

Roles

- ▶ Consulting Partner / Engagement Leader
- ▶ IoT Architect
- ▶ Program Manager
- ▶ Presales & Business Development

Key Offerings / How I can Help.

- ▶ Strategy Assessment
- ▶ Business Case Inventory and ROI Analysis
- ▶ IoT Architecture Planning
- ▶ Early Stage of Proof of Concept
- ▶ Program Management for Implementation
- ▶ Implementation Oversight & Review

IoT Use Cases

- ▶ Industrial Connected Asset
- ▶ Industry 4.0 / Connected Factory
- ▶ Connected Product
- ▶ Asset Tracking
- ▶ Location Analytics

Analytics and AI + IoT

- ▶ Machine Learning to Identify Operational Events from SCADA data
- ▶ Geospatial Analytics for Vehicle Data
- ▶ Watson Chat Bot Interface on Location Data
- ▶ Time Series Analysis on Environmental Data

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Internet of Things (IoT) Digital Transformation Leader

Matt is a proven executive leader, self-starter, and creative thinker with 30+ years of experience in the field of consulting and computer software. My expertise is helping clients envision, design, implement, and gain value from a variety of IoT related projects, especially those that involve a move to the cloud and integration with AI and Analytics. I bring a unique blend of hands-on and technical IoT skills, with a wide "end-to-end view" of the full ecosystem and the ability to translate a system to deliver business value.

- ▶ Lead multiple streams of a blueprint program to assess the feasibility of an **Industry 4.0 / Connected Factory** for a global semiconductor manufacturer. The goal was to streamline the operational experience and simplify the plant architecture to realize cost savings. The work streams of the program were:
 - Identify opportunity areas by analyzing the current operator "day in the life" journey, and define a new experience which saves time, reduces errors and rework, and improves decision making.
 - Map the "as is state" architecture across multiple plant globally and define a common Industry 4.0 architecture recognizing the need for local processing and global governance.
- ▶ Lead an end-to-end digital transformation for a specialty chemical provider in the Oil and Gas industry, centered around an **Industrial Connected Asset** deployed globally which helped drive transformative ways of working in field service, supply chain, and customer experience. Activities in the IoT Workstream were:
 - Identified, Prioritized, and Quantified Use Cases for the Connected Asset
 - Used data science to determine if sensor data can be "predictable" to drive supply chain.
 - Conducted an evaluation and RFP for last mile connectivity and instrumentation.
 - Identified key integration points to asset management, supply chain, and customer portal with associated analytics.
- ▶ Engaged with many clients across multiple industries to present the concepts of IoT and what it could be mean for the clients' business. Conversant on many **IoT Use Cases** across multiple industries. In addition to those mentioned in this data sheet: Smart Cities, Retail / Connected Store, Smart Agriculture, Worker Safety, Predictive Maintenance, Smart Grid, Wearables, Covid-19 Safety Solutions, Plant Visual Inspection, Fan Experience, Smart Buildings

IoT / Cloud Architectural Patterns

- ▶ **Edge Computing**
- ▶ **Device Onboarding Strategies**
- ▶ **OT-IT Integration**
- ▶ **Microservices**
- ▶ **Serverless Architecture**

IoT Platform Experience

- ▶ **Plat.One (Bought by SAP)**
- ▶ **Watson IoT**
- ▶ **AWS IoT Core**

Cloud Experience

- ▶ **IBM Cloud (Watson AI Suite, IoT, Node.JS)**
- ▶ **AWS (Lambda, Timestream, IoT Core, S3) (Certified AWS Solution Architect)**

IoT Protocol Experience

- ▶ **LORA**
- ▶ **MODBUS**
- ▶ **OPC DA / OPC UA**
- ▶ **MQTT**

Programming Languages

- ▶ **Java**
- ▶ **Python**
- ▶ **Node.js**
- ▶ **Front End: JavaScript / React / HTML**

- ▶ For an offshore drilling provider in the Oil and Gas industry, Chief Architect for a solution to monitor the drilling performance of 14 drilling rigs.
 - **Edge computing** to collect sensor data in real-time using a variety of protocols on the rig (OPC-DA, WitsML) and send the data in real-time to a cloud environment to identify “operational events” such as running riser, pulling riser, and casing.
 - **Machine learning** to identify the operational events from a combination of sensor data from the drilling equipment and operator logs. Data science team awarded patent.
 - Analytics and data transformed to “Drilling KPI’s” and presented for slice-n-dice on an HTML 5 dashboard
- ▶ Chief architect and Partner for a solution to monitor traffic on a busy construction site.
 - GPS tracking devices for shuttle buses, cameras with **visual recognition** to detect traffic congestion, and smart cones to help automate road closures.
 - Event driven architecture built with **micro-services** in the IBM cloud and integrated with a 3rd party portal providing a birds-eye view of the traffic on the site.
 - Integrated a PTT “Push to Talk” device with the Watson Chat Bot to provide an audible interface to the state of traffic on the site
- ▶ Built a solution to monitor the environment on our dock where we are raising oysters for the Chesapeake Bay Foundation.
 - Integrates two different sensor technologies: A LORA sensor deployed on the dock to monitor salinity and water temperature, and an existing weather station from Davis technologies integrated with a custom Raspberry PI gateway and Arduino to intercept and decode the wireless signals.
 - Cloud solution built with **native AWS Services** (IoT Core, S3, Timestream)
 - JavaScript / React Front End with **Serverless architecture**:
<http://oyster-haven.mjrothera.io/#/>
- ▶ Chief architect for a location analytics solution to track the movement of people in a hotel.
 - Leveraged a combination of **iBeacons and Wi-Fi based triangulation** to derive analytics in hotel property locations to understand foot traffic and provide real-time engagement based on the location of the guest in the hotel.
- ▶ Provided implementation training for IoT.
 - Created a video series of 5 videos to help developers learn the essentials of building solutions on PLAT.ONE. In addition to the videos, there were 10 key samples illustrating how to build Java based services that could run both on the edge and the cloud.
 - Conducted a “Real-World IoT” Weeklong seminar for the IBM Consulting Practice including use cases, concepts, and hands-on exercises.