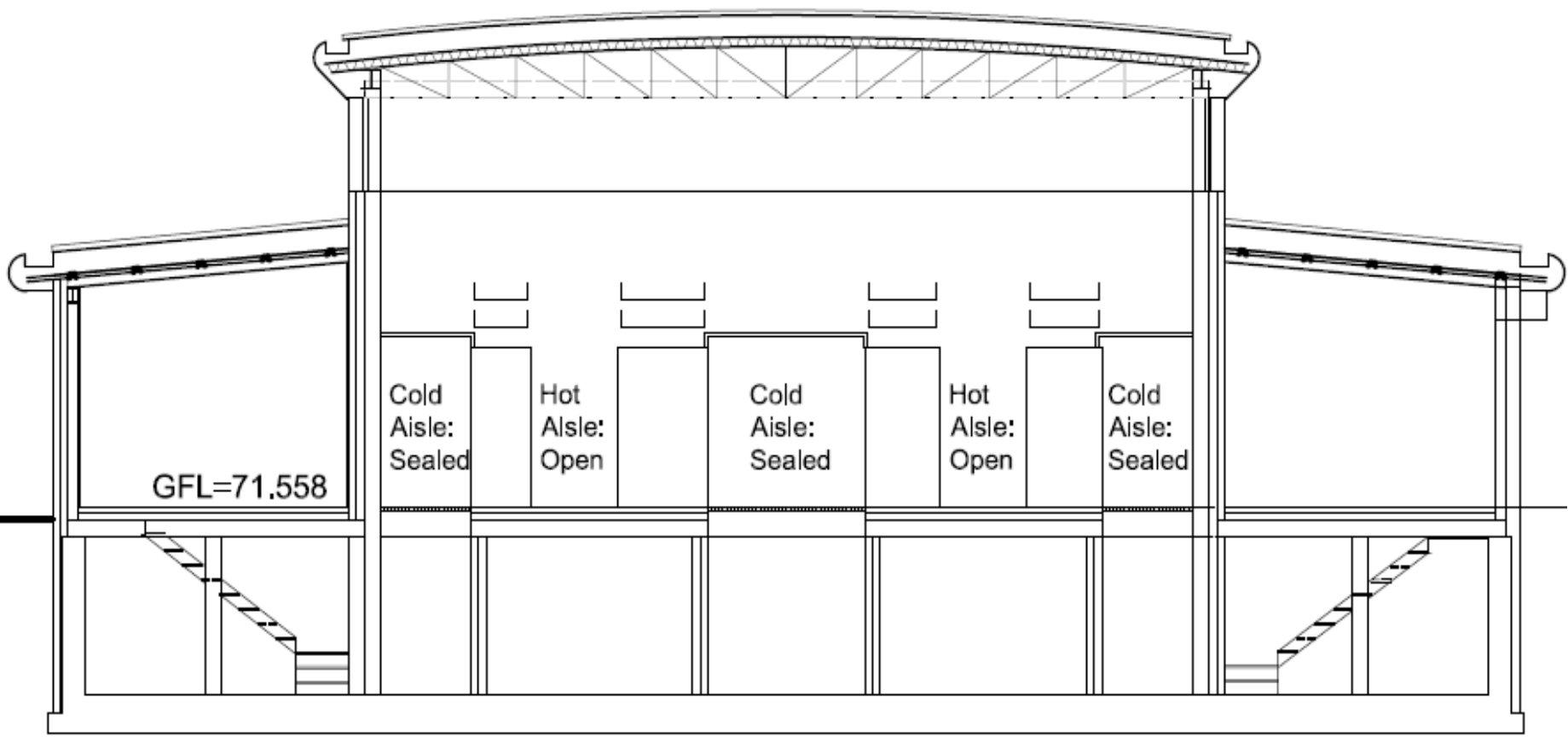
Progress at Kirklees

- Existing facility highly energy inefficient
- New “lights out” data centre in 2010
- Radically different design to current facility
- Energy consumption and carbon footprint major driver in the design
- Free air cooling
- Operational and energy efficiencies can produce a sound business case



Applying a **Hot** and **Cold** Aisle Approach

A data center can strategically group systems, after determining equipment PUE ratings, and then create distinct cooling zones.



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Smarter Printing

Mike Woodward

Reducing carbon emissions, Reducing costs

Print, copy, print, copy, print ...

- We all print too much
 - At work, at home
- We are not really aware of the costs or the associated carbon emissions
 - Gartner report

How we changed

- Tender
- Selected a partner for a pilot
- Proved that we could reduce the number of devices by 75%
- Projected cost savings - 35%
- Projected carbon savings – 50%

Deployed new technology

- Phased out single-function devices
- Multi-function devices
 - Print, copy, scan and fax
 - Sophisticated power management capability
- Pull printing – secure and confidential
- Follow-me printing
- Software that tracks volumes
 - Produces useful management information

What needs to be in place

- Essential to have a Print Policy
 - Share devices – work them to their potential
 - Large volume printing
 - Colour printing
 - Home working
- Use software to monitor volumes and usage
 - Aim for transparency on costs

Conclusion

- Made carbon and costs savings with
 - New hardware technology
 - New software
 - Changing people's understanding and behaviour
 - Proactively managing print and copy

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