PGP Benchmark and Fingerprint
Sales presentation
PGP Benchmark and Fingerprint Contents

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  - Motivation
  - What it is
  - Examples
  - Delivery
  - Value proposition
  - Customer benefits

- Part 2:
  - Customer engagement
  - My Control System
  - Diagnose, Implement, Sustain
  - Summary
Control systems are robust by design and development and therefore tolerant towards occurring issues.

Non-optimal system settings and conditions often do not cause incidents immediately, but might result in disturbances over time.

Cumulative effects of revisions, additions, and adjustments may degrade system performance.

This may result in unpredictable control system operations or unplanned downtime.

Degradation of system performance may go undetected without continuous diagnosis and analysis.

Therefore tools and services are required, which are capable to benchmark system performance and detect anomalies.

In addition, the maintenance staff expects a diagnostic service with recommendations to rectify the detected issues and return the system in balanced, optimal operating condition.
# PGP Benchmark and Fingerprint

## Customer motivation

<table>
<thead>
<tr>
<th>KPI</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity</td>
<td>Maintain production at expected level</td>
</tr>
<tr>
<td>Availability</td>
<td>Early detection, and fast resolution, of system degradation to avoid down-time</td>
</tr>
<tr>
<td>Performance</td>
<td>Keep system performance at expected level and enhance system features to increase performance</td>
</tr>
<tr>
<td>Quality</td>
<td>Ensure the system contains the latest product updates</td>
</tr>
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</table>
How do I know …

… that my control system is running as well as it should?
… if there are no underlying issues that might lead to a disruption?
… that my control system fulfills defined system benchmarks?

- Control system **Health Checks** are non-invasive services based on state-of-the-art software tools which simplify complex diagnostics and reporting
- Configuration and lifecycle parameters are read from the installed system and compared to requirements and best practices

- **Benchmarks**
  - Show the system status and highlight deviations and potential risks

- **Fingerprints**
  - Provide a comprehensive understanding of the current system availability and reliability and recommend corrective actions as needed
PGP Benchmark and Fingerprint
What it is

- Benchmarks and Fingerprints are services aimed to assess the health and status of a system

- Data Collection:
  - Tool for system data collection, installed on-site
  - The data collection files are transferred to My Control System (MCS) of ABB

- Analysis & Reporting:
  - **Benchmarks**
    Show the system status and highlight deviations and potential risks
  - **Fingerprints**
    Provide a comprehensive analysis of the current system availability and reliability and recommend corrective actions as needed

- **MCS** provides the **customer web portal** for easy access to system information as well as reports
PGP Benchmark and Fingerprint Features

**Features**
- Analyzes most relevant system parameters and KPI's
- Automatic data collection
- Automatic data analysis
- Automatic report generation
- Analyzes most relevant system parameters and KPI's
- Provides a comprehensive understanding of the current system performance and reliability and recommends corrective actions as needed

**Results**
- Shows the system status and highlights deviations and potential risks
- Traffic light assessment
  - good
  - ambiguous
  - incorrect
- Detailed description of findings incl. executive summary
- For each finding:
  - Explanation
  - Impact
  - Severity
  - Recommendation
  - Documentation Reference

**Benchmark Report**
- Status Overview

**Fingerprint Report**
- Detailed Report with recommendations
What we might see through long-term observation:

- System overload causing slow response rate
- Gradual performance degradation, not diagnosed or resolved until issues arise
- Issues arise sporadically which are difficult to diagnose
- Hardware devices glide slowly towards unavailability
- Redundancy problems create single points of failures
- Unavailability of operational features due to gaps in software updates
- Security vulnerabilities due to obsolete software updates
PGP Benchmark and Fingerprint
Monitored parameters at Operations level (HMI)

- Software
  - Microsoft SW (*)
  - Security updates (*)
  - 3rd-party SW (*)

- Hardware
  - Graphics HW
  - Hard disk
  - File System
  - CPU
  - RAM

- System
  - Time Synchronization (*)
  - Regional settings
  - Auto-start processes
  - DC diagnostic
  - SiDs
  - Processes
  - Connectivity logs
  - Service states
  - Licensing
  - Event logs
  - Runtime data (Queues, Links, etc.)
  - Registry

- Network
  - DNS name resolution
  - Registration in DNS
  - Discarded packages
  - NetBios
  - Throughput
  - Binding order
  - Network card config
  - Host files

(*) KPI not yet included in v1.0
PGP Benchmark and Fingerprint Example Benchmark

- Shows the system status and highlights deviations and potential risks
- Traffic light assessment
  - good
  - ambiguous
  - incorrect

<table>
<thead>
<tr>
<th>No.</th>
<th>CheckItem</th>
<th>PGP33</th>
<th>SWED1</th>
<th>SWED2</th>
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<td>OpeClient</td>
<td>G</td>
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<tr>
<td>23</td>
<td>ici</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

Legend:
- Checks Passed
- Checks passed with Warning(s)
- Checks with Failure(s)
- Not Applicable

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4 Technical Findings Checklist

Description for the Checklist: Each point in the checklist is controlled at the fingerprint service. The column “Outcome” gives an indication of where we have discovered anything.

- **OK** = No problems found, but a comment may occur.
- **Remark** = May lead to problems later on.
- **Problem** = Problems that should be corrected.

Navigating the Technical Summary: Click the link to the corresponding section you want to see ex 3.1 then to go back just click on (Checklist).

<table>
<thead>
<tr>
<th>Queue Status</th>
<th>Outcome</th>
<th>Done?</th>
<th>Link to Chapter</th>
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<td>Scan Queue</td>
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<td>Net Queue</td>
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<td>OPC Queue</td>
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<td>Correct mapped OPC atoms</td>
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<td>PGP Runtime Components</td>
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- Detailed description of findings incl. executive summary
- For each finding:
  - Explanation
  - Impact
  - Severity
  - Recommendation
  - Documentation
  - Reference
PGP Benchmark and Fingerprint
Benchmark generation and delivery

“My Control System”
Customer web portal

ABB Service

Customer system

1. Data collection
2. Data upload to MCS
3. Benchmark generation
4. Customer can access the Benchmark Report

MCS: My Control System
PGP Benchmark and Fingerprint
Fingerprint generation and delivery

“My Control System”
Customer web portal

ABB Service

Customer system

1. Data collection
2. Data upload to MCS
3. Fingerprint generation
4. Fingerprint customization
5. Introduction to Customer

MCS: My Control System
## PGP Benchmark and Fingerprint Summary

<table>
<thead>
<tr>
<th>Value proposition</th>
<th>Customer benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Identify root cause and corrective actions before and after detection of system issues</td>
<td></td>
</tr>
<tr>
<td>- Use Benchmarks for frequent, low effort system verification</td>
<td></td>
</tr>
<tr>
<td>- As one-time service, e.g. before system delivery by ABB or system integrator</td>
<td></td>
</tr>
<tr>
<td>- <em>My Control System</em> as customer web portal</td>
<td>- Detection of hidden system degradation before problems occur</td>
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<tr>
<td></td>
<td>- Adopt a proactive maintenance strategy</td>
</tr>
<tr>
<td></td>
<td>- Extend the life of the control system</td>
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<td></td>
<td>- Take advantage of new technology</td>
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<tr>
<td></td>
<td>- Customer web portal for customized access to their system data and reports</td>
</tr>
<tr>
<td></td>
<td>- Use Health Checks to prepare an Evolution plan</td>
</tr>
</tbody>
</table>

Can we handle this through a single web portal, having easy access to our control system assets and all related services?  

Yes!  

*My Control System*
Customer engagement
PGP Benchmark and Fingerprint
My Control System – access point for all customers

- Contact persons and addresses
- Safety Reports and Product Alerts
- Cyber Security info
- Available trainings
- The subscriptions and SW licenses of the control system in terms of:
  - Scope of licenses
  - Expiry dates
  - License keys
PGP Benchmark and Fingerprint
My Control System – for lifecycle program subscribers

- Benchmark reports
- Direct access to
  - SW updates
  - Specific technical information
- User documentation
- Cyber Security premium
- File sharing
- Web Tech Talk
- Fingerprint reports
PGP Benchmark and Fingerprint
Customer engagement process

A three-step process:
1. Diagnose:
   - Identify existing system reliability issues
2. Implement:
   - Deliver identified improvement services
3. Sustain:
   - Manage and continue the improvement process through service renewals

Customer engagement through a business-oriented partnership
Diagnose (Fingerprints)
- Measure performance gap
- Estimate ROI
- Define implementation plan

Implement
- Fix performance gap
- Monitor implementation plan

Sustain
- Define condition triggers
- Schedule maintenance
- Manage performance gap

Sustainable results through renewal of service subscriptions
PGP Benchmark and Fingerprint

Key take-away points

1. PGP Benchmark and Fingerprint support customers in moving to a **proactive maintenance** strategy, which reduces down-time, keeps system performance high, and extends system life.

2. Health Checks are services on an annual subscription base. They add value to existing service contracts and are embedded in broader service agreements (ServiceGrid, Sentinel).

3. Through the web portal "**My Control System**", both the customer and ABB have an efficient overview of the control systems **assets** and their **related services**.