

# A Cloud Journey for **Manufacturing**



# DIGITAL TRANSFORMATION FOR MANUFACTURING

## Market Trends

"If you build it, they will come" is no longer a viable business strategy. Today's marketplace is driven by digital transformation. Customers purchase what they want, when they want. At any time, locally or abroad, a customer can purchase any number of products online and their order can arrive within 24 hrs or pick-up in store same day with Amazon and Walmart leading the way.

These trends have had an impact on the way products are manufactured as the demands are no longer cyclical, but dynamic. Meaning manufacturers must have enough product in the supply chain to meet the consumer's demands or risk losing brand loyalty and profits.

In addition, the industry is experiencing a revolution with the benefits of Cloud Computing. Most of the US and Europe is leveraging cloud technology to create Smart Manufacturing, which leverages elastic compute capabilities to enhance CAD, CAE and CAM in real-time. Companies also see benefits in ERP, financial management, analytics and workforce training systems. The emergence of new technologies such as IOT, 5G and AI contribute to the reach, speed and intuitiveness redefining the competitive marketplace landscape.

**OVER 90%** of global enterprises have reported using cloud computing in some part of their business<sup>(01)</sup>. Gartner estimates that the 'cloud shift', which refers to the transition from traditional spending on IT offering to cloud services, will be worth \$111 billion in 2016 and grow to \$216 billion in 2020<sup>(02)</sup>.

## Challenge Overview

Speed to market and costs of production can make or break a manufacturing company. Ensuring that you have a supply chain and logistics strategy in place guarantees product is always available.

Organizations without an integrated Just-In-Time(JIT)/Lean Manufacturing Software, risk reducing flow times within production systems as well as response times to and from suppliers and customers.

Keeping costs down within the supply chain, the manufacturing process and the logistics/distribution are, needless to say, key to maintaining revenue and remaining competitive.



### Internal Factors

Material Costs

Development/Manufacturing Costs

Overhead Expenses and Labour Costs

Technology and Infrastructure

Cycle Time and Time to Market

Estimated Product or Service Life

Corporate Objectives

Customer Discounts for Larger Purchases



### External Factors

Supply Chain Costs & Constraints

Weather

Competitive Landscape

Digital Transformation

Technological Advancements Changes (IOT, 5G, AI)

Distribution Channels

Government Laws and other Regulatory Policies

Customer Demand

Customer Experience



# HOW CLOUD COMPUTING CAN **BENEFIT YOU**



## Business Continuity

The aim is to prevent major interruptions to mission-critical services, then re-establish full function to the organization smoothly and in a timely manner. Cloud Computing enables a high level of redundancy and back-up at a lower cost than traditional managed services.



## Agility & Focus

This provides shorter development cycles for new products increasing your speed to market. During the early phases of the journey, only move non-critical workloads to the cloud.



## Cost Savings

The cloud model reduces CAPEX and OPEX costs, as the need to buy more servers, software, equipment and associated utilities are no longer required. Operations can allocate resources as required based on the business needs for increased speed to market.



## Green IT

Virtualized environments have benefits; reducing energy consumption and carbon footprint that is associated with setting up a physical infrastructure.



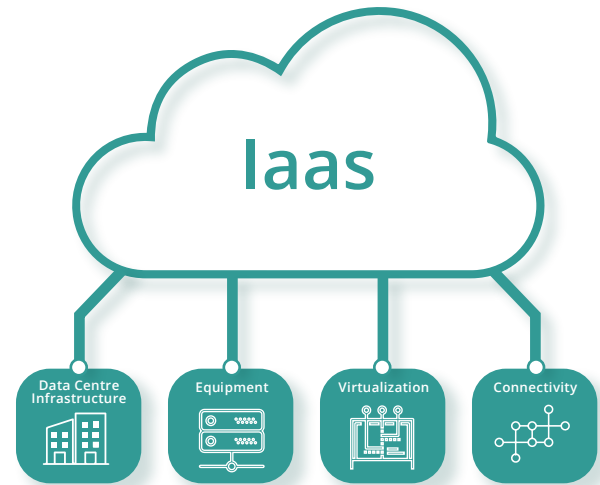
## THE DIGITAL **MIGRATION**

Cloud-based services are expected to account for nearly half of all organizational level software usage among manufactures by 2023<sup>(03)</sup>.

The cloud platform connects and reconfigures virtualized resources to meet business goals. It eliminates the constraints surrounding physical IT and accelerates the traditional pace of experimentation and development, resulting in **increased speed to market at a lower cost.**

## CHOOSING THE RIGHT MODEL & CONNECTIVITY SERVICES

**Infrastructure-as-a-service (IaaS)** - This cloud model allows businesses to buy infrastructure resources and relevant managed services to engage their employees with high value activities to support business outcomes, rather than purchase servers, software, data centre space and/or network equipment. Resources can be brought up for testing or development and then taken down at a lower cost.



### Cloud Deployments

Digital transformation to the cloud presents many options and not all workloads need to move to the cloud at the same time. This allows for ample planning within the organization. First an assessment is required to help determine which workloads should be moved to the cloud and which type of cloud deployment best suits your business needs.



#### Private Cloud

Most secure of all clouds, the infrastructure is owned by the organization that sells cloud services, however it is operated solely for a specific company.



#### Public Cloud

Infrastructure is made available to the public or large industry groups and is owned by the organization that sells cloud services.



#### Hybrid Cloud

Infrastructure includes Private and Public Clouds and remain separate entities but are linked to provide services.

### Connectivity

Equally as important is understanding the connectivity requirements to support the cloud transformation. Wireless services build a high availability connection into offices. With more applications and services being deployed into the cloud, reliable connectivity has become critical to business operations. By combining business grade wireless with fibre or broadband connectivity, businesses can deploy cost effective, high availability connections into their offices.

Wireless connectivity offers true access diversity. Wireless connections are serviced from the roof of buildings, meaning the last mile access does not share a common access point or common telco room with fibre or broadband connectivity.

Private connections to cloud service providers improve performance and security. Typically, businesses start out connecting to cloud service providers through the Internet. Businesses with large or critical cloud service deployments may significantly benefit from private connections to cloud service providers.

### Private Cloud Benefits

#### 1. Performance

Private connectivity offers better data throughput and latency to cloud services than an internet based connection company.

#### 2. Reliability & Control

Businesses can manage their own cloud service connections, traffic shaping, prioritizing applications, and users on their network. Redundant private internet connections to cloud service providers can increase uptime through failover and load sharing configurations.

#### 3. Security

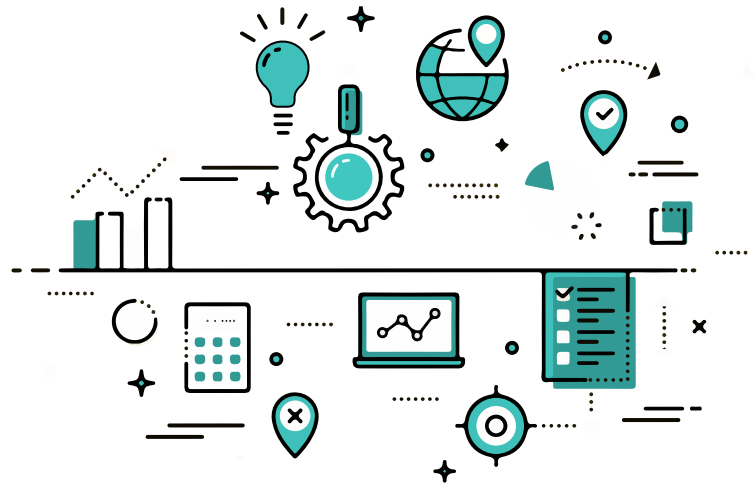
Private connectivity reduces exposure to public networks and allows businesses to implement and manage their own network security policies.



# TERAGO METHODOLOGY

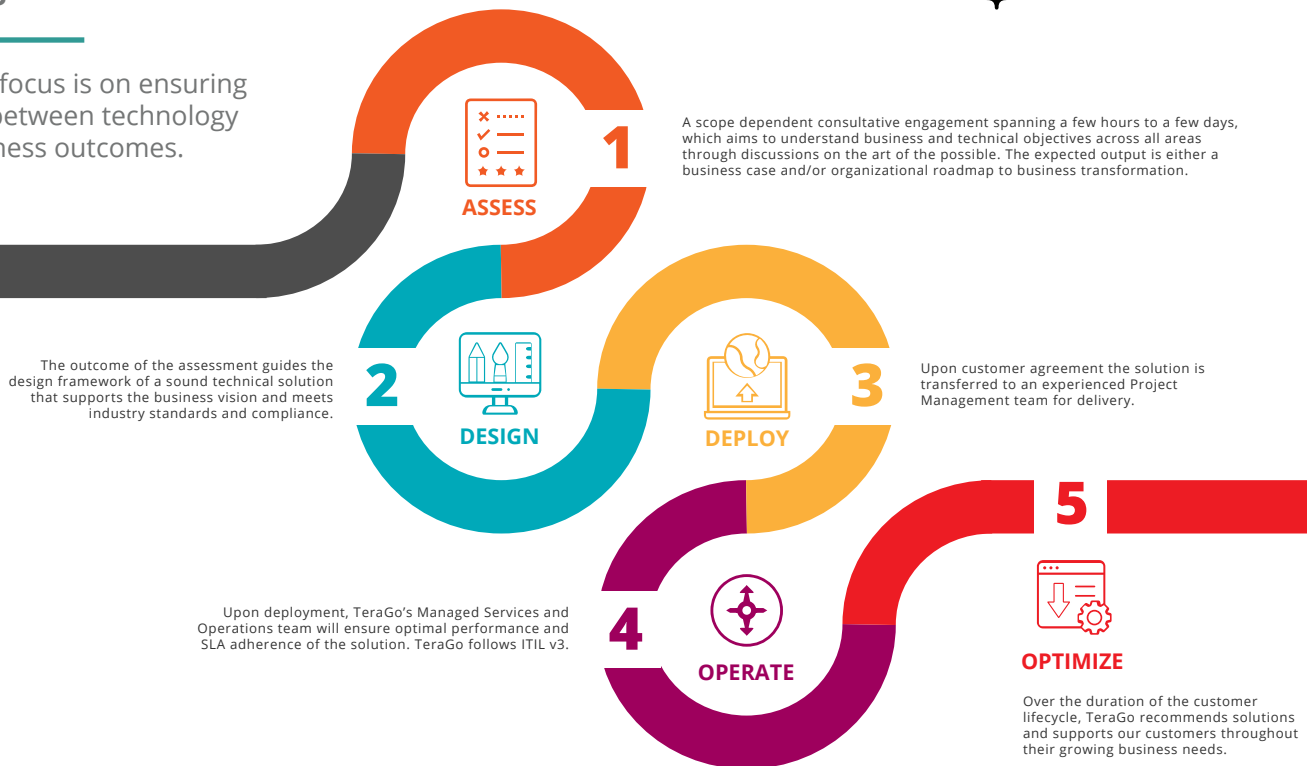
Today, the cloud is no longer about just simplifying infrastructure but about providing faster applications, better IT performance, faster development & deployment of new applications, services & features, as well as accelerating 'go to market' strategies.

Internal capabilities to support a successful cloud deployment are a typical gap within organizations. Professional and managed services are required to create and drive digital transformation.



## Stages

TeraGo's focus is on ensuring synergy between technology and business outcomes.



## Conclusion

Cloud Computing provides an organization with the responsiveness to meet dynamic customer demands and to deliver on new user experiences by bridging the leap to using emerging technologies such as IOT, 5G and AI. The benefits also include reduced infrastructure spend and increased speed to market, domestically and globally.

The cloud also allows manufacturers the flexibility to move workloads between private and public cloud deployments in order to tailor a solution that takes into consideration security, scalability and cost. A Cloud Assessment is the first step in defining an IT strategy that will deliver on the power and promise of the cloud.

# ABOUT TERAGO

## At a Glance

**150**  
EMPLOYEES

**3000**  
CUSTOMERS

**NATIONAL**  
WIRELESS AND FIBRE NETWORK

**5G**  
97% OF ISSUED 24  
& 38GHZ LICENSES

**5**  
DATA  
CENTRES



TeraGo owns a national spectrum portfolio of exclusive 24GHz and 38GHz wide-area spectrum licenses. The company serves customers in major markets across Canada including Toronto, Montreal, Calgary, Edmonton, Ottawa, Vancouver and Winnipeg. TeraGo Networks is a Competitive Local Exchange Carrier (CLEC) and was recognized by IDC as a major player in MarketScope Cloud Vendor Assessment.



### Industry Specific Compliance Standards

Our facilities are audited annually on the Controls at a Service Organization Relevant to Security & Availability (AICPA) and Security & Availability principles (TSP 100). TeraGo has AT 101 SOC 2 Type 2 reports available. Existing clients and qualified opportunities can be provided these reports upon request. Internally we are PIPEDA compliant. We provide our customers the ability to be compliant with many certification standards and PIPEDA, PHIPA and GDPR are among those certifications. There is still a responsibility of the client to ensure that components under their control also meet or exceed the compliance standards in order for compliance to be maintained. Please note, data centres themselves are generally not PCI / HIPAA / PIPA / FIPPA compliant. The onus is typically on the customer to ensure application compliance to these standards. TeraGo welcomes the opportunity to work with our clients to assist in this area. This generally will consist of creating a shared responsibility document that outlines responsibility for each of the controls of a specific certification.

### TeraGo Compliance and Industry Standards

SOC 2 compliance: TeraGo Cloud Data Centres have AT 101 SOC 2 Type 2 reports available in continuity since 2013

### Disclaimer

This document is intended for general informational purposes only and does not take into account the reader's specific circumstances, and may not reflect the most current developments.



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