

SPACE OPERATIONS SYMPOSIUM (B6)
New Operations Concepts, Advanced Systems and Commercial Space Operations (2)

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TO THE INTERFACE AND BEYOND: PUTTING THE "MMMM" INTO MMI

Abstract

Whatever we may see in the movies, spacecraft operations are not supposed to be exciting. In fact convention says that the more routine and uneventful the better.

To some, this means that user interaction with a spacecraft control system must necessarily be difficult, intricate and tedious.

We completely disagree. Smooth, automated operation is not at all equivalent to boring, or completely non-interactive.

In our everyday lives we interact with technology that not only works smoothly but has been designed to appeal to our aesthetic sensibilities. This ensures that the user experience starts and remains satisfying. It is only because of a lack of competition and commercial imperative that this trend has scarcely touched the spacecraft operations business.

In the past few years we have invested to develop an underlying telemetry and commanding engine, that gives access to spacecraft monitoring information at the highest levels of performance. Interrelated information can be retrieved and presented to the user immediately on demand.

Our customers and partners have invested to customize user interfaces for their own missions, to a level that begins to approach what we have seen in the movies.

Our approach is not about setting "old-fashioned" against "new", since the best ideas of 40 years ago are still perfectly valid, relevant and fresh. What has changed is that technology today makes it possible for the end user to decide for himself what he considers appealing, modern and relevant to his own missions.

The technology we used was QML (Qt Meta Language) and we would like to show a flavour of what QML makes possible for spacecraft operations.

This brings an interesting possibility: to wrap a monitoring and control system (the "engine") under a fully mission-customized user interface (the "skin") with an appearance and behaviour exactly as the end user or customer desires.