

Datacenter best practice

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Introduction

- Carrier neutral and carbon neutral datacenter
- 20 MW of capacity
- Amsterdam based
- Built in 2000 with last addition in summer of 2008

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Mission

- To deliver sustainable datacenter services that enable businesses to establish and maintain a secure and reliable IT environment



Sustainability philosophy

Sustainable means for us:

1. Increasing productivity per energy unit
2. Using only renewable energies for our datacenter



Hurdles to surmount

- Conservative mentality in IT industry
- Complexity
- No focus on lifecycle costs

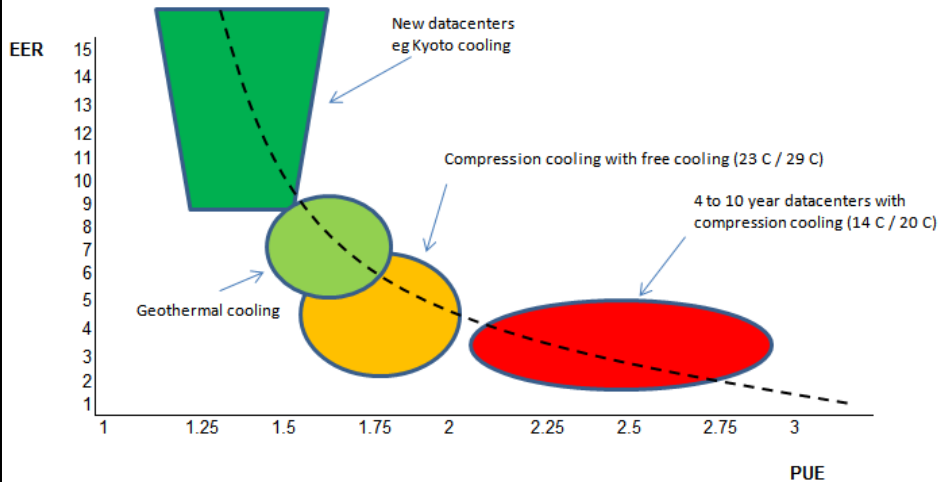


Key Performance Indicators

- Power Usage Effectiveness (PUE)
- Energy efficiency ratio (EER) = server power consumption : cooling power consumption in kwh



Relation between EER and PUE



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Levers behind KPIs

- Cooling design and settings
- Energy loss in UPS and cabling
- Lay-out of computer floor
- Measuring

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Cooling design

- Increase inlet temperatures to 24 degrees
- Use free cooling to the maximum
- Increase the heating exchange surface in the computer rooms
- Smart cooling settings



Energy transport loss

- Efficient UPS
- Prefer busbars over cabling
- Reduce distance between “boiler room” and computer floors



Floor plan

- Cold corridor principle
- Modular build-out in order to have high utilization rates

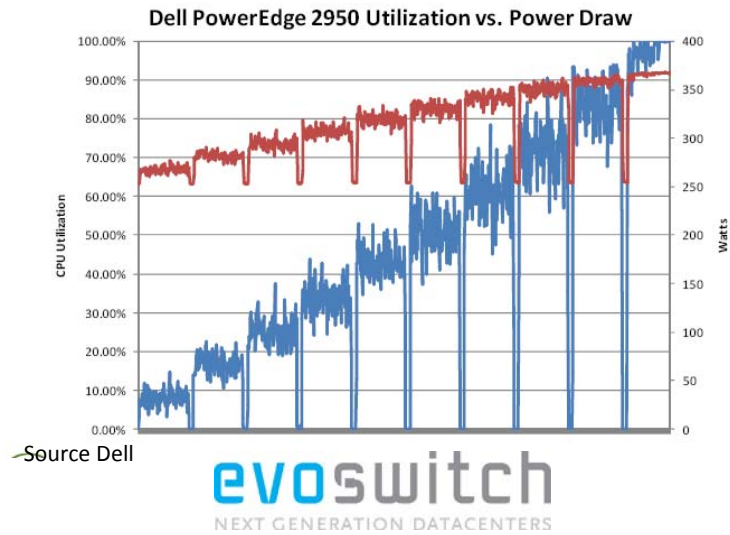


Measuring

- It is important to measure the energy metrics
- Measurements allows the reduction of energy waste
- Moreover, it gives incentives to customers to become energy efficient if tied to a billing model



More with less



Vision

- PUEs of 1.2 and average EERs of 19 in new datacenters must be possible over the next few years

Conclusion

- Easy savings are available also in existing datacenters
- Many available technologies to increase energy efficiency in IT
- Increasing efficiency is often a NPV positive investment
- Optimal choice of concept depends on local conditions

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