



Modernizing Infrastructure Integrity

October 18, 2016

Acknowledgements and Appreciation

Introductions

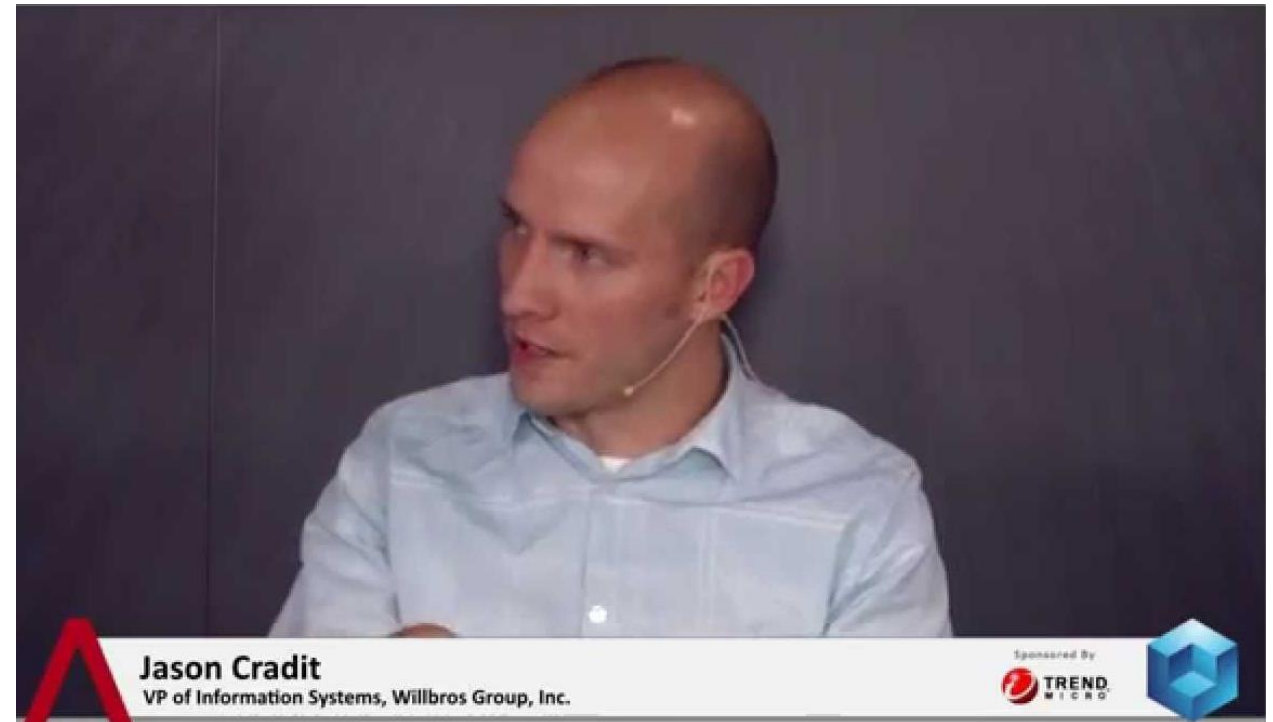
1. Problem statements
2. Modern solutions
 1. Managing large data quantities (cloud, scale, search, security)
 2. Real-time collaboration
 3. Demonstration
3. Q&A

Introductions

Jeff Wiese
VP of Integrity Services

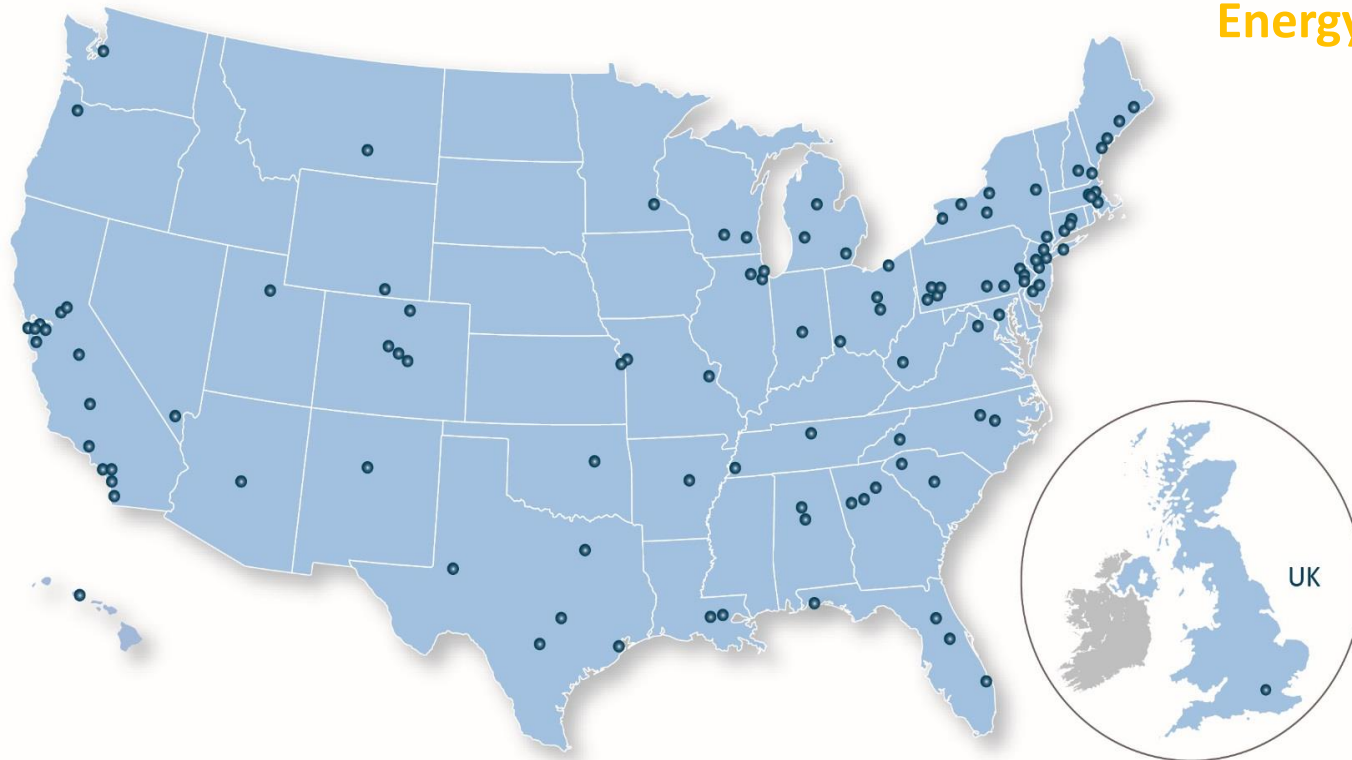


Jason Cradit
Sr. Director of Technology



A pioneer in groundbreaking scientific and engineering developments since 1969, TRC is a national engineering, environmental consulting and construction management firm that provides integrated services to four primary markets:

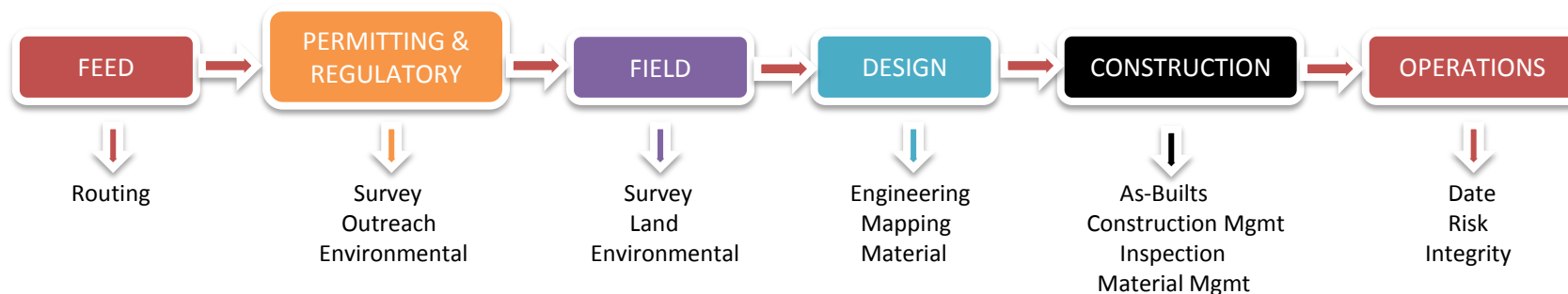
Energy | **Environmental** | **Infrastructure** | **Oil and Gas**



- Expert problem solvers
- 120+ U.S. offices;
London office
- 4100+ employees
- NYSE: TRR
- www.trcsolutions.com

Our Approach

- We believe there are faster, more accurate, and cost effective ways to plan, design, build, and operate pipeline systems, and that technology will enable us to do this
- Technology simplifies the process, creates an integrated environment that is faster, more comprehensive, and easier



- Our services are aligned for a complete process; our processes keep it tied together, our technology makes it work and visible
- Our foundation is the data and process, not software programs

- Operational safety has always involved mastery of risk management
 - Know your system, and know the surrounding environment
- Despite significant effort, operators continue to have failures – often due to inadequate knowledge of their system or their environment
- Some of these failures have had major consequences for the gas industry
 - New regulations: pending gas transmission, valve/rupture detection, etc.
 - More rigorous inspections – Integrated Inspections coming your way
 - Growing level of penalties – financial and from civil to criminal
- Challenge – improved risk management through better, more reliable information, and the requisite move to exponentially expanding digital data

Current Environment

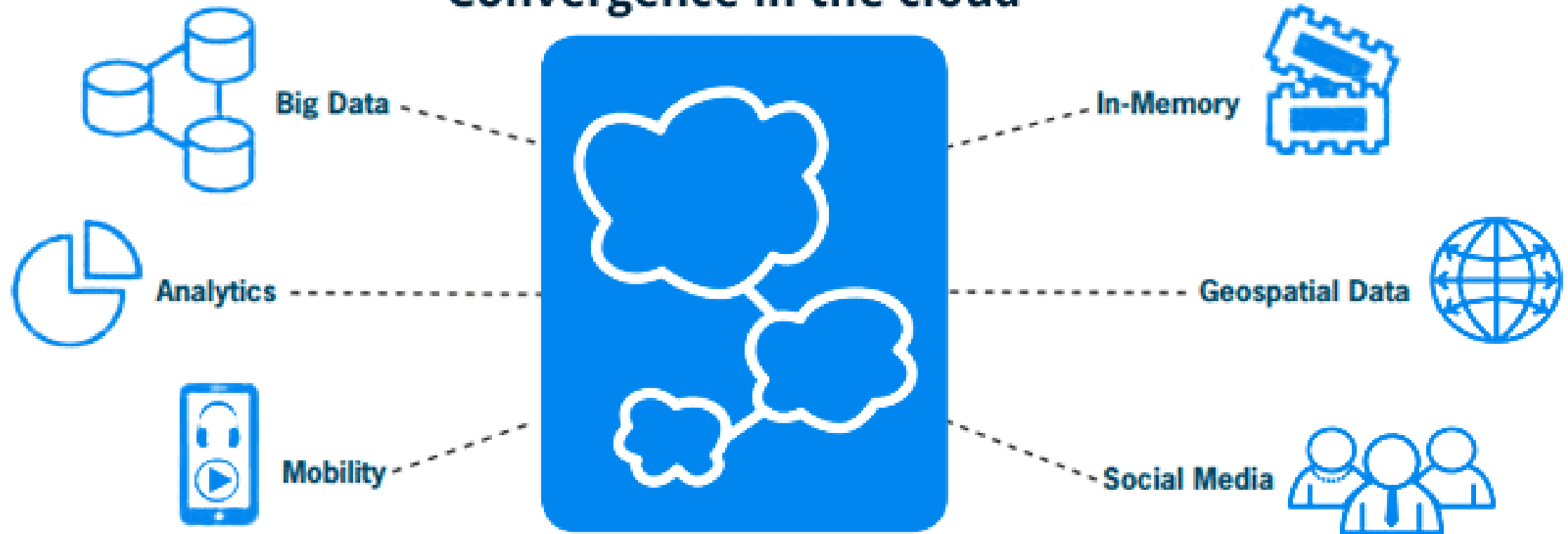


Modern solutions – Cloud

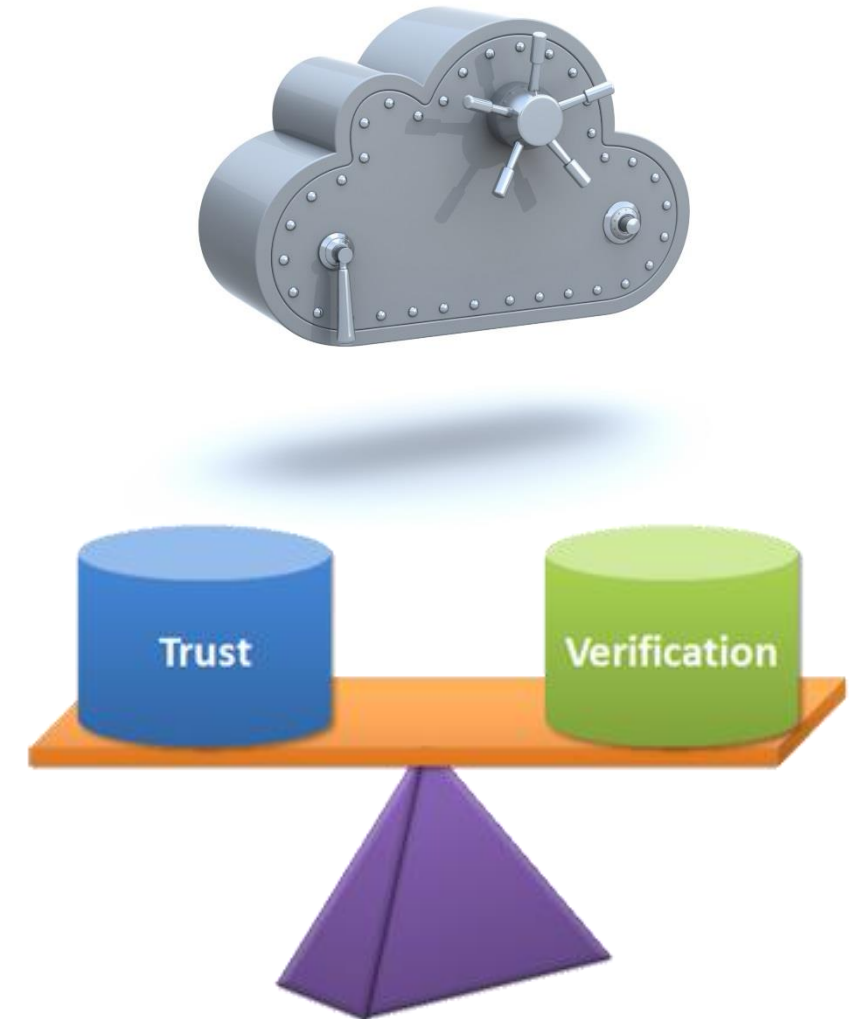
- Why Cloud
 - Agility
 - Elasticity
 - CAPEX to OPEX
 - Focus
- Cloud Delivery
 - SaaS - Software
 - PaaS - Platform
 - IaaS - Infrastructure



Convergence in the cloud



- **Typical Concerns:**
 - Governance
 - Legal – control of locale
 - Ownership
 - Co-tenancy
 - Virtual Private Cloud
 - Noisy neighbor
 - Personal Review
 - SOC Report
 - 3rd party penetration or vulnerability testing



Modern Solution Demonstration



Thank you

Questions?

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