Flexible Acoustic Positioning Systems Architecture

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Abstract

The continuing push to develop oil and gas fields in deepwater, places increasing demands on acoustic positioning systems often installed on several vessels working in close proximity.

Current acoustic positioning solutions involve the use of different systems by different vessels. Whilst maintaining independent operations between vessels, this inevitably leads to an increase in the volume of acoustic signals being transmitted through the water column. In any field development, vessels, very quickly use up the available acoustic bandwidth.

In order to tackle this problem, it is important that we achieve the following:

1. Independence of operations between in field vessels.

2. Precision achievable must be maintained and if possible improved from current systems.

3. Set-up must be possible from DP vessel requiring position.

4. Flexible architecture which allows all current positioning requirements for vessels, ROVs, AUVs, structures, pipelines.

Sonardyne's future systems will use a combination of acoustic signal processing techniques integrated with external navigation sensors such as INS or DVL. These systems will allow several vessels to operate in close proximity with no interference.

These solutions will allow DP vessels to maintain full independence of systems from neighboring vessels, therefore eliminating an element of risk associated with the use of a common reference system. This will also allow any DP vessel to be fully mobile and work anywhere in the world with a dedicated inventory of equipment, without the need for a pre-installed, calibrated and managed seabed reference system.

Sonardyne's future systems will allow more flexible operations and faster setup. These factors combined with those detailed above will enable vessel operators to save valuable time and money.

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