



# The Case for the Metaverse Browser

Metaverse Standards Forum | RP1

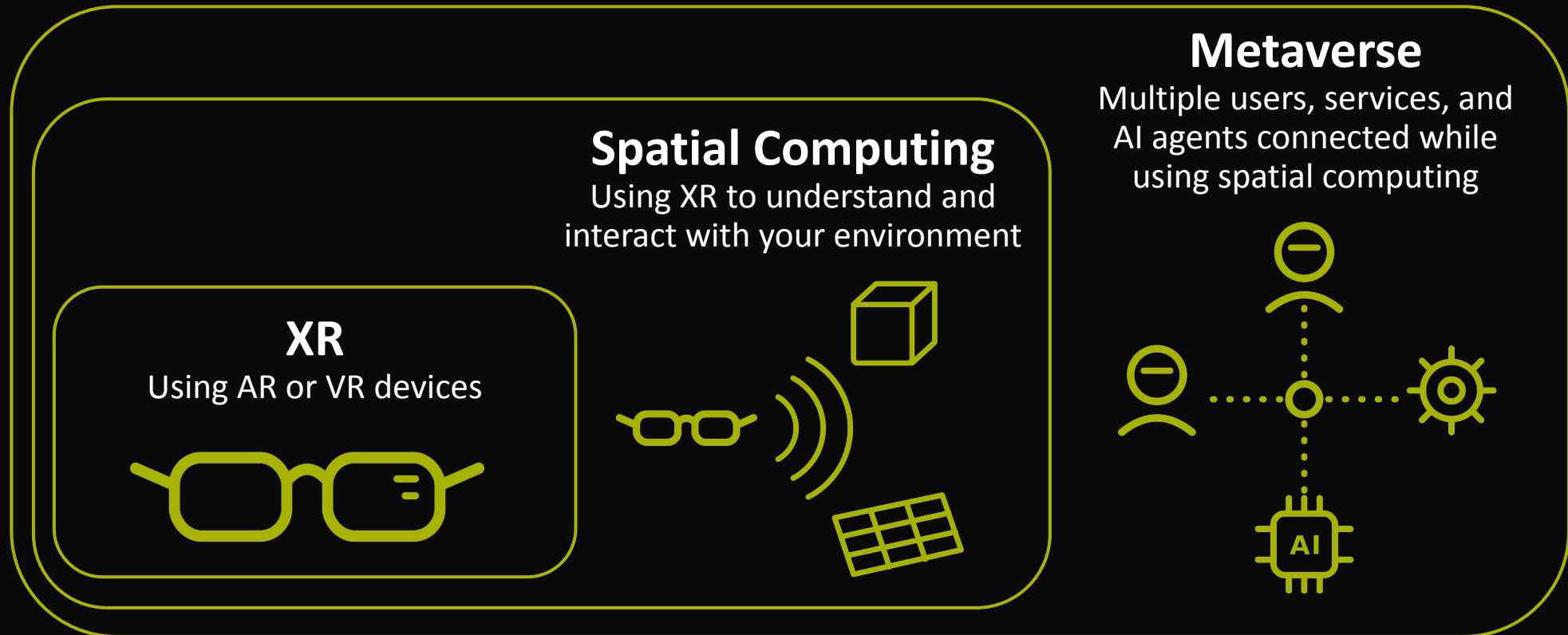
[metaverse-standards.org/open-metaverse-browser-initiative](https://metaverse-standards.org/open-metaverse-browser-initiative)

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[omb.wiki](https://omb.wiki)

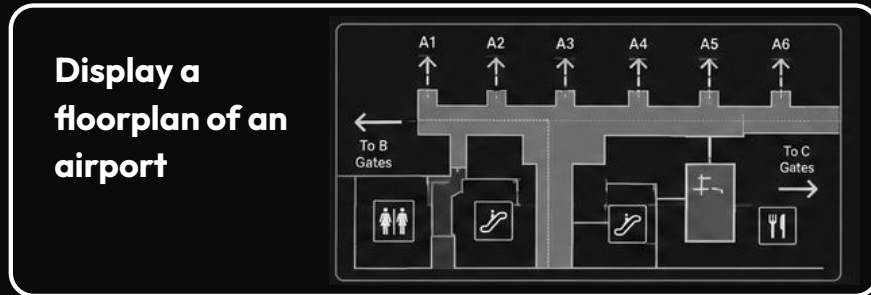
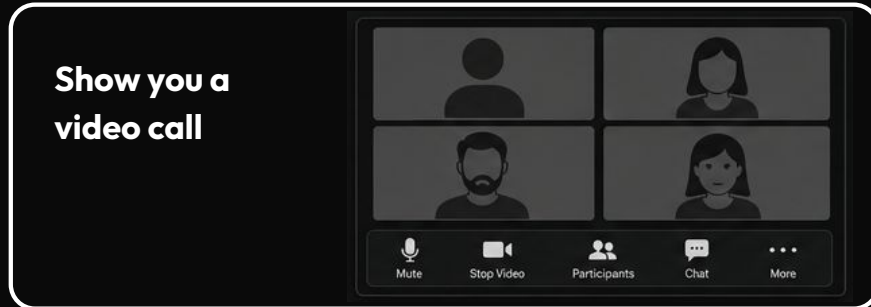
# Metaverse Terminology

**The metaverse combines the power of spatial computing with the connectivity of the web**



# The metaverse is the 3D evolution of the World Wide Web

The web was built for pages



Show a warehouse inventory report

| SKU     | Description    | Location  | Qty On Hand |
|---------|----------------|-----------|-------------|
| TR-2301 | Motor Assembly | Aisle 12B | 58          |
| DC-8873 | Sensor Module  | Aisle 28B | 34          |
| AA-1127 | Control Unit   | Aisle 14B | 12          |
| FS-3345 | Power Supply   | Aisle 24A | 27          |
| CM-7710 | Connector Pack | Aisle 34C | 73          |

The metaverse is built for **places**

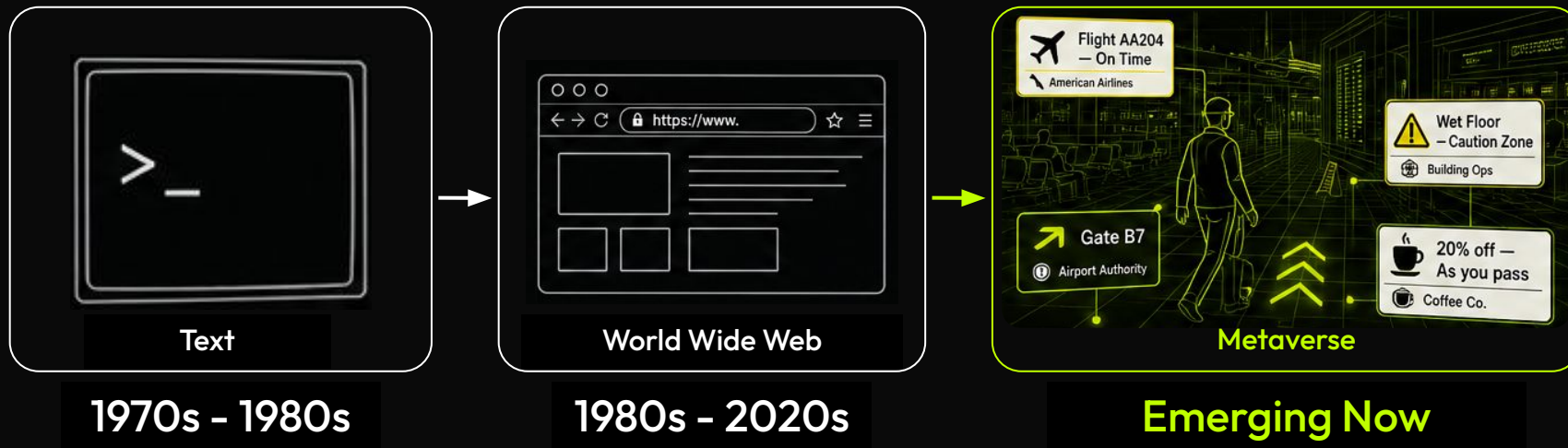


# The world is going spatial

Every era of computing had its defining hardware



Each generation of hardware enabled a defining experience



# AR glasses are racing to become the next mobile computing platform

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## Pioneers in AR Devices

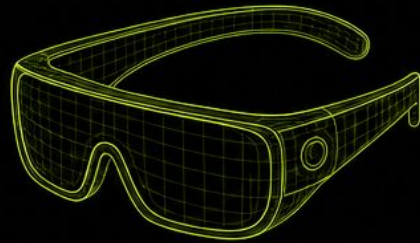
- Meta
- Snap
- Google
- Samsung
- Qualcomm
- XREAL
- RayNeo
- Rokid
- Even Realities
- & more

**While mobile phones can handle spatial computing and physical AI today, AR glasses are designed to enable the optimal spatial experience**

# We need a global platform to deliver spatial services

Both AI and Humans are both going to need to connect to the real world

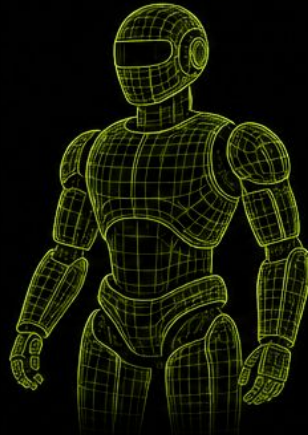
**AR glasses**  
**AI/Smart glasses**  
**VR headsets**  
**AI Wearables**



**Smart Homes**  
**IoT Devices**  
**AI Assistants**  
**Digital Twins**



**Physical AI**  
**Robotics**  
**Autonomous Vehicles**

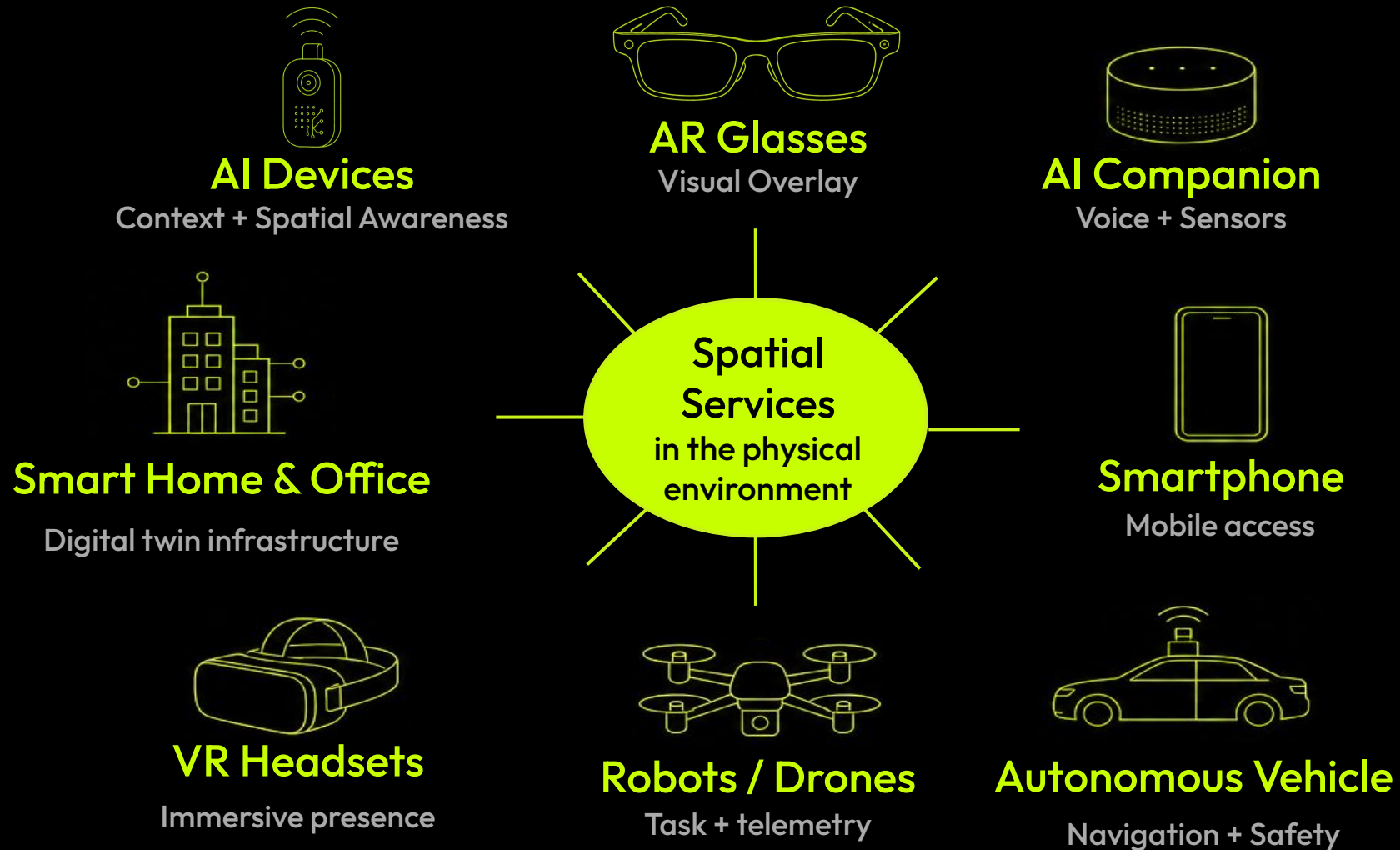


**Citizen services**  
**Smart Cities**  
**Traffic Routing**

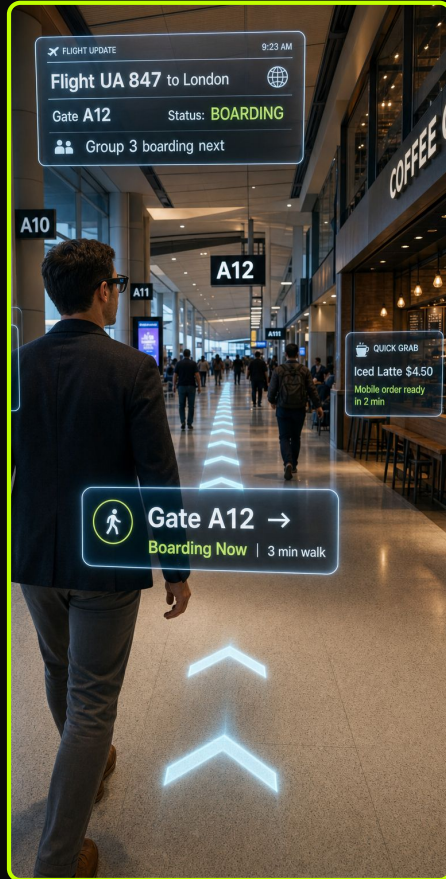


# Spatial services will connect you to the world – not apps

Every device that operates in the physical world needs to discover and connect to services around it



# Millions of **services** will run across the Metaverse



## Airports

Navigation | Flights Status  
Dining | Baggage Claim



## Manufacturing

Machine Health | Quality  
Control | Safety | Maintenance



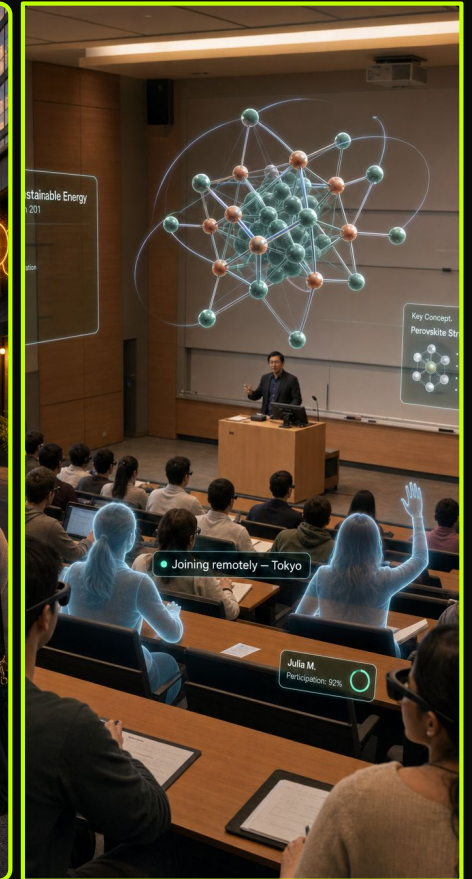
## Energy

Remote Expert | Pipeline Data  
3D Schematics | Hazard Zones



## Smart City

Transit | Parking  
Events | Air Quality



## Education

Lectures | Research  
Campus Dining | Navigation



See our Open Metaverse Browser video at:  
[omb.wiki/introvideo](https://omb.wiki/introvideo)



● Joining from Seattle  
Connected

The world is looking for how to  
evolve the web to include  
metaverse infrastructure

The web is the only platform with the needed  
global reach and is based on open standards

**Houston we have a problem!**



# The web was not designed for spatial browsing

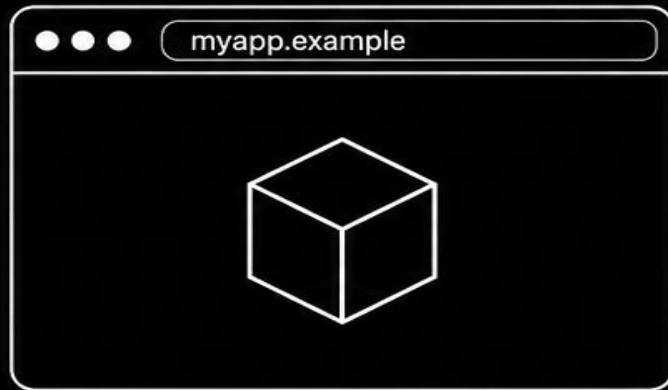


# It's not a WebXR problem, it is a web problem

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## WebXR works for:

### Single-origin apps



JavaScript → Canvas → one app, one origin.

## DOM and iFrames limit WebXR:



Can't easily dynamically connect to multiple discovered new services



Can't discover and load scenes and services based on proximity



Can't securely compose multi-origin scenes



Can't enable real-time spatial co-presence

# Metaverse walled gardens exist largely because of the web's limitations

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## Hardware and software are vertically siloed

Each device ships it's own isolated app ecosystem



## No network effect or interoperability

Content and users are trapped inside each platform



## Everyone reinvents their own tooling, no shared ecosystem

Every platform, experience, and space is rebuilt from scratch



## Unable to self-host spatial content

Can't host content the same way you host a website on your own server

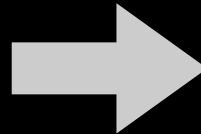
# We're in the AOL moment for the metaverse and spatial computing

Moving from walled gardens to open standards

## Walled Garden Platforms



1990s

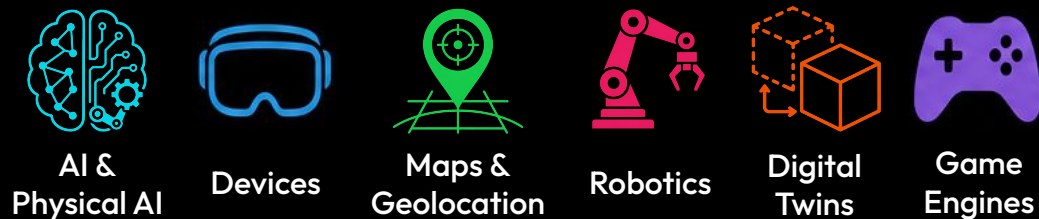


## Open Web Browsers

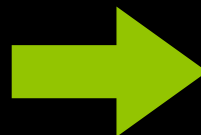


## Walled Garden Platforms

Hardware & Software for Spatial Computing



Today



What is needed to unify the spatial computing industry?

*The same way the browser unified the walled gardens before*

# Two worlds, neither complete

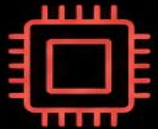
Each solves part of the problem. Neither delivers spatial browsing.

## The Web (Browsing, not spatial)



### Restricted performance

Javascript and V8 are not fast enough for high-performance real-time 3D



### Restricted memory

Not enough for large or complex spatial scenes



### Restricted device access

Camera, GPS, microphone beyond permission walls



### Restricted storage

Cannot reliably store data locally through a web session

## Native Engines (Unity/Unreal) (Spatial, but not browsing)



### Requires compilation per device

Separate builds for each target platform



### Updates are slow and manual

Must contact each device to update and reinstall



### Not interoperable

Content built in one engine won't work in another



### Not designed to stream

Large packages built to install and run locally

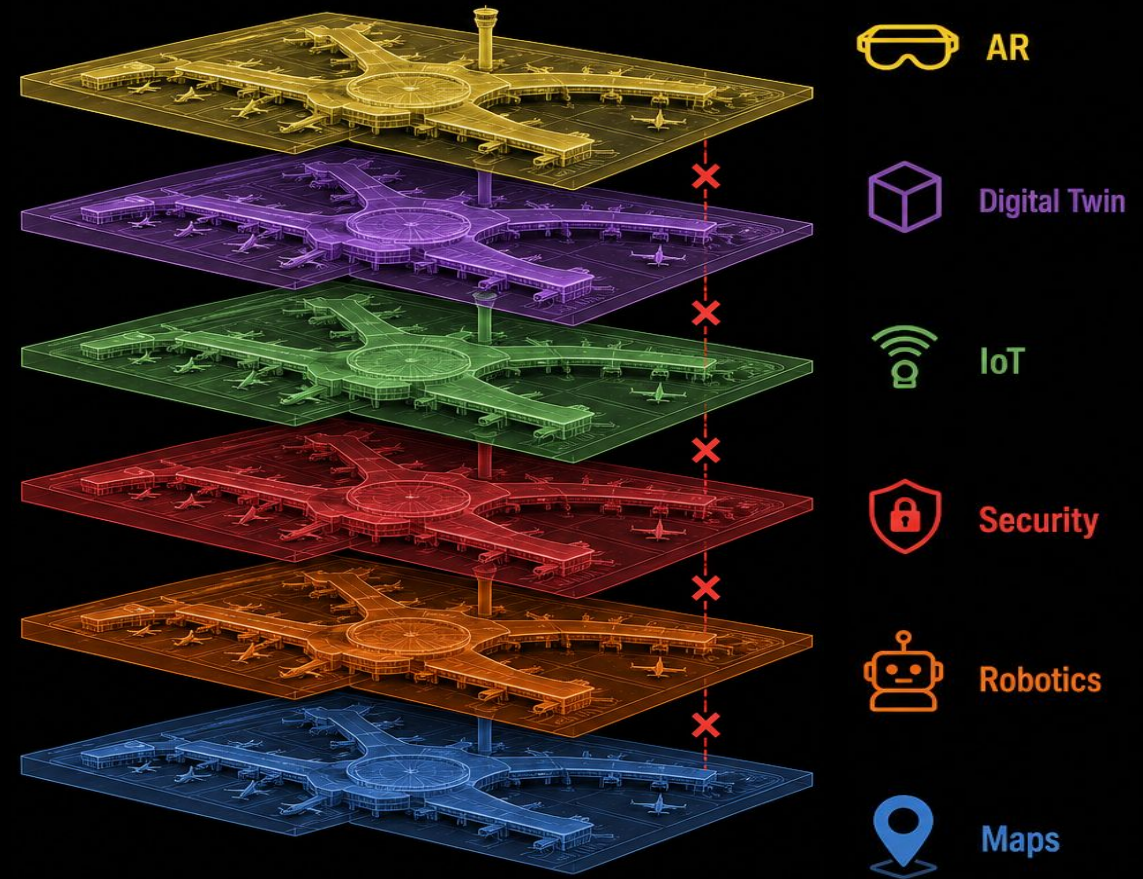
To get spatial browsing, you need both sets of capabilities in one place.

# The industry is often fragmented

No interoperability. No unified access. Maximum friction.

- Every vendor runs its own maps, SDK, and data silo
- Robotics, security, IoT, and digital twins all operate independently of each other
- No System connects to any other
- AR experiences have no awareness of the environment around them
- No way to manage it all as one system

**6 vendors. 6 separate systems. None connected.**



# Enterprises can't commit on infrastructure a single company can shut down

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Single points of potential failure are not acceptable to many

~~AltspaceVR~~

Shut Down 2023

Community and content lost  
overnight

~~HoloLens~~

Discontinued 2024

Enterprises stranded  
mid-deployment

~~8th Wall~~

Acquired • Deprecated

Builders forced to start over

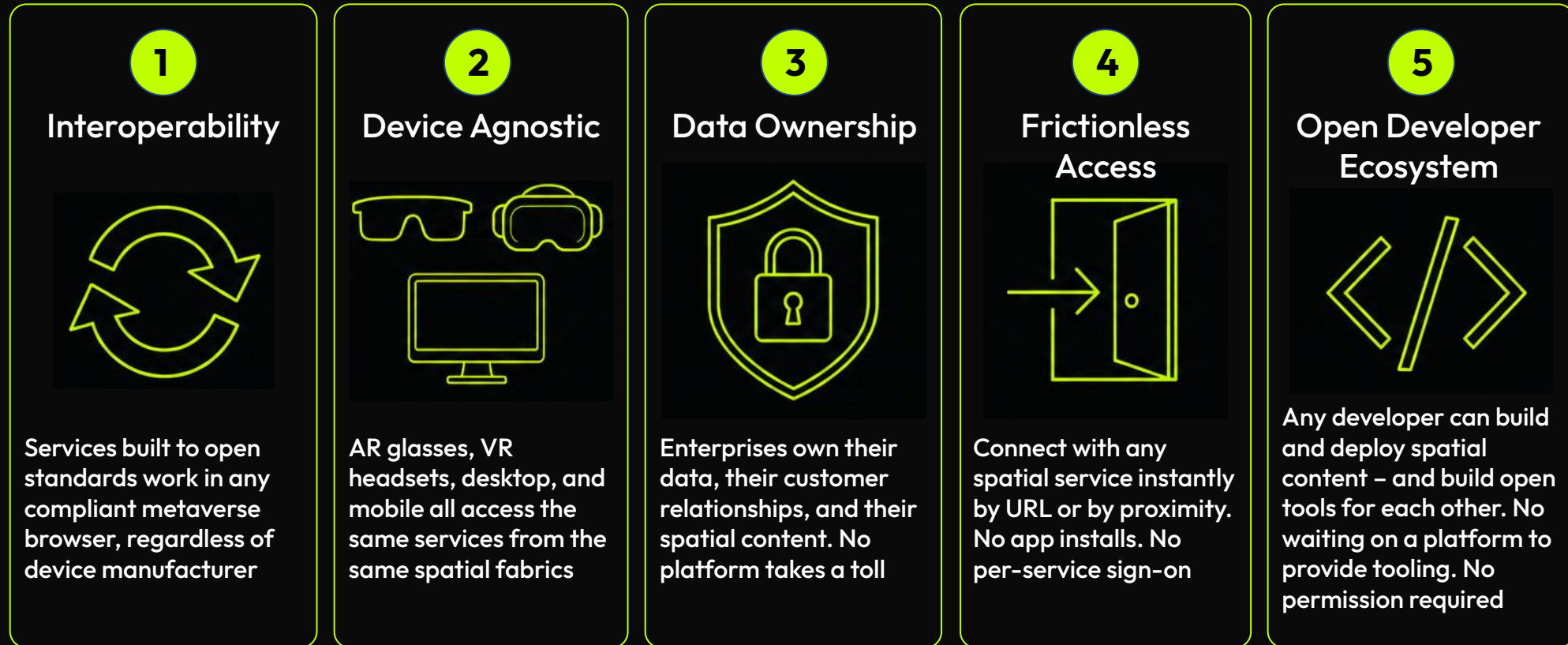
~~ReadyPlayerMe~~

Acquired by Netflix

Platform pivoted away from  
creators

# 5 Enterprise Non-Negotiables to Deploy Spatial Services

The spatial computing ecosystem cannot reach enterprise scale without satisfying all five



These are enterprise procurement requirements

# 6 solutions needed that web browsers & closed platforms don't provide

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## Self-hosted spatial content

Closed platforms don't allow you to host your 3D content the same way you host a website on your own server. The metaverse browser connects to it directly



## Publish 3D content like a website

Closed platforms don't allow you to drop content on a server and the metaverse browser engine retrieves, renders and displays it properly on any device (Mobile, PC, VR, AR)



## Proximity-based scene loading

The engine loads content based on where you are. Proximity-based, built in. Relevant content appears automatically as you move



## Trusted, unified multi-origin scenes

Independent operators compose one continuous 3D scene together. Each securely isolated from the others, all services in one view



## Seamless service integration

Spatial services stream in and out automatically as you move. No stopping to install every service. No per-service setup every 10 feet



## Real-time spatial co-presence

AR and VR participants share one space in real time. All devices (including mobile and desktop), one experience

**How can we meet these  
requirements?**



# Introducing Sneeze

## The first open metaverse browser engine for spatial browsing



Embedded in current web browsers

- Powers standalone metaverse browsers
- Embed directly on XR devices

Open source (Apache 2.0). Built through OMBI under the Metaverse Standards Forum

# Sneeze delivers spatial browsing

The reach of the web, the power of native apps, all in one engine.

## The Web



Multi-device deployment



Instant access, no installs



URL-based navigation



Open standards ecosystem

## Sneeze



Spatial browsing



Multi-origin composition



GPU-native rendering



Content-first development

## Native Engines

(Unity, Unreal, etc.)



High-performance 3D graphics



Full device access

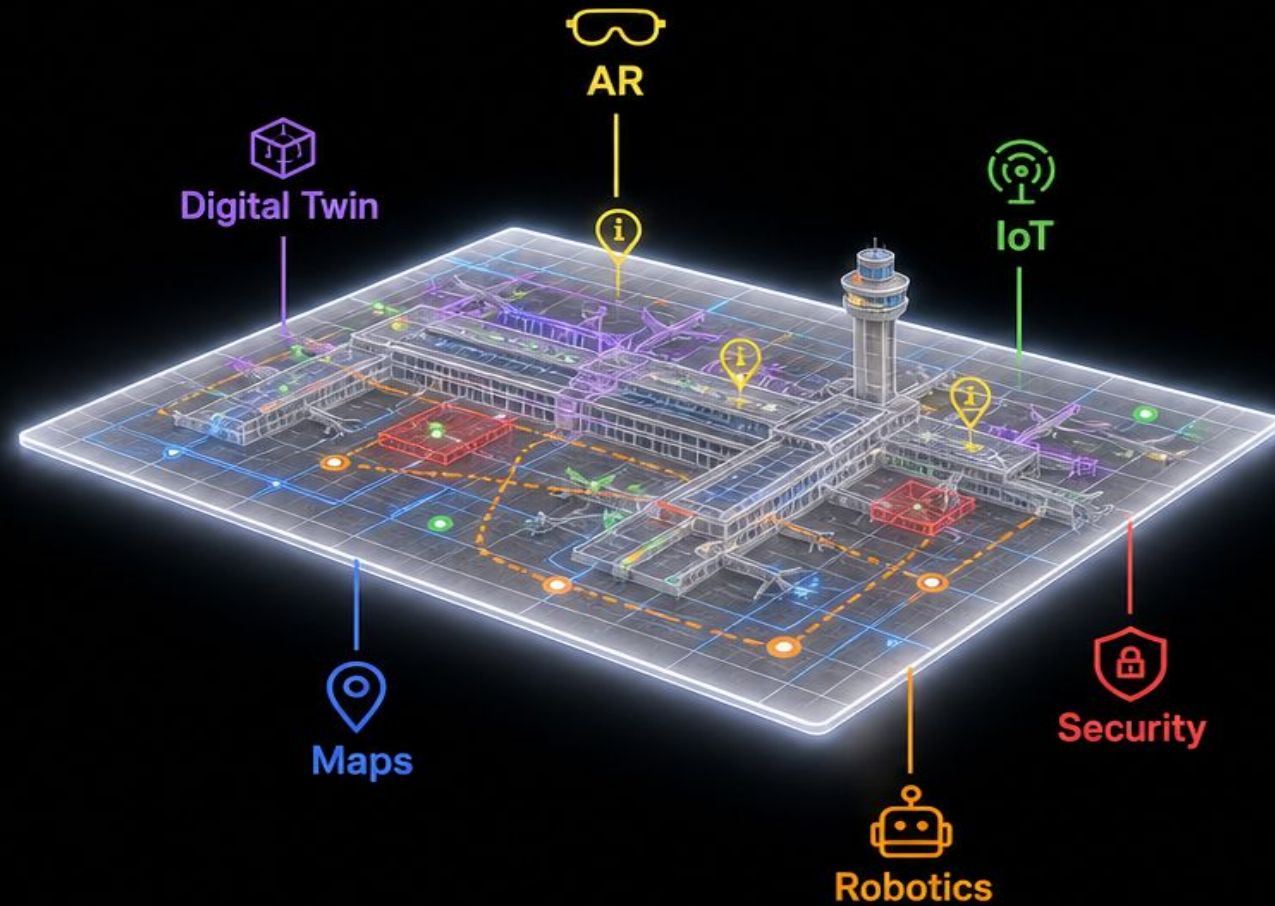
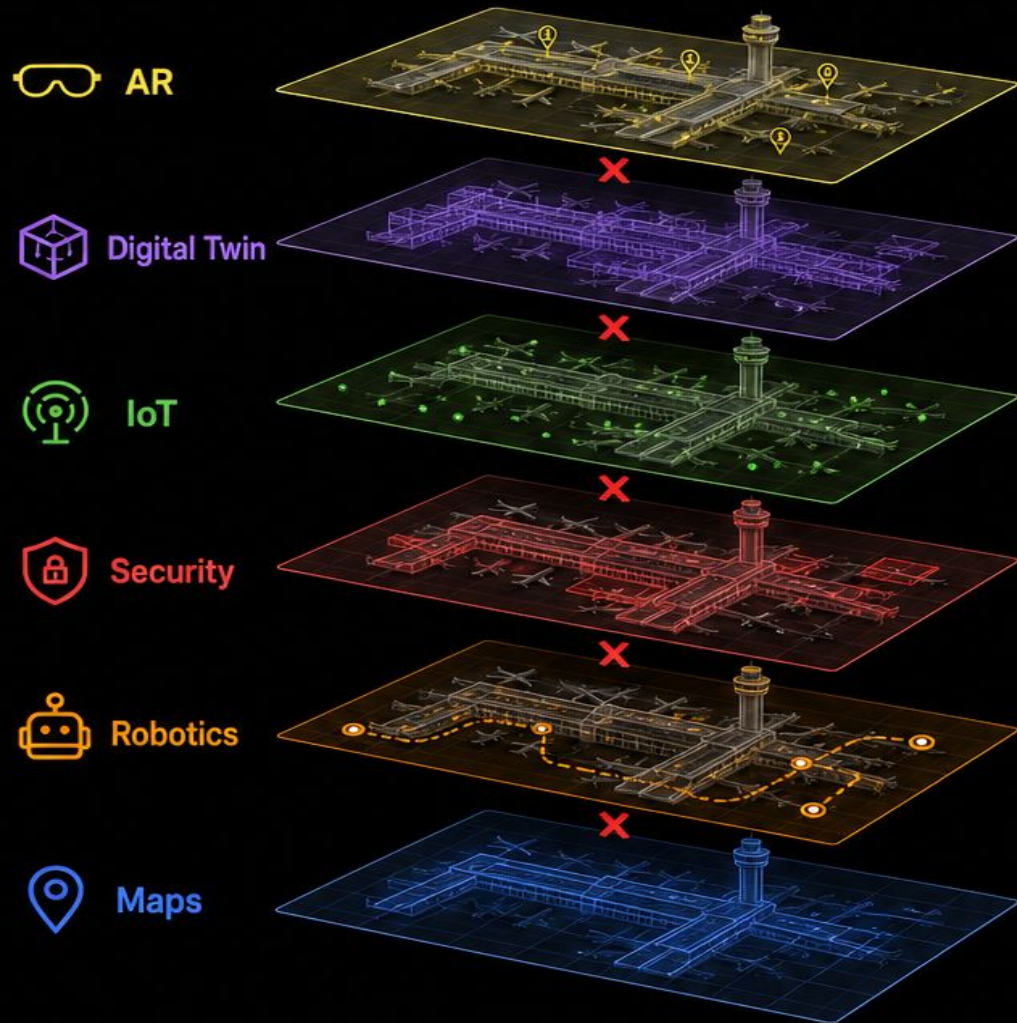


Large memory and storage



Rich spatial capabilities

# Sneeze unifies industry fragmentation



# Focus on your content. The browser handles the rest.

With Sneeze, you publish spatial content and the engine handles delivery, rendering, and display on any device.  
Just like the web.

# What Sneeze provides

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## Tangible capabilities the engine brings to the browser

01



### Multi-Origin Scene Composition

Compose content from dozens of independent providers into one unified scene

02



### Proximity-based Browsing

Connect to spatial services that stream in and out automatically – no installs

03



### Spatial Anchoring

Physical and virtual world anchoring  
Content loads based on proximity

04



### Decentralized Identity

Cryptographic credentials  
No per-service sign-on, portable across fabrics

05



### Rendering Abstraction

Render to any device from one engine  
(phone, AR glasses, VR headset, desktop)

06



### Co-Presence

AR and VR participants share one space in real time – all devices, one experience

07

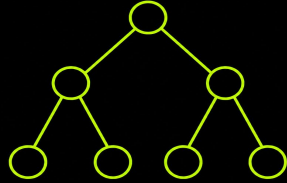


### Certificate-Based Security

Signed certificates replace domain-based security as the basis for trusted multi-origin composition

# Four key innovations to make an open metaverse possible

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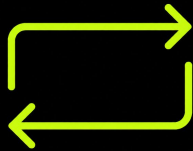
## Scene Object Model (SOM)

Connected Services update a shared 3D scene graph in real time. The browser connects to and composes from multiple origins – no third-party platform or app needed.



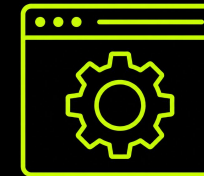
## Spatial Fabrics

A spatial fabric is the evolution of a website – a 3D map with anchored content and embedded services. It tracks user proximity relative to available services and offers connection.



## RMAP

RMAP links the browser engine to spatial fabric services. Portable, performant, and robust service discovery and connection.



## Certificate Based Security

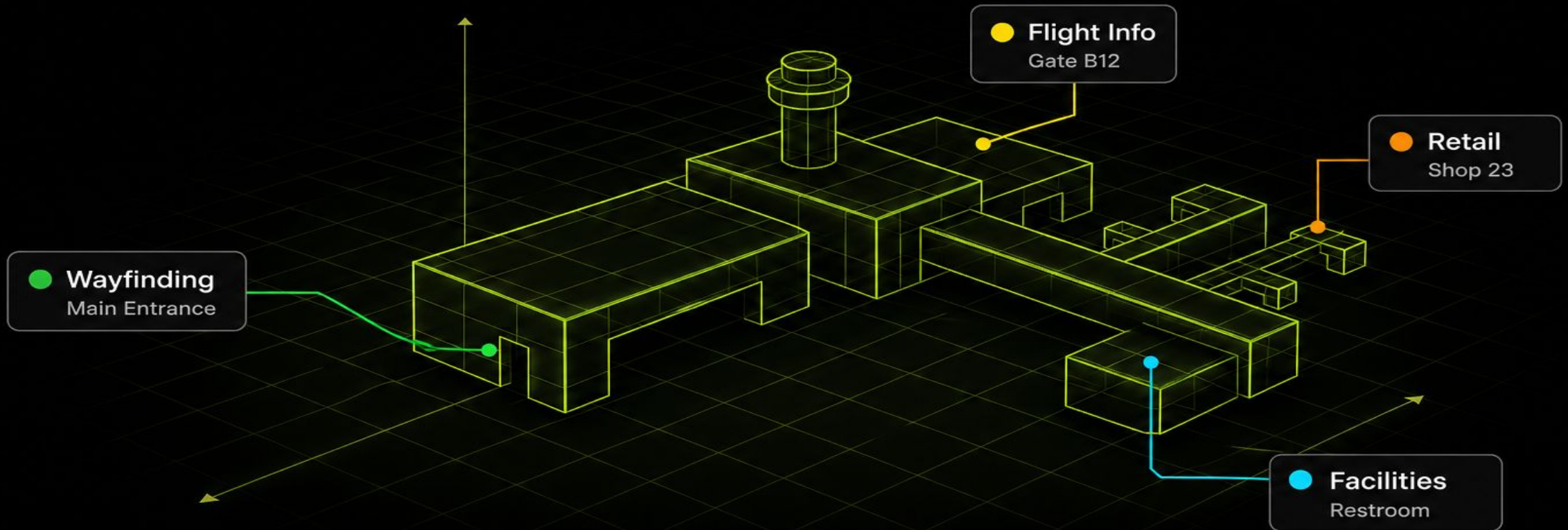
The web uses domain names for security, where Sneeze uses signed certificates for spatial fabrics which makes the SOM possible

# Every concept that makes the web work has a direct metaverse equivalent

| The Web                                                                                                                                                        |   | The Metaverse                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Web Server</b><br>A server that hosts a website                           | → |  <b>Metaverse Server</b><br>A server that hosts a spatial fabric                                                       |
|  <b>Website</b><br>A group of web page served from one origin                 | → |  <b>Spatial Fabric</b><br>A 3D environment hosted by one operator                                                      |
|  <b>Web Page</b><br>A single page served from one origin                      | → |  <b>Spatial Scene</b><br>A 3D environment served from one or many spacial fabrics with embedded services at a location |
|  <b>Web Browser</b><br>Chrome, Firefox, Safari                                | → |  <b>Metaverse Browser</b><br>Any browser built with a Metaverse Browser Engine                                         |
|  <b>Browser Engine</b><br>Blink, Gecko, WebKit                                | → |  <b>Metaverse Browser Engine</b><br>Sneeze                                                                             |
|  <b>HTTP / HTTPS</b><br>Protocol connecting browser to web server            | → |  <b>RMAP (REST, WebSocket, Other)</b><br>Protocol connecting browser to metaverse server                              |
|  <b>DOM (Document Object Model)</b><br>2D document tree representing a page | → |  <b>SOM (Scene Object Model)</b><br>3D graph representing a collection of spatial fabrics                            |
|  <b>URL / Web Address</b><br>Navigate explicitly by typing an address       | → |  <b>Proximity + URL</b><br>Content loads as you approach                                                             |

# Spatial Fabric

A mapped coordinate space containing content and services



The spatial evolution of a website

Hosted on a metaverse server • Accessed by proximity

# Spatial Fabrics: The metaverse equivalent of a website



## Content and Services

gITF • USD • GeoPose



## Composable

Many fabrics, content & services



## Proximity Based

Enter a location to connect



# Services + RMAP: Software embedded on spatial fabrics

Services are pieces of software embedded on spatial fabrics, from any provider.  
RMAP is a protocol that connects applications in the browser to 3rd party services.



## Embedded on Spatial Fabrics

Anchored to location in a scene



## Self or 3rd-Party Hosted

Any provider can publish

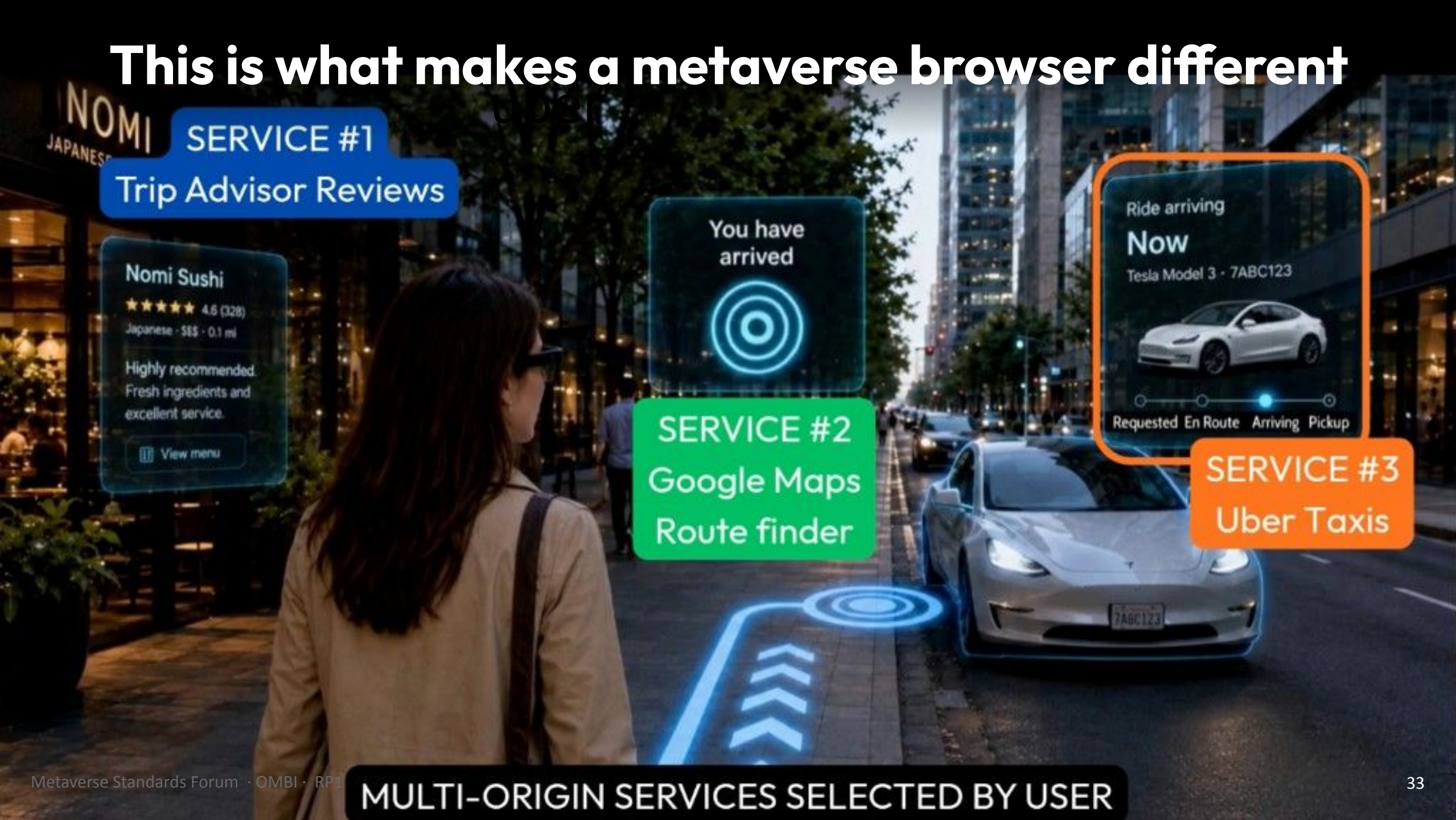


## No Installs

It works like visiting a website



# This is what makes a metaverse browser different



SERVICE #1

Trip Advisor Reviews

Nomi Sushi

★★★★★ 4.6 (328)

Japanese · \$85 · 0.1 mi

Highly recommended.  
Fresh ingredients and  
excellent service.

View menu

You have  
arrived



SERVICE #2  
Google Maps  
Route finder

Ride arriving

Now

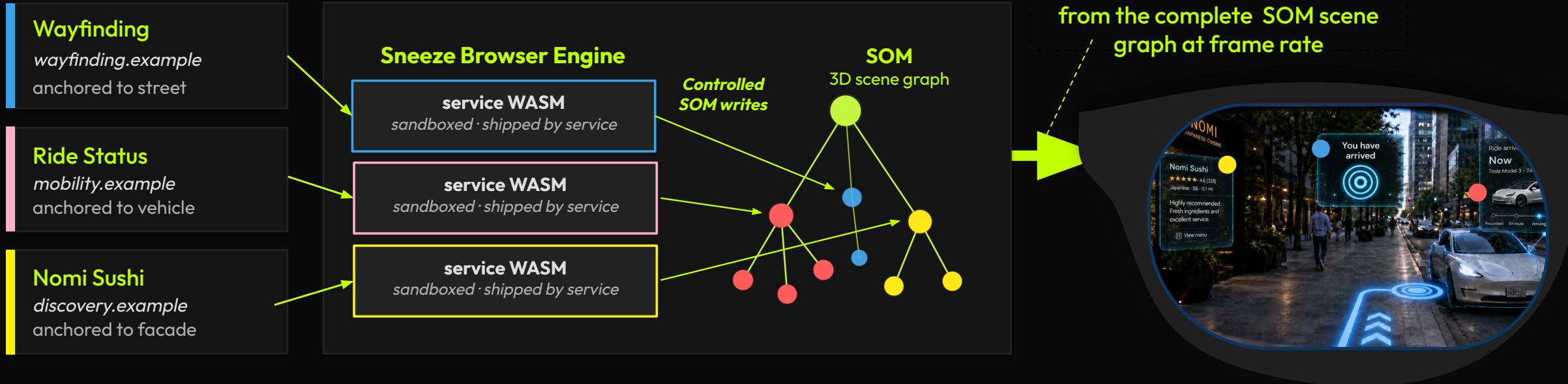
Tesla Model 3 · 7ABC123



Requested En Route Arriving Pickup

SERVICE #3  
Uber Taxis

# How does the SOM work?



**No app installs. 3 operators. 3 independent services. 1 continuous scene.**

Each company hosts its own spatial fabric, controls its own data, and the metaverse browser composes them all — securely isolated

# RP1 introduces the first *native* metaverse browser using Sneeze



A R T E M I S<sup>TM</sup>

Any device  
Every OS

| Powered by Sneeze  
Built on open standards

| Many services  
One scene

# Next steps



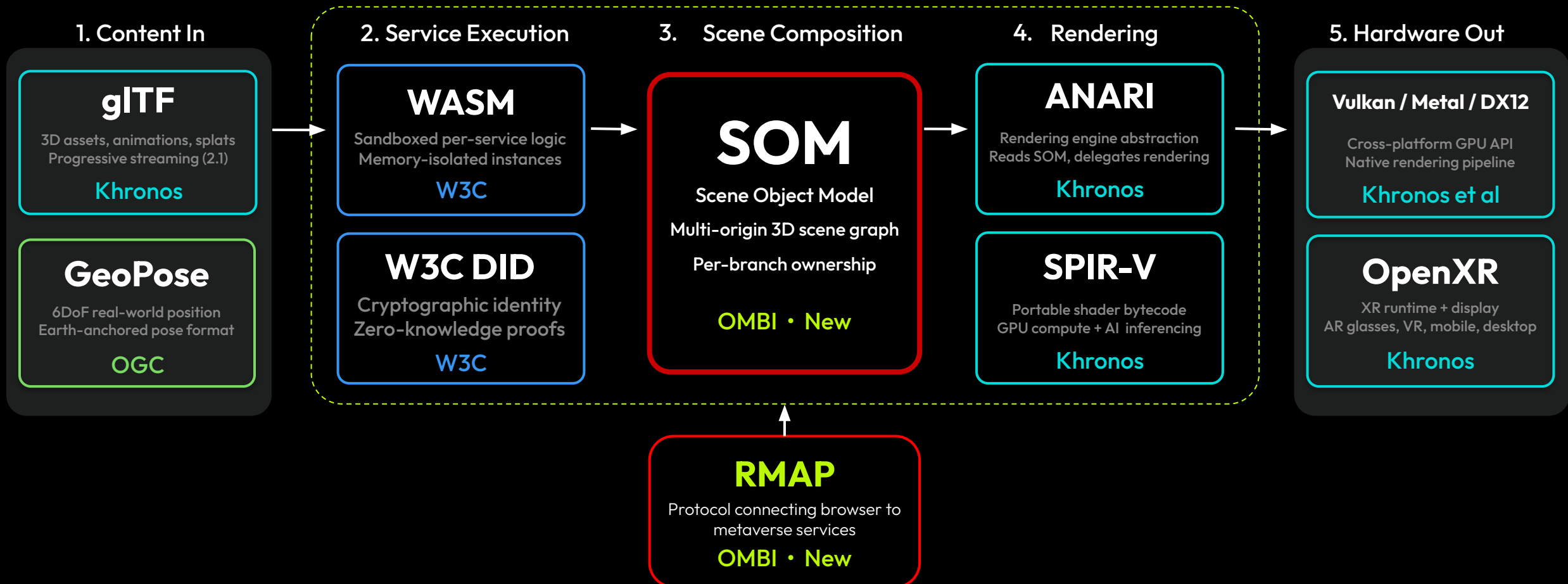
# Built on Open Standards

Extending, *not reinventing*, the web

Standards used by OMBI

  Khronos   W3C   OGC   New

## Sneeze Engine



## OMBI Momentum is building

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### Open Metaverse Browser Initiative

Governed by MSF, enterprises are signing up and contributing

Launched • March 2026

### Sneeze: Open Sourced

Open-Source Metaverse Browser Engine Launched

Launched • June 2026

### 3rd Party native metaverse browser

RPI's Artemis built using Sneeze

Launched • July 2026

## Industry Voices on the Open Metaverse Browser Initiative

“

The most encouraging announcement of AWE



“

Big impact on the future of spatial computing

**Forbes**

“

Sneeze is a new engine purpose built for spatial computing

**GamesBeat**



University  
of Rochester  
Center for Extended Reality

ANNOUNCING

# Open Metaverse Academic Alliance

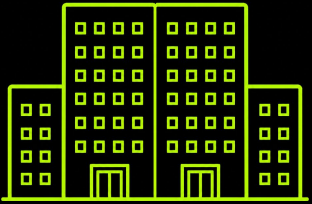
Bringing together academic institutions worldwide  
around OMBI interoperability for the open metaverse

With a University? Join Here



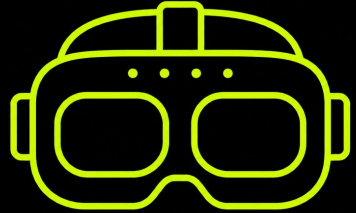
# The world can start building now

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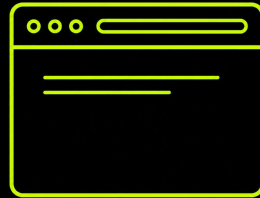
## Enterprises

Build and deploy  
spatial fabrics on  
your own  
infrastructure



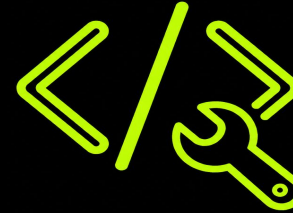
## XR Device Manufacturer

Embed Sneeze and  
begin testing spatial  
browsing across  
devices



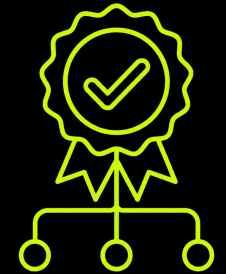
## Web Browsers

Embed Sneeze and  
unlock spatial  
browsing to  
everyone



## Developers

Build tools for the  
open ecosystem for  
themselves and  
each other



## Standard Bodies

Create and extend  
needed open  
metaverse  
standards

**The engine is open-source. The browser is live. Built on open standards.**

# Get involved

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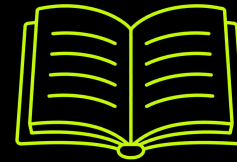
## Join the open metaverse ecosystem



### Join the MSF

Become a member of the  
Metaverse Standards Forum.

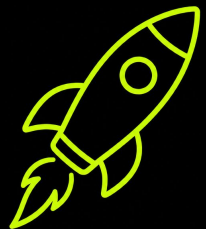
[metaverse-standards.org](https://metaverse-standards.org)



### Explore OMBI

Architecture, engine docs,  
and open standards.

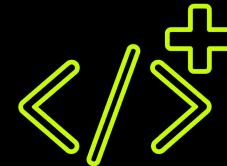
[omb.wiki](https://omb.wiki)



### Try Artemis

The world's first native  
metaverse browser

[rp1.com/artemis](https://rp1.com/artemis)



### Contribute to Sneeze

Architecture, engine docs,  
and open standards.

[github.com/MetaversalCorp](https://github.com/MetaversalCorp)

## Let's connect

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The metaverse is the next chapter of the World Wide Web.  
Let's build it together.



**Reach out:**

[ombi@metaverse-standards.org](mailto:ombi@metaverse-standards.org)



**Book a meeting:**

[rp1.com/meet](https://rp1.com/meet)



**Metaverse**  
**STANDARDS FORUM™**

**OPEN**  
**METaverse**  
**BROWSER**  
**INITIATIVE**

**RP1®**