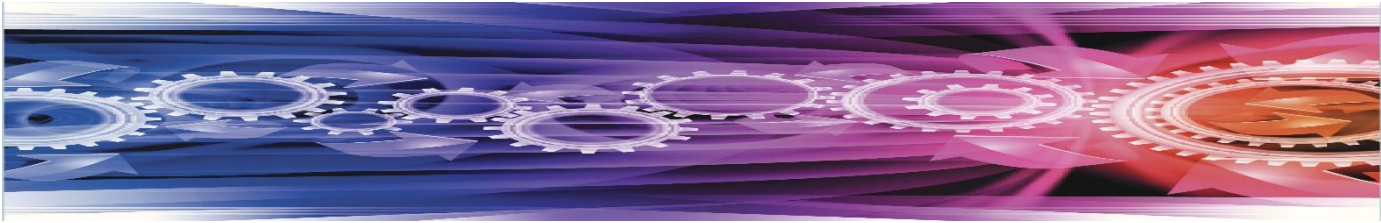




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How to Consider Big Data in Prudence Reviews and Rate Cases

The Old Grid vs. The Smart Grid

The Economic Impact on the Electricity Customer

S&C Electric Company



S&C Products and Applications



Overhead Distribution



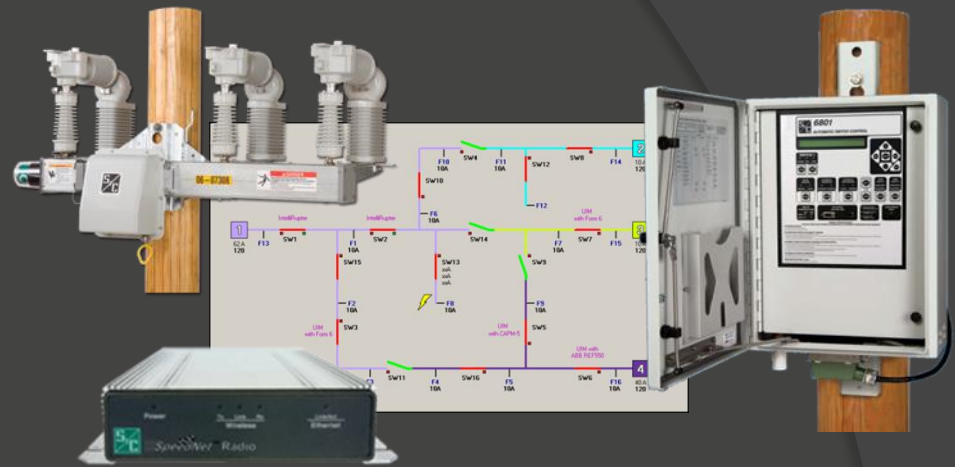
Underground Distribution



Power Quality and Energy Storage



Global Services



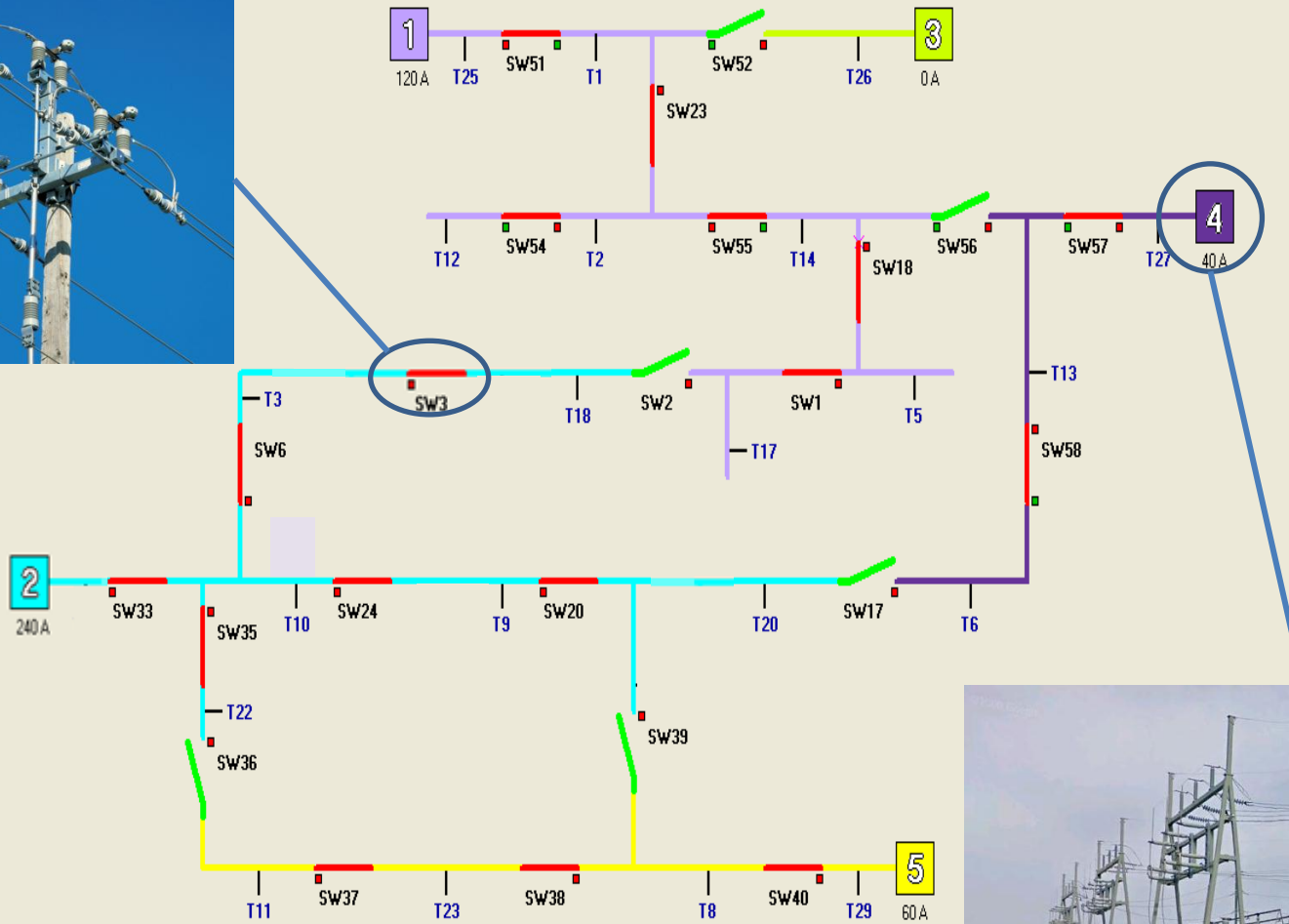
Automation and Grid Control



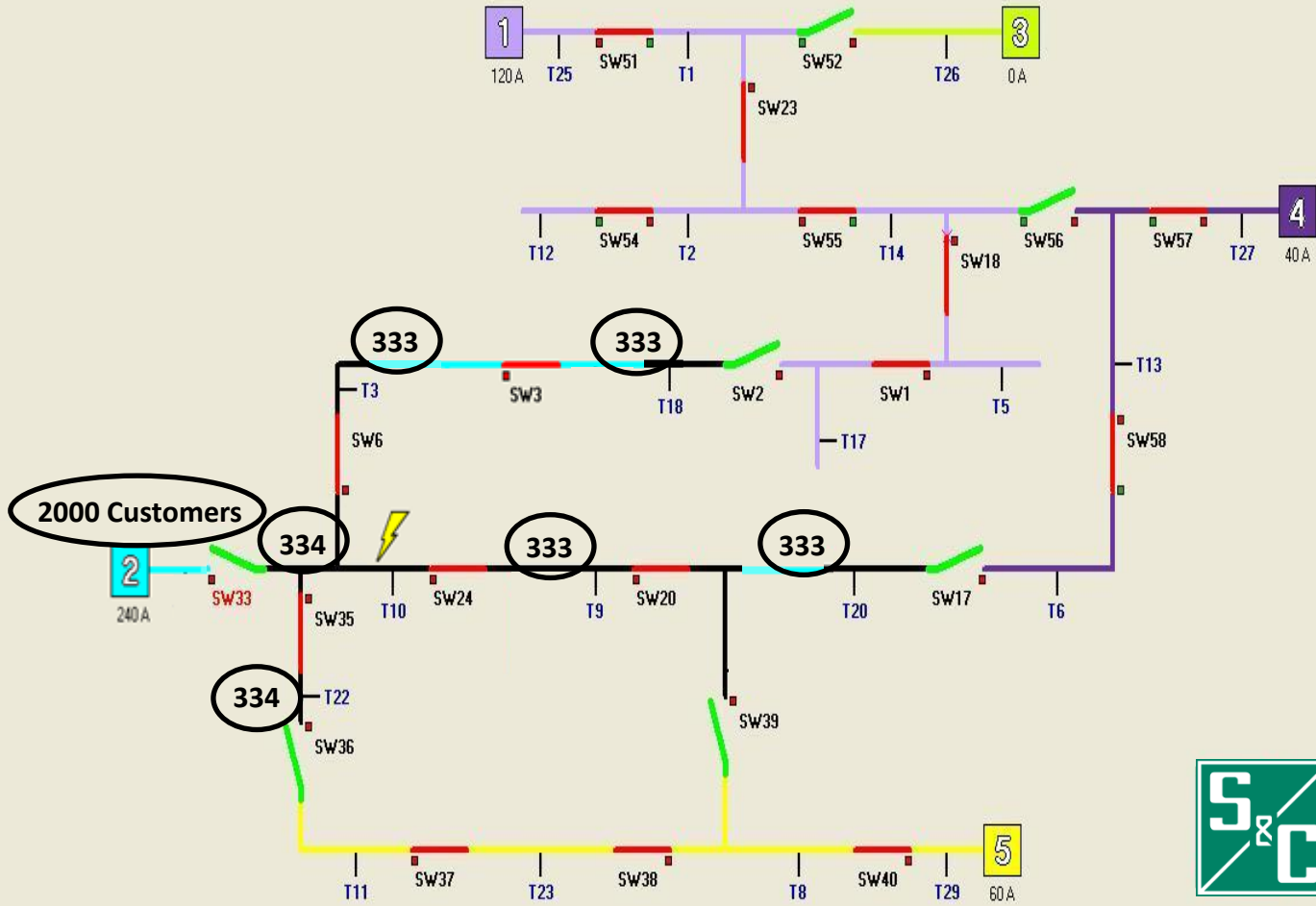
Substations



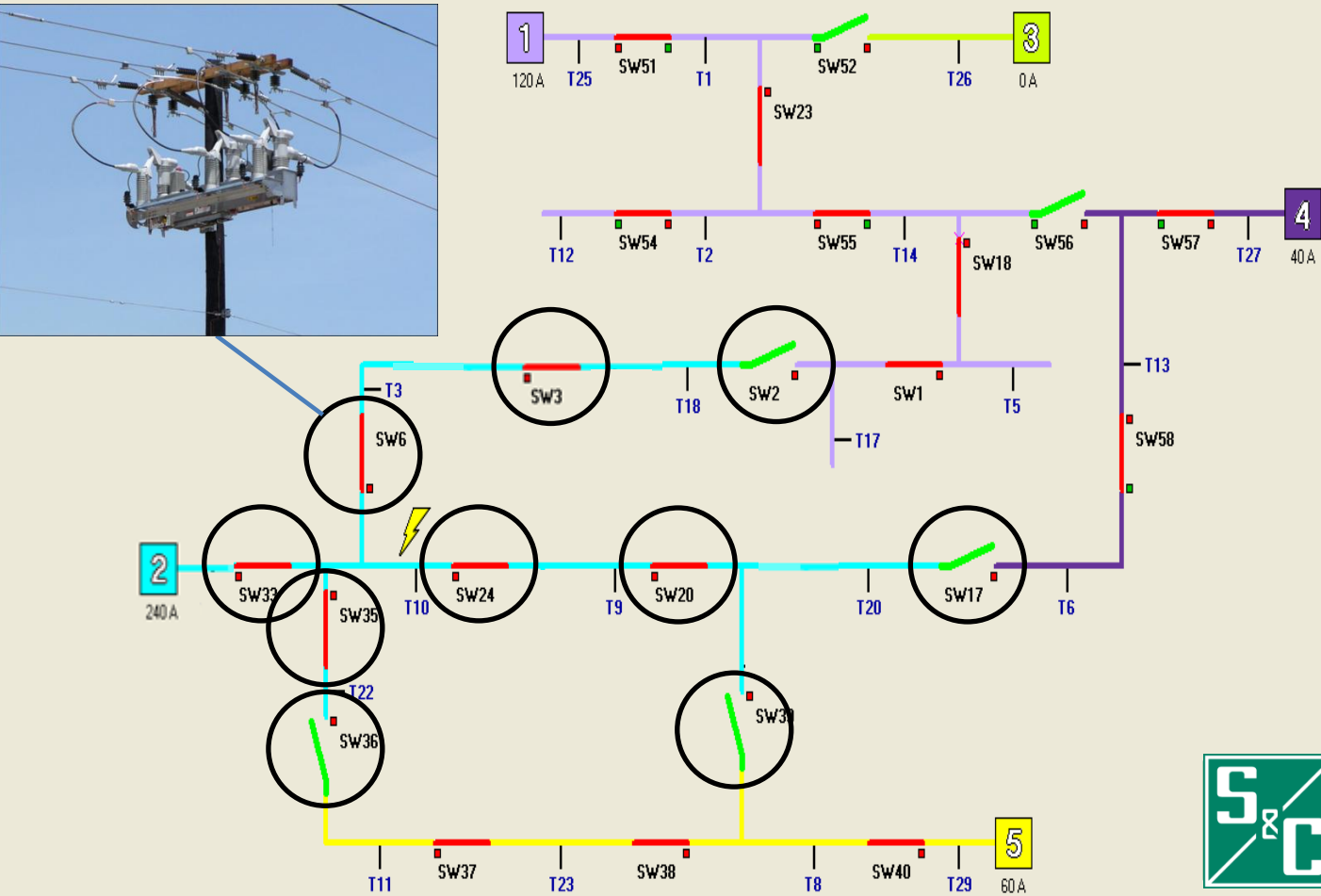
OLD GRID



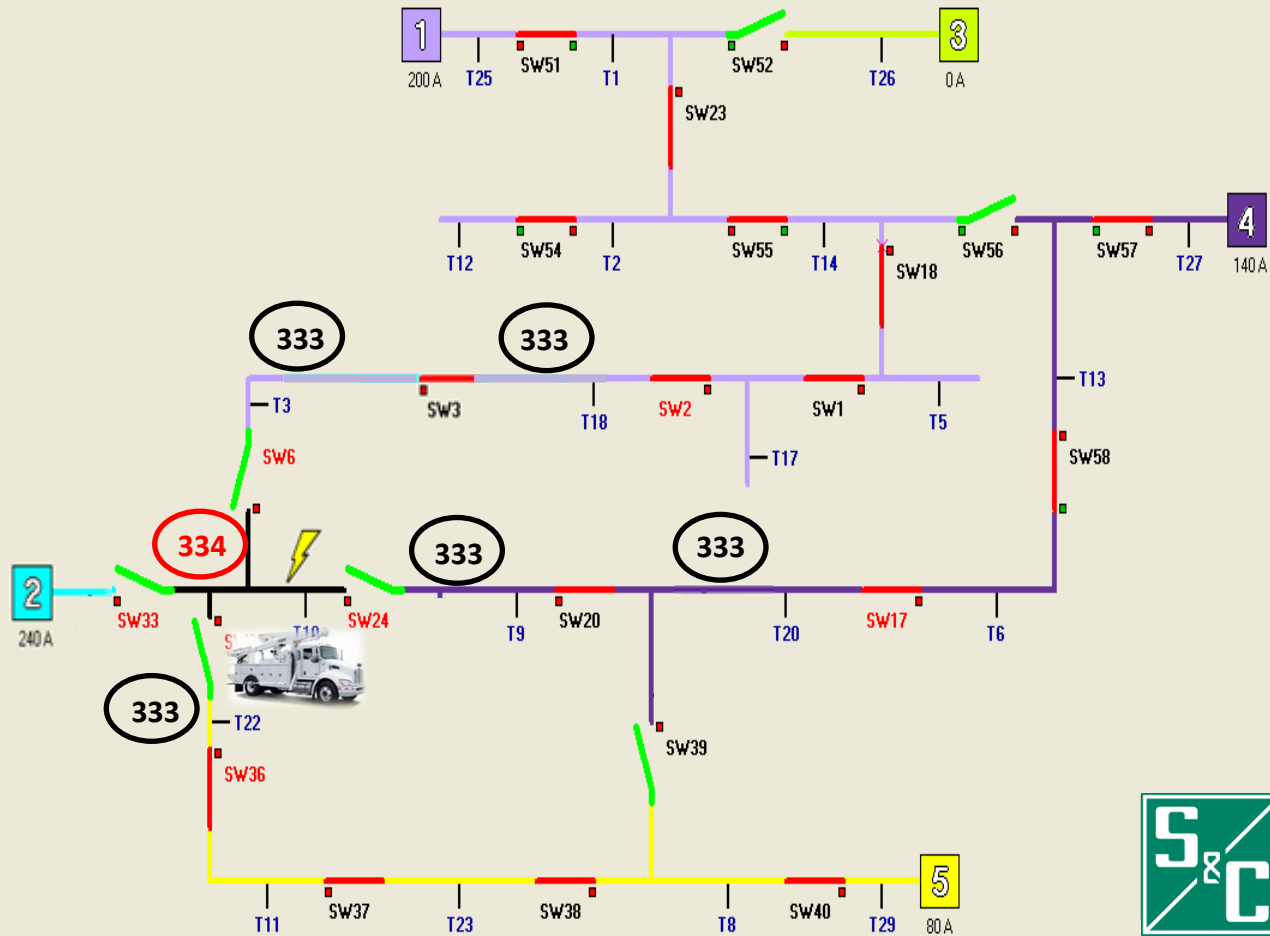
OLD GRID



SMART GRID



SMART GRID



Truck Roll (Minutes)	# of Customers Faulted Section	Customer Minutes of Interruption	SAIDI (minutes) (CMI/2000)	Customer Costs (Source:LBNL/DOE)
		OLD GRID		
110	334	181,307	90.7	\$276,573
		SMART GRID		
58	334	19,229	9.61	\$111,999

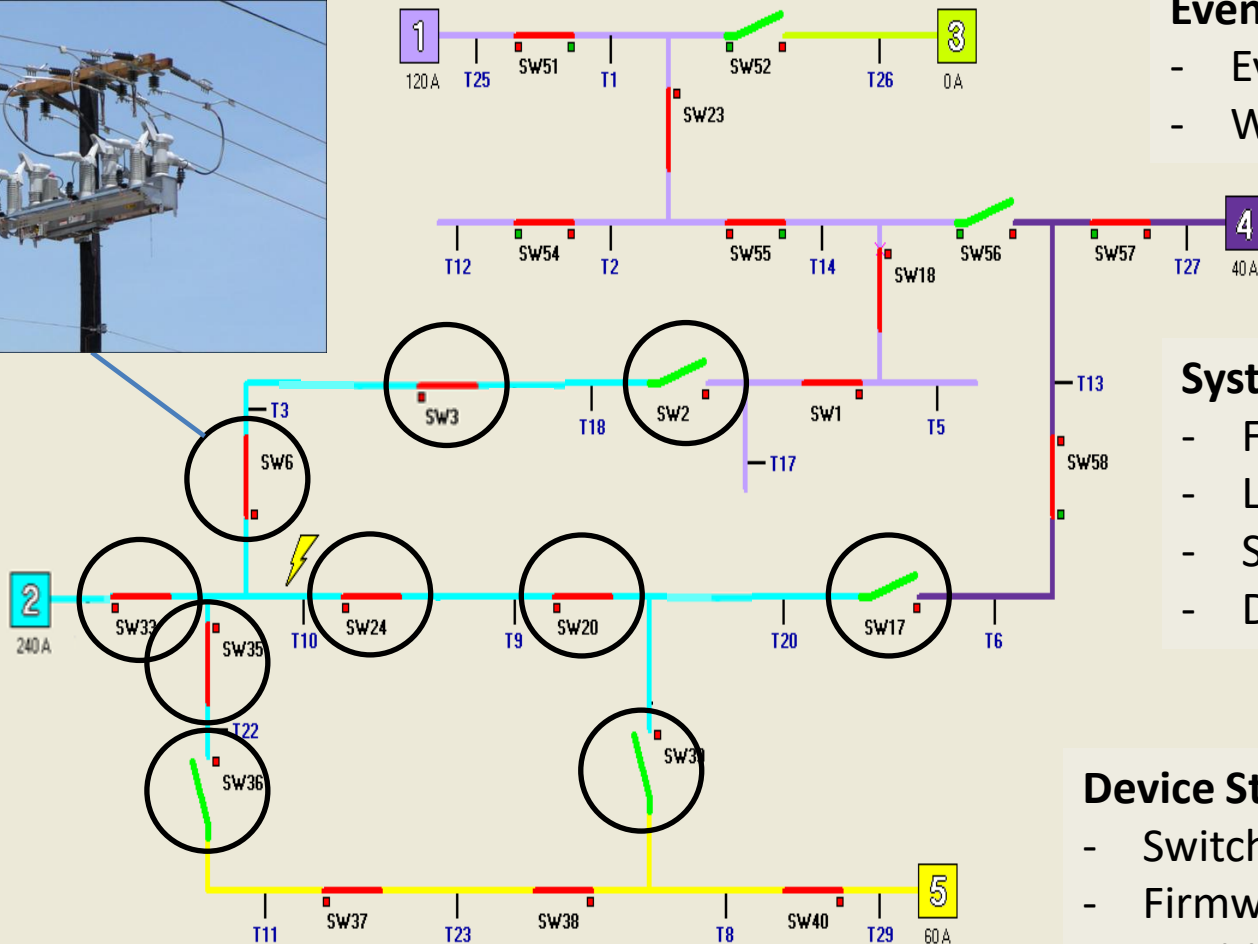
Societal Cost Savings = \$164,574 for this one event.

Annualized investment = \$62,500 per feeder

Utility Cost Savings = 52 fewer minutes for the response crew.

**COMPELLING BUSINESS CASE IF THE UTILITY CAN
BENEFIT FROM THE SOCIETAL COST IMPACT**

BEYOND THE EVENT – DATA!



Event Data

- Event logs
- Waveform Captures

System Performance Data

- Feeder Reliability
- Load/Source Conditions
- System Modeling
- Dynamic Configuration

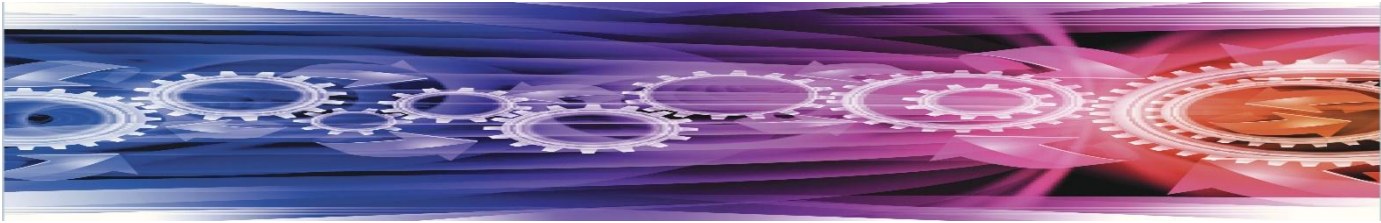
Device Status and Control

- Switch identity data
- Firmware version Control
- Health Monitoring
- Remote Settings



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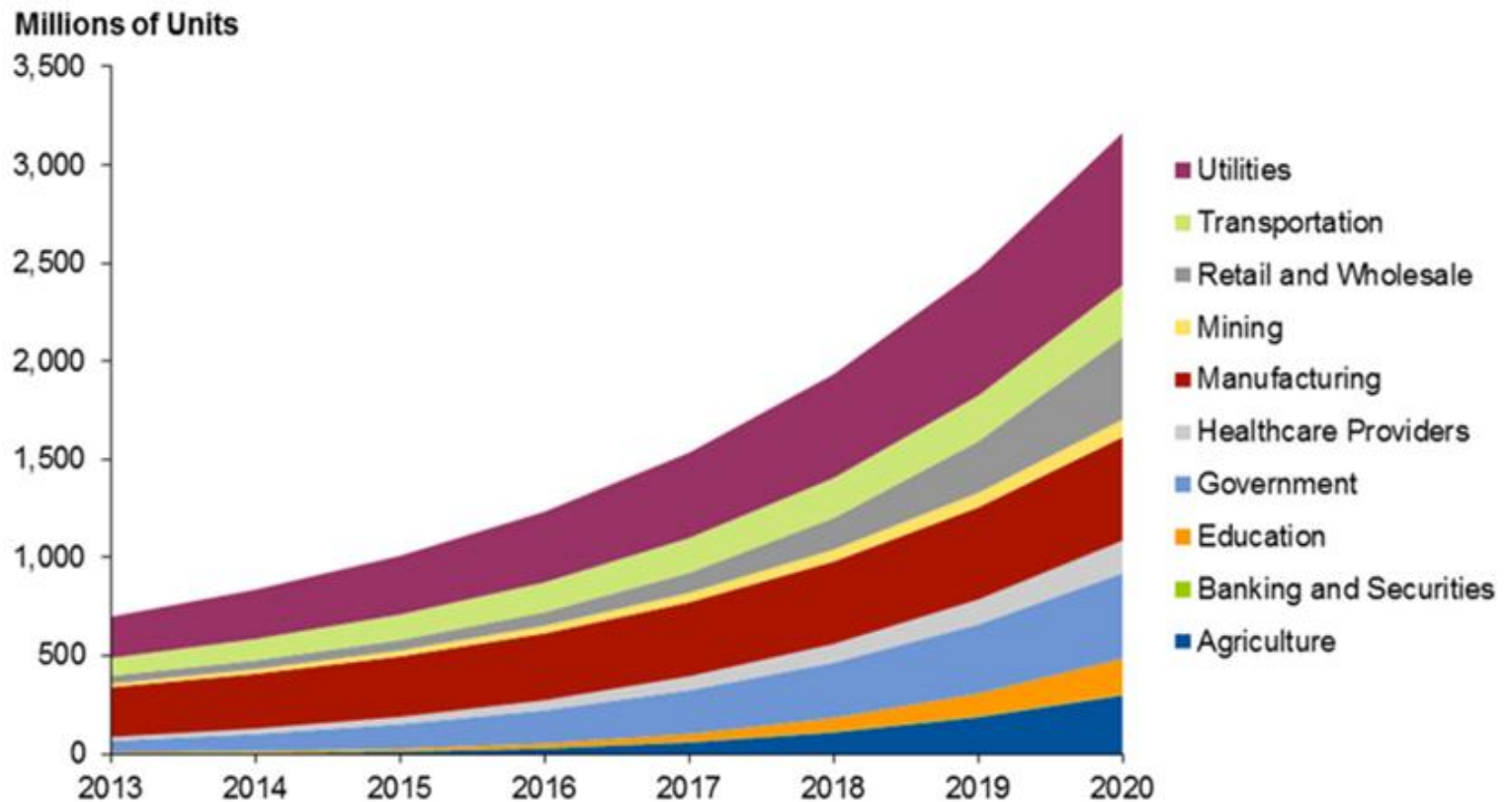
C3 IoT AT A GLANCE

- Founded in 2009
- Global leader in enterprise IoT platform and applications software
- 7 countries, 5 offices
- 70 million devices/sensors (smart meters, generation, distribution) covered by C3 IoT contracts
- Glassdoor Rating of 4.9/5



IoT ADOPTION BY INDUSTRY

IoT Adoption Is Growing, With Manufacturing and Utilities Estimated to Have the Largest Installed Base of Things by 2020



Installed base of things (in millions of units) as per the verticals 2013 through 2020.

Source: Gartner 2014

SMART CONNECTED PRODUCTS ARE TRANSFORMING COMPANIES & COMPETITION



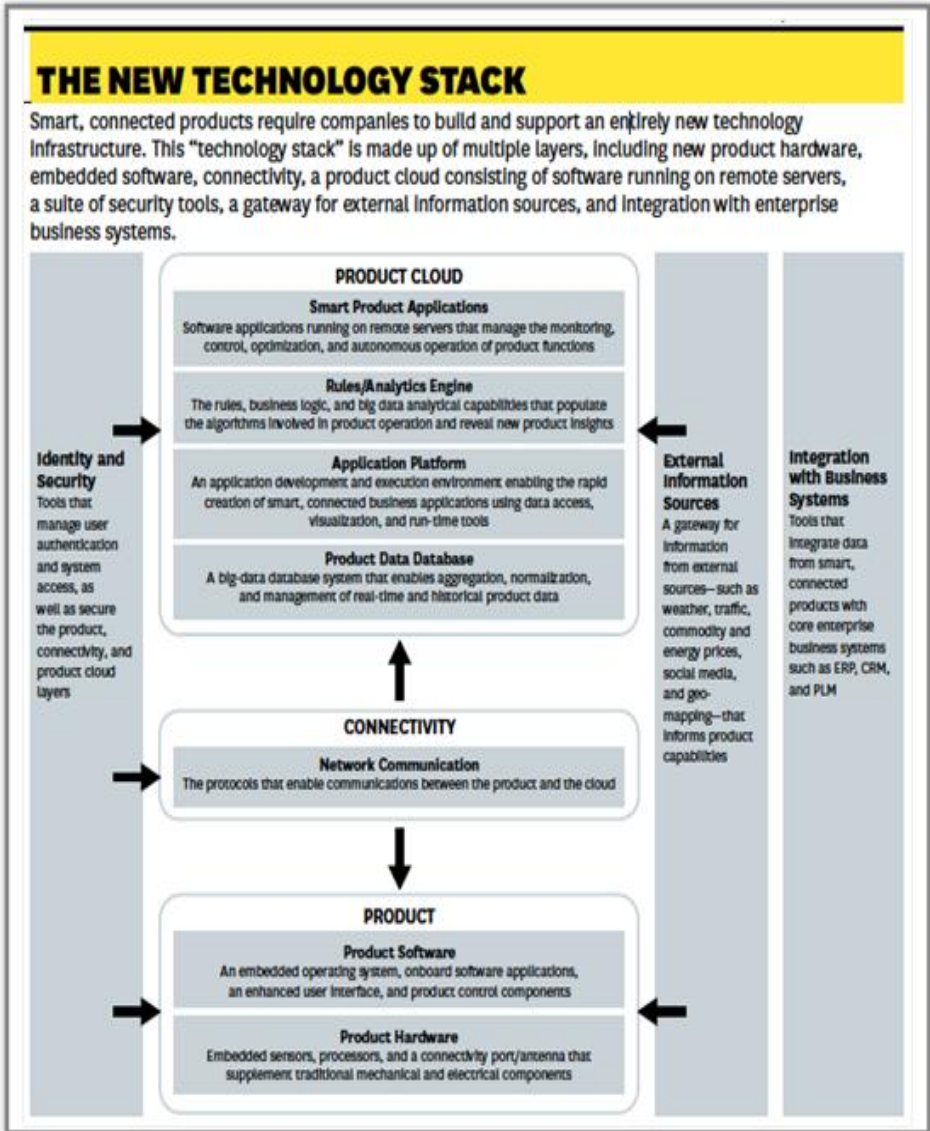
SMART, CONNECTED PRODUCTS REQUIRE A NEW TECHNOLOGY STACK



TITLE

How Smart, Connected Products Are Transforming Competition

BY
Michael E. Porter &
James E. Heppelmann



C3 IoT PLATFORM

C3 Tools™ & Application Management ▶

C3 Integration Designer™

C3 Type Designer™

C3 Application Logic™

C3 Data Explorer™

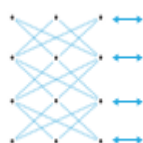
C3 Analytic Designer™

C3 Ex Machina™

C3 UI Designer™

C3 Provisioner™

Sensor Network (Edge)



Customer Systems (CRM)

- Online (web, mobile)
- Call Center
- Field Sales & Service
- Marketing

Enterprise Systems

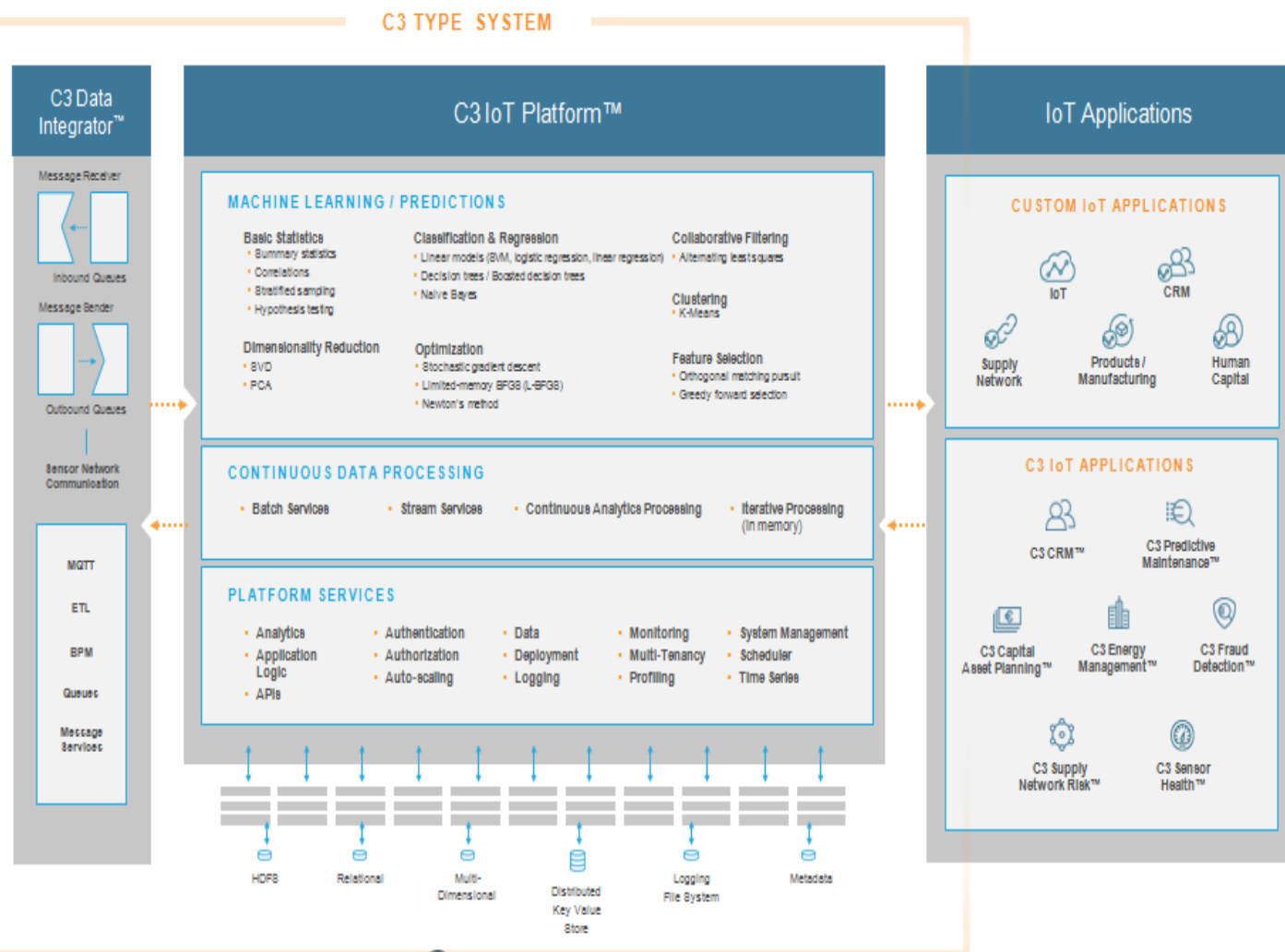
- Financials
- Manufacturing
- Supplier
- Logistics
- Asset Management
- Human Capital Management
- Billing
- Workforce Management
- HDFS

Operational Systems

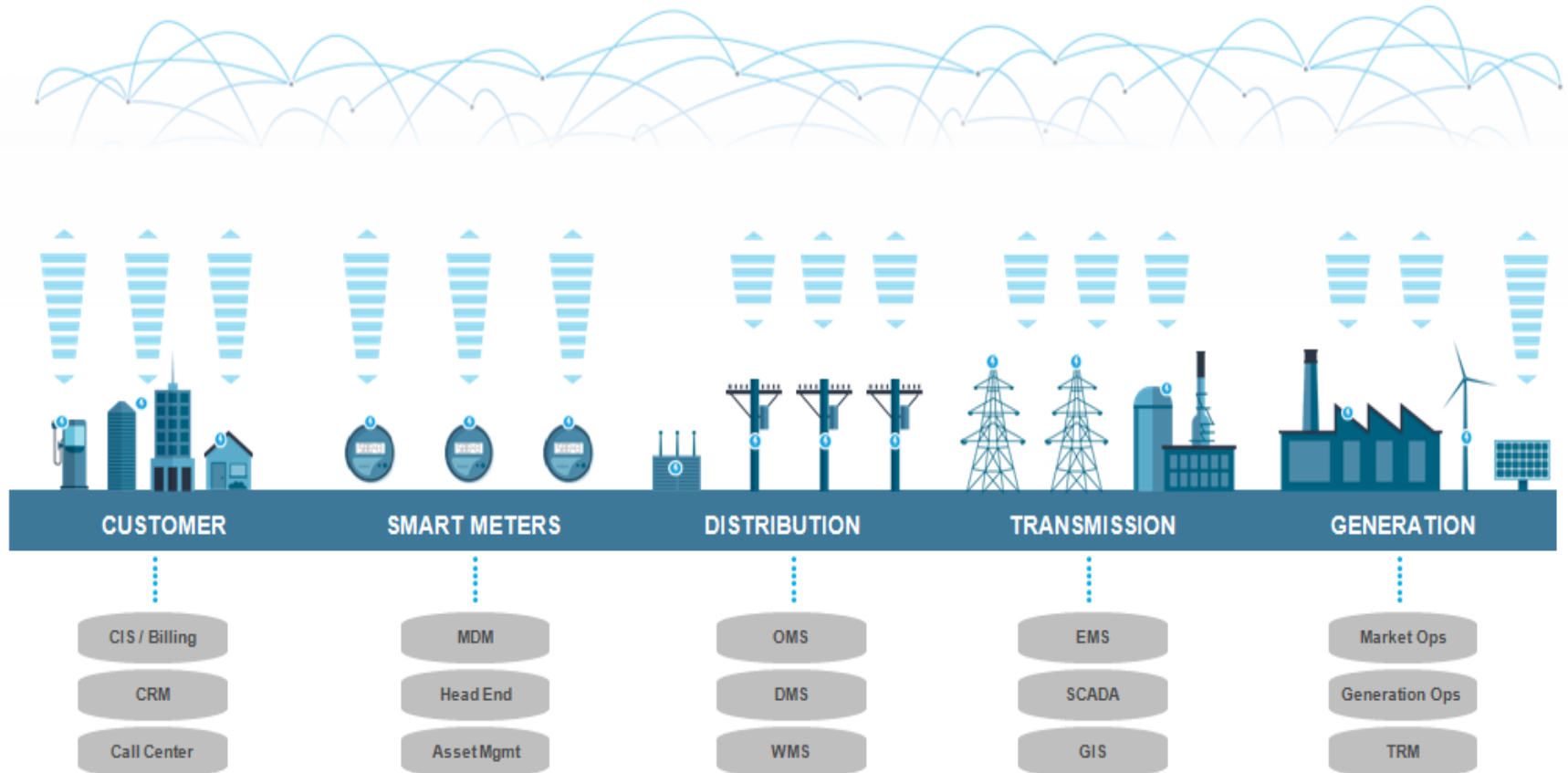
- SCADA
- DRMS
- DMS
- OMS
- EMS
- GIS
- GMS

Other External Sources

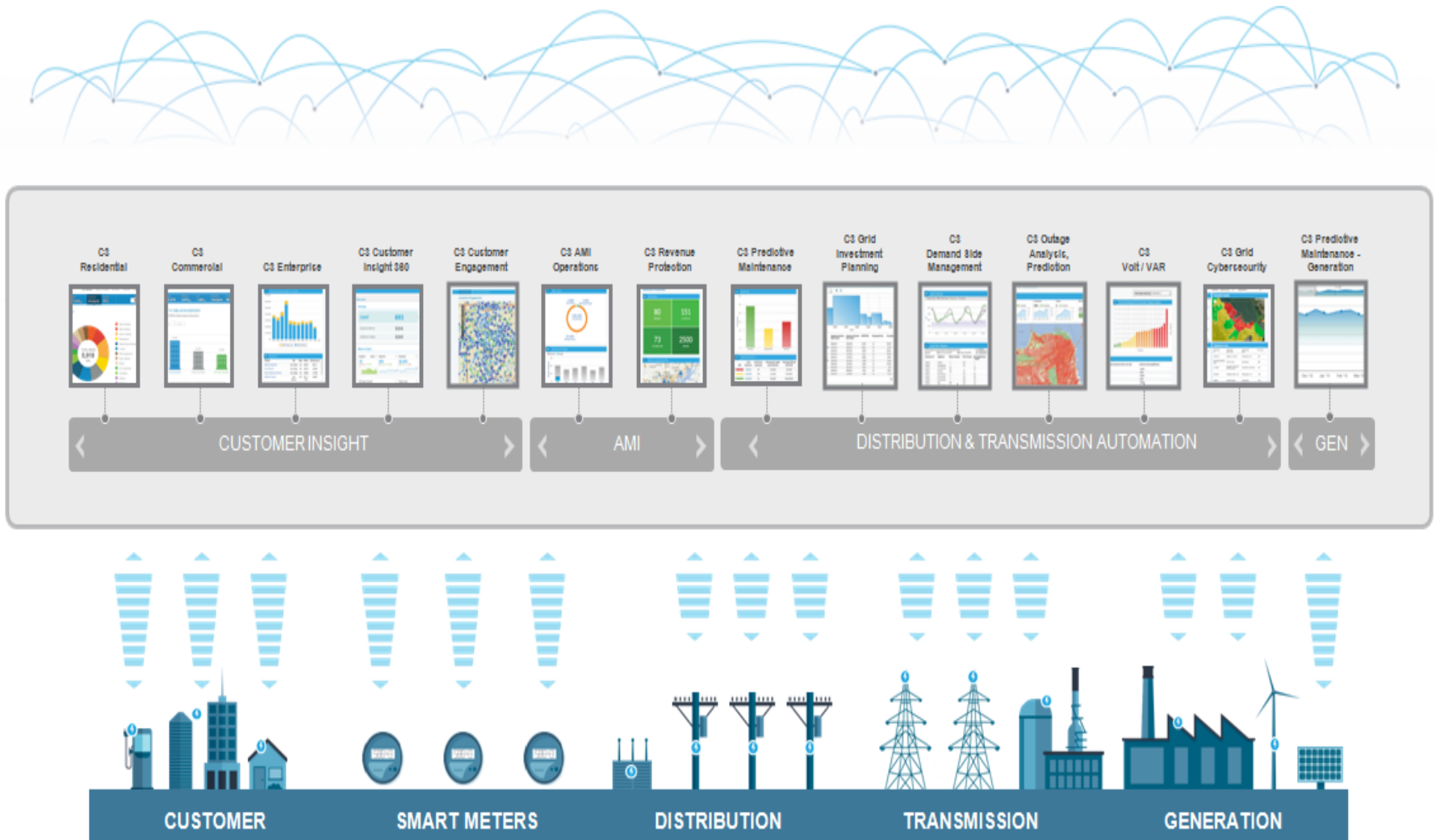
- Social Media
- Weather, Traffic, Prices
- Google APIs



THE SMART GRID

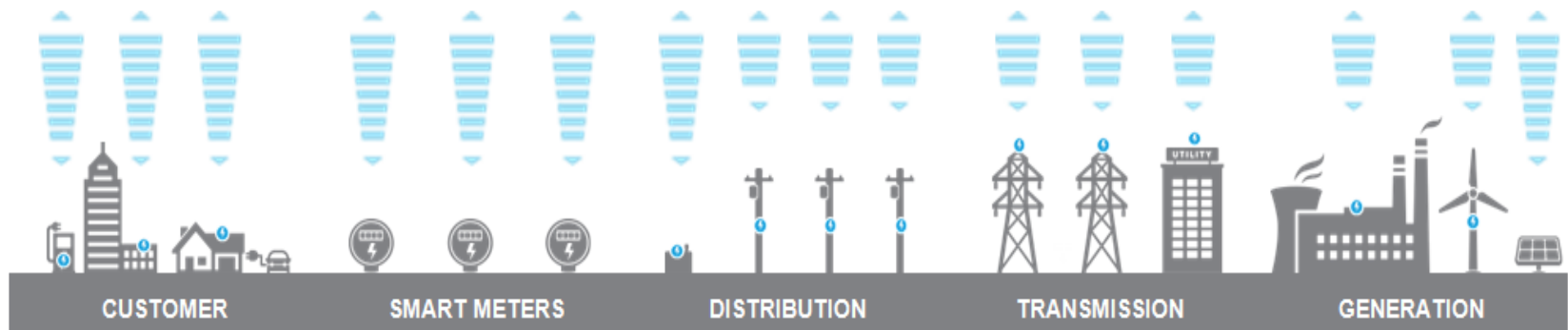


C3 ENERGY SMART GRID APPLICATIONS

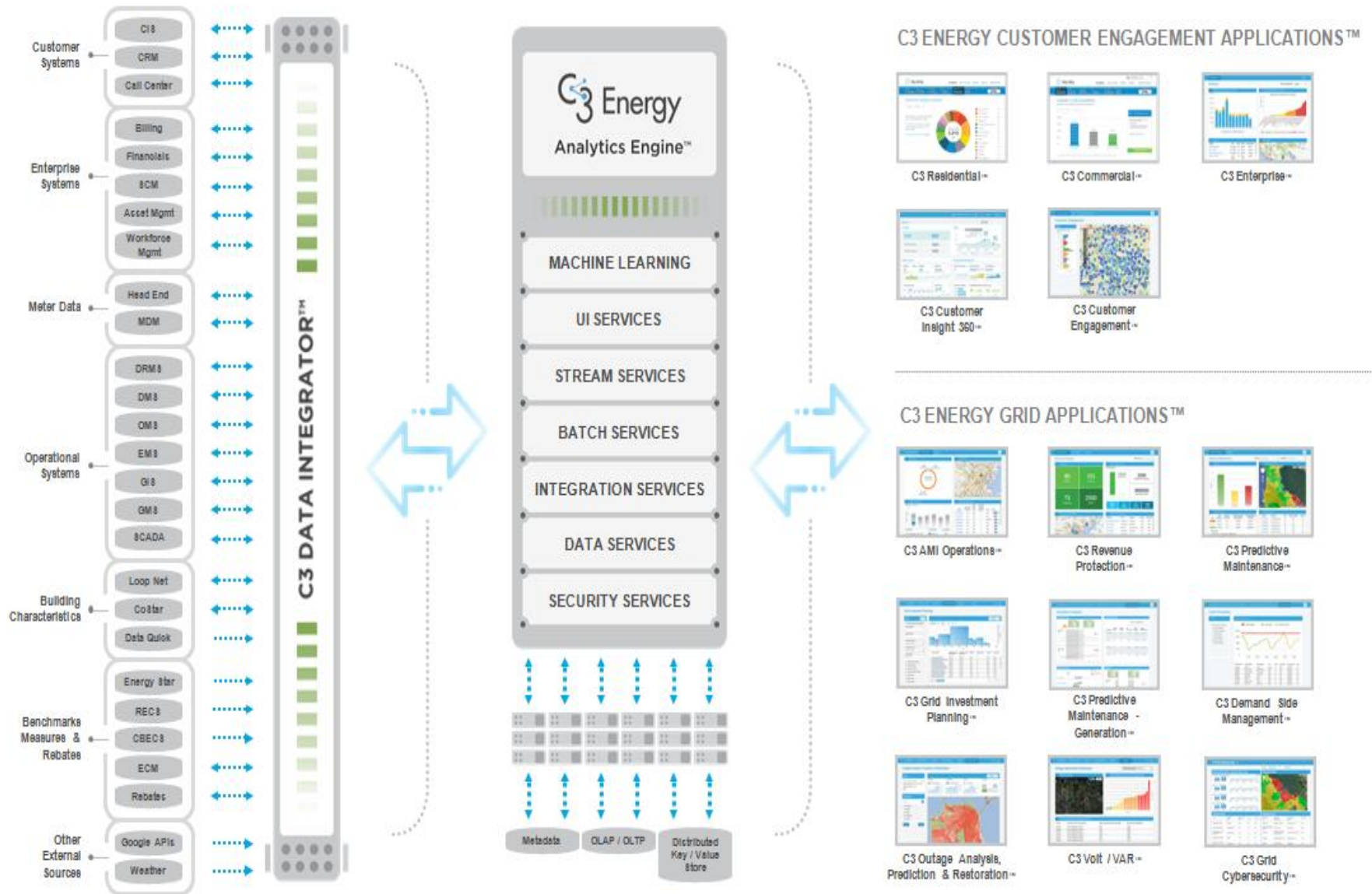


C3 IOT SMART GRID SOLUTIONS ACROSS THE VALUE CHAIN

\$300 per meter in Annual Economic Benefit



C3 IOT SMART GRID ANALYTICS



LEADING COMPANIES USE C3 IoT



C3 IoT PRODUCT TRIALS



Solution

A low-price entry point for customers to quickly realize IoT business value



C3 IoT Platform™

comprehensive design, development, provisioning, and operating platform for enterprise IoT applications

Design, build, and deploy custom IoT applications



Offering

Three products, each with four tiers that vary in complexity, duration, and price



C3 IoT Applications™

industry-tested and proven enterprise-grade applications built on a cohesive platform architecture

Try a pre-built, tested, and proven IoT application



duration

4 weeks -16 weeks



C3 Enterprise Data Lake™

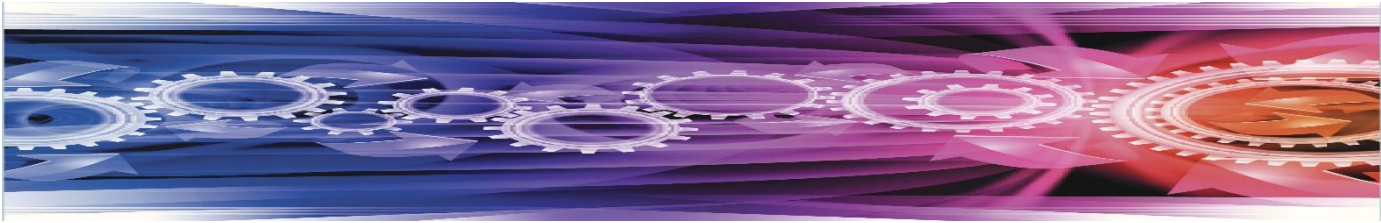
data repository to access all structured and unstructured data with limited number of C3 Tools and APIs

Extend data model, query data, and write analytics and machine learning models



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