Flexible and cost efficient optical 5G transport

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I. ABSTRACT

The 5th generation of mobile networks (5G) will enable access to information anywhere and anytime to anyone and anything, i.e., the so-called Networked Society [1]. The details of 5G are the subject of ongoing research and debate, mostly focused on understanding how radio technologies can enable the 5G vision [2][3]. 5G will need to offer not only higher peak-rates per subscriber, but also handle a larger number of simultaneously connected devices, to provide better coverage and to offer highly reliable communications with low outage probability and latency. 5G must also achieve the above objectives at a similar cost and energy consumption as today's networks [4][5].
Most of the ongoing research efforts on 5G mobile networks targets the radio technologies that will be part of 5G, whereas less is known on the implications on transport. However, with continued site densification and with larger numbers and variegated services to be provisioned, the role of the transport network, i.e., backhaul of radio base stations or fronthaul of remote radio units, will become more and more crucial [6].
This talk will elaborate on a number of data plane architectures able to provide a flexible and cost efficient optical transport solution for 5G. Power and cost models will be presented together with a number of architectural options (i.e., all optical vs. intermediate electronic processing, with and without caching) for a 5G-transport network with the objective of identifying the most promising alternatives in terms of total power consumption and equipment cost [7].

ACKNOWLEDGMENT

The material presented in the talk is the result of the collaborative work of KTH, Acreo, and Ericsson carried out within the Kista 5G Transport Lab (K5) project funded by VINNOVA and Ericsson.

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