## Microsoft Upstream Reference Architecture

#### **Industry Problem**

At any one time, drilling and production engineers at a real-time operations center may monitor as many as 50 or more active drilling or production platforms. These engineers do not lack data; sensors on modern platforms provide more data than they can effectively consume. Instead, they lack the ability to take the wealth of raw data at their disposal and turn it into actionable, meaningful and contextual *information*. Turning this data into information isn't a simple task – it requires validation, cleansing and correlation between multiple readings and then recognition of key patterns and indicators across multiple sensors.

Huge amounts of data and an immense installed base of disparate systems make this task even more difficult. Moreover, the upstream oil and gas industry is challenged to provide engineers and operators with interfaces that support optimal short-term and long-term decision making. Its highly trained professionals need integrated views, oftentimes related to a particular process or production event. Despite complexity, engineers and operators must quickly identify significant process events, their relevant parameters and possible corrective actions.

# Solution Focus: Complex Event Processing

#### Technology used in this Solution

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APAC





# Solution

Complex Event Processing (CEP) identifies meaningful patterns, relationships and data abstractions from among otherwise seemingly unrelated events, deriving complex insights and triggering immediate response actions. Many applications require such event processing to be done with high-throughput and low-latency. A CEP solution is needed that will analyze high speed process data and associated diagnostic information to identify suspect data and recognize critical events that need to be passed on immediately. Call routines "cleanse" suspect data and output the processed data and diagnostic information. Data cleansing can be performed through the use of queries for cleansing routines on data prior to threshold tracking and other output uses, including further computing.

This type of CEP solution leads to better decisions by improving data quality and availability. It applies Guiding Principles from the <u>Microsoft Upstream Reference</u> <u>Architecture (MURA)</u> framework including Real-Time Analytics, Complex Event Processing and Self-Serve Business Intelligence to enable Role-Based Productivity & Insights – all based on a Secure, Scalable, High-Performance Infrastructure. As a result, operators can maximize recovery and revenue while improving safety. Analysts also have reference data at hand to inform real time decisions and can include valuable insights in the complex calculations that impact the quality of the business outcomes

# **Applied MURA Guiding Principles**

inciples applied in this Solutior	llar	Principal Pi		
Real-Time Analytics, Complex Event rocessing, Self-Serve Business Intelligence	d nsights	Role Based Productivity & Insights		
Smart Connected Devices	er e	Natural User Experience		
Collaboration & Knowledge Sharing	•	Social Enterprise		
Industry Standards, Workflow	d	Connected Business		
Secure, Integration, Domain Specific Infrastructure	, High- ce re	Secure, Scalable, High- Performance Infrastructure		
Russia United States Western Europe	MEA	LATAM	Europe	

### Geographies with local Partner support







# **Applications in This Solution**

#### Accelerators for StreamInsight; Real Time Data Management Team

CGI's Accelerators for StreamInsight enables rapid development and deployment of new applications built on Microsoft StreamInsight, cutting development time by three to six months and leveraging the experience and expertise of CGI's recognized technology experts. Our accelerators come with over 30 prebuilt adapters and full integration with OSIsoft's PI system. Integration with other systems is enabled via input and output adapters built on open standards, including WCF and OData, allowing realtime analytics to be seamlessly integrated into existing business process systems. For dashboards and visualization, we provide a set of client components designed to make it easy to incorporate streaming, real-time data in rich WPF, Silverlight or HTML 5.0 interfaces. CGI's Accelerators also provide a configuration-driven approach to deployment and management and include tools for configuring, managing and monitoring your running applications.

By using StreamInsight with CGI's Accelerators, oil & gas operators can develop CEP applications that derive immediate business value from this raw data by reducing the cost of extracting, analyzing, and correlating the data; and by allowing you to monitor, manage, and mine the data for conditions, opportunities, and defects almost instantly.



#### **Case Studies**

None Public	None Public
None public	
Resources	
White Paper: Event-Driven Solutions for the Oil and Gas Industry	

## **Technologies Used**

#### Microsoft

- Microsoft StreamInsight
- Microsoft .NET Framework
- Microsoft SQL Server
- Microsoft Windows
- Microsoft SharePoint
- Microsoft Bing Maps



