Accelerating Workflows for the Oil & Gas Industry
Optimizing exploration, development and extraction processes with Ultimate X

BENEFITS

- Optimization of exploration, development and extraction workflows with strategic choice to access data in-place or transfer it only if needed

- CAPEx/OPEx savings through interoperability with and enhanced utilization of existing compute, storage and network resources

- Copy sprawl reduction and data sovereignty with access to data in-place

- Flexible deployment options with rack mount, rugged and travel case form factors

- Streamlined maintenance through a unified data platform across sites versus point products for a specific purpose

Challenges

Whether to study the potential of an oil well before allocating resources to drilling one or to monitor an existing well's performance, the Oil & Gas industry handles PetaBytes/ExaBytes of data related to seismic surveys, geological sub-surface structures, historical logs, well production databases, drilling/ testing results, and more. All this data is captured from remote, geographically dispersed sensors. Bringing this data from the field to central data processing sites for Big Data Analytics or making it available to a distributed workforce of petroleum engineers, environmental experts, software programmers, etc., is critical for the Oil & Gas industry. With expedient geo-diverse data collection, distribution and processing, the operators and service providers can ensure the viability of a well during the exploration phase before the expensive development and extraction phases. Sharing this information near real-time can facilitate a faster and more accurate decision-making paradigm.

In real deployment, all of these sensors, collection centers, data centers and experts are connected across long distances and data needs to be transferred or accessed over WAN links, including satellite links, to assure more efficient and precise work flows. Traditional solutions of WAN optimization and Extreme File Transfer (EFT) offer limited performance and scalability while only providing a point tool to move the data, but not to access it in place. TCP/IP-based WAN optimization techniques enhance existing protocols and pre-process (e.g., compression, de-duplication, etc.) the data without addressing the inherent WAN limitations. Most EFT solutions use UDP-based protocols to improve performance but require software distributed throughout the environment to handle data movement and error recovery. This method dictates workflows based only on file movement, leading to copy sprawl and increased operational expenditures.

The Vcinity Solution

Vcinity™ empowers enterprises to unleash the value of their distributed data assets across secure networks by providing faster, efficient access to or transfer of virtually any data, anywhere, any time. Vcinity's technology maximizes compute, storage and network infrastructure by accessing data without needing to move it at all. It transfers data only if the use case (e.g., data migration or backup) demands it, thereby reducing copy sprawl and enhancing data security. Unlike conventional solutions, it does not pre-process data, so complete integrity of the source data is maintained. It also delivers predictable and consistent performance without sensitivity to data patterns.

Vcinity's Ultimate X™ (ULT X) solution leverages proven and highly efficient network processing technology and tightly integrates it with High Performance Computing (HPC) technologies and a robust management

system (Command X™) along with file management (Access X™) and file synchronization (Sync X™) software. Using standard network folders and/or storage shares, ULT X provides a global federated data platform across enterprise and cloud environments to efficiently unite applications across any distance. This addresses the common challenges of geographically dispersed data: volume, location, performance and end-user experience. Available in rack mount, rugged and travel case form factors, ULT X provides flexibility of deployment over local, regional or global networks.

For the Oil & Gas industry, Vcinity's solution can enable various use cases such as Big Data Analytics, interactive 3-D/4-D renderings of the subsurface structures, remote access to large amounts of historical well performance data for processing (without moving or replicating it) and visualization of remote simulation data for a distributed workforce. Such expedient geo-diverse data collection, distribution and processing enable the viability of a well during the exploration phase. Near real-time access or transfer of well performance data to a

central processing site can optimize well performance during the extraction phase. Taking distance out of the equation, ULT X provides access to data in-place to enable data sovereignty and faster and efficient transfer of large datasets over terrestrial and satellite links to avoid shipping disks from remote locations.

Key Performance Indicators

The ULT X solution recently showcased its scalable performance by transferring 1 Petabyte in less than 24 hours over a 100Gbps fiber link across 3,000 miles. ULT X has also demonstrated dramatic data transfer time improvement—2 to > 8x—compared to the existing method for satellite links of 5/10/100Mpbs capacity at 530ms latency. In addition, ULT X shows viable Hadoop performance across a globally distributed cluster for distances up to 10,000km. Vcinity's solutions essentially remove the distance barrier resulting in accelerated speed to decision and scaling performance at the pace of data explosion.
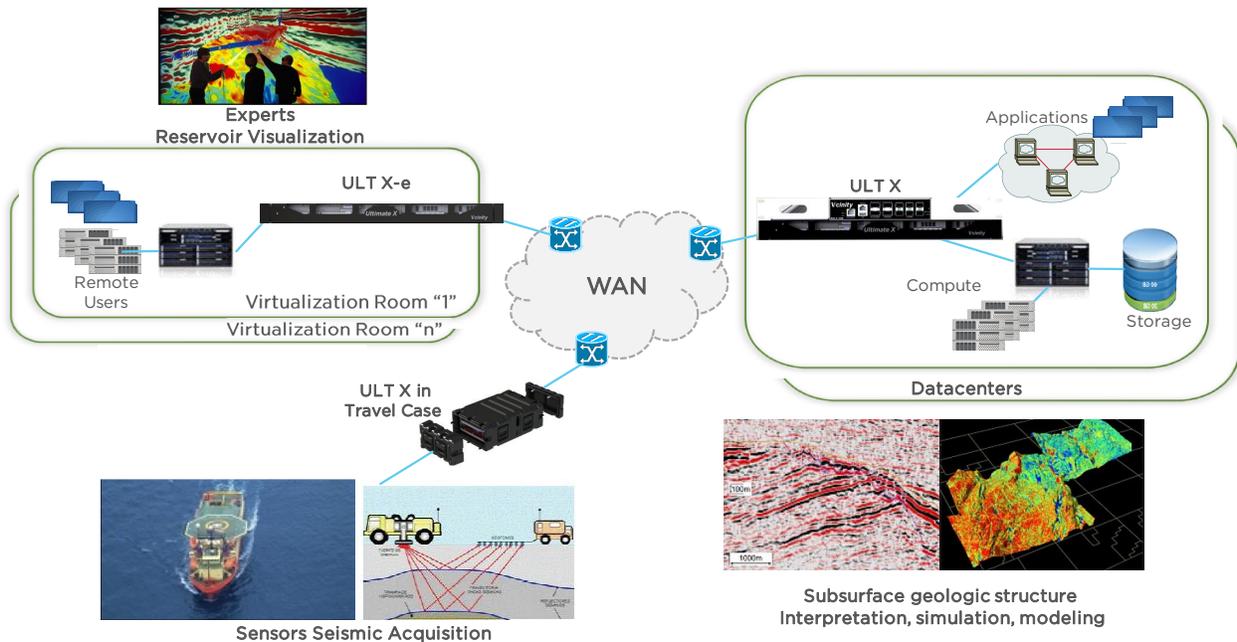
https://www.vcinity.io/ultimate/

Figure 1. Oil & Gas Use Case with ULT X