Application Modernization

CI&T offer

Felipe Souza • fsouza@ciandt.com

DIGITAL **SPECIALIST**

50+
Blue Chip Clients
from several industries

75
NPS Industry leading
client NPS

93
% Employee Retention
Industry benchmark

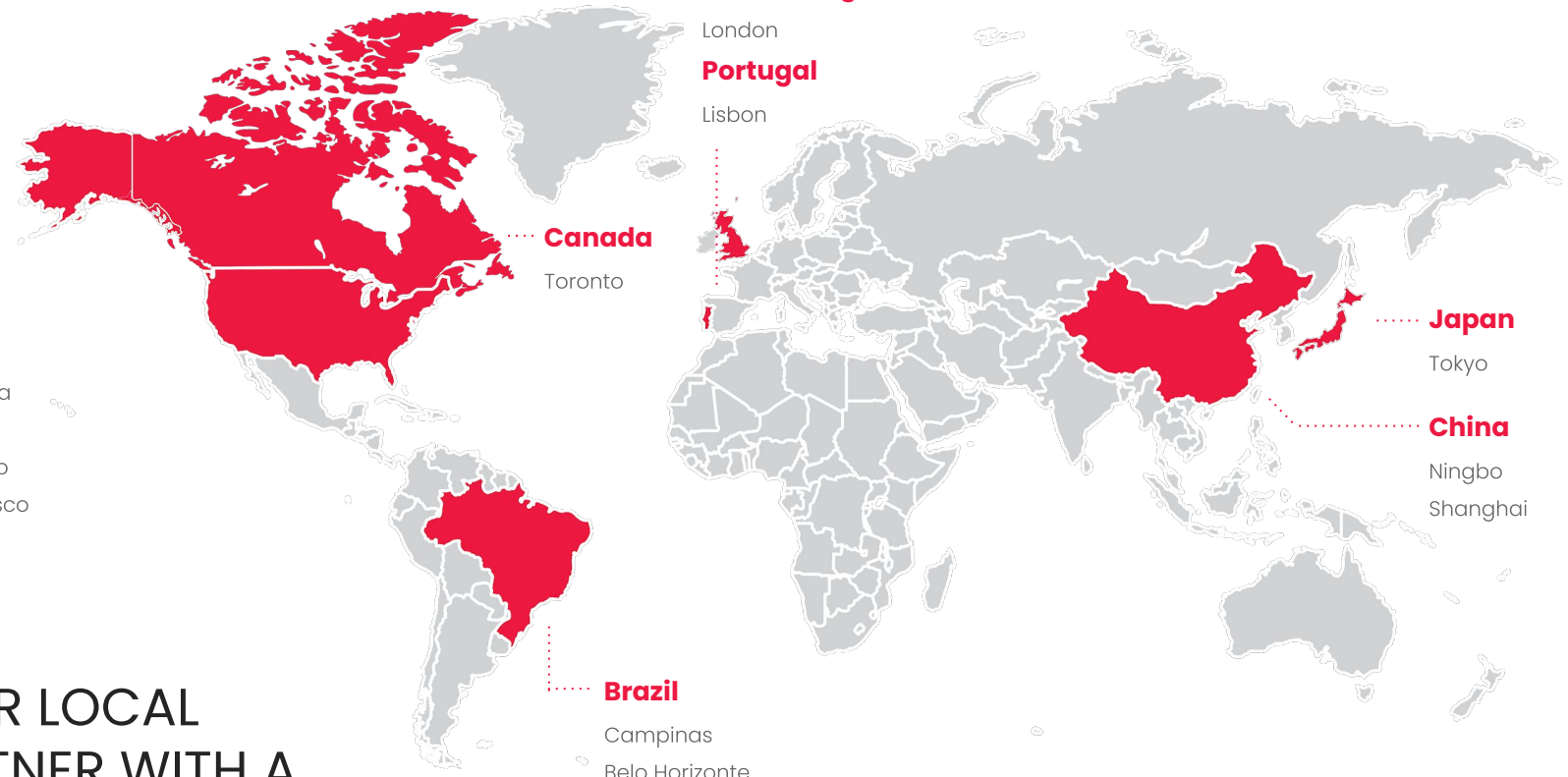
GPTW
Certified "Great Place to
Work" 13 consecutive
years via GPTW Institute

Global
Presence with offices
in the US, Brazil, Canada,
UK, Portugal, Japan, China
and Australia

200Mi
USD Net
Revenue with CAGR of 30%

25
years of consecutive
growth

3.500
Strategists, designers
and software engineers



USA
Atlanta
Austin
Chicago
Houston
New York
Philadelphia
Princeton
San Antonio
San Francisco

Canada
Toronto

United Kingdom
London

Portugal
Lisbon

Japan
Tokyo

China
Ningbo
Shanghai

Brazil
Campinas
Belo Horizonte
Rio de Janeiro
São Paulo

YOUR LOCAL PARTNER WITH A **GLOBAL FOOTPRINT**

WE'RE YOUR END-TO-END DIGITAL SOLUTIONS PARTNER

With a focus on business outcomes, we work with your team to quickly identify and prioritize the digital initiatives that will create the most impact.

We then dedicate a team of strategists, designers and engineers to deliver value in 90-day cycles.

01 DIGITAL STRATEGY & ROADMAP

We define the people, process and technology changes required for business success.

02 DIGITAL TRANSFORMATION

We evolve your business model, operating model and culture so you can adapt to change faster.

03 CUSTOMER EXPERIENCE

We map customer journeys and analyze behavior to fuel growth and improve customer NPS.

04 DATA, AI & MACHINE LEARNING

We enable data-led decisions and apply AI and ML capabilities to accelerate performance.

05 DIGITAL PRODUCTS & PLATFORMS

We design and build Web/mobile apps and platforms to drive revenues and reduce costs.

06 AGILE SOFTWARE DEVELOPMENT & IT MODERNIZATION

We bring agile, lean and DevOps practices to deliver what matters most early and often.

Where We Excel

CI&T has been instrumental in the technology strategy and flawless execution of thousands of initiatives.
We have partnered with the largest brands to bring excellence on how to best serve their customers.

	App Development	Digital Experience Platform	Platform Modernization	SRE	Data & Analytics
Tech Challenges	• Customer journey • UI/UX • Web and Mobile	• Drupal (Core and Site Factory) • Acquia CDP, Agile One, Mautic, Lyft • Adobe	• Cloud-native Architecture • Microservices / K8s • Telemetry • Cloud Migration	• CI/CD Pipelines • Test Automation • DevSecOps	• Data Aggregation • Machine Learning • Realtime streams • Data Reengineering and Migration
CI&T Clients	Nestlé, Google, Coca-Cola, iHeart MEDIA, Konica Minolta, AB InBev	Johnson & Johnson, Carrefour, Pfizer, Coca-Cola, Nestlé, Commonwealth Financial Network	AB InBev, Kohl's, MLB, Panasonic, BlackRock, Modular Mining, Motorola, iHeart MEDIA	Panasonic, AB InBev, iHeart MEDIA, Motorola, MLB	Kohl's, Coca-Cola, Sensormatic by Johnson Controls, AB InBev, iHeart MEDIA, Nestlé, Motorola


ânima
EDUCAÇÃO
cielo
Panasonic
AB InBev
MAJOR LEAGUE BASEBALL
astellas
GrupoBoticário
ALPARGATAS
Telefônica
vivo
Invesco
Coca-Cola
VISA
ALPARGATAS
elo
IMPACTING
THE WORLD'S
MOST VALUABLE
BRANDS
BLACKROCK
Itaú
raízen
bradesco
motorola
a lenovo company
Google
iHeartMEDIA
PORTO SEGURO
Johnson & Johnson
Nestlé
HONDA
Ingredion
Carrefour
BANK OF THE WEST
BNP PARIBAS
SulAmérica
MITSUI SUMITOMO
KOHL'S
CI&T

5 Biggest
Challenges to
App Modernization

Culture

Process and **culture modernization** (DevOps for example) must follow or you might end up with the same challenges but running on kubernetes.

Challenges

Be prepared to tackle **new types of challenges.** Modernizing architecture will solve some problems while creating different type of challenges. (i.e how to test safely in production)

Accelerators

Be open to consider **accelerators** from outside. Bringing solutions as services from outside providers (i.e. public cloud providers) can make the whole process simpler and faster.

Value

Deliver **business value as soon as possible**. It will allow you to validate your architecture design and also create confidence with business team that the investment return is solid.

Project to Product

Be ready for a mindset change across the team. **Siloed team compositions** work slowly and ineffectively on modernized contexts. Reorganizing the team in smaller multidisciplinary teams usually performs better.

From Project-oriented to Product-oriented

PROS

1. Well defined ownership for each product

2. Quicker access to capabilities and disciplines of the team, increasing collaboration.

3. Ability of the squad for hyper focus knowledge on specific modules or parts of the system

4. Less throw-over-the-wall movement between different capabilities (i.e Arcs <-> Devs)

5. Evolutions involving refactoring are easier to handle because the team can specialize on the module

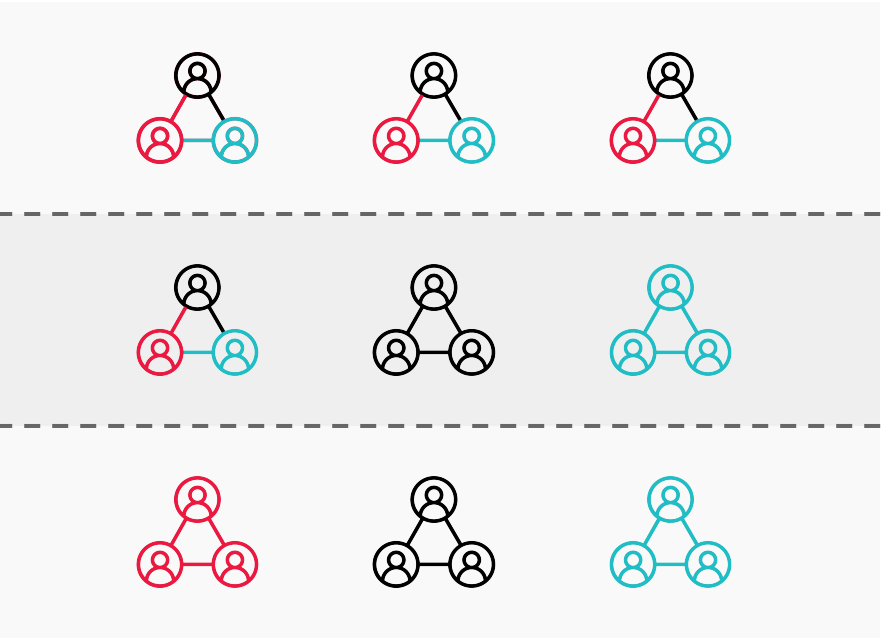
CONS

1. Requires more effort to keep all squads in sync on cross-company subjects

2. Decentralized discipline increases leadership effort to keep alignment

Top learnings

From **Project**-oriented to **Product**-oriented



1. It's easier to start small, with a few stronger believers of the model and then slowly expand to other squads as the company has the opportunity to adapt

2. All disciplines (i.e. development, architecture, operations, etc) must take part and believe in the transformation

3. Starting the process at top leadership level and creating shared accountability there is a good way to break down barriers between disciplines

4. Creating incentives for cross-team recognition helps reduce resistance between different areas

5. Cross team alignment between disciplines in the form of guilds and chapters help reduce cross team misalignment

APPLICATION MODERNIZATION

LEGACY APPLICATIONS OPERATING IN A CLOUD-NATIVE WAY

01 WHY DOES IT MATTER?

1. 82% of CEOs have a digital transformation initiative or management initiative, up from 62% in 2018. **IT/Application modernization** became paramount to enable this.

2. Although lift-and-shift may result in some cost-efficiency in the short-term, the real potential of a public cloud (Azure) is unlocked by leveraging **cloud-native architectures**.

3. This includes **key capabilities** like microservices, container orchestration, managed services, serverless, elastic infrastructure, telemetry, DevOps and Agile.

02 OUR APPROACH

1. Goals: Pave the road to efficiently modernize legacy applications using a prescriptive approach and Azure architecture.

2. Architecture design & validation: Understand and document the current architecture standards and constraints. Plan and validate how to accommodate those into the Azure blueprint cloud-native architecture.

3. Migrate the first microservice: Identify and execute the migration (*) of one microservice. This will create a reference implementation for future migrations.

(*) The target environment for this migration is UAT. The move-to-production should the discussed and planned during the engagement.

03 ENGAGEMENT MODEL

Deliverables:

1. A Technical Design Document (TDD) with the target cloud-native architecture using Azure. It also includes key decisions and a plan/roadmap to get there.

2. One microservice migrated and running on Azure in UAT.

3. A plan to migrate the remaining services to the new architecture.

Prerequisites: Azure setup, the target architecture should be based on the CI&T reference architecture.

Duration: 2-4 months

KEYWORDS

Kubernetes, Serverless, Containers, Microservices, CI/CD, Cloud Migration

TARGET AUDIENCE

CIO, CTO, CDO (Digital), VP of Engineering, Head of Product Delivery, Digital Product Directors/Mgrs

TARGET INDUSTRIES

CPG/Commerce, Financial Services, Healthcare, Media, Retail, Technology

Cases


AB InBev
A SUCCESS STORY

ABI CASE

Large scale sales B2B digital platform for distributors, sales people and "points of consumption"

MODERN TECH

- Cloud native, microservices
- Advanced Analytics
- Machine Learning

MODERN PROCESSES

- Customer Centricity
- Experimentation
- Product Orchestration
- Agility

Microservice platform

PLATFORM

Azure AKS

High-Availability
Multi Region
23 Nodes with AutoScaling

Istio

Traffic Management
Observability
M2M Authorization
Service Mesh
A/B Test

SECURITY

OAuth Compliance

Azure Key Vault

Management for Keys, secrets and certificates.

DEVOPS

Azure DevOps

Trunk-based Development
Azure Pipelines

Terraform

Infrastructure as Code to provision and manage cloud resources

argo

Continuous Delivery by Declarative GitOps

MONITORING

New Relic.

APM
Log aggregation,
Distributed Tracing
Service Map
Alerts

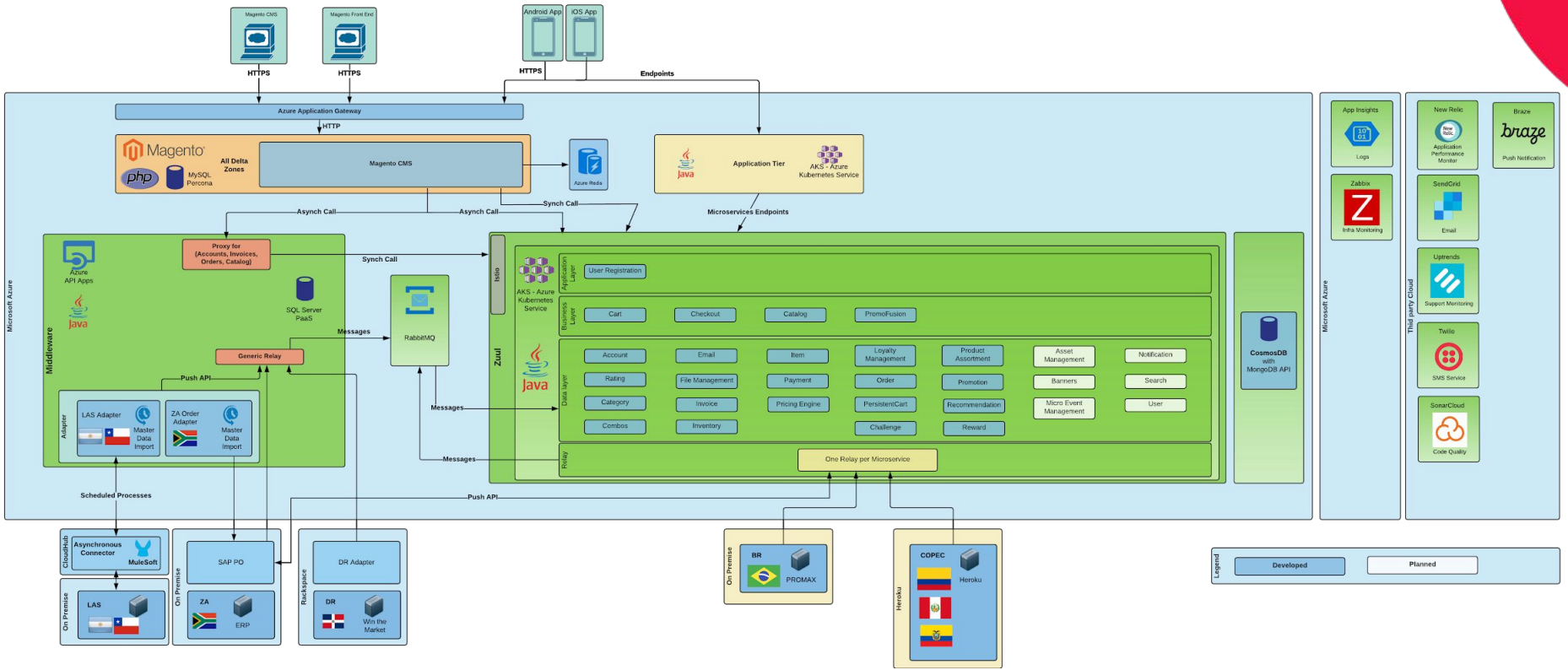
fluentd

Unified Microservices Logging Layer

Prometheus

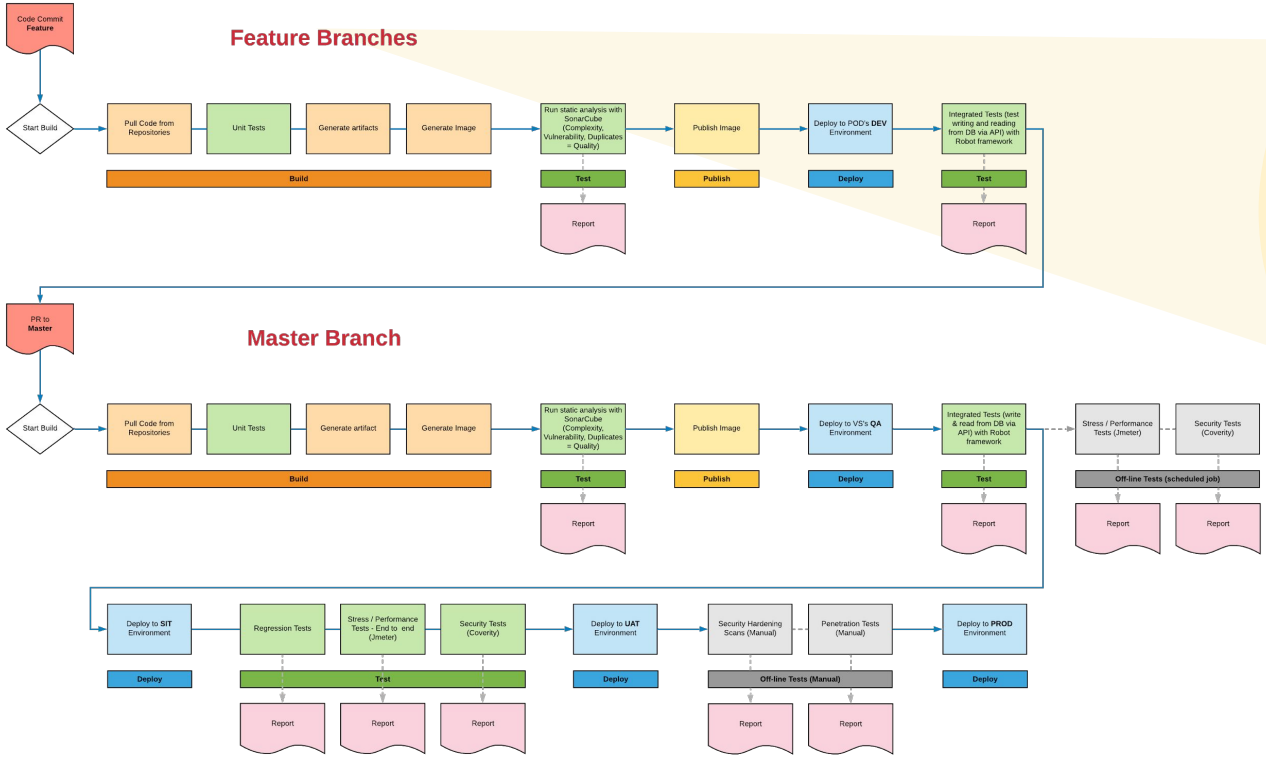
Collect Kubernetes Metrics and Logs

Under the hood

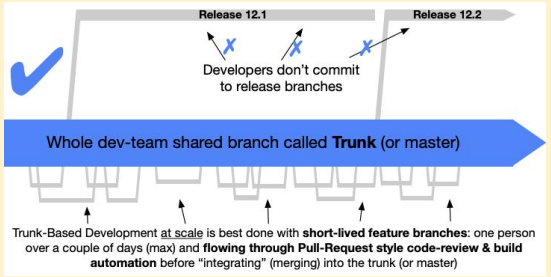


- Legacy system was modernized in flight, incrementally adding new features and supporting aggressive business growth for each country.
- Local markets are given control over which/when features are enabled for their region.

Agile at Scale



Next step



trunk-based

- Over 1,000 people working on expanding the platform and applications
- Strong SCM practices in place to allow fast lead time to production and no business disruption.
- Heavy use of test automation and CI/CD practices to enable multiple teams to develop in parallel.
- Once teams are decoupled and independent, switching to trunk-based development is more efficient


SELECT CASE
iHeartMEDIA

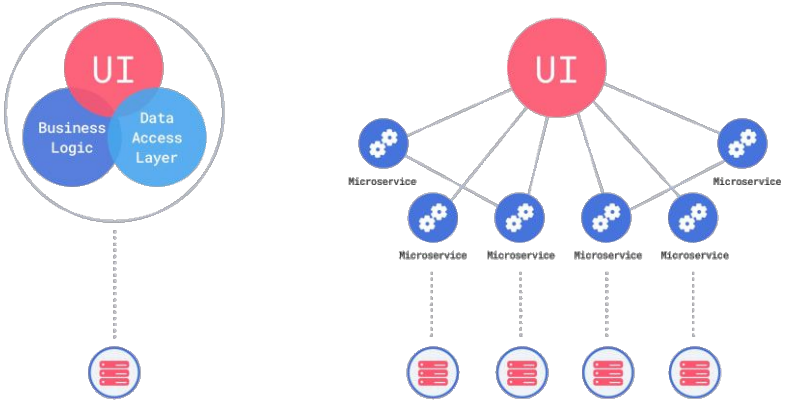
X1 Platform

Entire media-tech custom platform built to fulfill modern ad-tech needs

Traffic management

Ad selling/buying processes

Programmatic capabilities



From microsoft-based 20 years old infrastructure to cloud-native microservices kubernetes hosted and fully automated.

Gains:

- Lead-time to productions reduced in a whole order of magnitude, enabling business to respond and pivot strategies faster
- OPEX cost reduction of 50% or more for the migrated applications.
- New key-business functionality enabling new revenue lines (programmatic sales)

One of the largest media groups in the USA needed a complete revamp of the media tech platform in order to 1) capture more revenue by increased agility to implement new business opportunities and 2) dramatically reduce operational costs by implementing new processes, techniques and frameworks to increase efficiency

Technology as a key driver to modernize advertisement platforms

CI&T built an entire cloud-based platform for ads management

- Agility
- Cost reduction
- Reliability
- Scalability

Unlocking new revenue streams

The new ad platform enabled newer business models such as programmatic advertising to be put in place and better compete with other digital players

Huge focus on increasing operational efficiencies and reducing operational costs

The new ads ecosystem enabled processes to be executed up to **7x more efficiently, reducing operational costs** to sales and ads placement execution. The impact on the bottom line is being measured at **dozens of millions of dollars per year**

Open Banking

bradesco

OPEN BANKING

Vision: Vila Open Banking

Create and **support** the business initiatives in the **Open Banking** context by leveraging a new technological structure and process standard so the focus can be on the **Customer experience** and that at the same time adhere to the regulatory needs of the practice.

Strategic Pillars

- Adhere to the regulatory needs of Open Banking
- Evolve the current products and services leveraging data generated by Open Banking.
- Create new revenue generating businesses using Open Banking.

Key Themes

- **Executive Strategy** defined and communicated
- **Reference Architecture**
- Agile and Scalable **infrastructure.**
- Focus on **Security**
- Well defined **development processes**

Objectives and Key-Results (OKRs)

#1 Adhere to the regulatory needs of Open Banking

#2 Evolve the current products and services leveraging data generated by Open Banking.

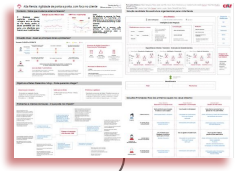
#3 Build an Agile and Efficient value delivery practice (Standardizing the ways of working around Lean Digital)

#4 Have an Agile and Modern Engineering, Architecture and infrastructure practice (Technological Agility)

#5 Develop and incredible team with well qualified, engaged and happy people, promoting a protagonistic approach through worker and management satisfaction.

The transformation journey

Portfolio



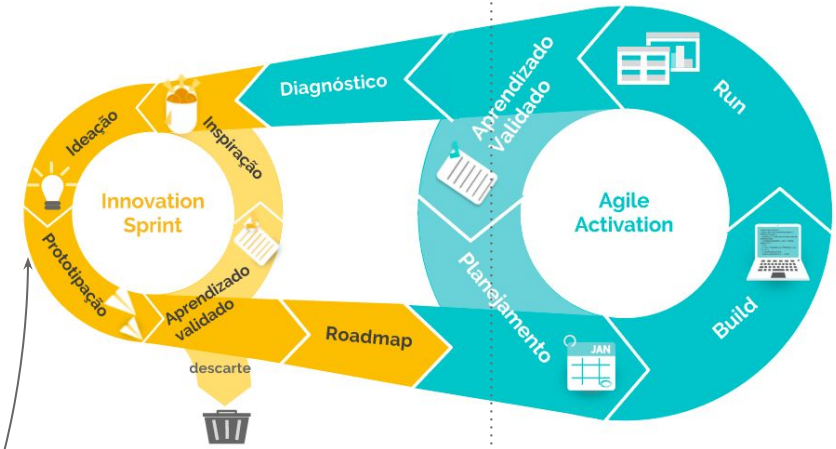
Strategic Planning (A3)

- Objectives
- Hypothesis
- OKRs

Strategic themes

User Journey and Analytics

Continuous discovery



Continuous Delivery

Value Stream

Inception

1 Kanban

Portfolio Backlog

2 Kanban

Product Backlog

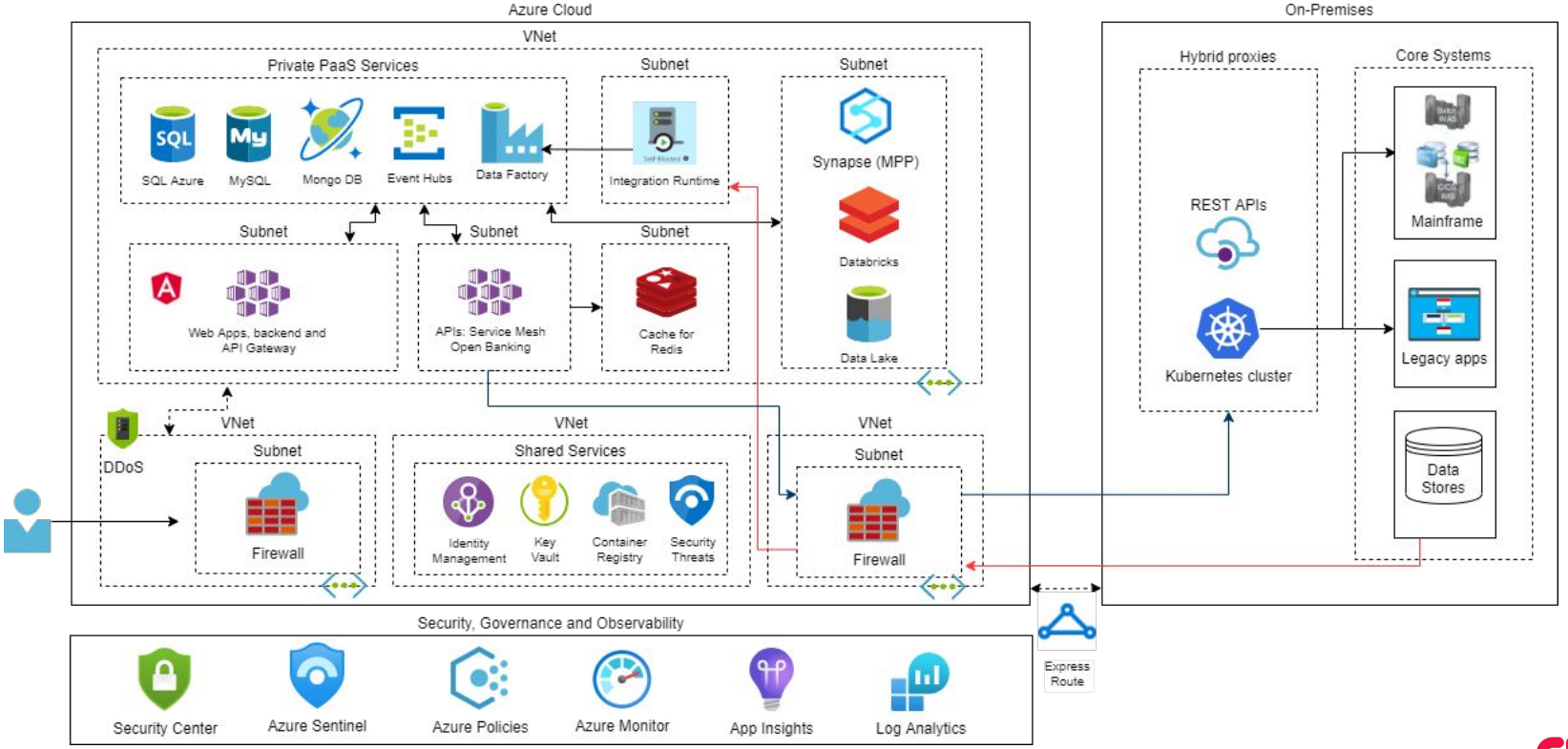
3 Kanban

Sprint Backlog

CI&T

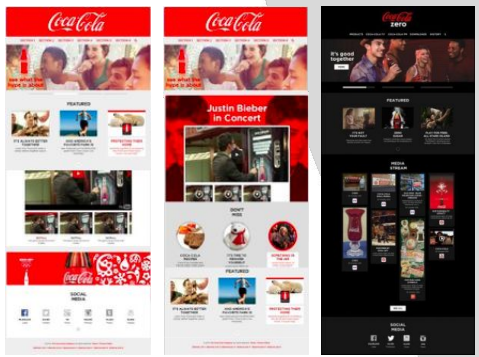
OPEN BANKING

Cloud Journey starting with cloud native solution



COCA-COLA GO! (GLOBAL ONLINE PLATFORM)

GO! is a an owned-media communications platform designed to deliver fit and affordability for online activations globally. It's meant to allow markets to create consistent digital experiences while keeping it flexible for personalization and customization.



#Live Sites: 500+
#Markets 156

#Brands 40+
#Languages 45+

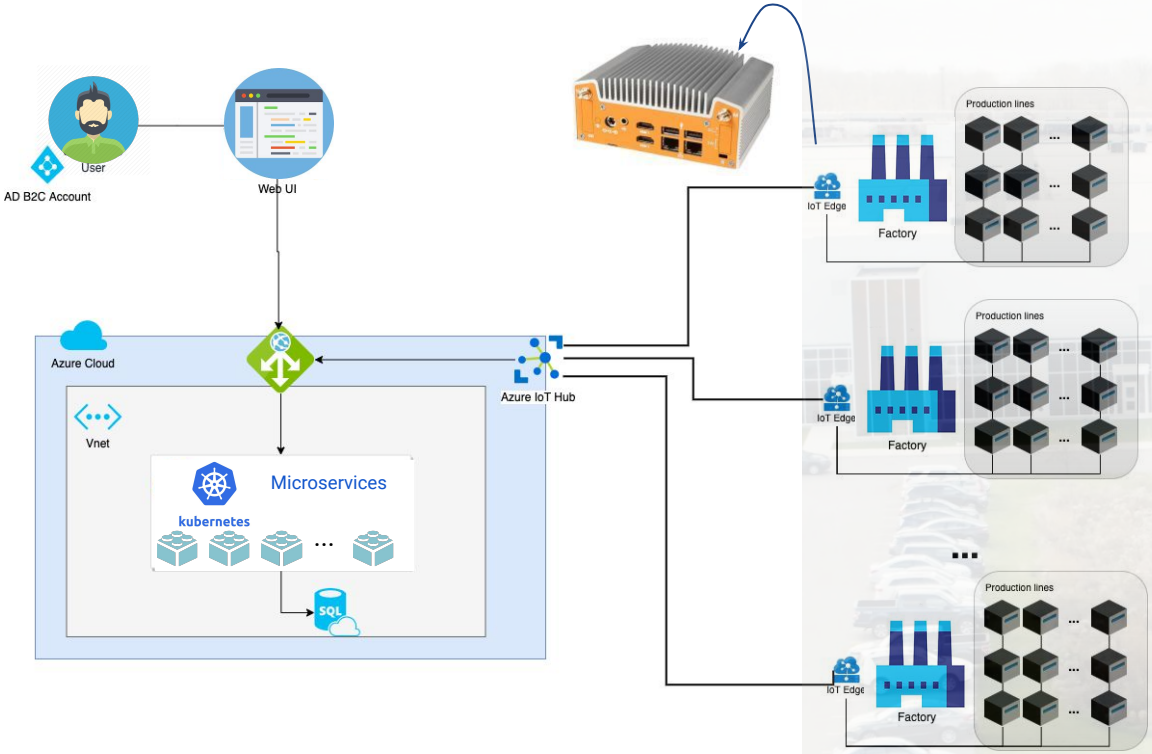
The main challenges were:

- Brands creating their own digital experience (600+ digital agencies)
- Time spent creating digital assets (2000+ websites)
- Compliance with brand standards and company policies

The solution and results include:

- The GO! Platform consists of an integrated suite of web components and services that can be used as "building blocks" to create a website. The goal here is to operationalize efficiency at scale and to develop greater internal expertise.
- The GO! platform allowed for Coca-Cola and CI&T to build on the company's previous digital transformation efforts to simplify a complex challenge for individual markets.

Manufacture Maintenance System



An **IoT Edge** device connects to each equipment in the factory sending its telemetry back to the cloud as well as checking for commands to execute for each machine.

Panasonic

Helping Panasonic **better serve** its customers by providing cloud monitoring and support **maintenance teams** across thousands of factories with tens of thousands of factory equipments **globally.**

CI&T's CLOUD ADOPTION FRAMEWORK

CLOUD ADOPTION

Moving to the cloud or **becoming cloud native** is not an easy task to accomplish. We have experience in helping customers **planning and executing** migrations to provide fast and visible business results.

Lift and Shift

Moving applications with minimal, if any, changes to application architecture

Application Change

Applications that are deconstructed, or replatformed on their way to the cloud

Hybrid

Applications that are architected to run across both the cloud and a data center

The starting point is identifying the **workloads** that generate the **most value** with the **least effort** and start with them.

CI&T CLOUD ADOPTION FRAMEWORK

Our Cloud Adoption Framework leverages the experience from different sources, such as AWS, Azure and GCP frameworks. It is aimed to:

> Plan an build a solid **foundation** for enterprise cloud adoption, be it **cloud adoption**, **platform modernization** or **scaling the operation**

> Agnostic review of the **technology blueprints** to support multi-cloud considering the best market standards, such as **Containerization**.

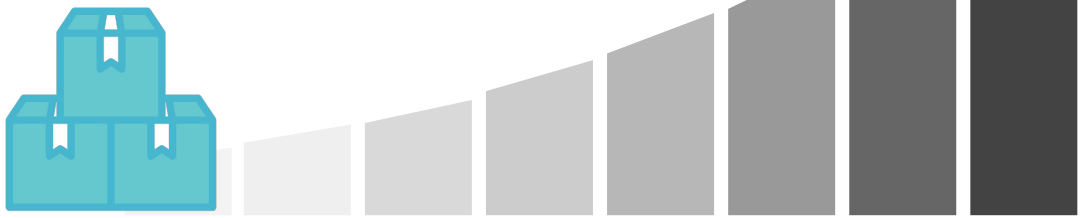
> Identify more **efficient ways** to use any of the public clouds, data centers or on-premises infrastructure available.

> Focus on **problem solving** regardless of the **cloud** provider, tailored for the specific needs of our customer. **Not** a *"**one size fits all**"* approach.

CLOUD AS A TRANSFORMATION AGENT

Lift & Shift

- Quick way to **move workload** the first time.
- **Less** room for **optimization**.
- **Short-term gains**.



Managed Services

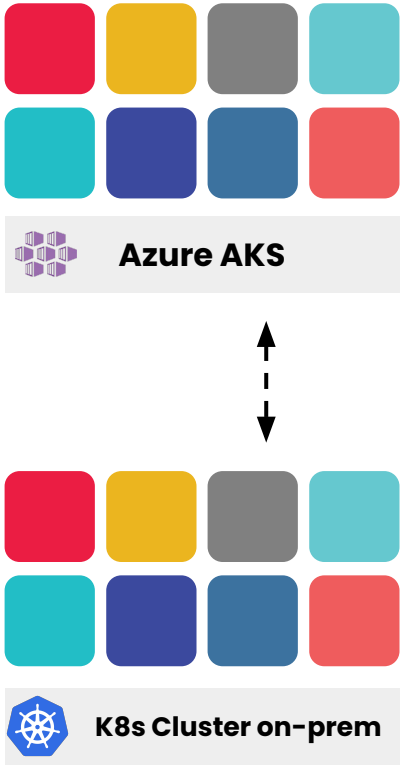
- **Quicker** way to **move** workloads **between** public and private cloud and on-premises
- **Easily scalable** up and down
- More effort to **convert applications**
- **Long term gains**

Traditional —— **Level of Transformation** —— **Cloud Native**

A CONTAINER BASED MULTI-CLOUD APPROACH

Recent Containerization technologies such as Kubernetes can accelerate your cloud strategy

- **Flexibility** to move workloads between private and public clouds;
- Provider **standardization**;
- Easier **scalability**;
- **Faster** deployment;
- **Automated** infrastructure creation and maintenance.
- Development friendly **pipelines**.



CI&T CLOUD ADOPTION FRAMEWORK PHASES

Assess	Plan	Deploy	Optimize
AS IS understanding	“First movers” migration plans (TO BE)	Cloud Core Platform	App Monitoring & Resource Optimization
Action Map / Pain Points	Platform Architecture	Develop and Deploy Building Blocks	DevOps Lifecycle Optimization
	Infrastructure Blueprints	Operating Model	Billing, TCO and Cloud Economics
	Roadmap	Multi-cloud Vendor Selection and Onboarding	
		Billing	
		CI/CD Pipelines	
		Governance model and Policies	

ciandt.com

Thank you

Driven by **Impact**