

GE  
Intelligent Platforms

# Proficy Historian HD



imagination at work

# The Industrial Big Data Historian

Industrial machines have always issued early warnings, but in an inconsistent way and in a language that people could not understand. The advent of networked machines with embedded sensors and advanced analytic tools has changed that reality.

For the first time in history, remotely distributed machines across the globe—from mining haul trucks to wind turbines to aircraft engines—can be monitored in real time, unlocking the language of machines and opening tremendous benefits. Capturing, storing, contextualizing, analyzing, and delivering this industrial data to the right people in the right way can provide intelligence to improve processes and equipment health.

Now industry is moving beyond analyzing data—to analyzing “Industrial Big Data.” Industrial Big Data is about gathering much more data than you’ve ever been able to accumulate—from multiple sources, over longer periods of time—and doing it much more quickly, within minutes instead of days or weeks. Comparing years of diverse historical data to real-time data allows for a myriad of new analysis possibilities, allowing you to rapidly detect trends and patterns never before possible to better understand how equipment and processes *are* running vs. how they *should* be running and to help you make even better and quicker decisions to improve operational performance.

## Introducing Proficy Historian HD

GE’s Proficy® Monitoring & Analysis Suite is an all-in-one suite of software tools to meet all your Industrial Big Data needs. The industry’s only Industrial Big Data solution, it provides the relevant and targeted information needed for everybody in the decision-making process, from engineering, to operations, to executive management.

**Proficy Historian HD** is the engine of the Proficy Monitoring & Analysis Suite, providing the advanced Big Data management capabilities upon which the analytic and visual capabilities are built. The first software solution for time-series data built on Apache™ Hadoop®, Proficy Historian HD goes beyond the abilities of commonly used historians to capture and process much more data at extremely high speeds and to compare the data across time and across the enterprise. It scales both horizontally for any data volume and variety, and vertically for any velocity. Because its data is maintained in the cloud, Proficy Historian HD is able to store more data than is possible with commonly used historians, and it can do so more cost-effectively.

## The Language of Machines

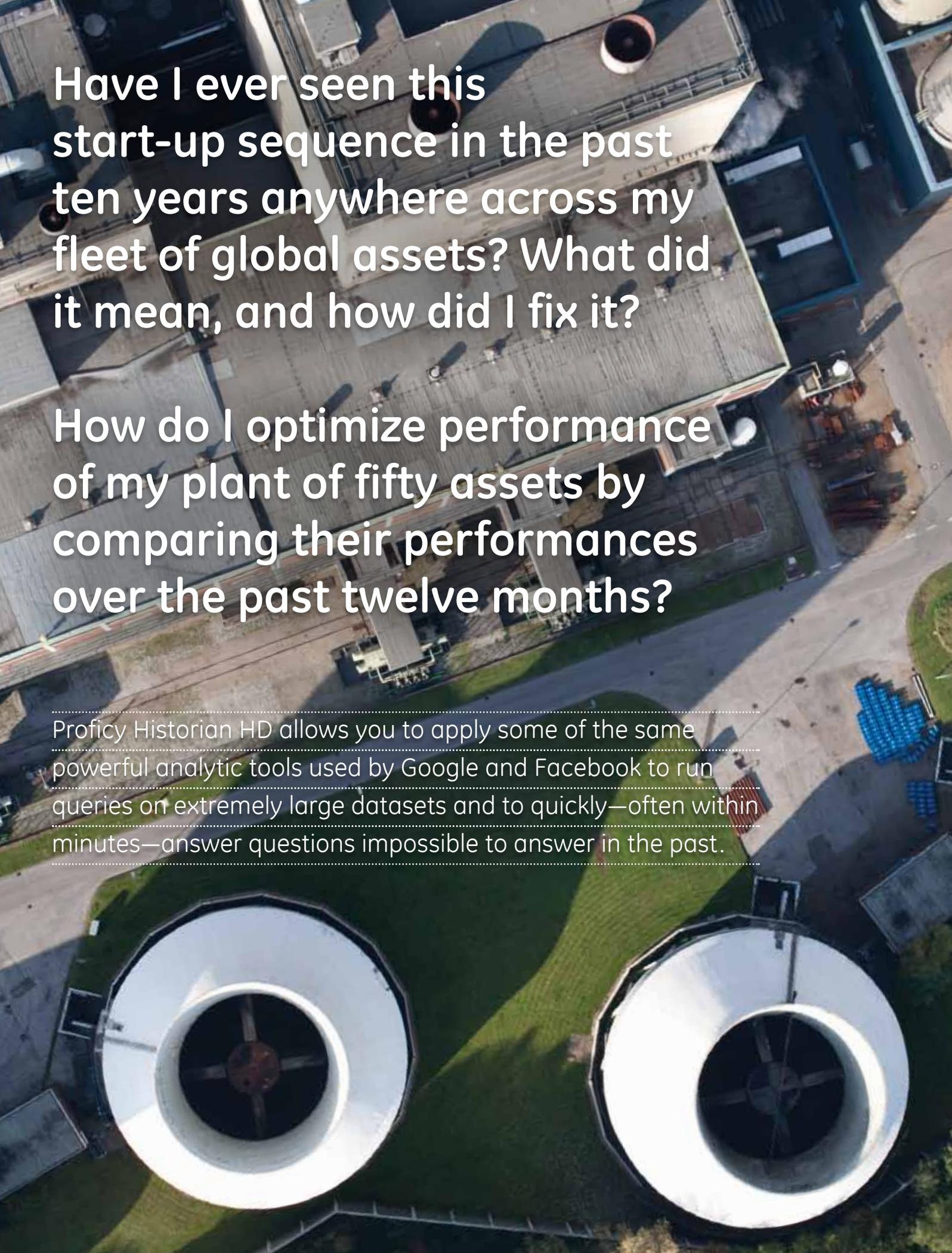
Each critical piece of equipment has a history. Learning what happened in its past—and what is happening in real time—can help you to improve its processes and health in the future. And understanding how this particular piece of equipment compares to others in the same plant or the same fleet or even the same industry can provide you with even greater intelligence. The advent of networked machines with embedded sensors and advanced analytic tools makes it possible to understand the language of your machines. And, with Proficy Historian HD, you now can ask your machines more questions than ever before—and get answers—often within minutes.





## What is Hadoop?

As data sets continue to grow, they become untenable. A new technology is needed to be able to process large data sets and make them valuable. Enter Hadoop, a technology specifically designed to handle large data sets by clustering large numbers of low-cost commodity computers together to act as one. This makes it possible to analyze vast amounts of data and to store the data economically. Proficy Historian HD is the first software solution for time-series data built on Hadoop.

An aerial photograph of an industrial plant. In the foreground, two large, white, circular tanks with dark centers are visible. Behind them, there are several large, grey, rectangular buildings with flat roofs. The ground is a mix of concrete, asphalt, and green grass. The lighting suggests it's daytime with shadows cast across the scene.

Have I ever seen this  
start-up sequence in the past  
ten years anywhere across my  
fleet of global assets? What did  
it mean, and how did I fix it?

How do I optimize performance  
of my plant of fifty assets by  
comparing their performances  
over the past twelve months?

.....  
Proficy Historian HD allows you to apply some of the same  
powerful analytic tools used by Google and Facebook to run  
queries on extremely large datasets and to quickly—often within  
minutes—answer questions impossible to answer in the past.  
.....



## Proficy Historian HD provides capabilities well beyond those of the typical historian

### Commonly-used Historian

Edge (on premise)  
Operational data store  
Terabytes of data  
Equipment, line, or plant  
Localized computing  
Asset queries  
Fast response for small queries  
Expensive storage cost  
Lost value before HD

### Proficy Historian HD

Cloud (public/private)  
Data warehouse  
Petabytes of data  
All equipment, OEMs, plants, sites, enterprises  
Grid computing  
Fleet queries  
Scalable response time  
Commodity hardware  
Untapped value with HD

## Public cloud or private cloud?

Proficy Historian HD works in the cloud, but it can be our public cloud or your private cloud. You either can use the software off-premise (third-party) or on-premise (internally). Issues to consider include cost, experience, security, flexibility, timetable, regulatory compliance, and more. Let us meet with you to discuss which option best meets your particular needs.

152,000 samples per second

9,000,000 samples per minute

545,000,000 samples per hour

4,000,000,000 samples per shift

13,000,000,000 samples per day

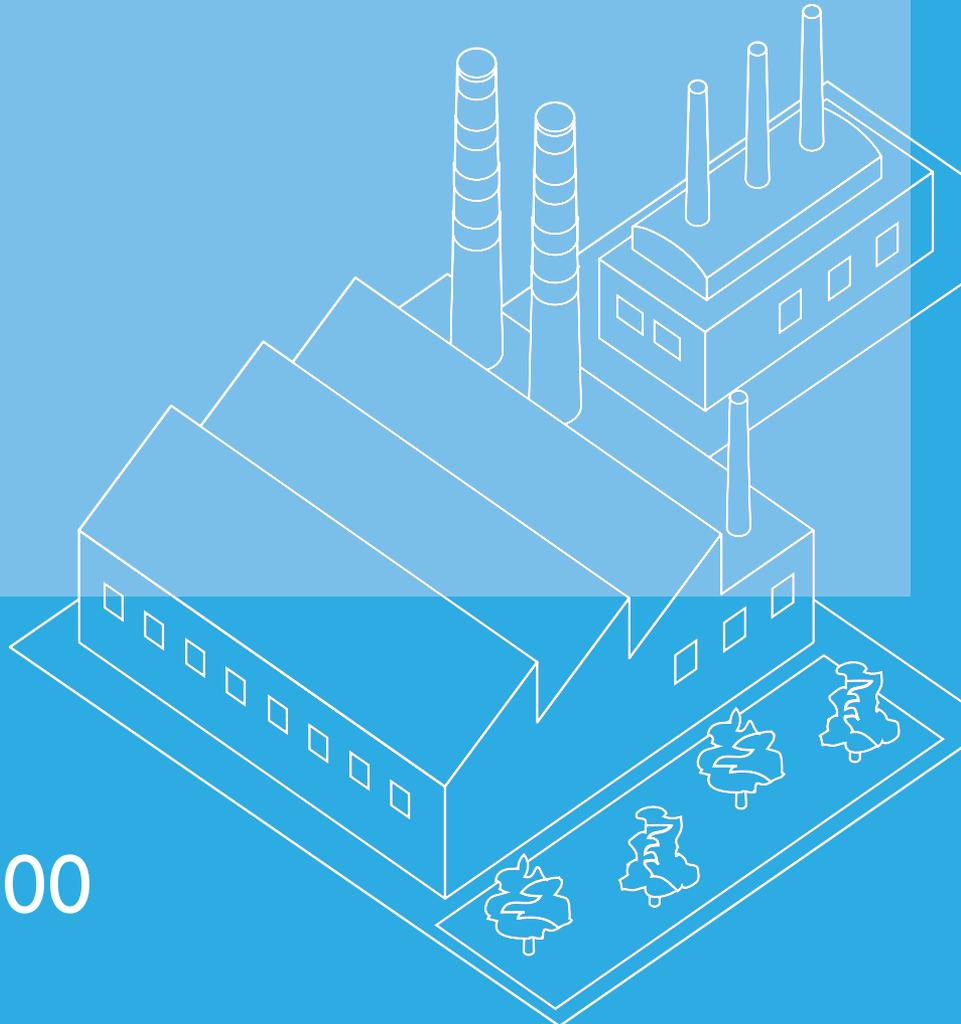
4,000,000,000,000 samples per year

## Your data is growing exponentially

How are you going to control and learn from it?

Manufacturing companies record tremendous amounts of process data, and this growing volume is becoming ubiquitous. For example, a consumer packaged goods company that produces a personal care product generates 5,000 data samples every 33 milliseconds, resulting in:

152,000 samples per second  
9 million samples per minute  
545 million samples per hour  
4 billion samples per shift  
13 billion samples per day  
4 trillion samples per year



## More diverse and complex data

Clearly the volume of data that that you are extracting is beyond the capability of a traditional data-management system, which can analyze only a few hours or days of data. What is more, the challenge of managing your Big Data goes beyond the sheer volume of information; you have diverse and complex data, coming in various formats and from disparate sources. Typically, you have “islands” of process information that must be aggregated,

stored, and analyzed to drive context and meaningful value. Unlike traditional historians, Proficy Historian HD can support different types of information, store massive data sets, and leverage the information once it is collected and stored, enabling you to analyze critical trends, improve processes, and predict equipment problems—as never before possible.

## Why Proficy Historian HD?

More data	Works quickly
More variety	Predicts equipment problems
Across time	Improves processes
Across the fleet	Securely
Around the world	Fully implemented and managed
Always available	Invented by GE by leveraging the corporate Global Research Center
In the cloud	Used by GE
For advanced analysis	
Over all devices	



Uncover intelligence that would otherwise be locked away in the data.



Leverage advanced predictive-analytic and process-optimization tools.



Enable your business to more rapidly and more intelligently optimize asset health and maximize product quality and yield.



Lower costs, using the cloud.



### **GE Intelligent Platforms Contact Information**

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Global regional phone numbers are listed by location  
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