

# Operational Intelligence for the Internet of Things

## Using Splunk to Analyze Data in a Connected World

### The Business Challenge of the Internet of Things (IoT)

- How can I make sense of volumes of sensor and device data?
- How can I discover important events and signals?
- How can I turn IoT data into high-resolution models of business activity?

### What Is Operational Intelligence for the IoT?

A set of methods and technology for operational visibility and insights based on IoT data.

### Universal IoT Integration

Splunk software integrates with nearly everything, including industrial data sources, Amazon Kinesis, Apache Kafka, Java Message Service (JMS) and the MQTT messaging service, log file data, and data in Hadoop or Mongo.

### How Splunk Brings Operational Intelligence to the IoT

Splunk software moves through levels of operational intelligence.

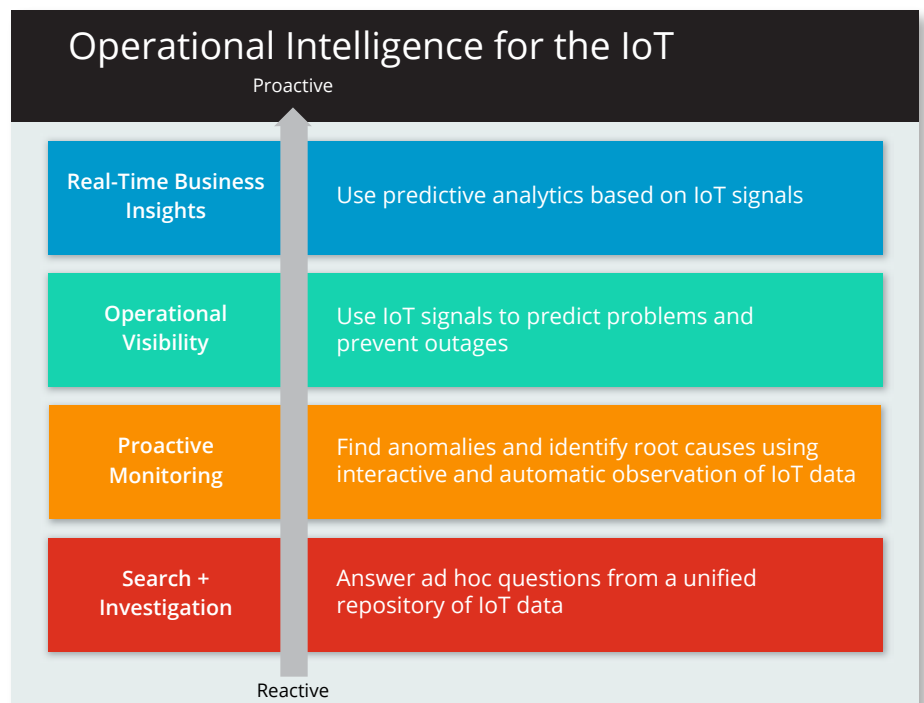
- Discover what's wrong with one device or a whole category
- See what's normal over time and identify problems
- Automatically recognize real-time and historic events that affect business
- Create IoT applications, complemented by machine data insight

### Operational Intelligence Applications for the IoT

- **Anomaly detection:** Manage devices and sensors to find baselines and exceptions
- **Security, safety, and compliance:** Anticipate problems and identify threats
- **Optimization of equipment and processes:** Diagnose problems fast and find patterns

### Splunk Understands Time

Splunk software extracts time-stamps from every piece of data collected and uses them to automatically correlate and aggregate data. Use Splunk to gain real-time visibility across systems.



## How Splunk Software Supports the IoT

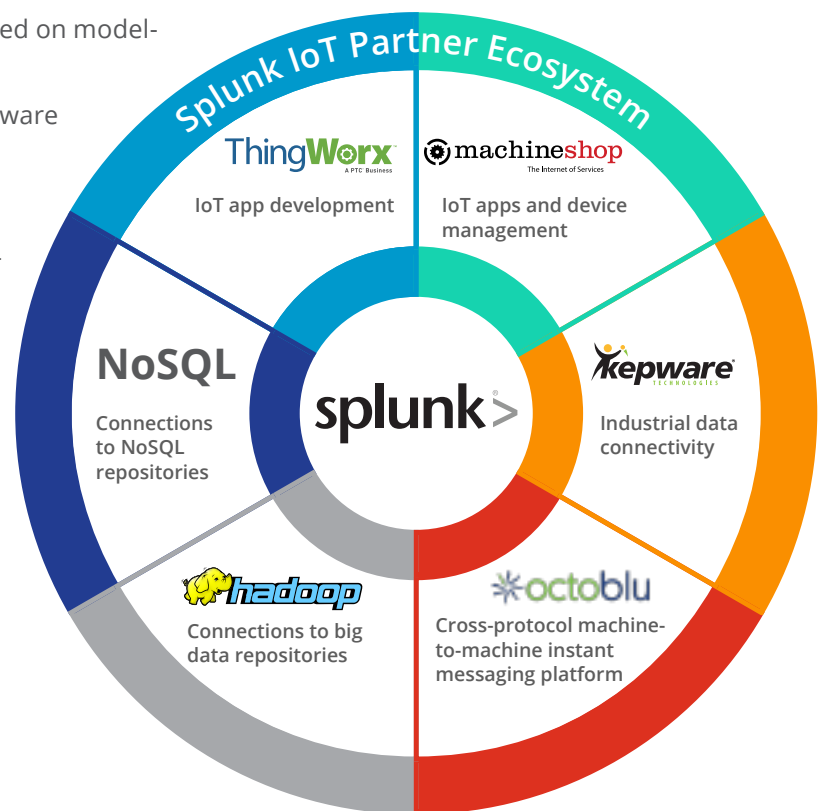
- **Easy data access:** Search capabilities find the needle in the IoT haystack
- **Powerful data storage:** Collect big data in real time from unlimited endpoints
- **Highly available:** Battle-tested in demanding operational environments
- **Powerful analytics:** Built-in analytics search commands, custom commands in Python, and extensibility with R Project App
- **Order from chaos:** Index multi-structured data and connect related information

## The Power of the Splunk IoT Ecosystem

- Rapid application development based on model-driven platforms
- Device management to control software and configuration of IoT devices
- Connectivity to industrial devices
- Integration with Hadoop and NoSQL

### CITO Research recommends Splunk on three fronts:

- It overcomes the IoT challenge of time series, massive scale and sessionization
- Its powerful Search Processing Language (SPL™) answers questions and identifies trends
- It accelerates development of advanced apps and analytics



### CITO Research

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