eco Data Center Star Audit

audits facing the green challenge

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agenda

- **green challenges**
- **what means energy efficiency**
- **suggestions to reduce energy consumption**
- **eco Data Center Star Audit process**
- **green adjustments**

Vorträge

- **Tyco Energiesparen mit intelligenter Verkabelung**
- **Upsite Bedeutung von Energie**
- **Microwayganzheitlicher Ansatz DC Effizienz**
- **Colt: managed Services**
- **Emerson high heat density cooling**
- **Carbonclear CO2 neutrale DC**
- **Fujitsu Siemens dynamic data center**

Vorträge

- **IBM Energy Efficiency through Servers**
- **Data Centre Specialist Group (DCSG): holistic approach DC Efficiency**
- **Ebico Carbon neutrality**
- **Thames renewable Energy startegies**
- **Chloride Nachhaltigkeit nur Vorwand**
- **Rittal Wasserkühlung**
- **Datacentience Energiebedarfsentwicklung**
- **Broadgroup Power ^ Cooling Survey**

Vorträge

- **Msolutions Umweltgesetzgebungswirkung**
- **MTP Data Center Code of condcuct**
- **Keysource: Benchmarking Datacenter Eff.**

High Density Datacenter

efficiency through holistic approach

green challenges last five to ten years

- **global warming**
- **Kyoto Accords**
- **oil price more than doubled**
- **electricity consumption by servers doubled[1]**
- **Gartner Group: half of the worlds data centers will experience power shortages**
- **BUT: green is not all about energy consumption**
- **where does green start and where does it end?**

what means energy efficiency ?

- **hardly measurable as a whole**
- **only indirect measurement possible**
- **energy costs are not in the concern of IT-operations (facility management pays the bills)**
- **many different components are in use (especially at collocation sites)**
- **efficiency is a relative measure, but relative to what? No sufficient data available.**
- **energy efficiency does not necessarily equal green**

suggestions to reduce energy consumption

- **consolidate servers and use virtualization**
- **start using power management tools**
- **use current energy-friendly IT-technology**
- **use highly efficient power supplies**
- **make the building more energy efficient**
- **think green!**

green-IT saves money

- **energy saving servers**

- **combinations of embedded, mobile, and server computing**

- **less energy consumption less energy costs**

- **offerings to customers at reduced price possible**

- **energy optimized bios and operating systems**

  → **save more than 50% of energy**

Green-IT schont Geldbeutel

Der Hürther Webhoster Server4You hat in eigener Regie eine besonders stromsparende Server-Modellreihe entwickelt, die nach eigenen Angaben nur 54 Prozent der Energie bisheriger Rechnergenerationen verbraucht. Mit der neuen Hardware-Plattform will der zur Intergenia-Gruppe gehörende Hoster nicht nur das Klima schützen, sondern vor allem die durch die Stromersparnis erzielte Kosteneinsparung an die Kunden weiterreichen. So ist ein Dedicated Server mit AMD Athlon Dual Core (2x 1,8 GHz), 1 GByte RAM, zwei 160-GByte-Raid-1-Festplatten und Linux-Betriebssystem sowie der Administrationssoftware Plesk 8.2 unter der Bezeichnung Eco-Server Large zum monatlichen Preis von 38,99 Euro erhältlich.

Die Stromeinsparung realisierte Server-4You im Wesentlichen durch eine Kombination aus Bauteilen aus den Bereichen Embedded-, Mobile- und Server-Computing. Außerdem versorgt der Hoster das Rechenzentrum mit eigenentwickelten Netzteilen auf 12-Volt-Basis, die nach eigenen Angaben einen Wirkungsgrad von über 95 Prozent erreichen. Die Transformierung der 230-Volt-Netzspannung auf die 12-Volt-Versorgungsspannung erfolgt zentral und dadurch ebenfalls energieeffizient, so das Unternehmen. Außerdem sind Bios und Betriebssysteme der Rechner speziell auf Stromeinsparung optimiert. dg
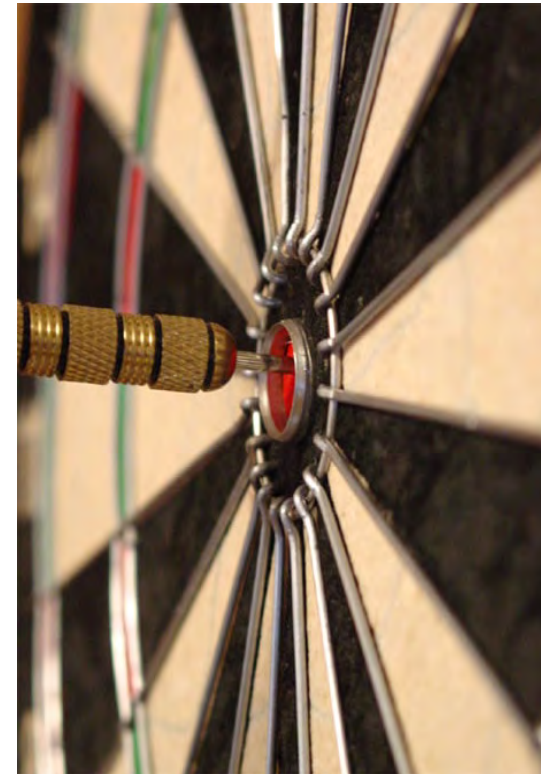
eco Datacenter Star Audit: green approach to colocation

from economic to ecologic
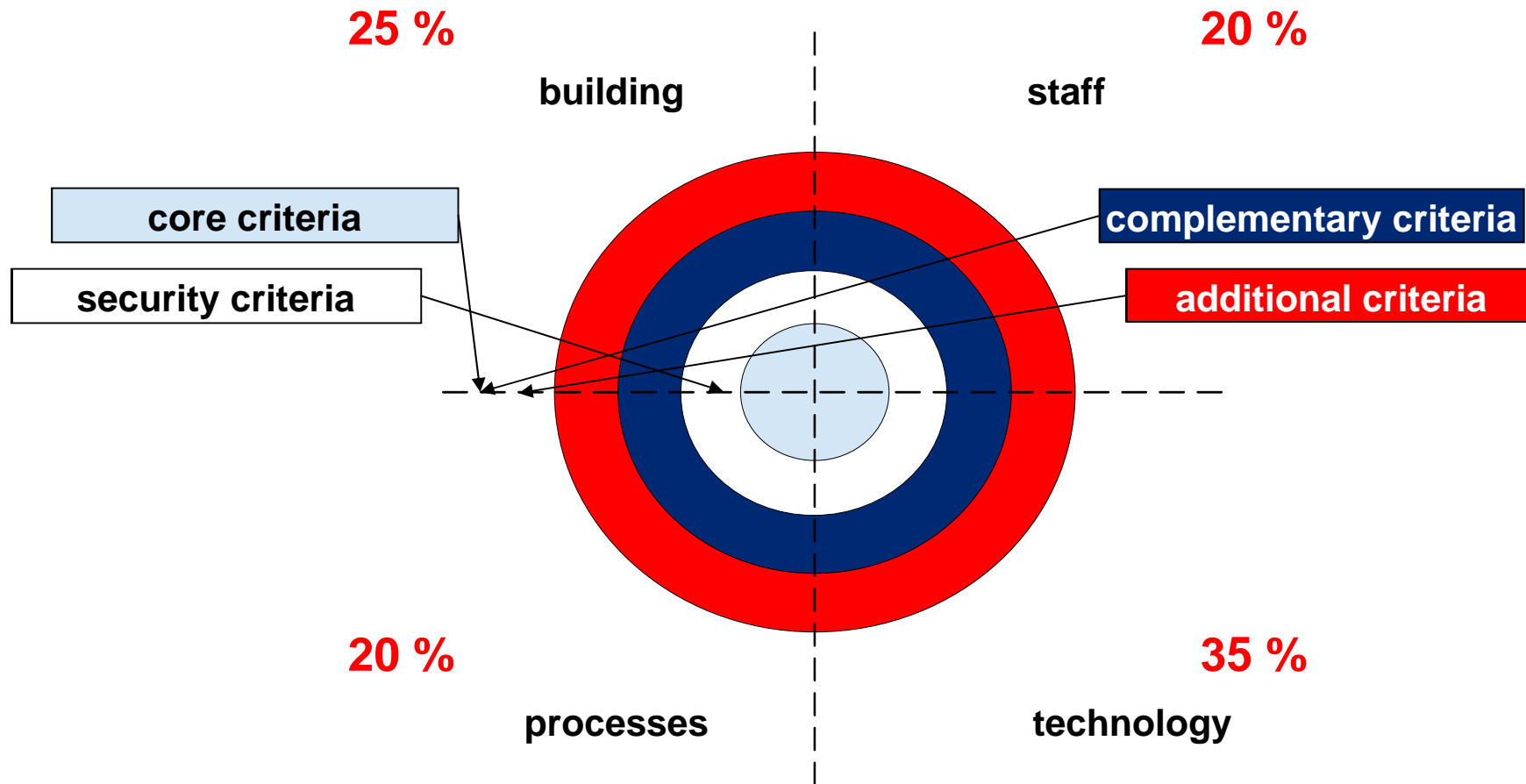
eco Data Center Star Audit: objectives

- **increased market transparency**
- **comparable evaluation of available data center services**
- **reduced transaction costs on both sides: providers and customers**
- **customer-oriented approach**
- **intuitive understanding of the star system**
- **documentation of green attitude**

eco Data Center Star Audit: benefits

- **for the data center:**
  - easier and faster way for handling offers
  - marketing tool
  - optimisation grid
  - quality assurance of the offered services
  - consulting approach
  - green indicator

- **for its customers:**
  - easier pre-selection
  - evaluation and benchmarking of the own data center
  - orientation pattern
  - intuitive and known evaluation scheme (stars)
  - requests for proposal less complex
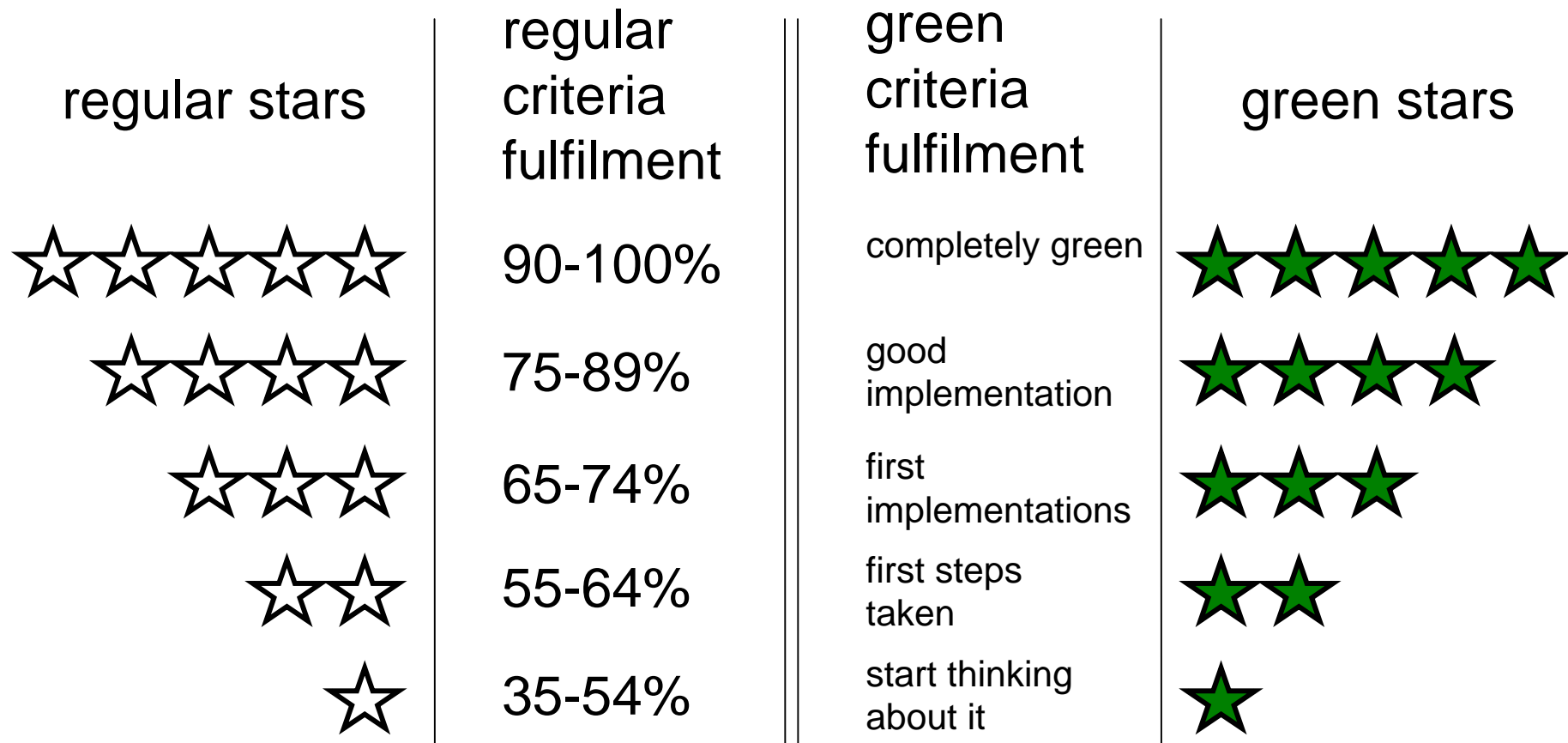 - environmentally, morally correct basis for decision

eco Datacenter Star Audit: regular audit scheme

25 %

building

20 %

staff

core criteria

security criteria

complementary criteria

additional criteria

20 %

processes

35 %

technology

eco Data Center Star Audit: evaluation criteria and green approach inherited

- **building & premises**
  - fire protection, false floor, security, complementary criteria, energy efficient design, use of sustainable resources

- **processes**
  - access management, regular operation, operation during emergency situations, value added services, recycling procedures, energy reduction plan, payment of energy bills

- **staff**
  - qualification, availability, security, complementary criteria, environmental education/attitude

- **technical equipment**
  - power supply, cooling, access, external connections, security, air filtering, complementary criteria, value added services, energy efficient hardware, latest technology,

green eco Data Center Star Audit: a visionary typology

regular stars	regular criteria fulfilment	green criteria fulfilment	green stars
☆☆☆☆☆	90-100%	completely green	★★★★★
☆☆☆☆	75-89%	good implementation	★★★★
☆☆☆	65-74%	first implementations	★★★
☆☆	55-64%	first steps taken	★★
☆	35-54%	start thinking about it	★

recommended adjustments for data centers to achieve a 5- ⭐ certificate

- **energy efficient design**
- **existence of power management tools, energy monitoring**
- **short depreciation period (<3 years) as indicator for use of current technology**
- **data center energy bills paid by IT-department**
- **proof of strategy to reduce energy consumption (e.g. a five year plan)**
- **implementation of recycling processes (e.g. heat recycling)**
- **energy supply coming from green resources**

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