

# App solution for efficient remote connectivity

**The world is changing. Almost unthinkable ten years ago, equipment operators today carry in their pocket a device with impressive processing power, great user interaction and graphics, and with an amazing connectivity: the smartphone.**

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The smartphone is in the future the natural hub through which the equipment connects to the outside world, obsoleting many of today's expensive custom solutions for connectivity, fleet management, special diagnostics equipment, not to speak of the frustrating and costly time to diagnose and repair.

maximatecc, the new company formed through the merger of CrossControl, Maxima Technologies and Turotest, now extends its software platform from the equipment to the smartphone. Well-defined communication interfaces, at the right level of abstraction, gives app developers ready access to the equipment's diagnostics data as well as control of some of its functionality. Software components for commonly recurring needs, and ready-to use graphics components, enable app developers to focus on the needs of the stakeholders of the equipment.

## **Opportunities for Vehicle OEMs**

For remote condition monitoring, diagnostics and related aftermarket services, vehicle OEMs have historically equipped equipment with a GSM/GPRS device to achieve wireless connectivity. There is a cost for this device hardware, as well as a cost and complexity of managing telecommunications subscriptions. Such a priori decisions and lock-in with tele-operators may no longer be necessary, since the machine operator carries the key to more flexible connectivity in his pocket. With an app, more diagnostics data can be transferred, and more frequently, and to a lower cost. For example, data can be cached in the app while near the equipment, and transferred to the OEM later in the day, when the smartphone is in range of a Wi-Fi network.

The first step would be to tunnel reports of direct service needs or malfunctions



through the operator's smartphone. It is then easy to perceive the benefits of continuous transmission of any relevant data based on the equipment's usage and operation, in order to e.g. make proposals for preventive maintenance based on schedules or trend analysis. Or even, the app would not even need to

send this information anywhere, but may contain all necessary information to make these computations itself, presenting equipment health to the operator and indicating upcoming service needs.

Clearly, for the repairman who occasionally has to visit the equipment in the field,

there is no need for many of today's specialized and expensive diagnostics equipment. A tablet PC or surfpad with an app connecting to the diagnostics in the equipment will do the job.

### Opportunities for the Operator

Turning to the needs of the operator, there are some obvious features to expect of an app. The operator would be able to lock and unlock the cabin and other access points to the equipment, monitor the fuel level and battery charge, and remotely control the cabin climate and engine heating. More advanced features include streaming of video from on-board cameras, and why not have video documentation when someone triggers the theft alarm? As sensors and on-board intelligence increases in the equipment the smartphone app can offer the same information that the operator has access to in the cab, or even more.

When equipment of different brands are equally reliable and provide the same functionality, the next value for the operator may be the convenience factor, i.e. being able to remotely monitor the health of his equipment, be informed

of upcoming service needs, etc., from home or when commuting to and from his equipment.

By providing the operator with an app serving his daily needs, he is presumably more willing to also allow the app to forward diagnostics data to the equipment vendor, as described above. Since the operator's consent is needed, this is another reason the maximatecc platform is filled to the brim with a wide range of such operator candy, which may be easily configured in the app's user interface for your specific equipment.

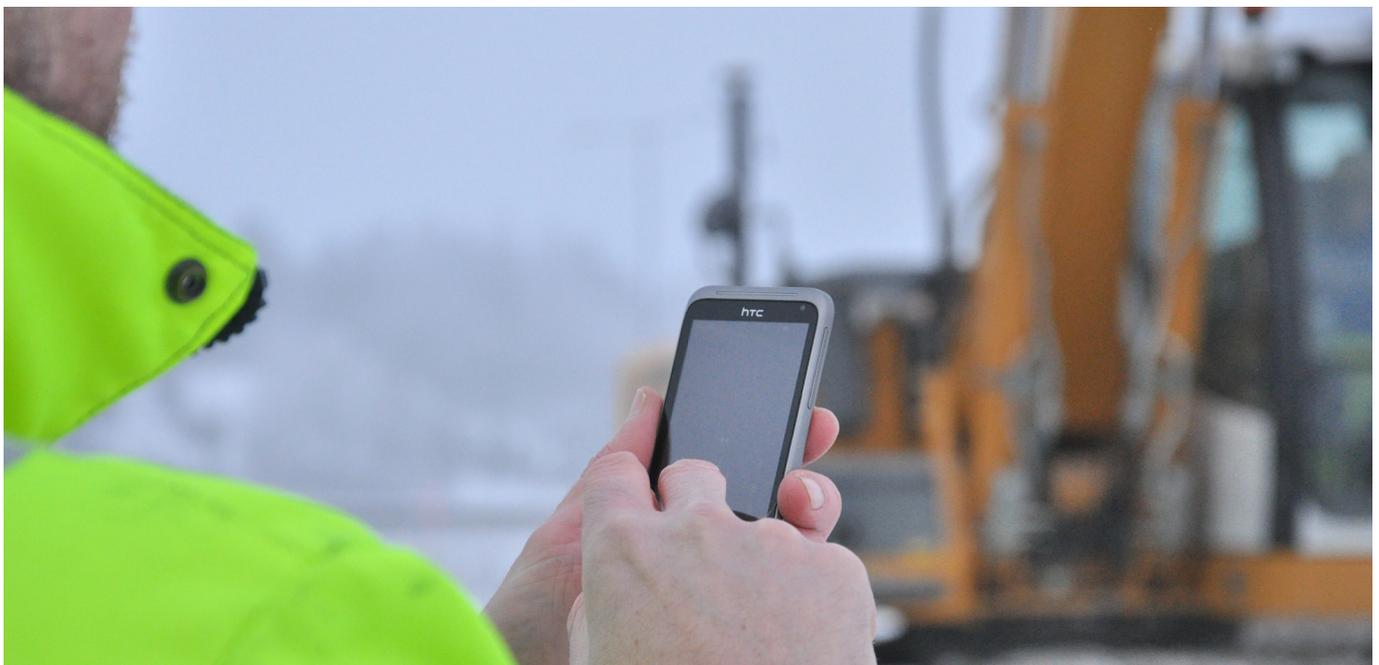
### Opportunities for the Fleet Owner

The equipment fleet owner wants to keep track of all kind of work-related data, from generic data like fuel usage, position, equipment utilization to specific information for the application like weight of handled material, video documentation, geographical operating routes, etc., and assign work orders to operators optimally. Today, fleet management solutions are expensive and complex, and depend on specialized electronics based on the locked-in connectivity as outlined earlier. If viewing the operator's smartphone as the connectivity hub,

part of these costs and complexity can be removed, allowing the developers of fleet management solutions to focus on the needs of the fleet owner rather than on the thick technology and connectivity layer. The cost of equipping each operator with the needed connectivity in the form of a smartphone and a subscription is almost negligible, not least because the employees are very likely equipped with a mobile phone anyway.

### Conclusion

With the maximatecc Software Application Platform now extending into the smartphone world and seamlessly communicating with the software in the maximatecc electronics on the equipment, all stakeholders benefit from the new technology: the operator, the equipment fleet owner, and the equipment OEM with dealers and service organization. And all are – each in their own way – connected to, and in full control of the equipment.



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