# Are you ready for this ????

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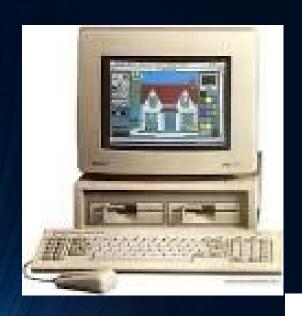
## **Commercial Computing Progress**







## **Personal Computing Progress**









## **Retail Computing Progress**









## Three Waves of IT Driven Competition First Wave- 1960's and 1970's

- Move from manual, paper processes
- Automated activities in the value chain
  - Order processing
  - Bill paying
  - Computer aided design
  - Manufacturing resource planning
- Productivity increases
  - New data captured and analyzed
  - Processes standardized



# Three Waves of IT Driven Competition Second Wave- 1980's and 1990's

- Rise of the Internet
- Enabled coordination / integration
  - Suppliers
  - Channels
  - Customers
  - Across geographies
- Allowed global integration
  - Supply chain



# Three Waves of IT Driven Competition Third Wave- Now

- IT integral part of the product
  - Embedded sensors, processors
  - Embedded software, connectivity
- Product cloud
  - Product data stored and analyzed
  - Improved product performance / productivity
- Potential to be the biggest yet
  - Productivity
  - Value chain









## **Data Center of the future**

Are you ready for this ??



## Retail store of the future

Are you ready for this?



## **Airport of the Future**

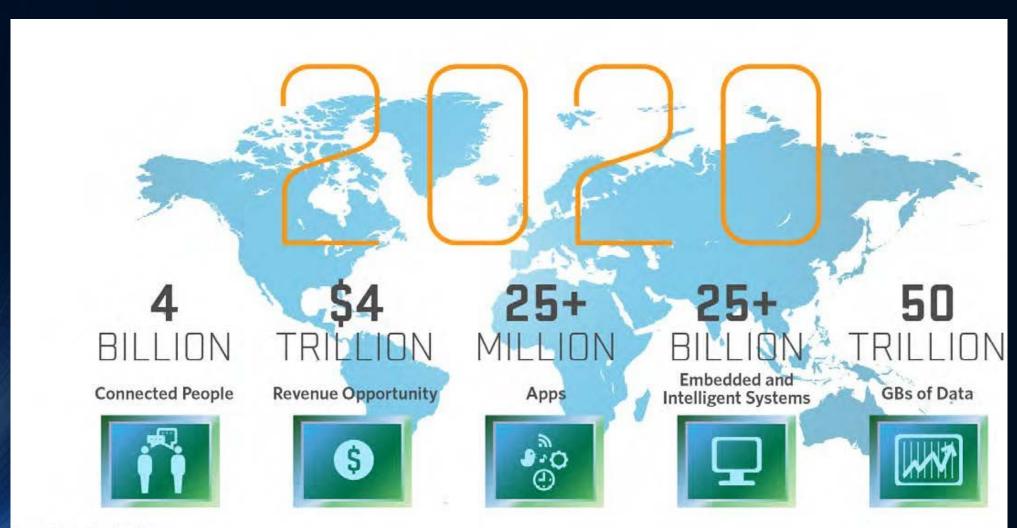
Are you ready for this?



## The Future is NOW!!



## THE OPPORTUNITY



Source: Mario Morales, IDC

### What does this mean for service?

• In terms of customer requirements?

• In terms of customer expectations ?

• In terms of service models?



## The New Technology Stack

#### PRODUCT CLOUD

#### **Smart Product Applications**

Software applications running on remote servers that manage the monitoring, control, optimization, and autonomous operation of product functions

#### **Rules/Analytics Engine**

The rules, business logic, and big data analytical capabilities that populate the algorithms involved in product operation and reveal new product insights

#### **Application Platform**

Identity and

Security

Tools that

manage user

and system

access, as

authentication

well as secure

product cloud

layers

connectivity, and

the product,

An application development and execution environment enabling the rapid creation of smart, connected business applications using data access, visualization, and run-time tools

#### **Product Data Database**

A big-data database system that enables aggregation, normalization, and management of real-time and historical product data

#### CONNECTIVITY

#### **Network Communication**

The protocols that enable communications between the product and the cloud

#### PRODUCT

#### **Product Software**

An embedded operating system, onboard software applications, an enhanced user interface, and product control components

#### **Product Hardware**

Embedded sensors, processors, and a connectivity port/antenna that supplement traditional mechanical and electrical components

#### External Information Sources

A gateway for information from external sources—such as weather, traffic, commodity and energy prices, social media, and geomapping—that informs product capabilities

#### Integration with Business Systems

Tools that integrate data from smart, connected products with core enterprise business systems such as ERP, CRM, and PLM

## Customer requirements / expectations

### End User

- Distributed technology will REALLY be distributed geographically
- Data gathering mission will require higher availability of lower level technology
- The expectation will be that service costs should be low due to the old thinking of service being a percentage of product cost.

#### OEM

- Must develop the ability to staff and scale quickly to execute technology deployments and upgrades
- Traditional field staffing models will not work

### Service models

- Improvements in predictive maintenance and service productivity
- Product data that can reveal existing and future problems
  - Enables timely repair
  - More remote repairs
- Real time product usage and performance data
  - Reductions in field service dispatch cost
  - Efficiencies in spare parts inventory control
- Ability to assist the customer in managing their technology landscape

