THE WHYS AND THE HOWS WE MUST DECARBONIZE THE APPS

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ad(im
Association des Directeurs Informatiques de Monaco

monacotech
STARTUP PROGRAM

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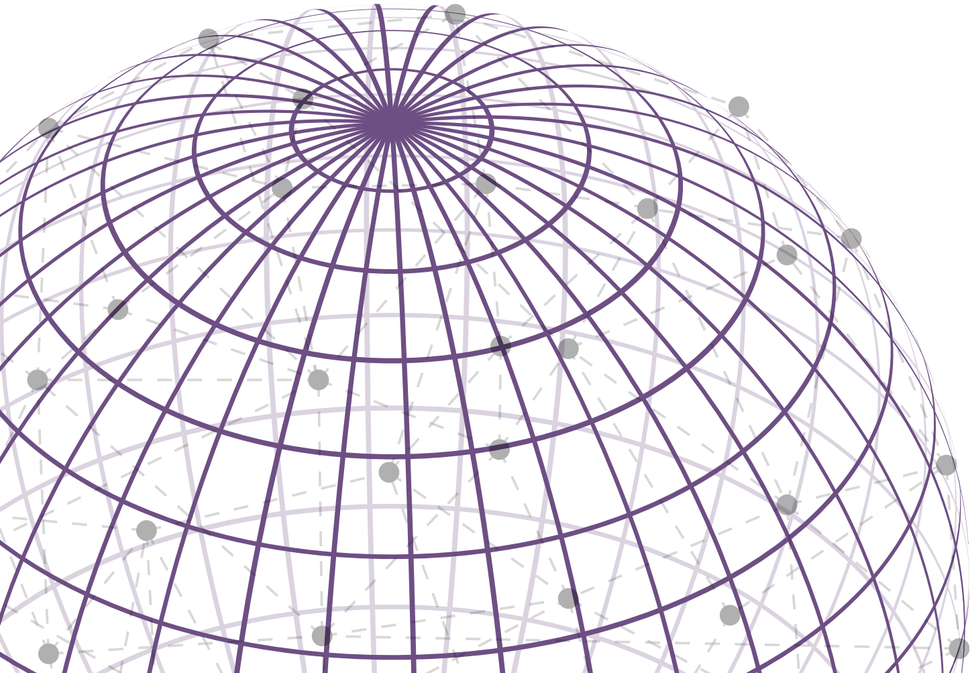
Agenda

Apps are failing the planet and the people.



3.7%

of Global GHG Emissions come from digital apps — equal to aviation

Source: The Shift Project

= DIGITAL POLLUTION

2.6B

people excluded from the digital economy due to barriers

Source: ITU

= DIGITAL EXCLUSION

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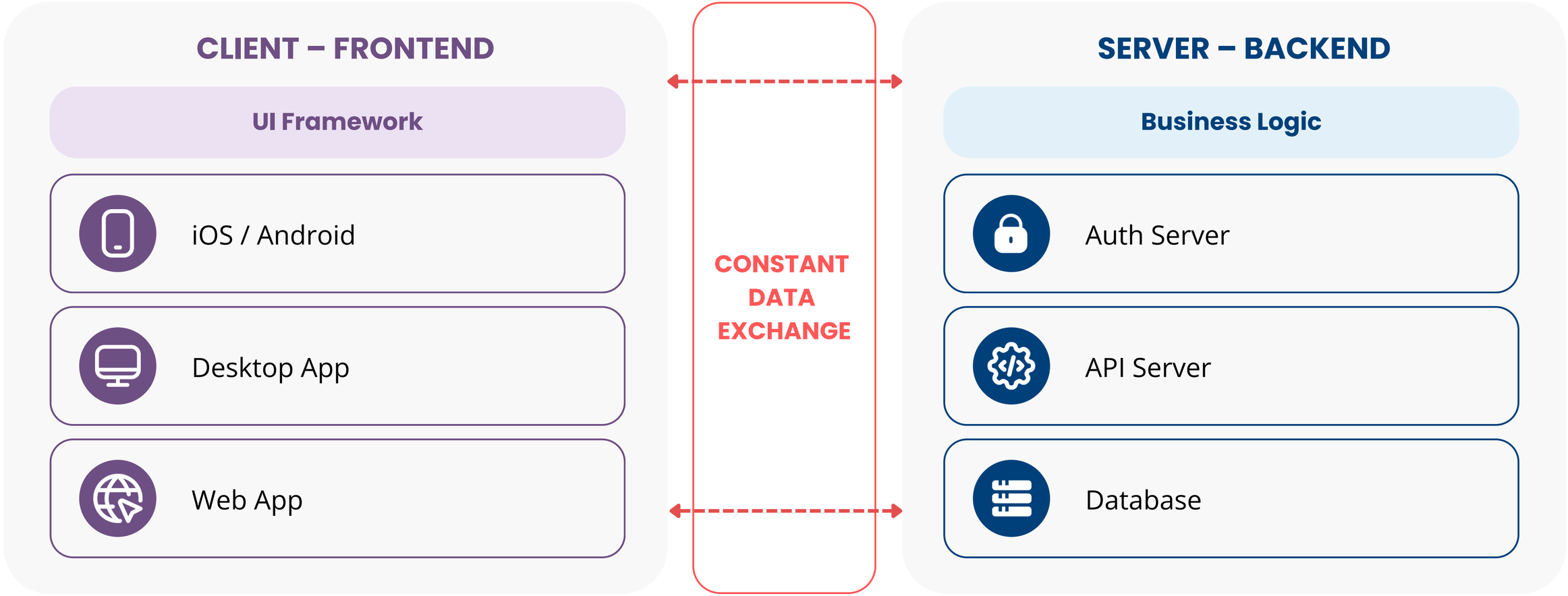
IT'S ALL BECAUSE OF THE INFRASTRUCTURE

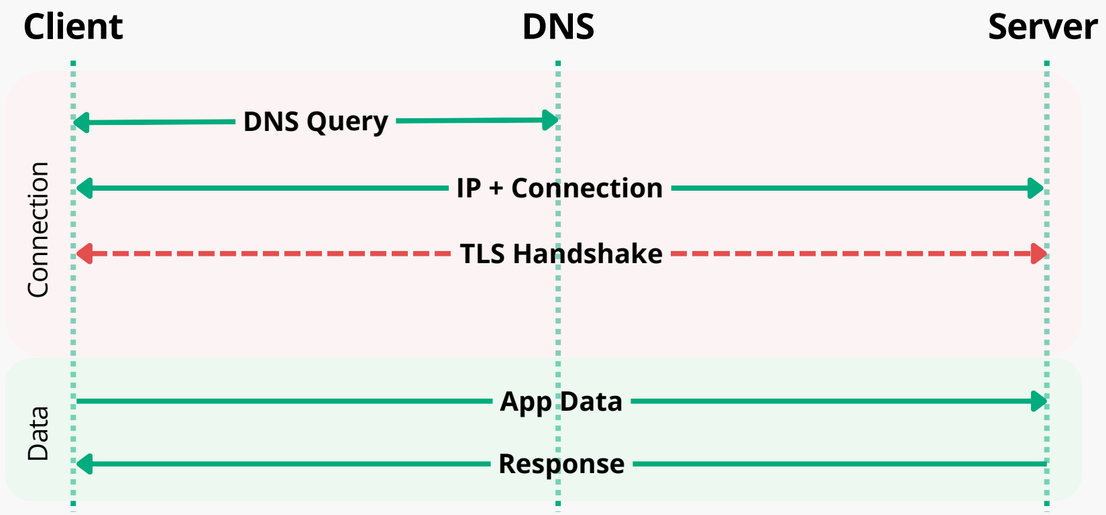
Architecture split in two



What is a Click?

EVERY CLICK

= 1 CONNECTION + 1 DATA EXCHANGE



MINIMUM LATENCY OF 272MS
Every click restarts a full TLS handshake. There is no shortcut.

SESSION ID LOOKUP FOR EVERY REQUEST
Client Session ID must be re-fetched and context rebuilt on each request.

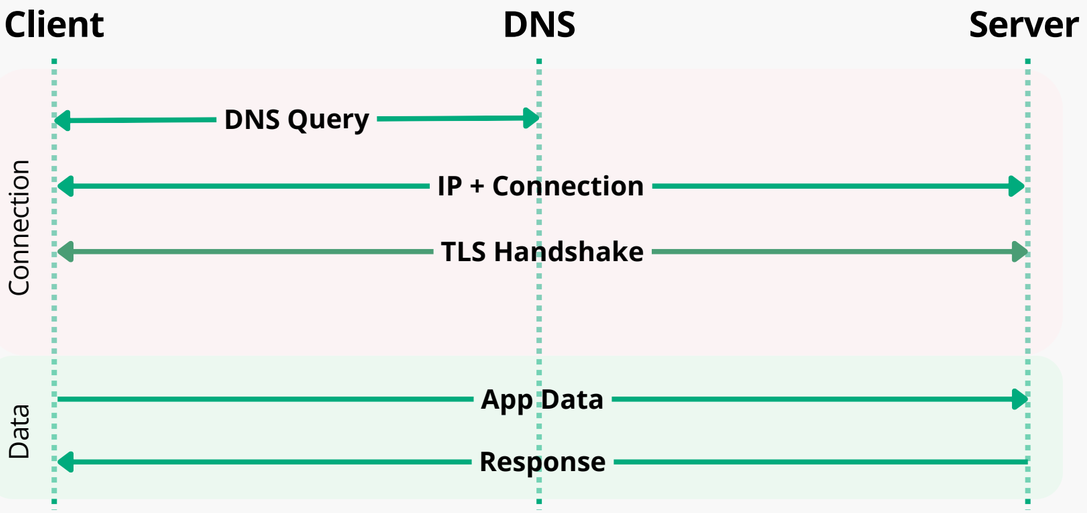
SEVERAL SERVERS PER INTERACTION
One click is routed through several servers before a response is returned. Every hop adds latency, energy and risk of breaches.

INFINITE LOOP
The full cycle restarts after every request.

The Mindus Click

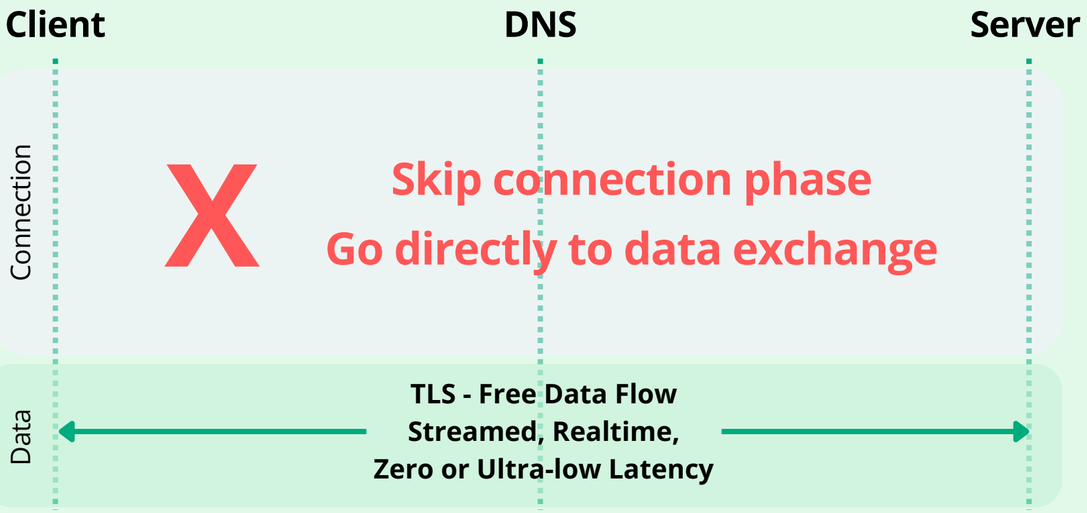
ONLY THE 1ST CLICK

= 1 CONNECTION + 1 DATA EXCHANGE

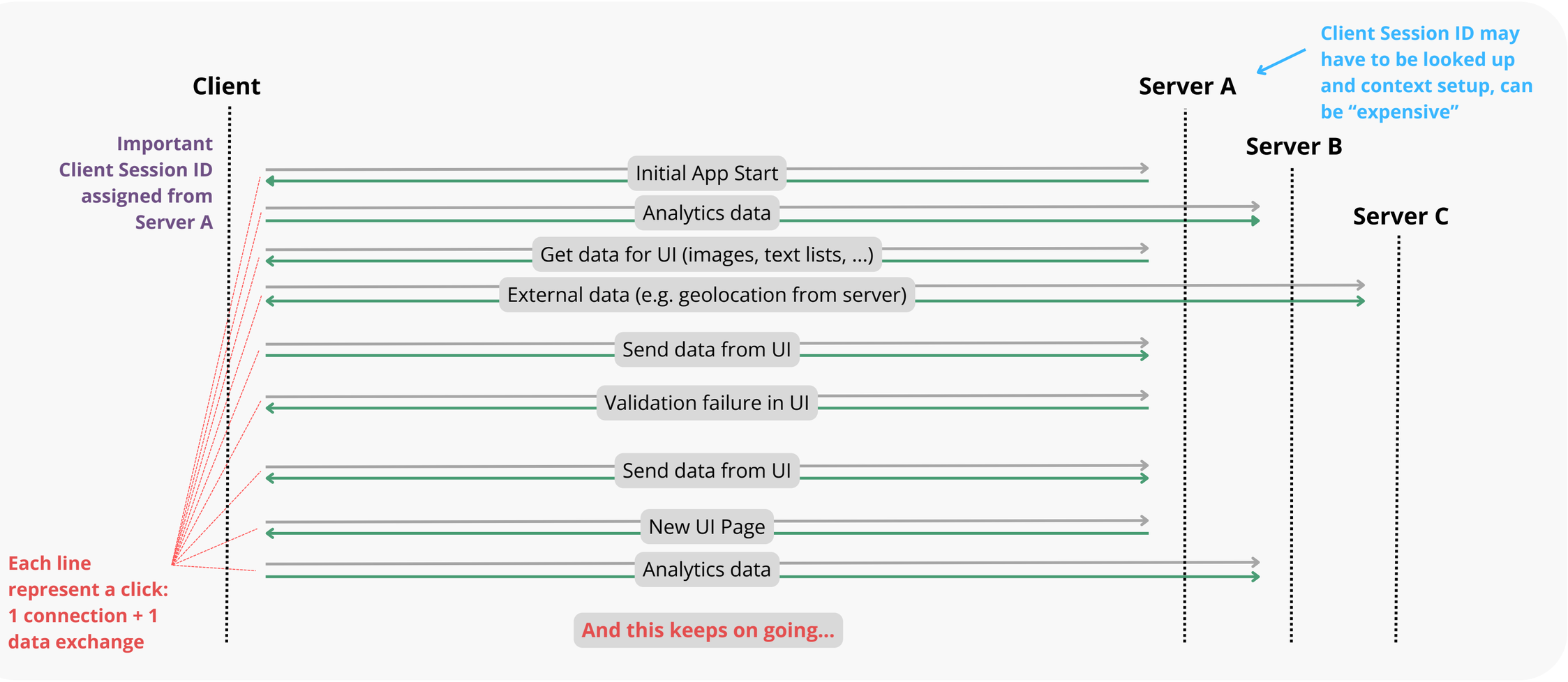


FROM 2ND CLICK ONWARDS

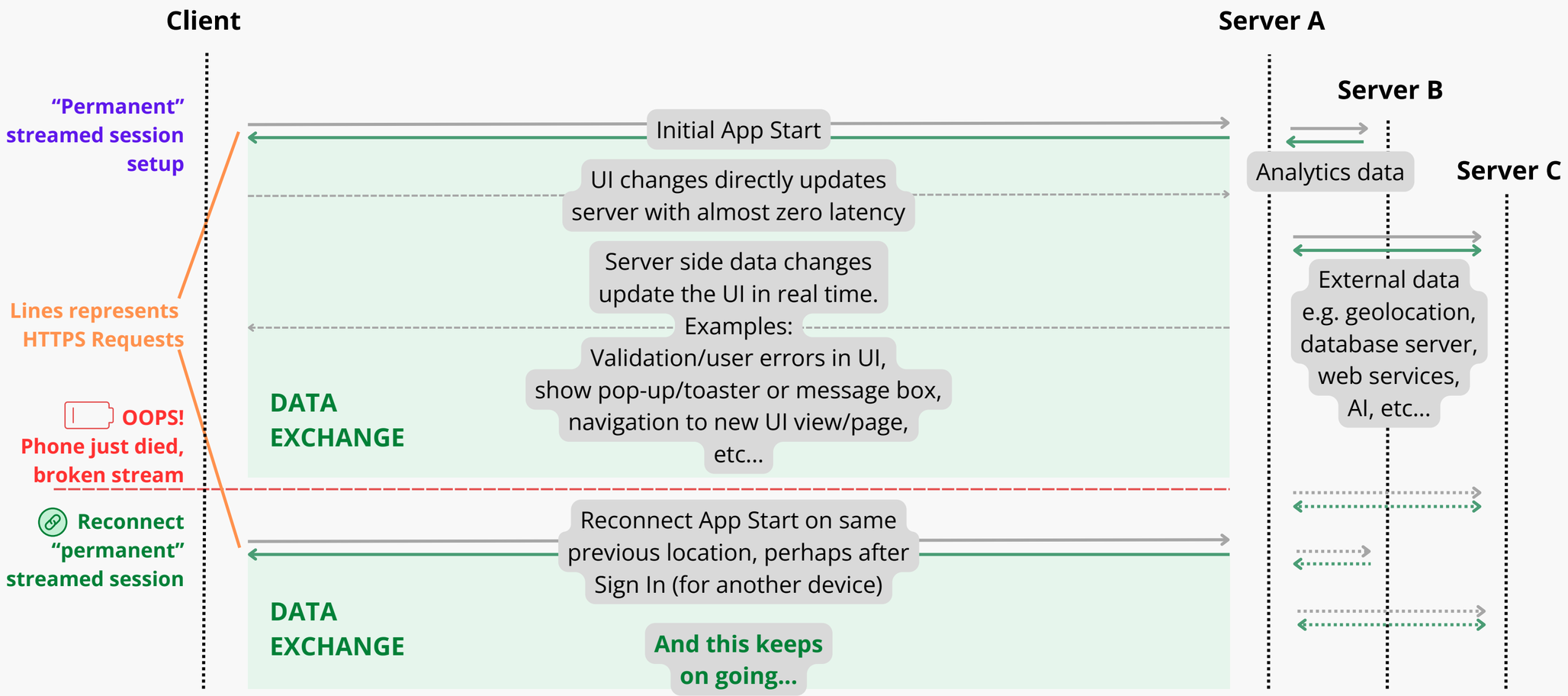
UNLIMITED DATA EXCHANGE
= BIDIRECTIONAL REALTIME DATA TRANSFER



What happens in Apps today



How Apps communicate with Mindus



Many tools, complex process

FRONTEND — BACKEND

iOS	Android	Web	Server
iOS Developer	Android Developer	Frontend Developer	Backend developer
Swift / Objective-C	Java / Kotlin	JavaScript Angular / React / Vue	Java / .Net / Node Python / Go
Xcode	Android Studio	VS Code Webpack	Intelli Postman
App Store	Google Play	Web Server CI / CD Pipeline	Cloud / Server Docker / K8s
iOS Maintenance	Android Maintenance	Web Maintenance	API Maintenance Database Admin

x x x

One tool, one code, any platform

FRONTEND + BACKEND

Java Developer

One team

Java

One language
Any device

iiziGo IDE

Design + Build +
Test + Maintain

iiziServer

One deployment
Cloud or In-house

Any platform

iOS · Android · Web
Desktop · TV

Mindus patent in EU and US: System for the creation and deployment of multiplatform applications

HOW
DO WE DO IT

No split architecture

FRONTEND + BACKEND UNIFIED ON SERVER

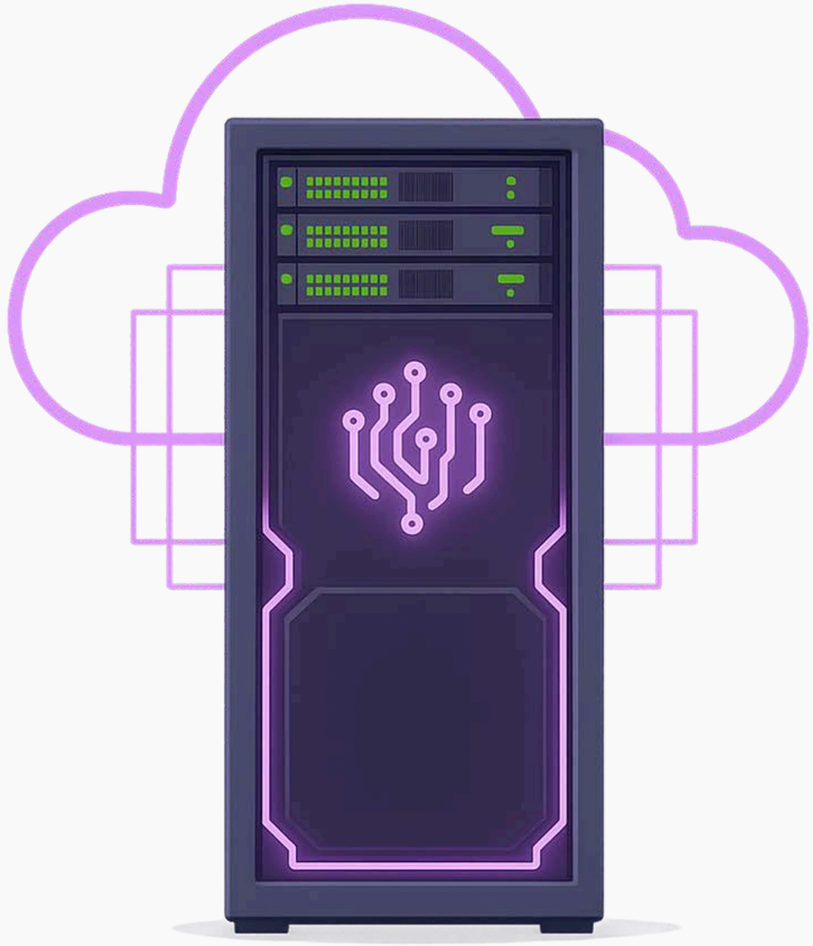
The entire development and application runs on the server. The client only renders what the server sends. The app runs as a Virtual App in the server.

SYSTEM COMPLEXITY SOLVED

As the entire code is located on the backend using Java and it covers the full stack, other languages and frameworks are not required.

LIGHTER DATA LOAD

Placing the whole app on the backend reduces the data sent to the client, resulting in faster response times and lower energy consumption.



Streaming protocol

SUPER FAST COMPRESSED BINARY DATA EXCHANGE

One persistent WebSocket connection replaces thousands of individual HTTPS requests. Data travels as compressed nodes and bits, not as HTML or JSON.

END-TO-END ENCRYPTION, NOTHING ON THE DEVICE

A multi-layered security framework with end-to-end encryption and no business logic on the client. Minimal attack surface to breaches, interception or data theft.

ZERO LATENCY WITH MAXIMUM SPEED

From the second interaction, the streaming connection is already established. Data flows immediately with no connection and handshake overhead.

Single codebase in Java

ONE LANGUAGE, ANY PLATFORM
Java server-side covers iOS, Android, WebApps, Desktop and Mainframes.

DRAG & DROP VISUAL DEVELOPMENT
A visual editor allows developers to design and build UI interfaces using simplified Java.

ENTERPRISE QUALITY & PERFORMANCE
Built on Java - the foundation of enterprise software for over three decades. Proven performance, stability and security across mission-critical environments.

Unified cross-platform IDE

A SINGLE INTEGRATED ENVIRONMENT

A single cross-platform Eclipse-based IDE that covers the entire development lifecycle for all platforms, OS and devices, without switching tools.

INSTANT PROTOTYPING & LIVE TESTING

iiziRun connects the IDE to real devices in real time. Developers see changes live on any device as they build, without submitting to any app store.

PRIVATELY AI-ASSISTED

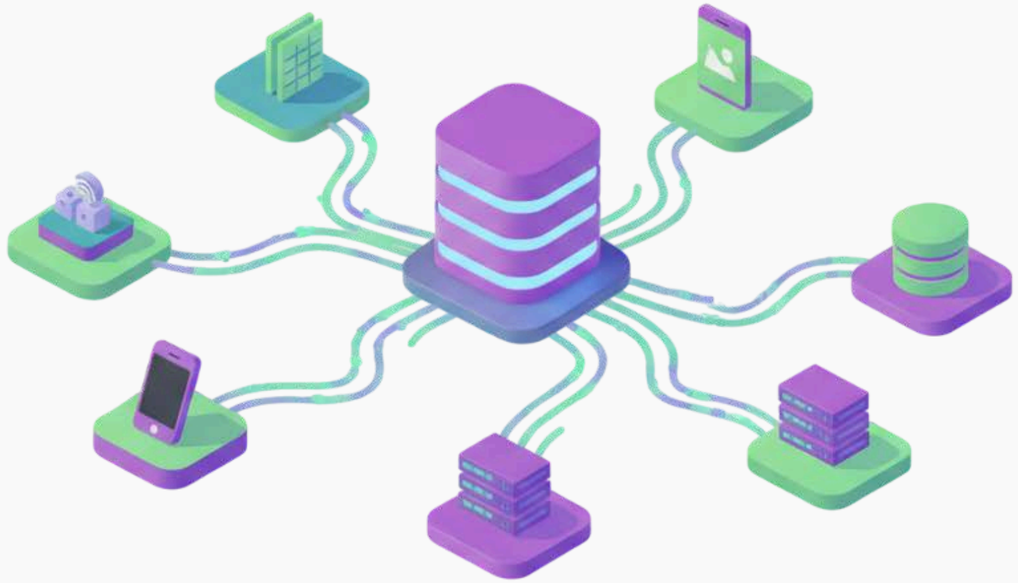
A private AI coding assistant is integrated into the IDE. It is trainable on your own codebase and operates with zero data retention.

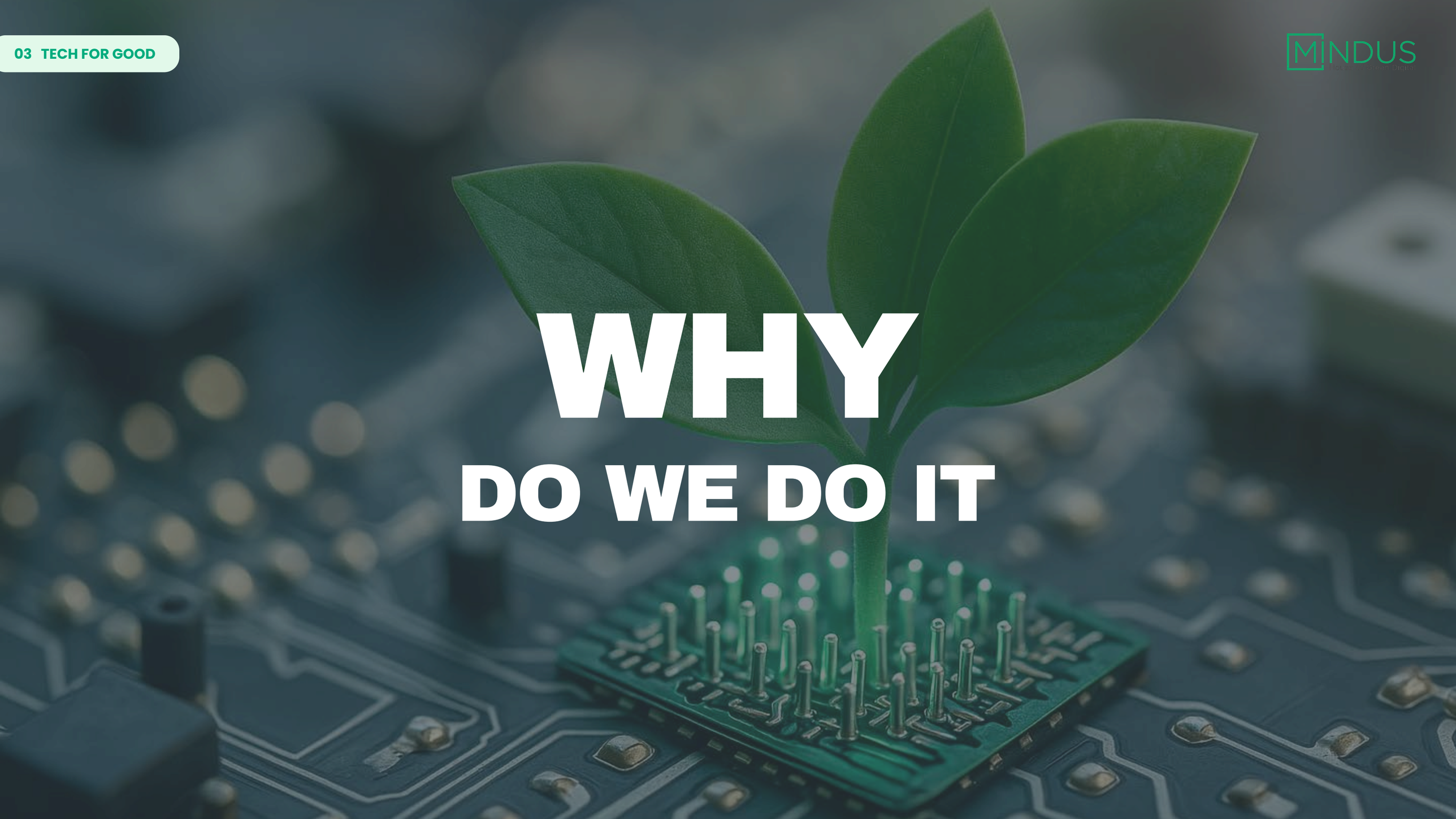
Single point of maintenance

PROACTIVE & CENTRALIZED VERSION CONTROL
Updates and fixes are deployed simultaneously to all devices and platforms. Automated CI/CD pipelines and continuous real-time testing simplify DevOps.

REAL-TIME UPDATES
The server pushes changes directly to the client the moment they are deployed. No refresh, no polling, no user action required.

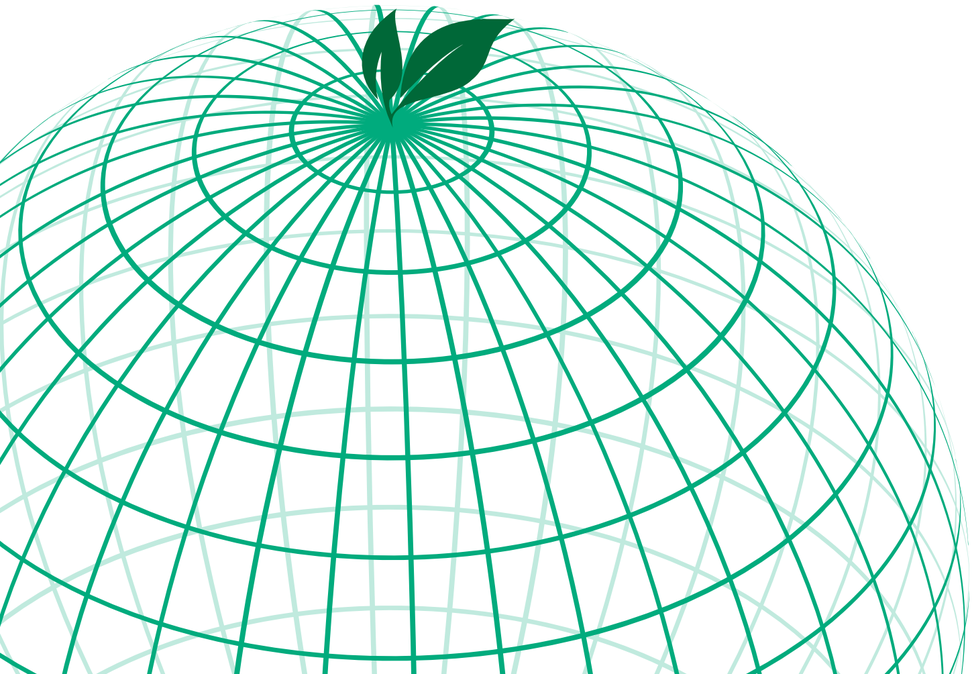
NO APP STORE RE-SUBMISSION
Get your app validated by the stores only once. Update anytime without re-approval - changes deploy instantly to every user on every platform.





WHY
DO WE DO IT

Apps for impact. Profit with purpose.



PROFIT

Accelerate your growth with responsible innovation.

PLANET

Improve your digital carbon footprint and reduce digital waste.

PEOPLE

Unlock tech barriers for digital inclusion and accessibility.

Impact into Profit

-50%

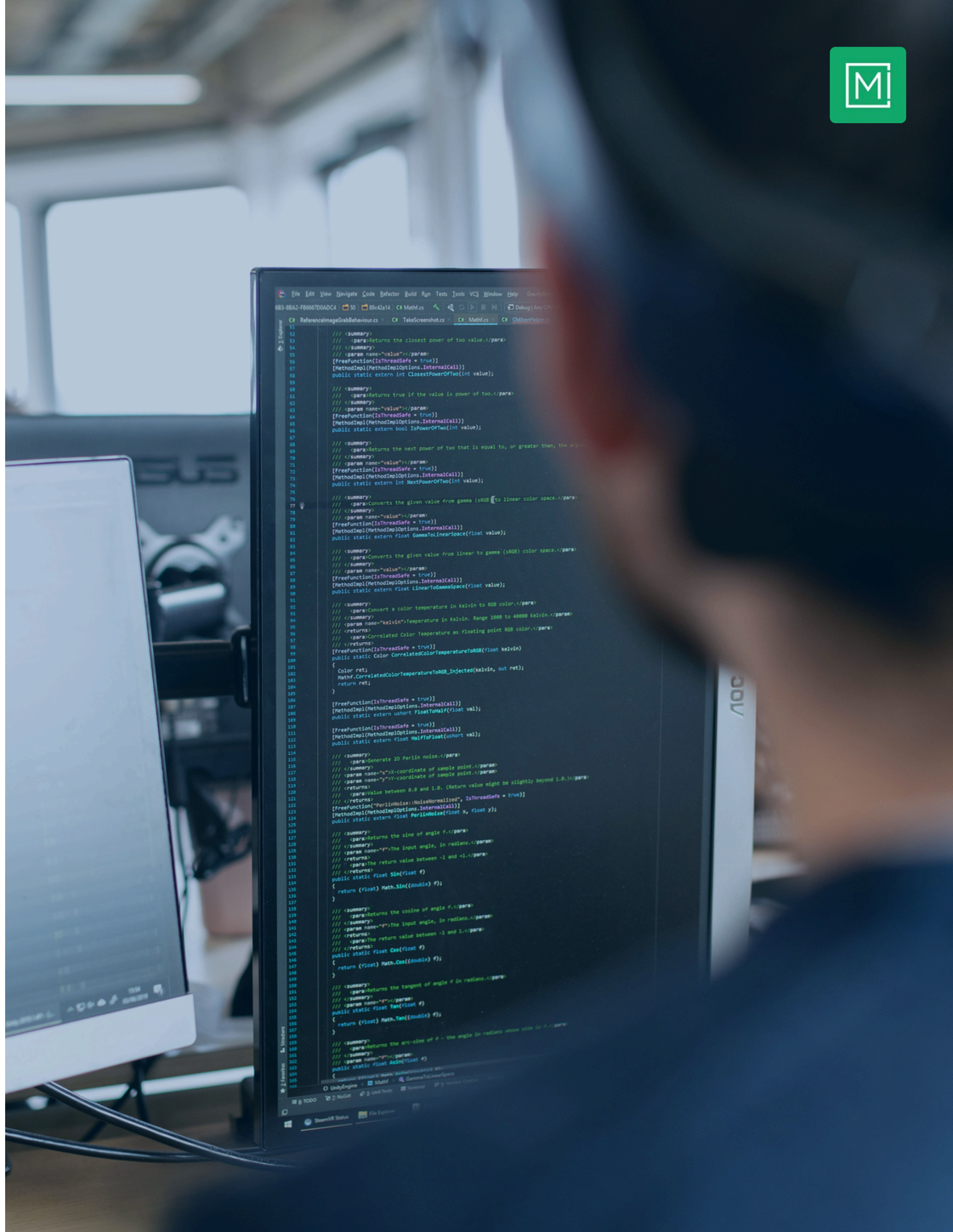
DEVELOPMENT COST & FASTER PRODUCTION

CUT THE HIDDEN COSTS OF AN APP

One deployment means faster releases, lower infra costs and zero platform-specific overhead.

SEAMLESS SCALABILITY

Server-side execution means scaling happens centrally and seamlessly to thousands of concurrent users.



Green by Design

-80%

CO_2 REDUCTION PER APP VS. TRADITIONAL
Less data transfer, less bandwidth, less radiation

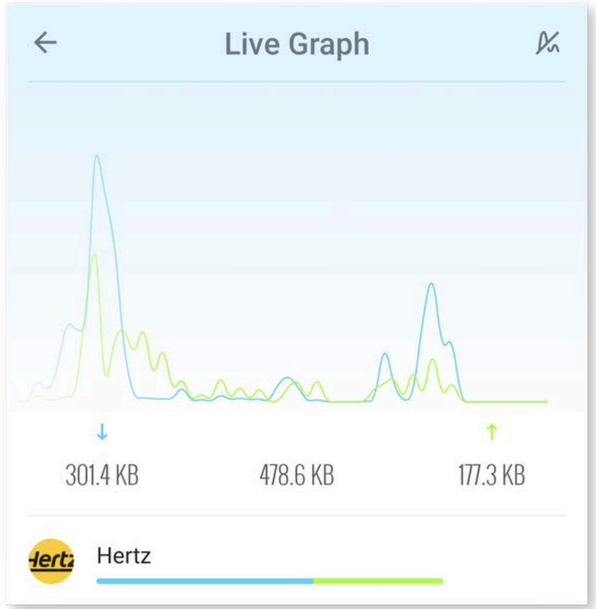
DIGITAL LONGEVITY
Lightweight apps extend device lifespans and reduce e-waste, no heavy downloads.

PERFORM & REACH CSR, SDG, GHG GOALS
Green performance is becoming a competitive differentiator – profit with purpose, built in.

Facts about Greener Apps

HOW MUCH CO_2 IS 1 GB?
1 GB of data = 0.3 kg of CO_2

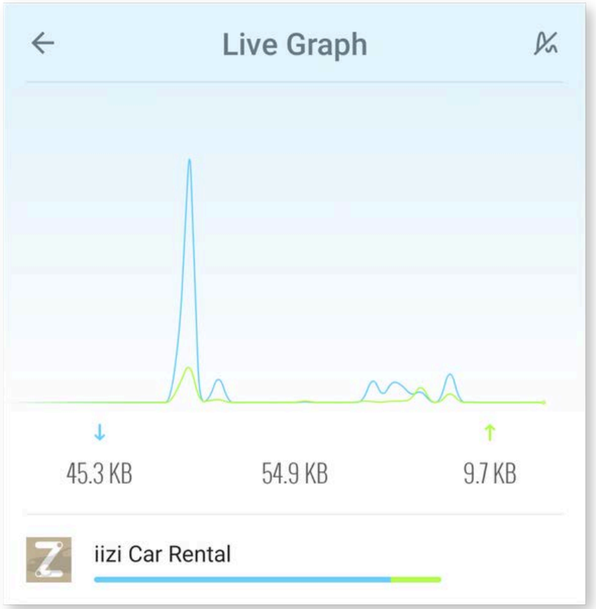
HERTZ CAR RENTAL APP



DATA SENT	**177.3 KB**
DATA RECEIVED	**301.4 KB**
TOTAL TRANSFERRED	**478.6 KB**
CO_2 EMISSION	**1.37 kg**

10.000 users for one session

MINDUS CAR RENTAL APP



DATA SENT	**9.7 KB**
DATA RECEIVED	**45.3 KB**
TOTAL TRANSFERRED	**54.9 KB**
CO_2 EMISSION	**0.15 kg**

10.000 users for one session

88% DATA REDUCTION › **89% CO_2 REDUCTION**

Digital Inclusion

4×

PERFORMANCE

42MB

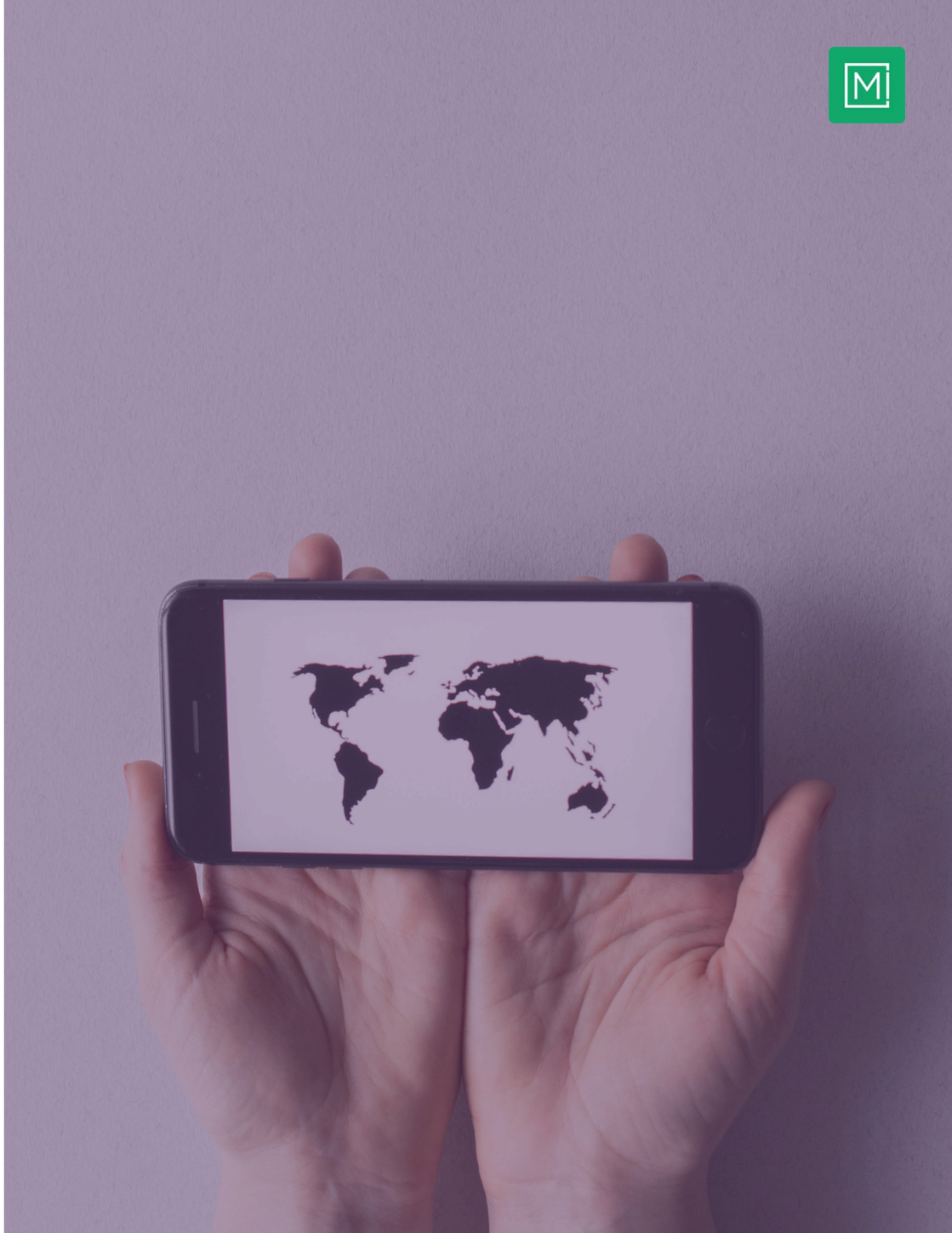
MAX APP SIZE

LOW BANDWIDTH SUPPORT + LOW-END DEVICES

Mindus apps run smoothly on 3G and lower, including older devices with limited memory and CPU.

DESKILLED DEVELOPMENT

Any developer can build cross-platform entreprise-quality apps with simplified Java and unified development.



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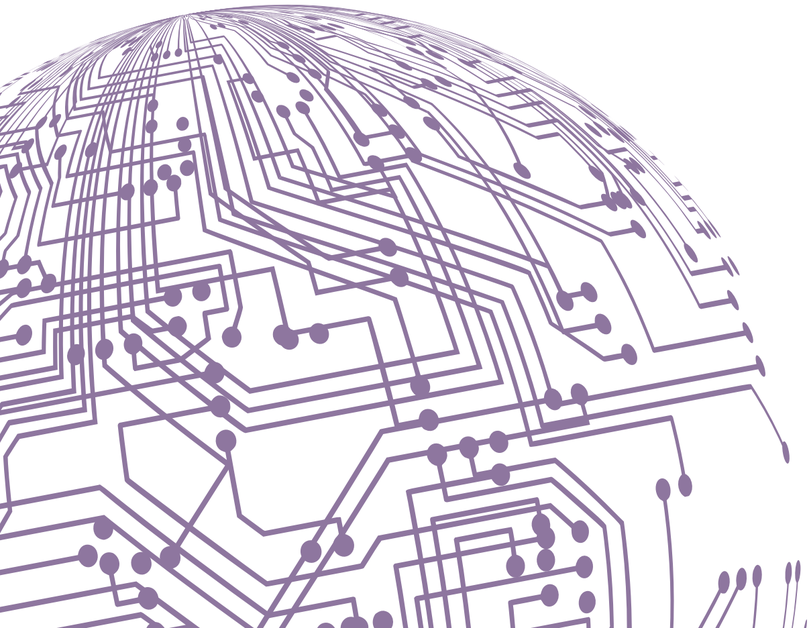
WHAT ABOUT AI

The AI Energy Crisis



+160%

AI set to increase of data centers power demand by 2030

Source: Morgan Stanley

2500Mt

metric tons of CO_2 emissions by 2030

Source: Morgan Stanley

10×

Energy consumption of a ChatGPT query VS. Google Search

Source: IEA

2.5B

prompts sent to ChatGPT every day, growing at 25% per year

Source: OpenAI

The Intelligent Web 4

WHAT IS WEB 4?

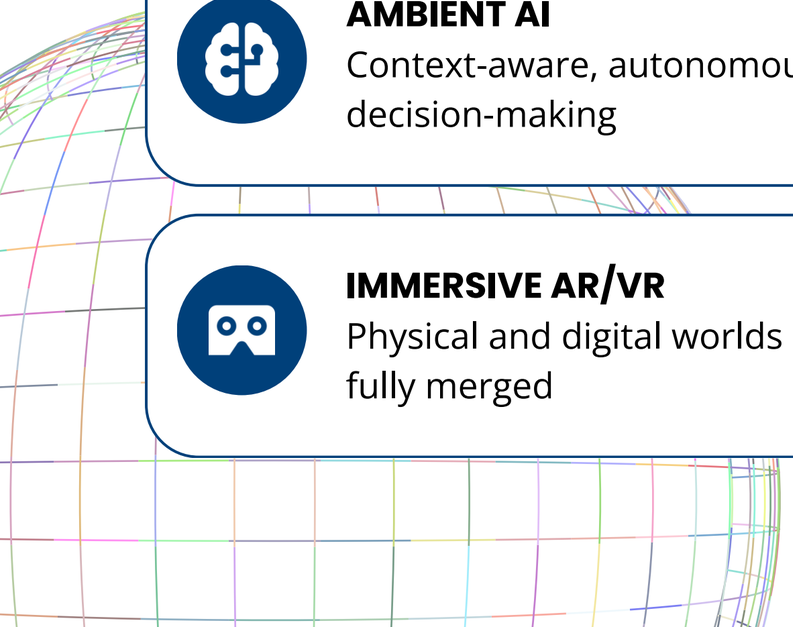
The Symbiotic Web — where AI, IoT, AR/VR, and autonomous systems merge into a single intelligent, always-on digital ecosystem. The web no longer responds to humans — it anticipates them.

AMBIENT AI
Context-aware, autonomous decision-making

IOT DEVICES
Everything connected, always transmitting

IMMERSIVE AR/VR
Physical and digital worlds fully merged

AUTONOMOUS AI AGENTS
AI agents that act, transact and self-govern



$800B

Global Web 4.0 and virtual worlds market in 2030 (from $27 billion in 2022)

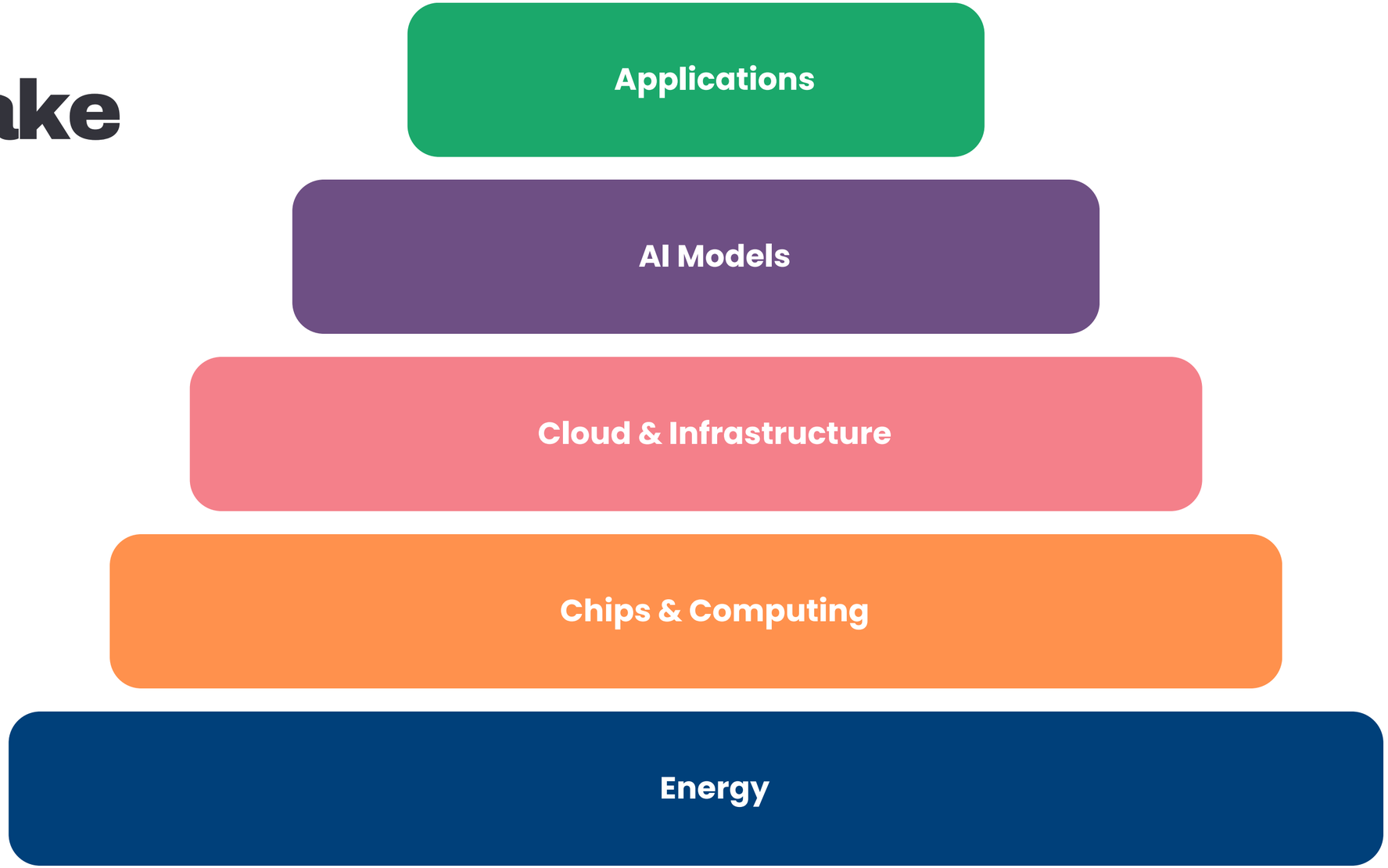
Source: European Commission

29B

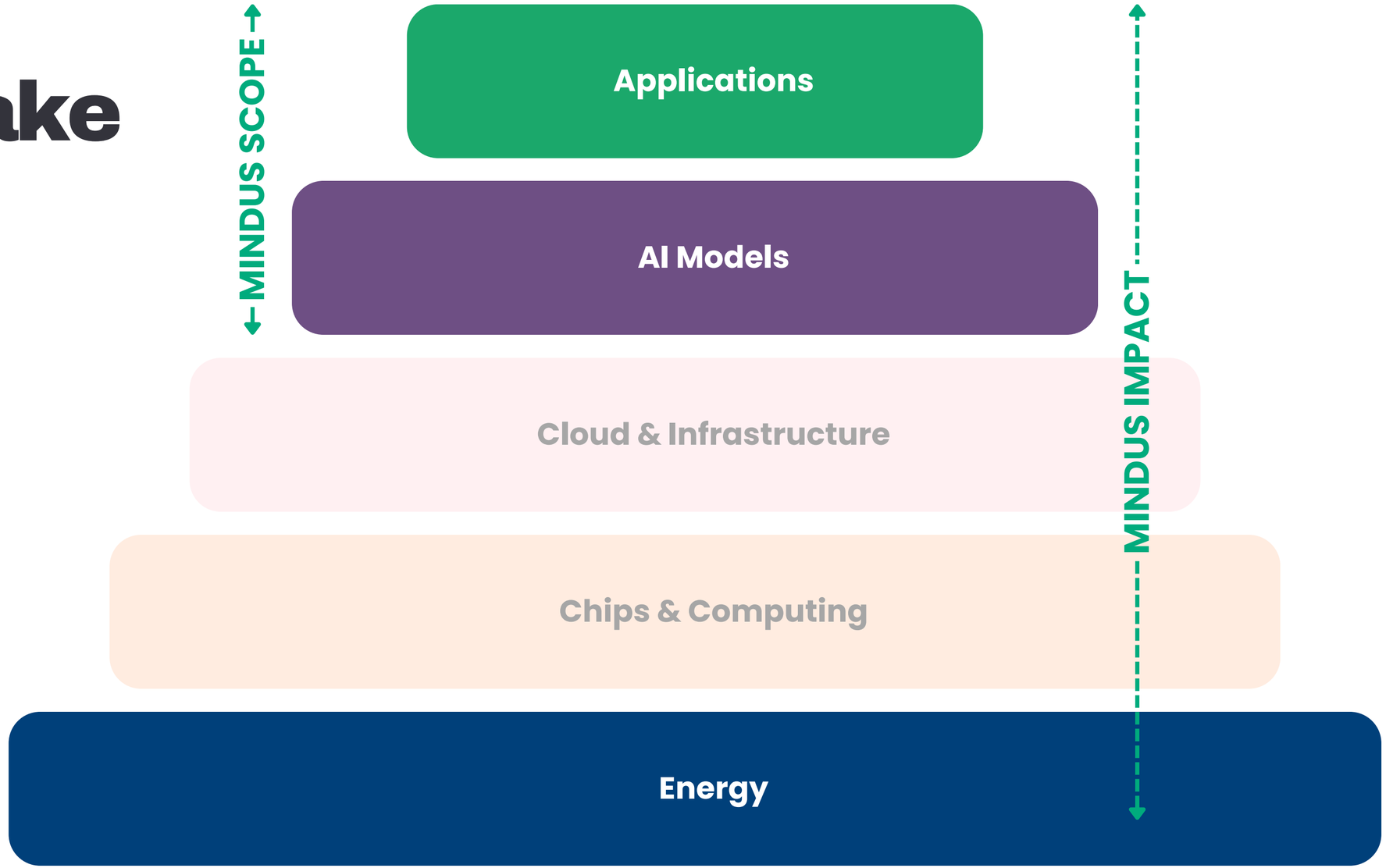
IoT-devices connected by 2030 – acting as the nervous system for intelligent environments.

Source: IDC

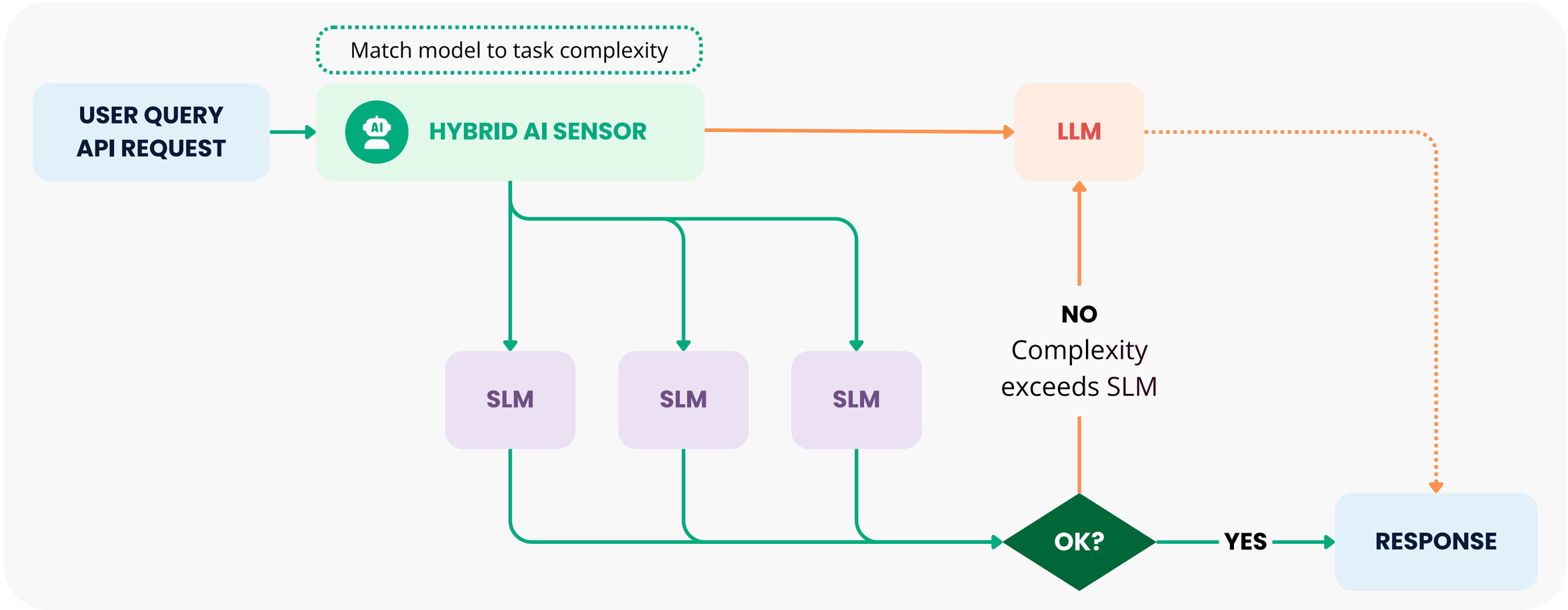
The AI 5 Layers Cake



The AI 5 Layers Cake



Smart Hybrid Green AI



THE HYBRID AI SENSOR

An intelligent routing layer sits between the system app an/or user and the AI models.

Every query is analyzed and directed to the most appropriate model – automatically.

SMALL LANGUAGE MODEL

- Focused, well-defined tasks
- Summarization, classification, code
- Domain-specific lookups
- Fast, lean, low energy use
- Often more accurate than LLMs

LARGE LANGUAGE MODEL

- Broad, complex, ambiguous tasks
- Open-ended reasoning
- Generalist knowledge needed
- Invoked only when truly required

MULTIPLE SPECIALIZED SLMS

Several SLMs with different domain expertise can run in parallel.

WORKS FOR PROMPTS & APIS

Routing works equally for interactive user prompts and programmatic API calls.

PLUG & PLAY INTEGRATION

Connects to existing LLM implementation. No need to replace what you already have.

Intelligent. Sustainable. Purpose Built.

	LLM only	Smart Hybrid
Speed	Fast	5x Faster
Energy per query	High	30% Lower
Water consumption	High (cooling)	Reduced
CO_2 per interaction	High	Reduced
Cost per query	High	65x Lower
Accuracy	Overkill	Equal or 6% better

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HOW TO MAKE A GREEN APP

Step 1: Design & Build in iiziGo

UI FIRST

Start by designing your screens.

Panel Editor

Drag and drop components to build your UI — buttons, lists, forms, maps. See it live on real devices as you design.

Connect to VirtualSpace

Link your UI components to the VirtualSpace — the server-side engine that manages all state, data binding and application flow.

Write Java logic

Add business logic in Java directly in iiziGo. Changes reflect immediately — no compilation step, no manual refresh.

OR

DATA FIRST

Start from your database or data source.

Connect your data source

Point iiziGo at your SQL database, REST web service or Mainframe. The built-in connector generates the structure automatically.

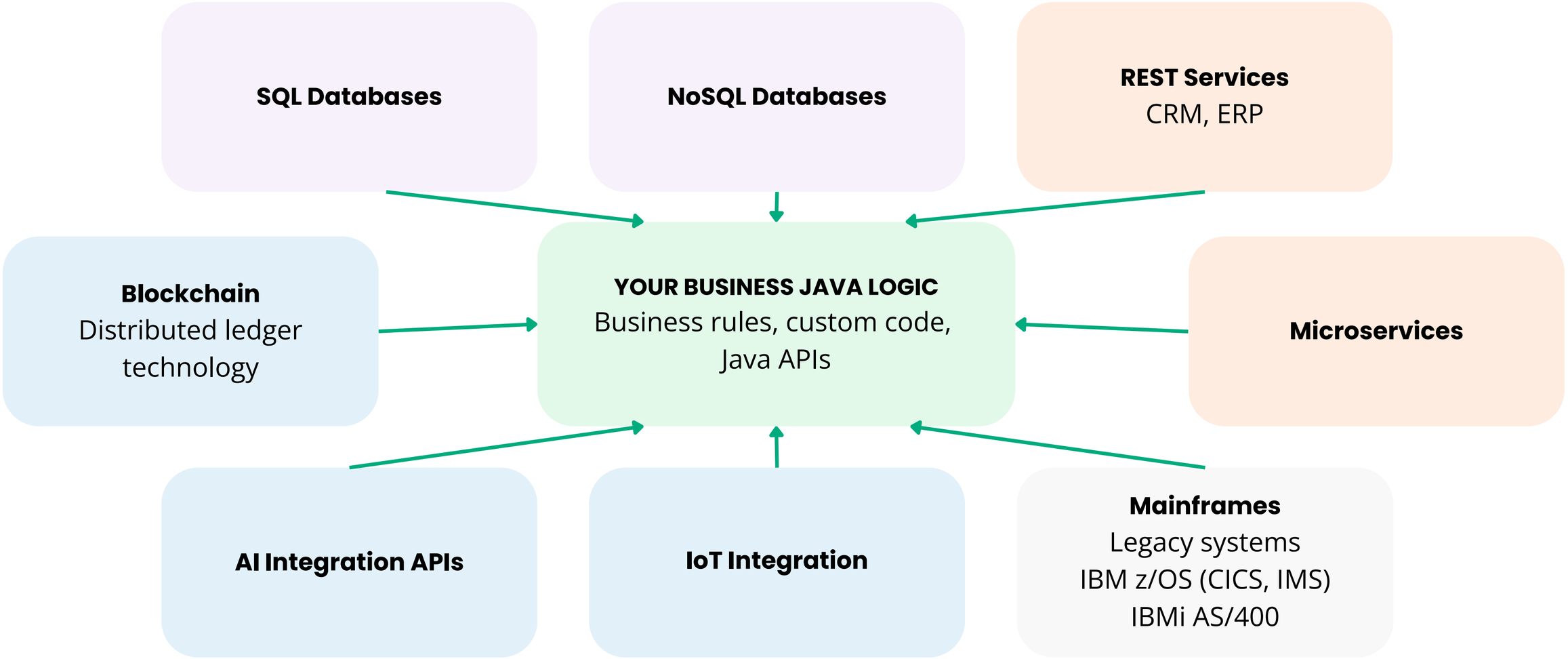
VirtualSpace auto-generates

The VirtualSpace creates tables, fields and data bindings from your schema. Your data model becomes your app model instantly.

Build UI around data

Drag data-oriented components onto your panels. Fields bind directly to your VirtualSpace table — no manual wiring needed.

Step 2: Integrate & Debug in iiziGo



Step 3: Test, Deploy & Maintain with iiziRun & iiziServer

① TEST LIVE

- Install iiziRun Developer on any iOS or Android device
- Connect to your iiziGo development environment
- See your app live on real devices as you design — no build, no store submission with iiziRun Custom
- Test on multiple devices and OS simultaneously with with iiziRun Developer or iiziRun Custom

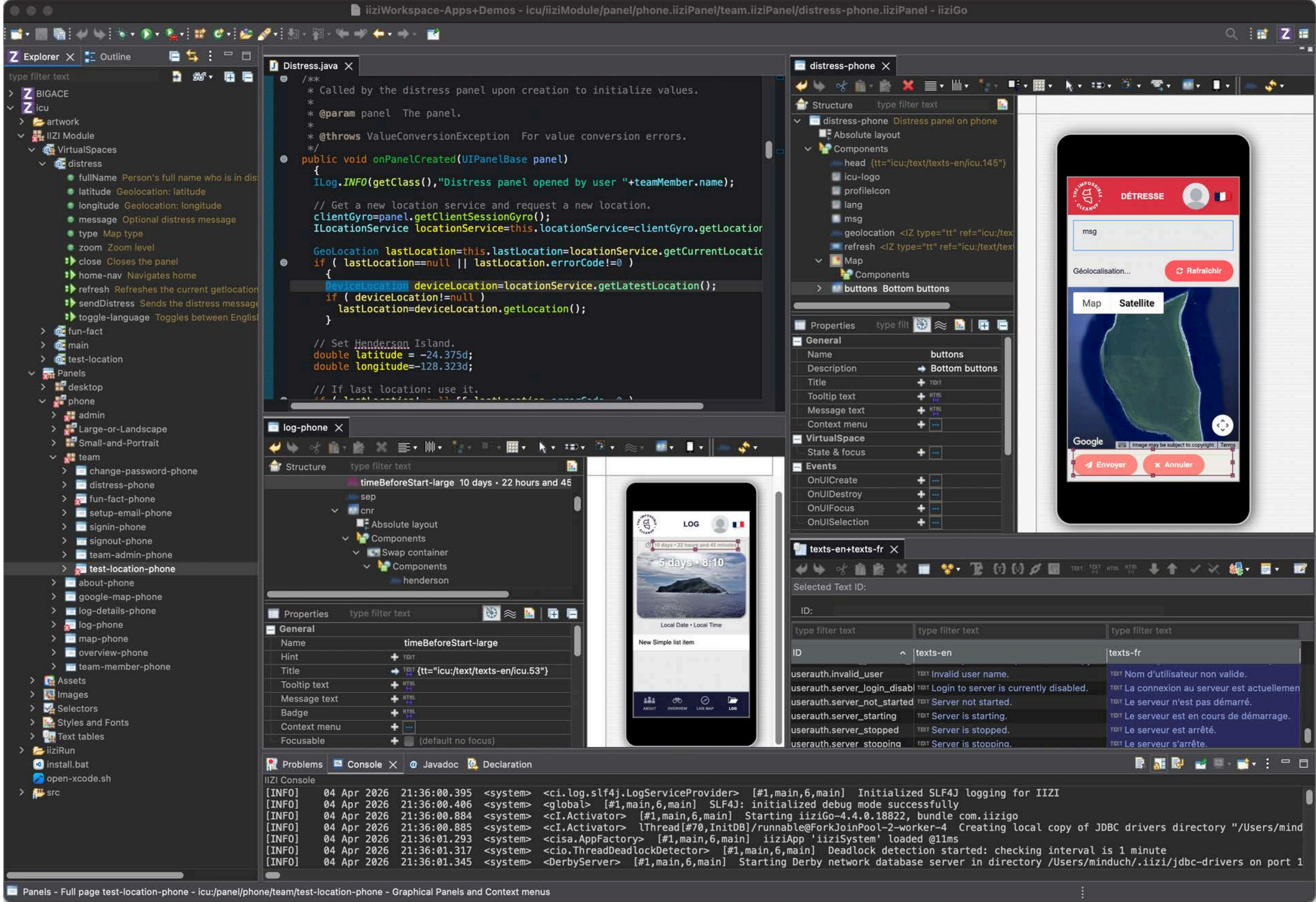
② DEPLOY ONCE

- Deploy to iiziServer — cloud or on-premise, your choice
- Store validation required only once. Update freely without re-approval
- App is instantly live on iOS, Android, WebApp, Windows, macOS, Linux
- Zero downtime deployment — users never see an interruption

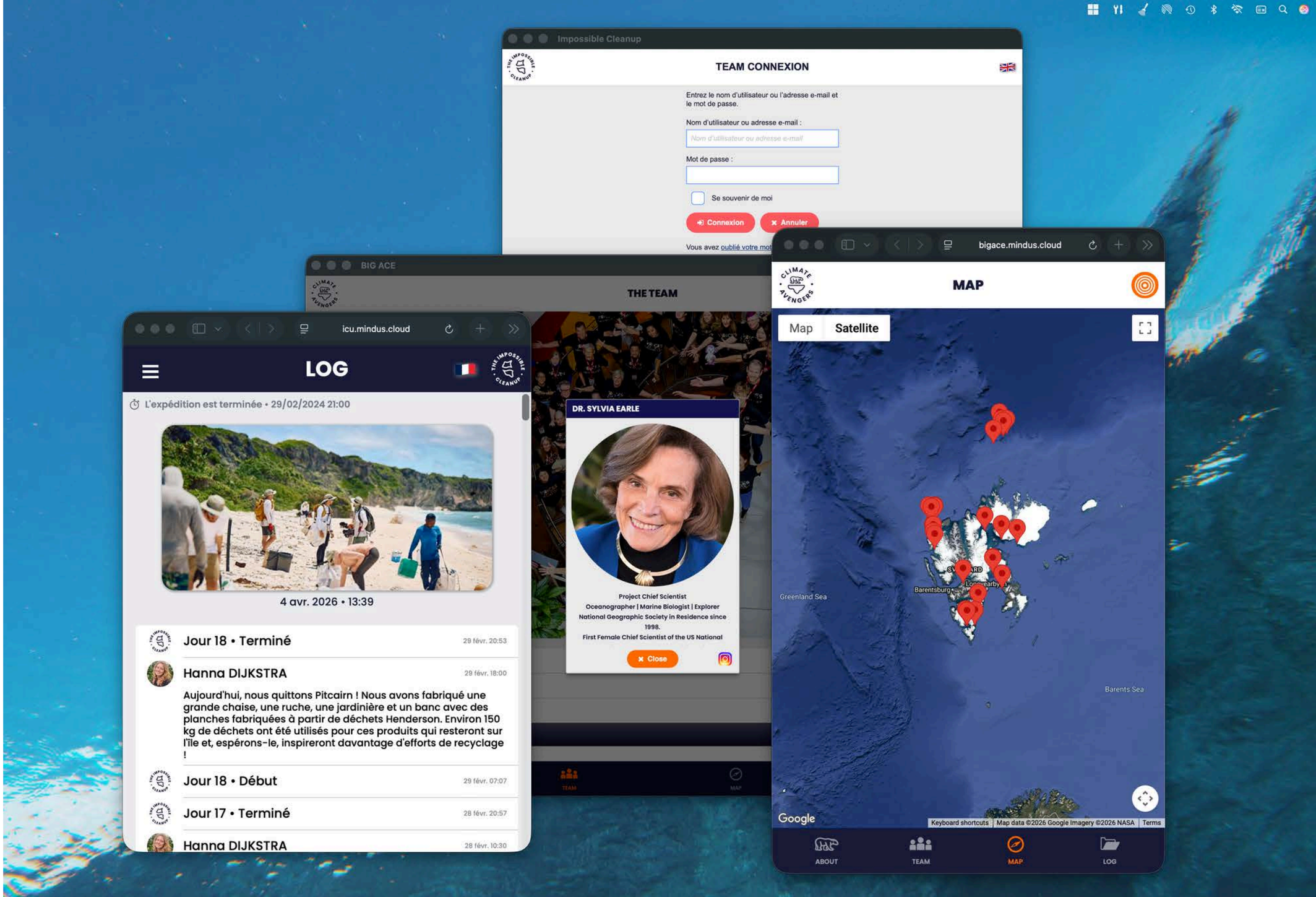
③ MAINTAIN CENTRALLY

- One update on the server reaches every user on every platform
- No client patch, no version fragmentation, no rollout management
- Centralized version control — one point of truth
- Bug fixed once — live everywhere immediately

iiziGo in Action



Apps in Action



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WHO IS MINDUS

Mindus, the 1st Monaco Certified B Corp, Pioneer in Green Digital Technology.

+40
ENTERPRISES

+70K
USERS

+37
YEARS OF TRUST

Our Solutions

IIZI

The modern cross-platform development platform for building new green applications from scratch.

- Unified cross-platform IDE to all devices and OS
- Single codebase in Java
- Drag-and-drop visual development
- Real-time live testing
- Single point of maintenance
- Integrated private AI coding assistant

NETPHANTOM

A middleware solution that modernizes legacy systems into secure and intuitive desktop, web and mobile experiences.

- Seamless legacy connectivity to IBM z Mainframes (z/OS) and IBM i (AS/400)
- No migration, disruption or rewrites required
- GUI modernization
- REXX to Java pipeline
- Zero-downtime maintenance
- Scalable session management

Together, we can go further

OUR CLIENTS

VOLVO

ICS VISA MasterCard INTERNATIONAL CARD SERVICES

SEB

Allianz

FINNAIR

Nasdaq

PLASTIC ODYSSEY

TECH

eclipse

TCS TATA CONSULTANCY SERVICES

ADOPTIUM

tabnine

ANTHROPIC

greenly

IMPACT

Climate House

GREEN.ORG

MAGNITIS

WE EMPOWER

changeNOW

EarthX

Make awesome tech without the planet and the people paying the price

SCIENCE-BASED TARGET INITIATIVE (SBTi) 2030

200.000
Green Apps built

244 tons
CO_2 saved

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EVERY CLICK MATTERS.YOURS DOES TOO.

Build better apps and do good.