LYON, France – October 5, 2015: “Optimizing modern data centers’ energy consumption is a key challenge”, announces Yole Développement (Yole) in its new report entitled “New Technologies and Architectures for Efficient Data Center”. And the “More than Moore” market research and strategy consulting company adds: “Technical solutions are required to store the increasing amount of internet data safely and with minimum power consumption”. With this new report, part of the power electronics collection of reports, Yole’s analysts propose an overview of the current challenges and limitations of datacenters. This analysis provides a comprehensive description of the datacenters’ related market values. Under this report, Yole reveals the next generation of datacenters architecture. On the other side, the market research company highlights the main technologies and analyzes the supply chain with the key players.

Data centers are huge electricity users, representing around 1.62% of the world’s consumed energy in 2014. Under this new report, Yole’s team analyses several possible scenarios for the evolution of data centers’ energy consumption. “In the actual scenario, with an average Power Usage Efficiency (PUE) of 1.8, worldwide data center energy consumption will reach 507.9 TWh by 2020”, explains Mattin Grao Txapartegy, Technology & Market Analyst at Yole. And he adds: “In our hypothetical scenarios, there’s a possibility for achieving a 12.4% decrease of this number by implementing some new technologies.” Examples from Google, Microsoft, and Facebook
show that it is possible to build highly-efficient data centers, with PUEs close to 1.1. In order to address the urgency for reduced energy consumption, manufacturers are emphasizing improved efficiency of the architectural design, the equipment, the cooling system, and more. Datacenter analysis from Yole, describes some of the more efficient modern data center architectures (modular Alternative Current (AC) and Direct Current (DC) grid), as well as some upcoming technologies, such as silicon photonics and Wide Band Gap (WBG) materials that could reduce energy consumption. These new technologies are clearly emerging to relieve traffic congestion on data transmission lines and significantly improve the energy efficiency of the power distribution network.

“In future data centers, silicon photonics is generally perceived as a technical solution that will handle the increasing bandwidth up to 100Gb/s and beyond” asserts Dr Eric Mounier, Senior Analyst at Yole. But one of photonics’ intrinsic advantages is power-saving, which is a huge plus for interconnects that account for a significant part of power consumption. For example, with a 10Gb/s link, a copper interconnect will consume 10W, while silicon photonics or VCSELs solutions will consume 0.2W. This equates to a cost reduction from US$3500/year for copper to US$70/ year for photonics.

In Yole’s report, analysts review the status of the emerging silicon photonics solution for data centers, and also cite other “cool” optical solutions like all-optical switches, direct photonic links, and active optic interconnect. All of these solutions contribute to lower power consumption.

Other technologies such as emerging non-volatile memory (NVM) and WBG devices are analyzed too.

A detailed description of this report is available on i-micronews.com, power electronics reports section.
FOR IMMEDIATE RELEASE

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.

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  - **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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