



Turbulent Flux

CLIENT VALUE EXAMPLES

Sumitomo Australia

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A real-time understanding of the flow in wells and pipelines facilitates production optimization and enables our clients to operate their assets optimally, at all times.

Increased hydrocarbon production:

- Optimize individual wells to maximize total production (e.g. production choke/gas lift settings)
- Avoid flow instabilities and production upsets (e.g. avoid downtime due to separator flooding)
- Limit deferred production due to well testing
- Optimal utilization of available resources (e.g. lift gas allocation and chemical dosage)

Reduced carbon footprint:

- Avoid unnecessary flaring and venting of gas
- Reduce energy consumption

Reduced CAPEX:

- Significant reduction of test separator capacity
- Reduce the size of slug catchers (assess and manage operations to limit surge volumes)

Reduced OPEX:

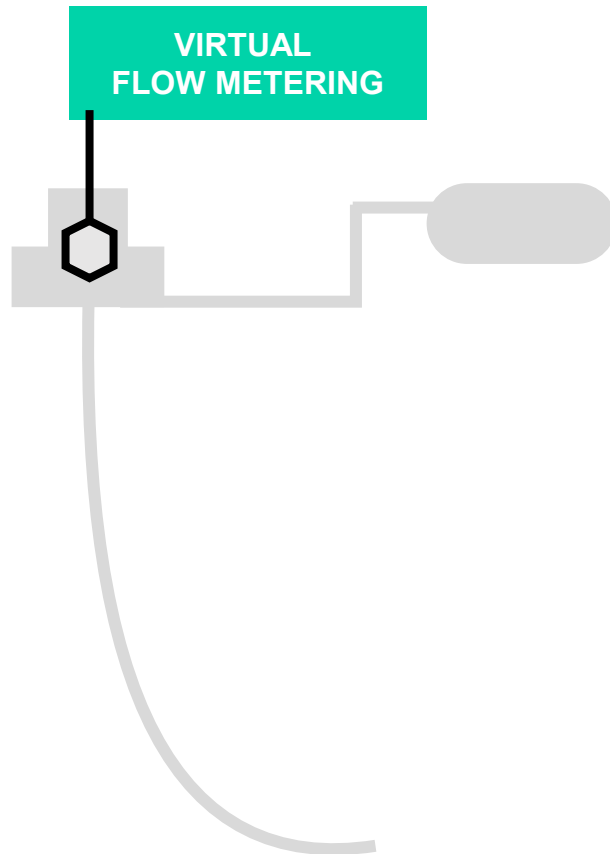
- Reduced pigging frequencies (liquid management and solids removal)
- Reduced amount of chemicals (purchase cost and processing)

Increase production by pro-actively avoiding sub-optimal operations, intolerable operating conditions and operational upsets.

Operate closer to facility capacity limits, fewer disruptive operations, increase production, reduce production losses and operational costs.

Asset-wide optimization on any KPI's to reduce energy consumption and use of limited resources whilst increasing total production and return on investment.

VFM EXPERIENCE



3-phase fluids:

Both gas and oil wells

Oil wells from low to high water content

Types of fields:

Onshore conventional

Onshore unconventional

Offshore conventional

Types of reservoirs:

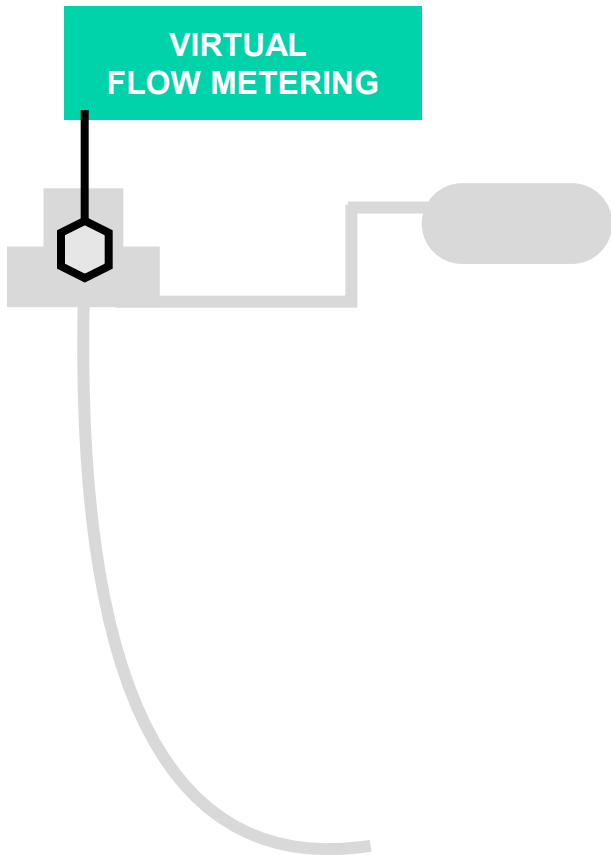
High to low permeability reservoirs

chalk, sand, shale, carbonate

Types of artificial lift:

Gas lift and Electric Submersible Pumps (ESP's)

OFFSHORE NORWAY



Value Example 1:

Increase production output

How?

Real-time insights in oil, gas, and water flow rates enable timely production actions. Actions may involve changes to gas lift rates to increase or maintain production.

Value Example 2:

Act faster to anomalies

How?

Detect well integrity issues or scale deposits in the flow path at an early stage to implement corrective actions

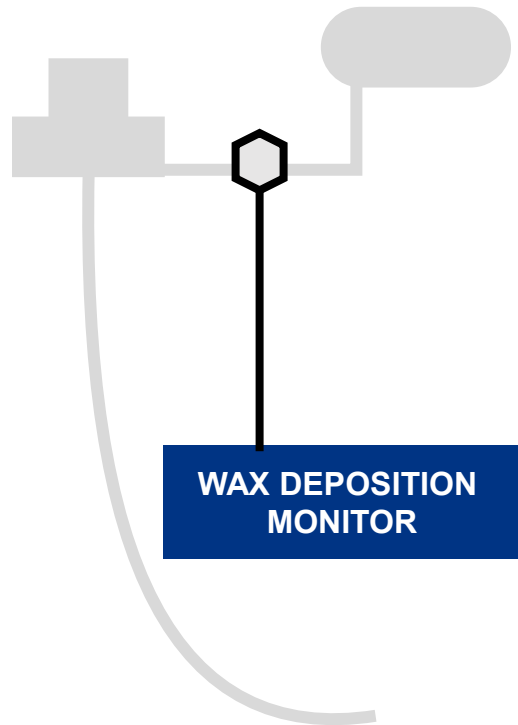
Value Example 3:

Prevent reservoir-to-well damage

How?

Real-time estimates of flowing bottomhole pressures add insights to optimize drawdown and prevent inflow of solids. Excessive sand may also wear down chokes and cause production downtime.

OFFSHORE MALAYSIA



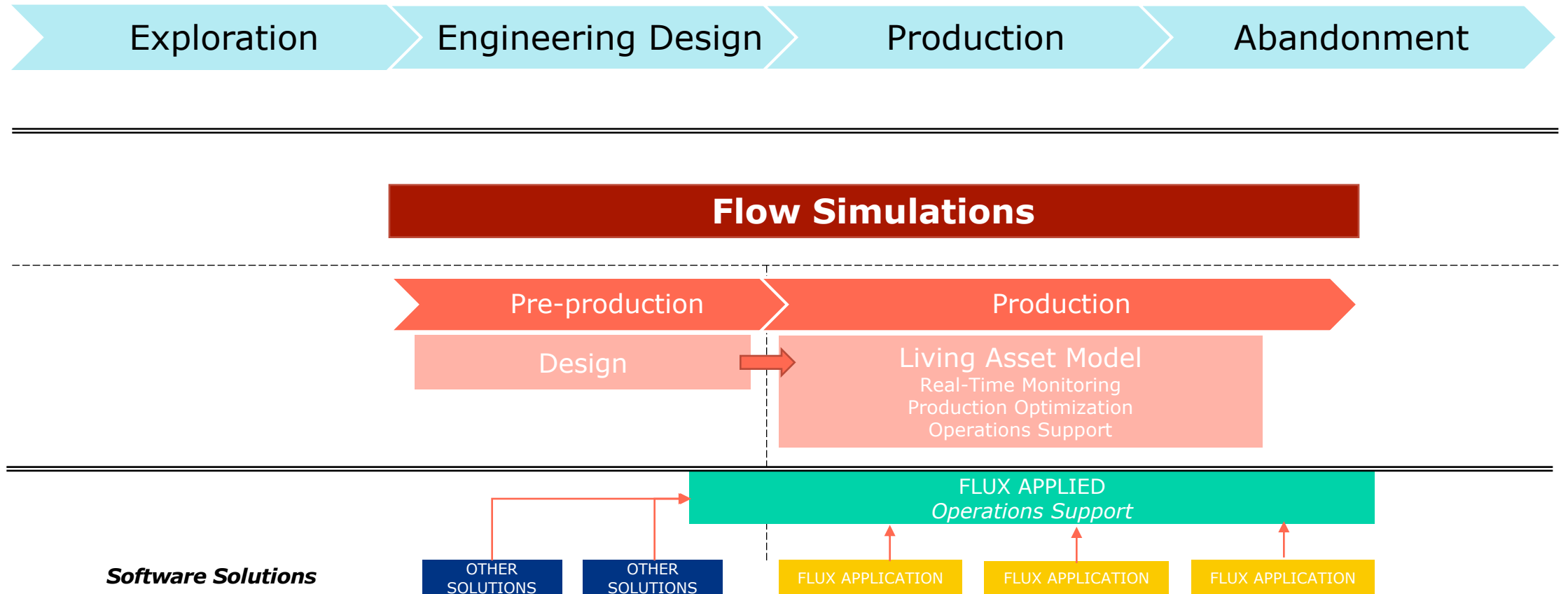
Value: reduce pigging frequency for wax removal by 50%

How?

Estimate wax deposition along the pipeline in real-time to change from pigging at set intervals to pigging when needed.

**Estimated savings per pipeline:
OPEX: 1.1M US\$/Year**

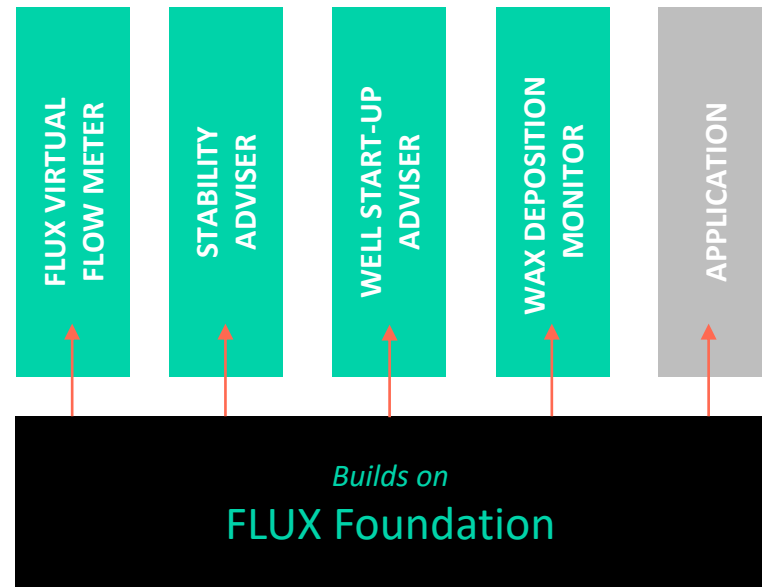
Lifecycle for production systems



FLUX Solutions

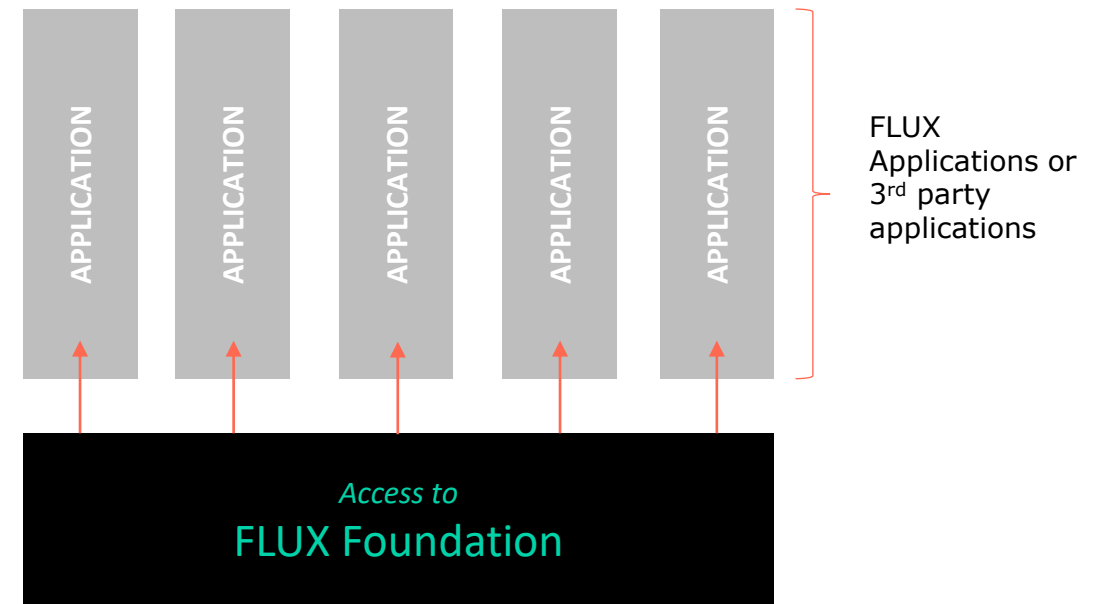
FLUX Applications

Out-of-the-box real-time solutions



FLUX Applied

Customized solutions with open integration



Key selling points

Scalability

Rapid deployment with an all-inclusive subscription business model

Auto-calibration

Most accurate predictions at all times without human intervention

FLUX Applied

Seamless access to calibrated models to facilitate rapid response for operations support