Taking control of real-time systems

Selecting a single well construction data monitoring and aggregation system enables operators to realize greater benefits across the organization.

To date, many operators have chosen to outsource their use of real-time systems by contracting service providers for use of their technology and expertise. This is accomplished by service providers bundling together bottomhole assembly, MWD, logging, and engineering services into a single well offering or a package of wells. The service provider supplies the hardware, software, and tools as well as the experts to set up, monitor, and maintain their real-time system. It is convenient for operators to leverage the technology and expertise already at the well site, but it also presents several questions and challenges.

What risks are introduced by having multiple databases and views of the same data from different service providers? Which system is used to make decisions, and is that consistently applied across the wellsite or organization? What happens to the real-time systems and data after a vendor’s wellsite services are complete?

Utilizing a consistent, enterprise-wide well construction data monitoring and aggregation system can help operators realize greater benefits across the organization. A single solution can promote safer operations, drive more efficient use of technology and human resources, and enable operators to implement standards to optimize well construction across the enterprise. When evaluating the alternatives, there are some key considerations operators should consider to take control of their real-time systems and implement a single solution across their organization.

An enterprise-wide solution

The real-time system must be able to support the entire enterprise. It must have the ability to aggregate and preserve all real-time data that is collected from each provider and present the data in a relevant and actionable format for the engineer, no matter the location. This solution should be able to support all types of environments, including onshore, offshore, and HP/HT, or in hazard areas, and should be deployable at the rig site, in the office, or in a real-time operations center anywhere in the world.

Data aggregation consists of more than an electronic drilling recorder, MWD, or LWD. It involves aggregating data from all collection sources and service providers on the surface and below the surface during all operations required to drill and produce hydrocarbons. It should include drilling data such as torque, hook load, and pit volume, but also geological and petrophysical data being captured from activities like gamma or resistivity logging. To be able to accomplish this, the system must support a variety of data collection standards and formats used by service providers, such as WISTML, WITS, LIS, LAS, OPC, and various forms of ASCII.

In addition to data aggregation, data preservation is important. Real-time data should be captured in a persistent data store that the operator owns and can utilize for compliance records, to feed well planning activities, and...
to improve the next well construction plan.

Real-time data need to be coupled with a digital dashboard to display relevant and actionable data to improve decision-making. The data should be displayable in either raw form or used in calculated values, and the system must have the ability to set parameters and notification options to alert the user when a value is outside what is expected. By turning an indicator red, popping up a notification on the screen, or even sending an email or text message to the appropriate expert, the situation can be assessed and decisions made in real time. Alarms must be able to be set on a combination of data values when certain values or thresholds are reached.

The system should display a wide variety of views depending on the workflow and allow users to move seamlessly within a particular well or across multiple wells. To promote monitoring standards and compliance, the system should provide the ability for management to easily design and enforce the use of operator-established dashboards and workflows across the organization. It also should be scalable to support either a single laptop or mobile device, such as a smart phone or tablet, as well as a large multi-well remote operations center.

Available independent from services
To be considered an enterprise-wide solution, a real-time system should be available independent from any wellsite services a provider offers. An operator needs be able to acquire the real-time system standalone. If it is only available while a vendor is performing wellsite services, it cannot be an enterprise-wide system since an operator cannot use it at a well site where a vendor does not provide service or even at that same well when the services are complete.

A single system allows operators to better leverage engineering expertise across multiple projects and to streamline their real-time operations centers. It also allows management to implement standards across the organization via dashboards that drive desired workflows. Consistent dashboards can promote safety and reduce nonproductive time by making it easier for the engineers to make better decisions and to train new engineers.

Available integrated with services
While some operators may prefer the flexibility to acquire a real-time system standalone, other operators prefer to acquire it bundled with a wide variety of wellsite services. Service providers that have both built their real-time systems and operated them in the field are the most qualified choice for operators that want to outsource their operations center or tightly integrate monitoring while drilling. Singularly focused real-time solution vendors that can aggregate and display real-time data may be able to install and support the hardware and software, but they do not have the deep oilfield experience and tools with unique services integrated with their systems. This requires a service provider that can both unbundle its real-time system as a standalone offer and bundle it with a variety of services, such as experts to staff the operations center, consulting to improve workflows, and directional drilling services for the well that are integrated with real-time systems.

Making a choice
Service providers that can offer a modular approach to address each of these considerations will provide operators with the ability to construct an enterprise-wide solution that can better adapt to changing demands. Halliburton now offers operators a modular approach to building an enterprise-wide real-time well construction monitoring system with the release of the DecisionSpace InSite system through its Landmark Software and Services business line. This enables operators to own the system standalone from any other services Halliburton offers, utilizing the same real-time system the company has been using for more than 15 years at well sites throughout the world.

Halliburton is the first major oilfield services company to unbundle its real-time systems from its services. This both illustrates and helps foster the growing trend of operators wanting to take control of their real-time well construction data monitoring systems to unlock greater benefits across their organization.