ABB Ability™ Performance Optimization for control loops
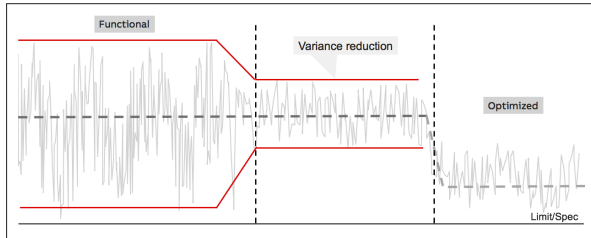## Improve and sustain control process performance

ABB Ability™ Performance Optimization for control loops identifies, classifies and prioritizes control loop improvement opportunities. Using non-stop data collection and analysis to transform raw data into actionable information, the Performance Optimization for control loops service quickly identifies troublesome loops, leading to reduced process variability, increased availability, improved product quality and higher throughput.

Features	Benefits
Continuous analysis of Key Performance Indicators (KPIs)	Accelerates problem-solving through 24/7 visualization and analysis of control loops
Automatic, non-invasive data gathering	Increases availability and utilization through reduced process variability
Configurable alerts (via email or text) are supplied when KPIs are outside site-specific thresholds	Lowers maintenance, raw material and energy costs through quick identification of process errors or trends
On-site or remote access for customer and ABB support personnel	Reduces response time and travel expenses by providing remote access to ABB experts
Regular performance analysis by ABB experts identifies issues, finds trends and recommends performance improvements	Establishes a solid foundation for continuous improvement, including higher availability, increased production and improved quality

Reduce process variability
Continuous monitoring and analysis KPIs

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01 Performance Optimization for control loops helps process industries get the most value from their automation assets by finding and applying the best tuning parameters.

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02 Performance Optimization for control loops data analytics screen shows how Key Performance Indicators (KPIs) are displayed so that service engineers quickly understand what issues must be addressed to ensure high equipment and process availability. Issues are identified, categorized and prioritized (as demonstrated by the Pareto-style displays under each indicator), so that service engineers know what to look at first. This means that service engineers with varying experience can address issues that impact important plant KPIs such as Overall Equipment Effectiveness, and even be proactively notified via text or email message when KPIs exceeds thresholds.

Scheduled monitoring and analysis to quickly identify performance issues

Performance Optimization for control loops service is accessed through a service delivery platform conveniently deployed on any control system at your location. Data is viewed through a web-based user interface that is easily accessible by customer or ABB personnel.
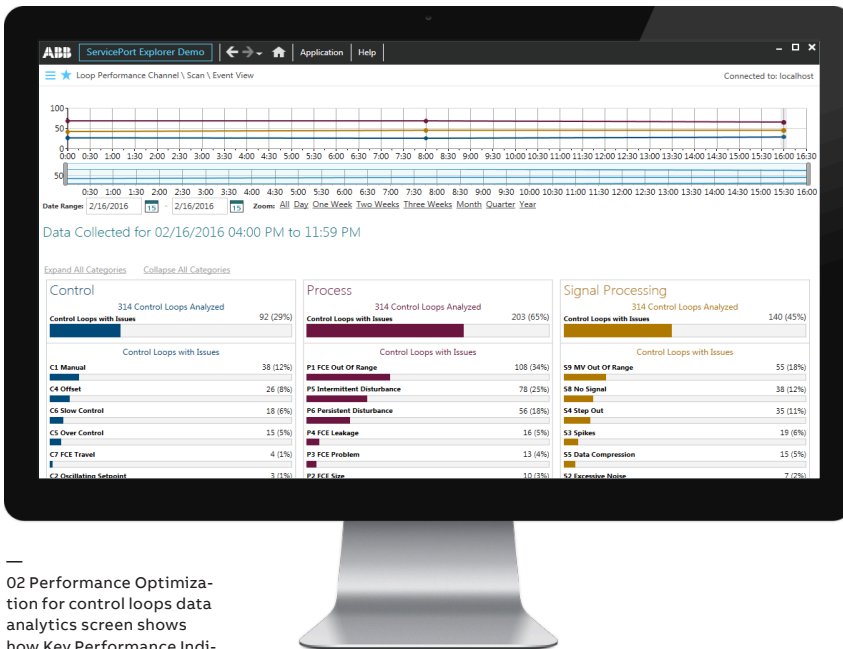
This service continuously analyzes data to greatly reduce the time and effort needed to identify loop volatility. Data is classified based on specific KPIs to provide a list of issues that are then prioritized based on severity, process area, criticality and/ or financial impact. Problem areas are isolated and disturbance sources, such as dead time, inverse response and outliers, are identified. This analysis helps find the root cause of the problem and trend performance history more accurately, providing actionable information that will reduce process variability.

More accurate troubleshooting with configurable KPIs

With the Performance Optimization for control loops service, the best tuning parameters are found by monitoring KPIs for the following categories:

- **Control:** To keep the error at or near zero, the output of the controller is analyzed to find the source of out-of-sync measurements, such as incorrect tuning parameters.
- **Process:** To confirm that the valve or final control element (FCE) to the process is correct, repeatable and predictable, disturbances such as process changes or FCE failures are analyzed.
- **Signal processing:** To ensure that the measurement to the controller is as clean as possible, factors such as outliers or calibration are monitored.

View, analyze or receive alerts
on control process performance
Performance Optimization for control loops service

Simplified view of data and analysis

Access to and visualization of KPI data is provided through Explorer views. This easy-to-use interface provides three separate views of the data:

• Raw data allows you and ABB service experts to view data associated with control, process or signal processing.
• KPI analysis presents a summary of KPIs, ranked by severity, that are outside set limits (Figure 2).
• KPI monitoring empowers you to specify your own set of rules for KPIs and displays each occurrence that falls outside a threshold.
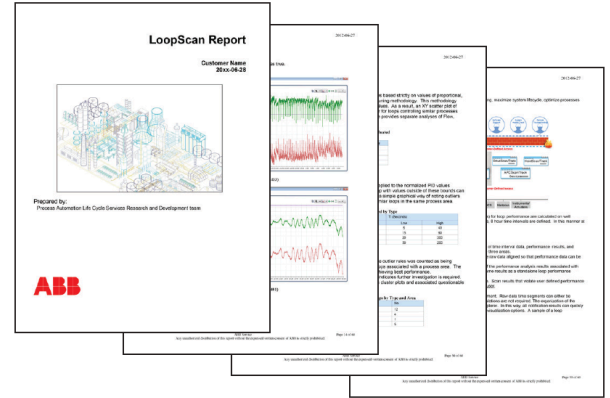
Expert analysis helps detect potential problems

To ensure optimal control loop performance, ABB provides periodic performance analyses. ABB experts evaluate control loop response, determine the statistical accuracy of the KPIs and find trends that predict possible irregularities. The resulting performance report identifies actions that will prevent potential problems and improve process availability and asset utilization (Figure 3).
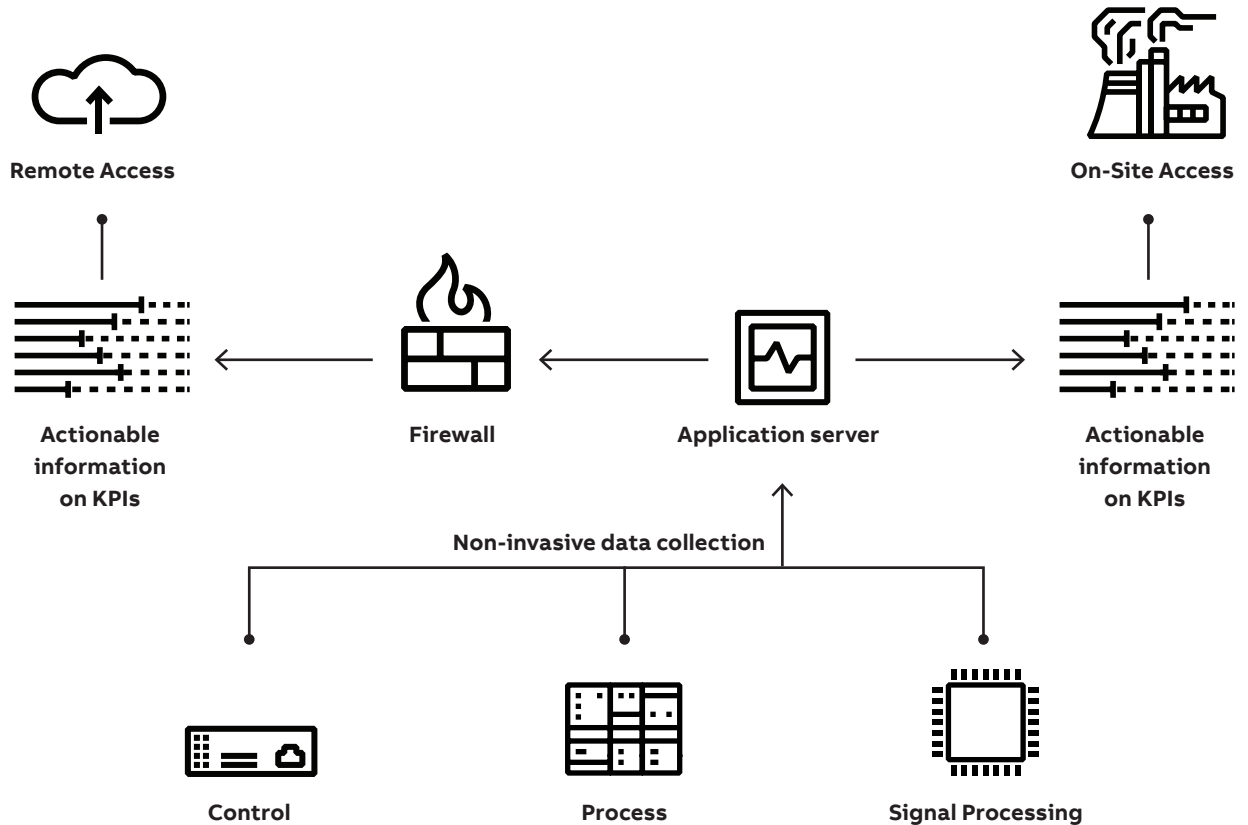
Critical notification when it matters most

To help prioritize issues that require immediate action, site specific rules are applied to targeted KPIs. Any KPI that tracks outside of pre-determined parameters triggers an instant alert by email or text. This quickly notifies users about issues that can compromise system availability, so they can be addressed as soon as they are detected.

Secure connection for delivery of ABB services
On-site or remote access for customers and ABB

Remote Access

On-Site Access

Actionable information on KPIs

Firewall

Application server

Actionable information on KPIs

Non-invasive data collection

Control

Process

Signal Processing

Application Server

ABB Application Server is a remote-enabled, service delivery platform that provides a custom, secure connection to ABB services and experts. Deployed at a customer location, it enables delivery of local and remote services and provides customers and ABB service experts with a real-time view of KPIs and diagnostic and system data (Figure 4).

Advanced Digital Services are available for:

Assets
1. Control systems
    800xA
    Advant
    Freelance
    Harmony
2. Low-Voltage drives
3. Mine hoists
4. Rotating machines

Processes
1. Control loops
2. Quality Control Systems (QCS)

Risk mitigation
1. Cyber security for control systems
2. Alarm Management for control systems

https://new.abb.com/process-automation/process-automation-service/advanced-services

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