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Control Performance Analytics (CPA)

Efficient plant optimization with automated control loop analysis

The challenge

As industrial process applications grow in complexity, production management goals for process safety, flexibility, and product quality become ever-more ambitious. To manage this situation, more transparency is needed to detect potential for optimization and process fine-tuning.

In process industries, control performance is vital for reaching production targets. The single control loop is the initial core for each process application. Studies show that about half of all control loops are not well tuned, whether this is due to non-optimum parameters, primarily manual operation, oscillating controlled systems or mechanical issues with the control valves.

In addition, process engineers in large-scale process plants are typically in charge of hundreds of control loops. The evaluation of control performance across various process states in correlation with alarms requires a lot of time and expertise. Detecting possible areas for optimization and tuning control loops is not a one-time job, due to continual process changes and wear and tear on equipment.

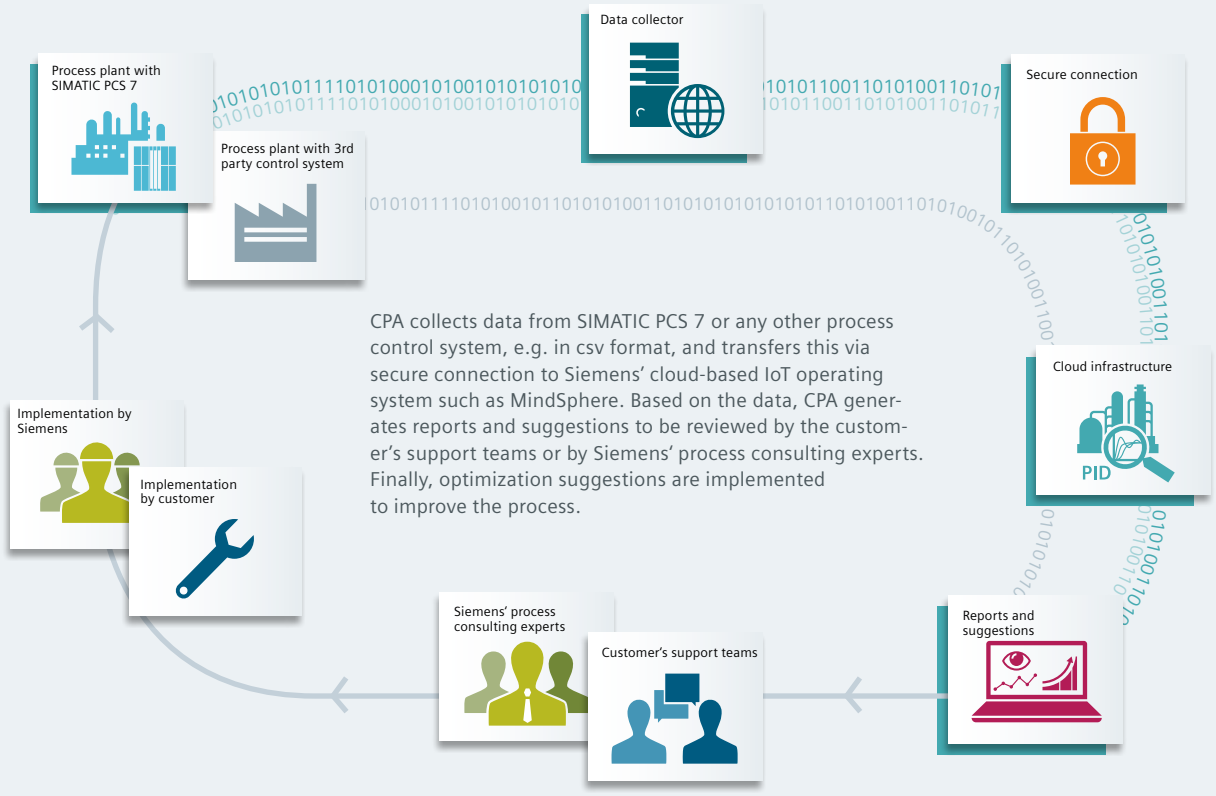
The solution

CPA is a cloud-based managed service, enhancing transparency of process data and control loop optimization. Collection and analysis of plant-wide information gives the customer full control over data. Identification of control loop states is based on automatic KPI (key performance indicators) calculation, capable of identifying setpoint tracking, steady state problems and even static or sliding friction in process valves. The application also allows automated calculations of new parameter sets for tuning the control loops without impeding plant operations.

Benefits of control loop optimization

- Increased product quality due to lower fluctuation in process variables
- Maximized equipment lifetime due to reduced variability in actors
- Improved set points raise throughput by going closer to the limits
- Resource savings thanks to improved set point tracking behavior (e.g. energy, raw material)
- Reduced manual mode of control loops allows overlaying control optimizations such as Advanced Process Control
- Less alarms and fewer operator interaction reducing operators' workload

Functional architecture of CPA as a cloud-based managed service



Plant-wide transparency

with hierarchical plant overview, from management view to single control details for Siemens SIMATIC PCS 7 and other DCS.

Automatic state detection and KPI calculations

like messaging behavior, service factor, steady state accuracy, set point tracking and static friction probability for various control states

Improved plant asset performance

and identification of optimization potential as a result of correlating process data automatically with possible asset problems.

Cost benefits

due to long-term process optimization and flexible managed service approach – pay only when you use the application.

Fast setup

and intuitive interface enabling customer to use the application without extensive training.

Open, cloud-based IoT operating system

CPA is part of our Asset and Process Performance Suite for industrial applications and advanced analytics.

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