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Will DC grid be a solution for data centers?


LYON, France – July 15, 2015: Ever-increasing internet traffic and the video streaming boom will encourage large data center investments in the coming years. Last year, around US$143B was invested worldwide for new data center projects. Large internet companies like Amazon, Facebook, and Google are leading the investment in next-generation “green” data centers. There is a trend towards building larger data centers, consolidating and densifying server concentration for the sites which require more efficient buildings...

Yole Développement (Yole), the “More than Moore” market research and strategy consulting company released a comprehensive analysis of the trends, market and opportunities of development for the next generation of data centers, including new architectures and technologies. This report is entitled: New Technologies & Architectures for Efficient Data Centers.

Under this new analysis, Yole’s team presents market forecasts between 2010 and 2020. It includes regional splits. Yole’s analysts also identifies the key players and their market share for servers, UPS, and cooling systems. This report is also an overview of each technology’s technical evolution including silicon photonics, Non-Volatile Memory (NVM), Wide Band Gap (WBG) materials...

“At Yole, we clearly identify a trend to develop larger data centers with an increased server concentration”, confirms Mattin Grao Txapartegi, Technology & Market Analyst at Yole. And this trend has a direct impact on the blade server market: indeed, the blade server market for data centers will display a 2015 - 2020 CAGR of +10.8%, while the entire server market will increase by 2.3%. Global server market share for data centers will increase from slightly lower than 20% in 2014 to almost 35% by 2020. “Our regional split shows that North America, particularly the US, has the biggest share of the server market, at 34% / US$3.5B” details Mattin Grao Txapartegi. “Europe, however, leads...
the UPS equipment and cooling systems markets for data centers. In fact, Europe’s large UPS (Up to 100kVA) market was estimated at US$931M in 2014”, he adds.

Traditionally rigid AC architectures are evolving towards flexible and modular solutions. Will DC grid be a solution for data centers? Established data centers are not able to enlarge their Information Technology (IT) equipment, since the power architecture and the centralized cooling system were designed for rated power. Such designs cannot be modified either, and more importantly, they present many inefficiencies when servers work in “low load” mode. Modularity brings a fresh approach to data center design, enabling the incorporation of additional servers when needed. Also, the power and cooling systems are better optimized, since equipment modules and distribution sub-networks can be activated/deactivated for improved efficiency. Moreover, virtualization and server resource management systems eliminate unnecessary power waste.

Yole has also identified a smaller, high-potential parallel market consisting of “container data centers”. These containers are rugged, portable, energy-efficient plug & play solutions that have enjoyed rising sales over the last few years. Hewlett Packard (HP) leads this new market, which will enjoy a 23.2% CAGR from 2015 to 2020, with Huawei following closely behind.

“Other solutions exist to minimize distribution chain power loss, such as DC grid data centers. Thanks to a simplified architecture and fewer conversion steps, losses can be reduced by 20%. Players like ABB, NTT, and Huawei have several DC grid data center demonstrators that use a 380VDC distribution voltage”, comments Matt Grao Txapartegi from Yole. And he concludes: “The main barrier for this new architecture is the lack of appropriate DC components, especially 400VDC safety breakers.”

Yole’s technology & market report contains a detailed analysis of who is doing what, and how DC architecture helps reduce energy consumption.

A detailed description of this report is available on i-micronews.com, power electronics report section.
About **New Technologies and Architectures for Efficient Data Center** report

Optimizing modern data centers’ energy consumption is a key challenge. Also, technical solutions are required for storage aspects and data flow limitations.

Rates: Euros 5,990.00 (Full report - Multi user license). For special offers and the price in dollars, please contact [David Jourdan](Phone: +33 472 83 01 90).

“New Technologies and Architectures for Efficient Data Center” report from Yole Développement will be available on July 16, 2015.

- Authors:

  **Mattin Grao Txapartegi** is a Power Electronics Analyst at Yole Développement. He graduated from Grenoble INP with an Engineering degree in Electrical Systems, followed by a specialization in embedded systems for transportation. He then earned an advanced master’s degree in Aeronautics Engineering from Arts et Métiers ParisTech. During this time, he oversaw managerial, financial, and marketing fields within the aeronautics industry.

  **Dr. Eric Mounier**, MEMS & Sensors Senior Analyst. With almost 20 years of experience in MEMS & Sensors applications, markets and technologies analysis, Dr Eric Mounier provides a very deep insight to the industry about the current and future trends for MEMS. At Yole Développement, Dr. Eric Mounier is in charge of MEMS & Sensors, but also covers printed electronics and future disruptive technologies such as photonics. He has contributed to more than 150 marketing & technological analysis and 60 reports in these topics, contributing the MEMS industry moving forward. He has created and has been editor-in-chief of numerous media dedicated to the MEMS and Sensors industry. He is a co-founder of Yole and previously worked at CEA LETI R&D lab in Grenoble, France in marketing dept. Eric is also an expert at the OMNT (“Observatoire des Micro & Nanotechnologies”) for Materials and devices for photonics. Eric has a PhD in microelectronics from the INPG in Grenoble, after studying at Brighton University and MacGill in Montreal.

- Companies cited in the report:


**About Yole Développement**

Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole Développement group has expanded to include more than 50 collaborators worldwide covering MEMS, Compound Semiconductors, LED, Image Sensors, Optoelectronics, Microfluidics & Medical, Photovoltaics, Advanced Packaging, Manufacturing, Nanomaterials and Power Electronics. The group supports industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to develop their business.

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