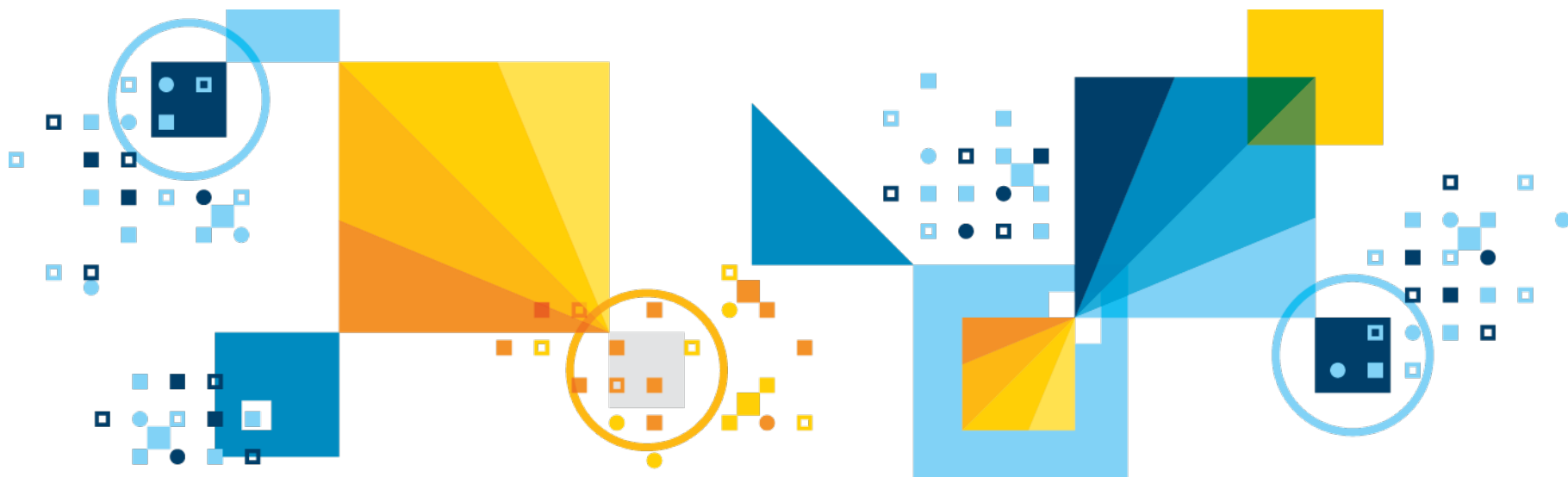


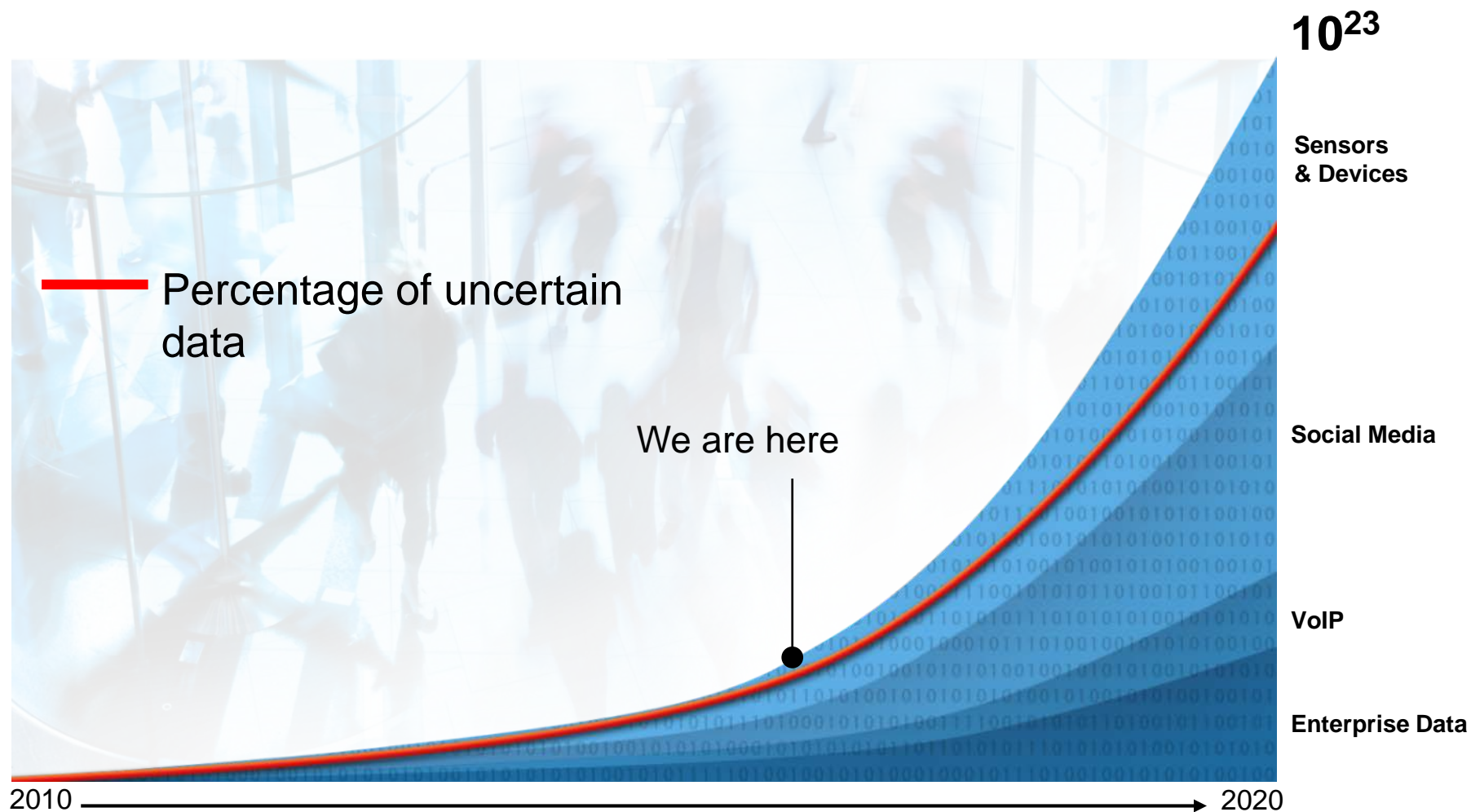
Mark Trell
26 March 2015

Data and Compliance

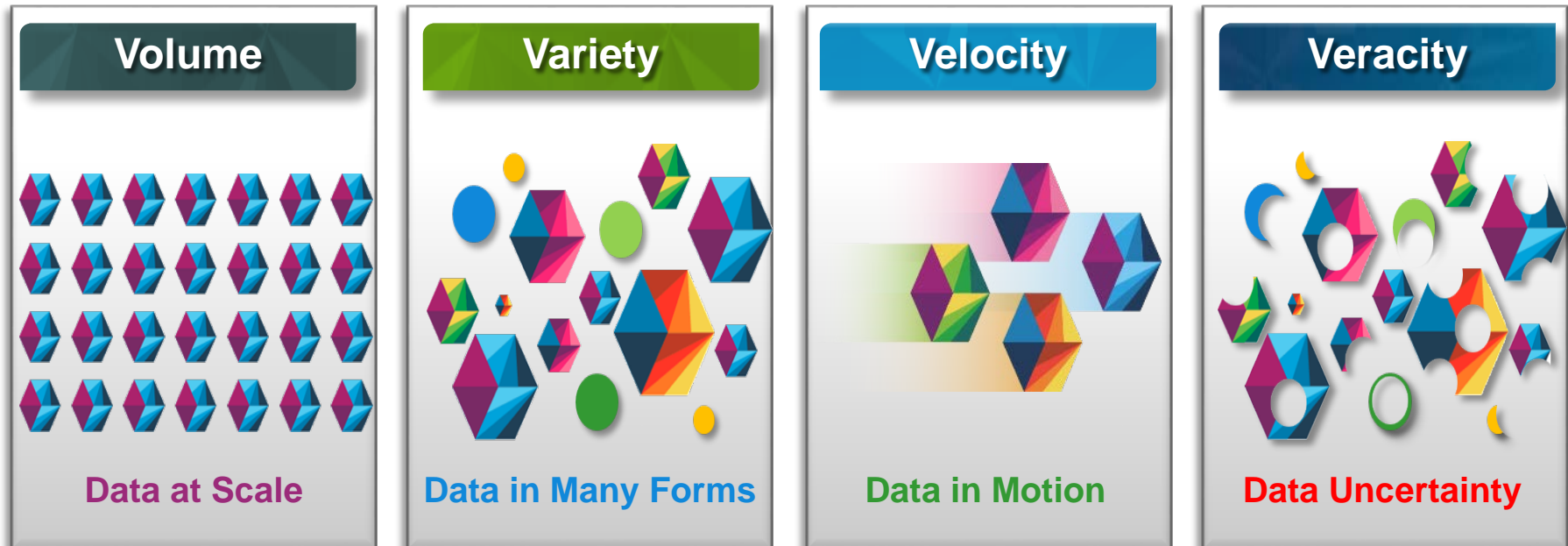
Leverage the complexity of data



Data and sources of data continue to grow



Technologies & methods to address data challenges are expanding



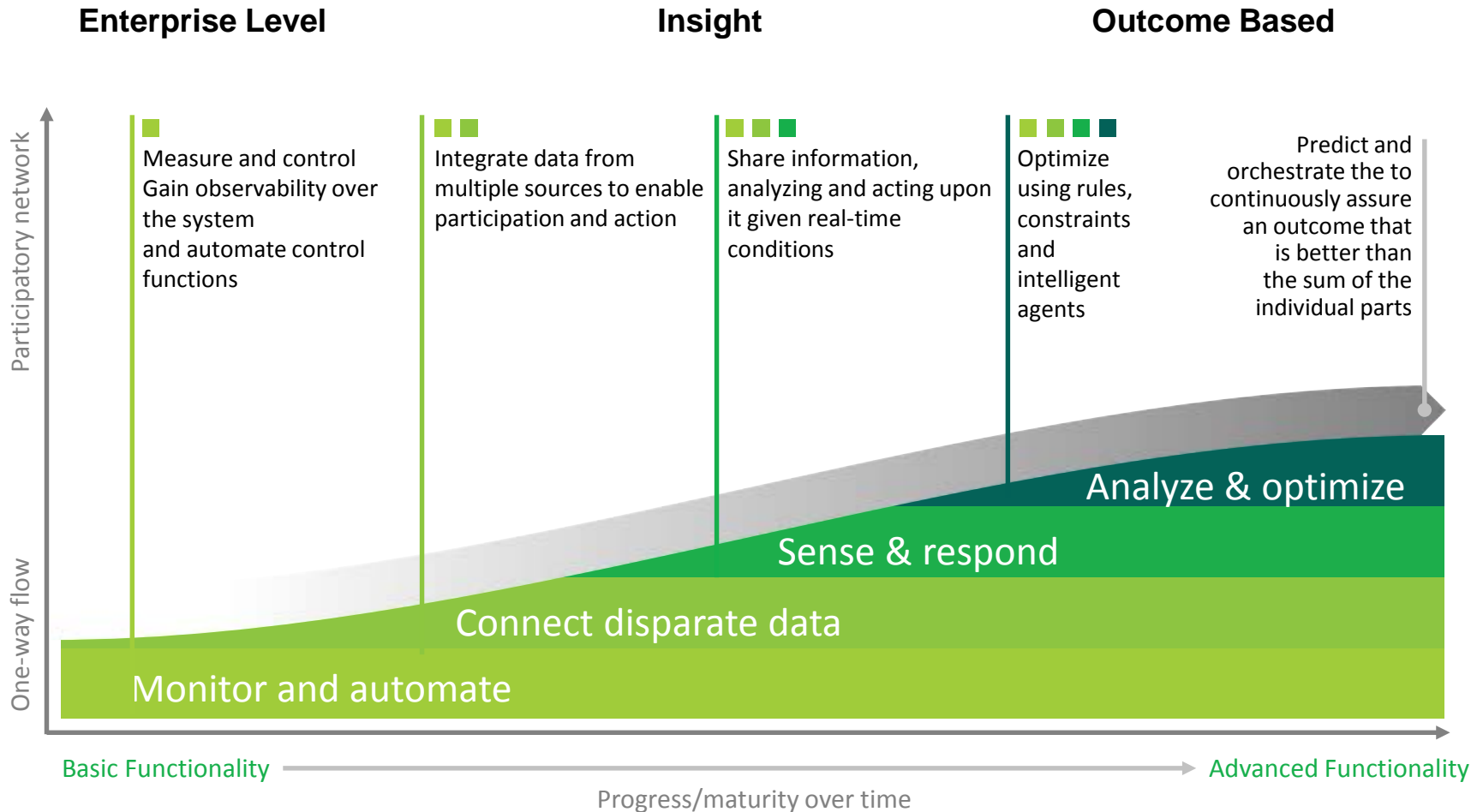
- MB, TB, GB, PB, EB
- Secure, manage, and govern the data
- Automate archiving, filtering, and disposal of data

- Structured data – sensors, financial, accounts
- Unstructured data – email, social, video, audio, natural language
- Image analytics
- Cognitive analytics
- Sentiment analysis

- Real-time analytics
- Stream computing

- Uncertainty due to data inconsistency & incompleteness, ambiguities, latency, deception, approximations
- Engineering methods
- Probability
- Fuzzy set theory
- Cognitive computing

Capabilities exist to move beyond basic reporting and gain further insight from the data



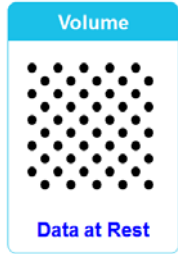
The Jefferson Project: Smarter water management innovation from IBM, RPI and The FUND for Lake George

- Goal:
 - Understand and manage complex factors – from road salt, storm water runoff and invasive species – threatening one of the world’s most pristine natural ecosystems and an economic cornerstone of the New York tourism industry
- Lake George
 - 32 miles long, 2.5 miles wide, maximum depth of 200 feet
 - 145 tributaries and over 170 islands
 - Land surrounding the lake remains 95% natural forestland
 - \$1B in tourism activity in the surrounding region
- Lake Stressors
 - Salt Content: Lakewide chloride concentration has tripled to 15.7 ppm since 1980
 - Algae Impact: Chlorophyll levels in surface waters has increased by 50% as quantities of algae in the lake have grown
 - Invasive Species: 5 species have been discovered, including Asian Clam and Zebra Mussel
- Making the Lake Smarter
 - 40 sensing platforms will be deployed to monitor weather, water chemistry and quality, lake currents and stream flows
 - Model lake using a supercomputer capable of performing 188 trillion operations per second
 - More than 20 scientists collaborating and working with 30 years of historical data



[Lake George Video](#)

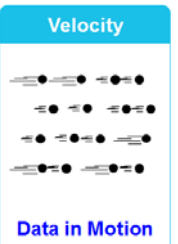
Analytics leads to actionable insight to address compliance



Terabytes to exabytes of existing data to process



Structured, unstructured, text, multimedia



Streaming data, milliseconds to seconds to respond



Uncertainty due to data inconsistency & incompleteness, ambiguities, latency, deception, model approximations

