



CONNECTED PERFORMANCE SERVICES

Cloud-based Service to Monitor, Predict, and Improve Plant Performance



A Roadmap to Peak Performance

In spite of the oil and gas industry's fluctuations, the need to meet revenue and profit targets remains a constant for operating companies worldwide.

As a result, refiners and petrochemical producers are scrutinizing the performance of their facilities – looking for ways to operate faster and more efficiently.

In such scenarios, it is critical to have a clear viewpoint of your facility's operations, existing problems and prospective challenges – so that you have a mitigation plan in place to address these concerns before they can occur.

Honeywell UOP offers Connected Performance Services (CPS), a suite of cloud-based services that enables you to close these performance gaps using big data analytics and machine learning to deliver expert recommendations and optimal operational insights. Our world-class service portfolio for improving and enhancing plant performance can result in increasing your profitability by over \$0.30-0.50/bbl in Refining and \$10-20/MT in Petrochemicals.

An Unobstructed View Of Your Facility's Operations

CPS is the 30,000 ft. view of your plant's operations that illustrates to you the means to operate at the highest potential – every day. Built on UOP technology and proven operational best practices, CPS provides you with the opportunity to improve profitability by addressing key challenges such as:

- **Underperforming Assets:**
Mitigates sub-optimal operations and allows you to benchmark performance.
- **Unplanned Downtime:**
Data analytics identify patterns that reliably predict future events, giving you the tools to detect and prevent abnormal situations plus improve maintenance planning.
- **Human Capital Challenges:**
Reduces knowledge gaps and improves operational excellence.
- **Better Manage Energy and Emissions:**
Helps meet emissions standards and reduce energy consumption.



CPS Solutions For Your Facility

Process Reliability

CPS's Process Reliability Advisor assesses your unit's operation and process constraints using key process indicators built from UOP's process models and operational experience. The service also provides early event detection to diagnose and mitigate issues, using embedded cause-and-effect relationship models. With this level of insight, you can improve process reliability – which means your production yields, equipment health and other parts of your facility can operate with the greatest efficiency.

Optimization

The Optimization Advisor by CPS provides operational recommendations to enable you to fully utilize your assets. Using UOP process models that are tuned to match your operation and constraints, and configured with your current economics, the service completes rigorous simulation that provides an optimal set of operating conditions. The recommendations are backed by UOP expert analysis and ongoing follow-up to ensure sustainable and consistent performance throughout.

What-If

The What-If service allows users to manually modify certain conditions to be run in the tuned CPS engine that matches your current operation and process and equipment constraints. It provides you the necessary insight prior to making the operational change, such as feedstock quality, to best suit the performance and economic impact.

How CPS Works

CPS is enabled by an extensive library of operating models, best practices, and software expertise. We draw on more than a century of experience in groundbreaking catalytic science, process technology and hydrocarbon management – and advanced software designed for the oil and gas industry. Together, they make it possible to anticipate and correct plant anomalies and underperformance.

Here's How:

- Data is constantly captured from your facility and fed into UOP's secure cloud.
- In the UOP cloud, your data is processed in advanced data cleansing routines, and the CPS solution-specific performance calculation engine to estimate performance and analyze your operation.
- The results are communicated through a secure, user-friendly dashboard that delivers operating recommendations to the user – anyone from the unit engineer to the owner.
- Ongoing UOP collaboration is provided by a dedicated CPS specialist who will work with you to implement CPS recommendations.



CPS Solutions At A Glance

Industry	Process Technologies	CPS Solutions	Key Features
Refining	Including: Platforming™, FCC, Hydrocracking, Penex™ & Par-Isom™ Technologies	Process Reliability	<ul style="list-style-type: none"> Displays high-level KPIs such as production & quality, operation, capacity limits, and catalyst health Tracks performance across the unit, for example for FCC units will monitor the Reactor/Regenerator, Main Column, Gas Con and other key areas Embedded with over 200 potential faults per technology
		Optimization	<ul style="list-style-type: none"> Configured to your as-built units, for example Naphtha Complex units including the Naphtha Hydrotreating, CCR Platforming, and Penex or Par-Isom units Delivers operational recommendations Optional to add-on What-If
		What-If	<ul style="list-style-type: none"> On-demand input of alternative feed compositions and operating severities Highlights potential economic impact and the necessary operational changes to continue to make production targets
Petrochemicals	Including: Aromatics Complexes and Oleflex™ Technologies	Process Reliability	<ul style="list-style-type: none"> Displays KPIs such as production & feed and energy consumption, operation, capacity limits, and catalyst health Embedded with over 200 potential faults per technology Potential integration with CPS solutions for CCR Platforming units for Aromatics Complexes
		Optimization	<ul style="list-style-type: none"> Underlying model based on your as-built configuration including all units within Olefins or Aromatics Complex Provides recommendations to maximize production, balance energy usage, and more Optional to add-on What-If
		What-If	<ul style="list-style-type: none"> Focus on alternative feed compositions and economic information for Aromatics Complex On Oleflex units compares current estimated catalyst life to the case at alternative operating severity and provides profitability impact based on potential catalyst reload timing
Gas Processing	UOP Gas Plants	Process Reliability	<ul style="list-style-type: none"> Display of KPIs to monitor production rate, product quality, energy usage, and equipment limitations Embedded with over 100 potential faults

Always Improving

The CPS cloud approach enables us to continuously improve our solutions, giving you access to our most advanced thinking. When you work with CPS you also benefit from UOP maintaining the full cloud infrastructure including on-going model maintenance and tuning, software updates, etc so you can focus on achieving peak performance.

Decades of advanced research and operating experience have enabled us to consistently provide the smartest solutions to oil and gas operators around the world. This cloud-based solution leverages **Honeywell's Industrial Internet of Things (IIoT)** approach to transform your business through innovation, experience and technology.



For More Information

To learn more about Honeywell UOP's Connected Performance Services (CPS), visit www.UOP.com/CPS or contact your Honeywell UOP representative.

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