Dr Mark Reilly
Managing Partner, Technology

AI and the Internet. How to Unlock a Synergistic Future

ip group
visionary ventures

Delivering value through growing innovative companies that enable and secure the digital economy, create new human capability, and generate prosperity for all.

IP Group PLC | Deeptech Partnership

ip group
visionary ventures

IP Group Deeptech: A Track Record of Success.

Wave Optics sold to Snap Inc for over $0.5B **Europe's largest venture-backed deeptech exit.**

Stake in Yoyo Wallet sold to **Teya** (formerly SaltPay).

Process Systems Engineering sold to Siemens.

Re:Infer sold to UIPath.

Assets grown from seed stage to £100M+

ultraleap

Founder investor, grown to **~£300m** enterprise value.

GARRISON

Early investor, grown to over **£100m** enterprise value.

FEATURE SPACE

Early investor, grown to over **£350m** enterprise value.

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IP Group Deeptech: Key Focus Areas.

Applied AI.

Artificial Intelligence applied to specific application areas.

FEATURE SPACE

diffblue AI for Code

Human Machine Interface.

Hardware and software that enhance and evolve our interactions with machines.

ultraleap AUDIOSCENIC

Next-Generation Networks.

Improve the performance and capabilities of communications networks.

ACCELERCOMM SUPERCHARGED WIRELESS

GARRISON

Future Compute.

New computer systems, including neuromorphic and Quantum Computing.

IntrinSic LUMAI

ip group visionary ventures

Dr Lee Thornton
Partner, Deeptech

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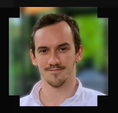
DEEP RENDER

VIDEO COMPRESSION TECHNOLOGY

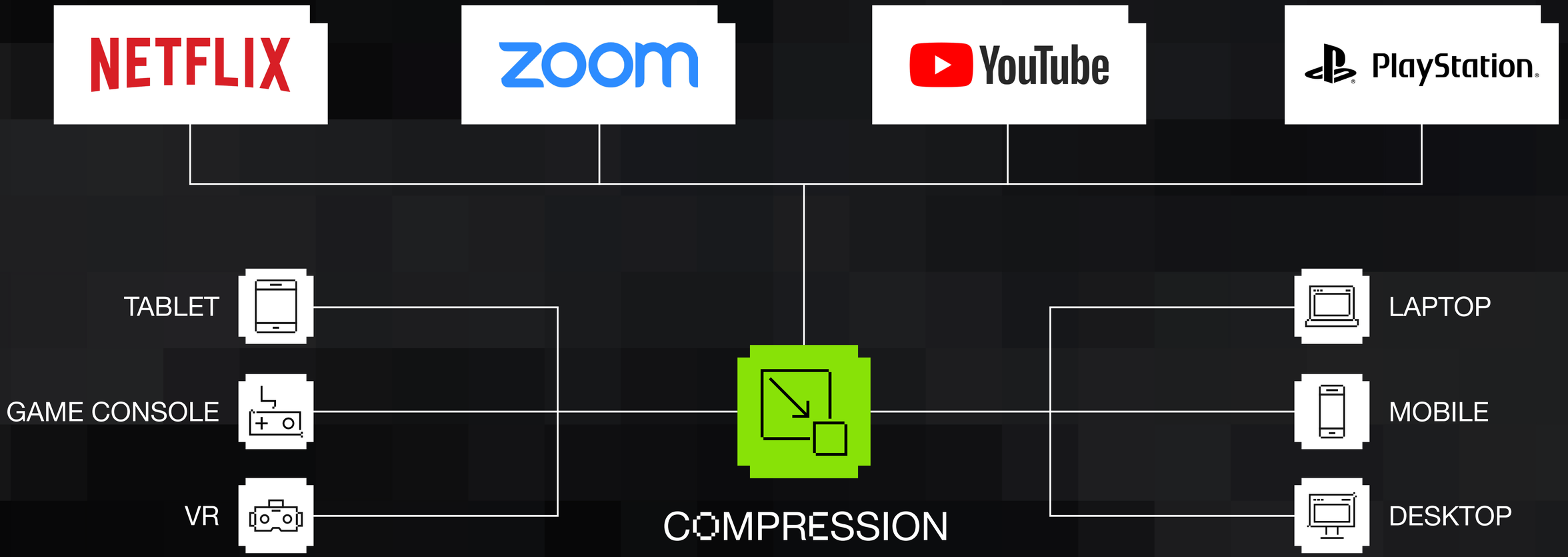
PAST, PRESENT & FUTURE



SEBASTJAN CIZEL
ML Lead

DEEPRENDER.AI

COMPRESSION IS EVERYWHERE



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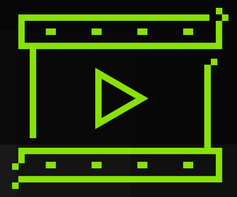


VIDEO FILES ARE LARGE

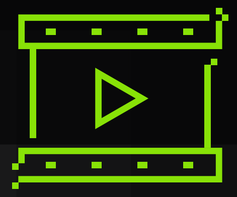
1 hour of raw 4k video

3 terabytes of data

requires 7 gigabit per second internet connection to stream

100X Average broadband speed (70 Mbp/s)

...WHY?



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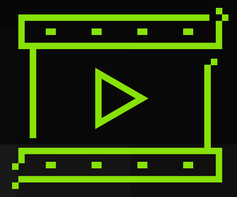

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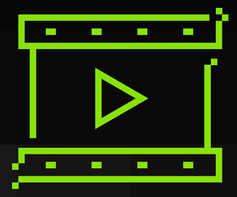

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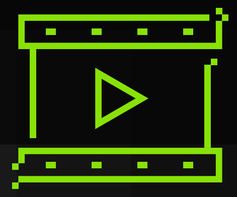

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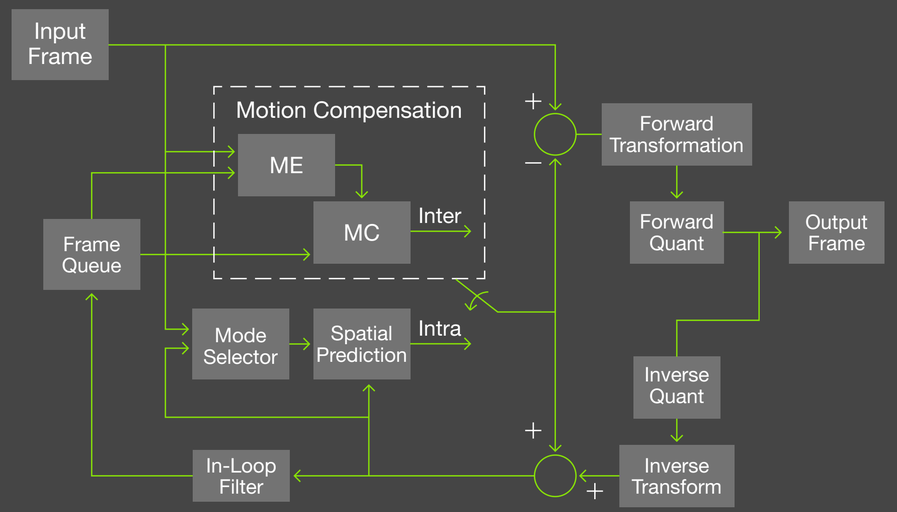
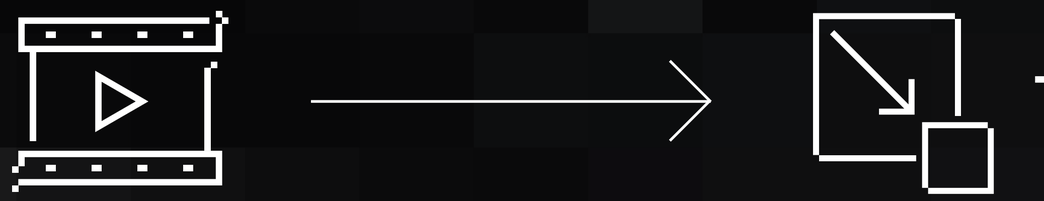
THE PAST

TRADITIONAL COMPRESSION



- ✕ Complex, hand designed
- ✕ Specialised hardware needed
- ✕ Slow progress and market penetration

THE PAST



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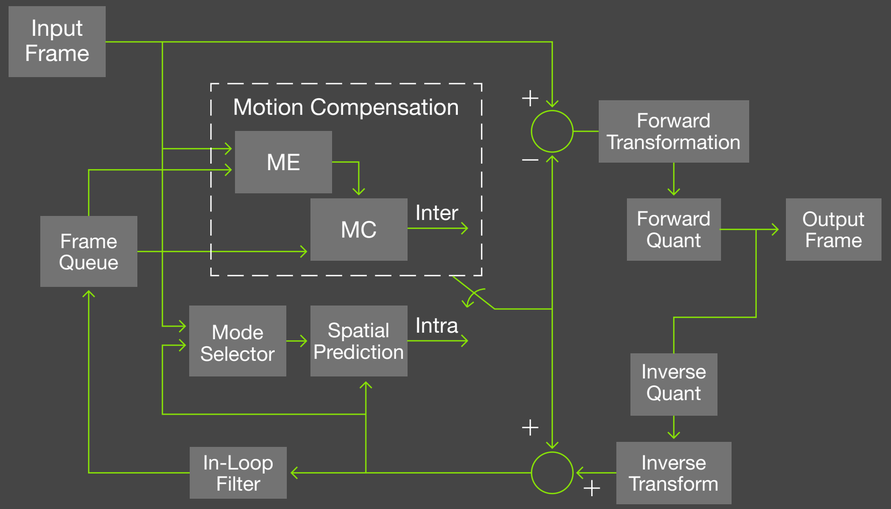

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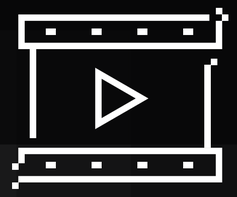

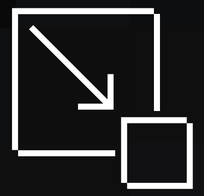

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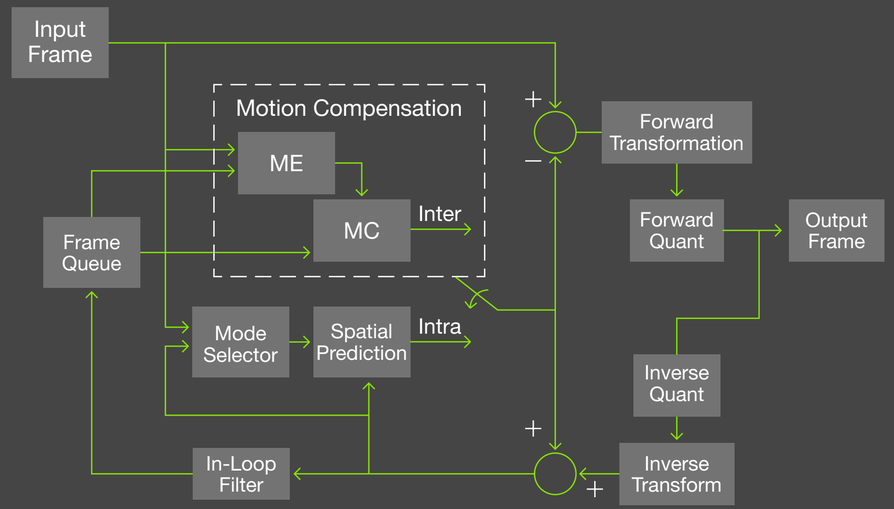

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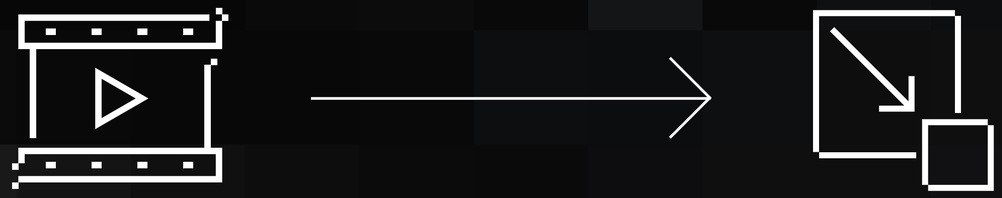

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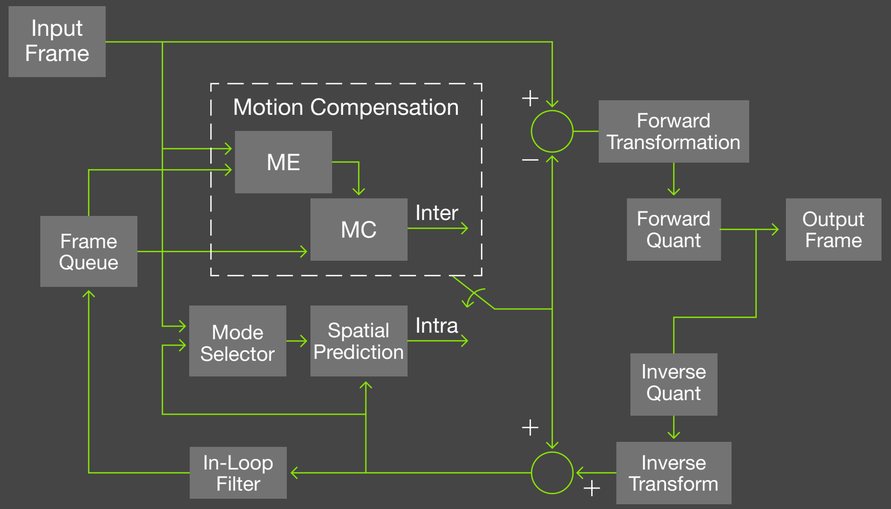

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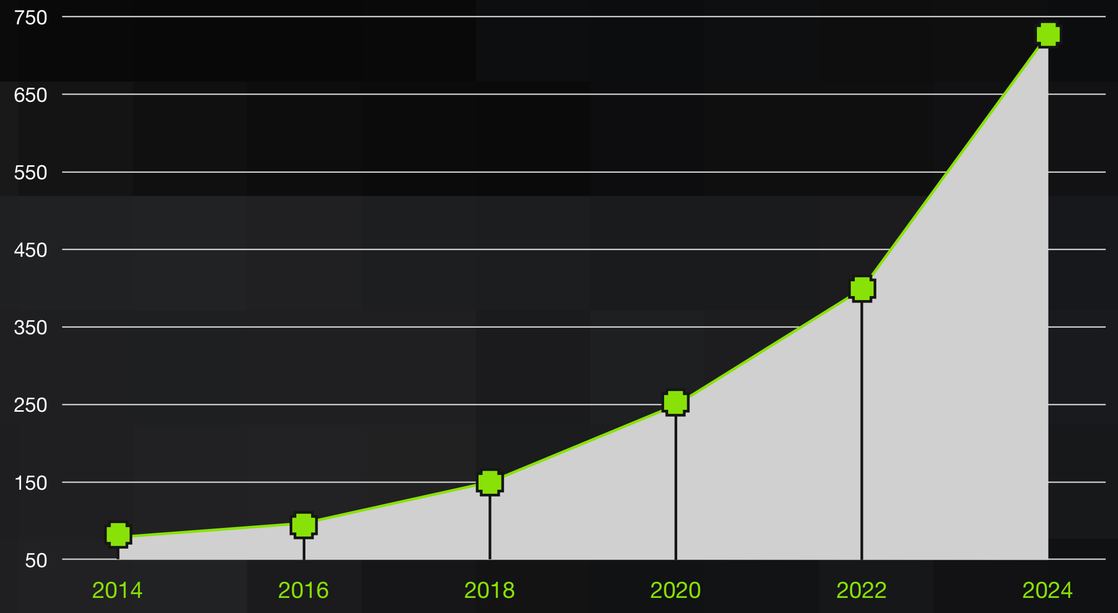
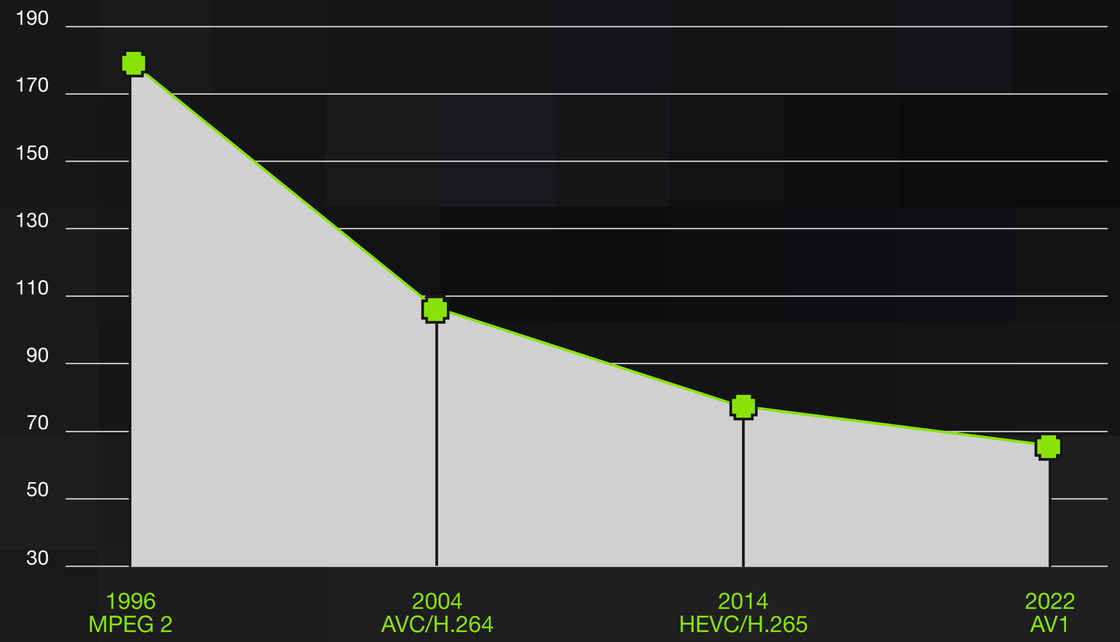
THE PRESENT

INTERNET TRAFFIC



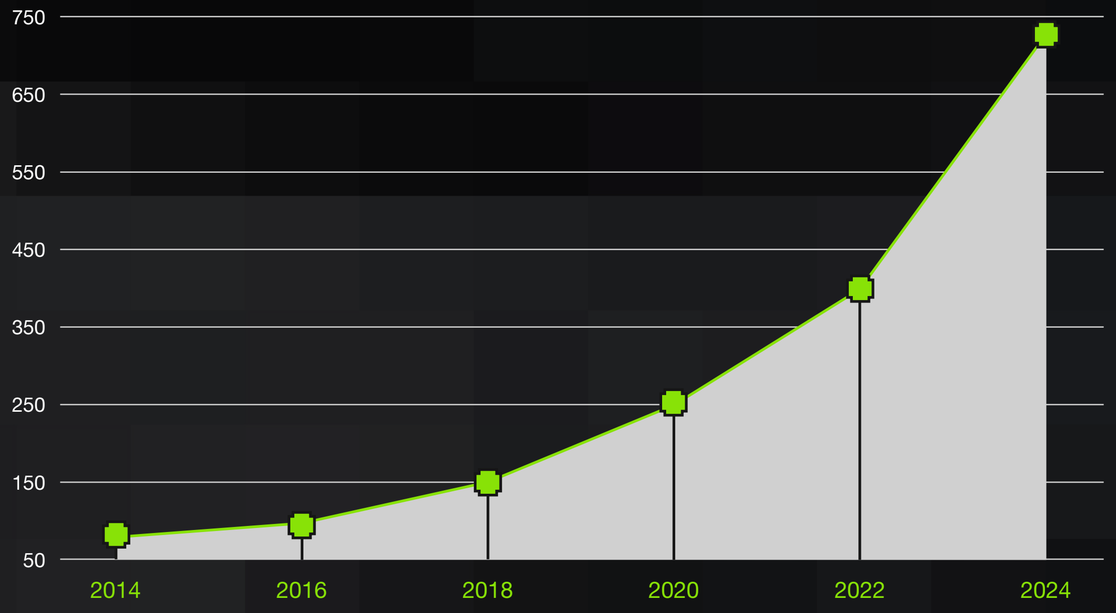
RELATIVE COMPRESSION IMPROVEMENT



COLLAPSE OF THE INTERNET DATA INFRASTRUCTURE

THE PRESENT

INTERNET TRAFFIC



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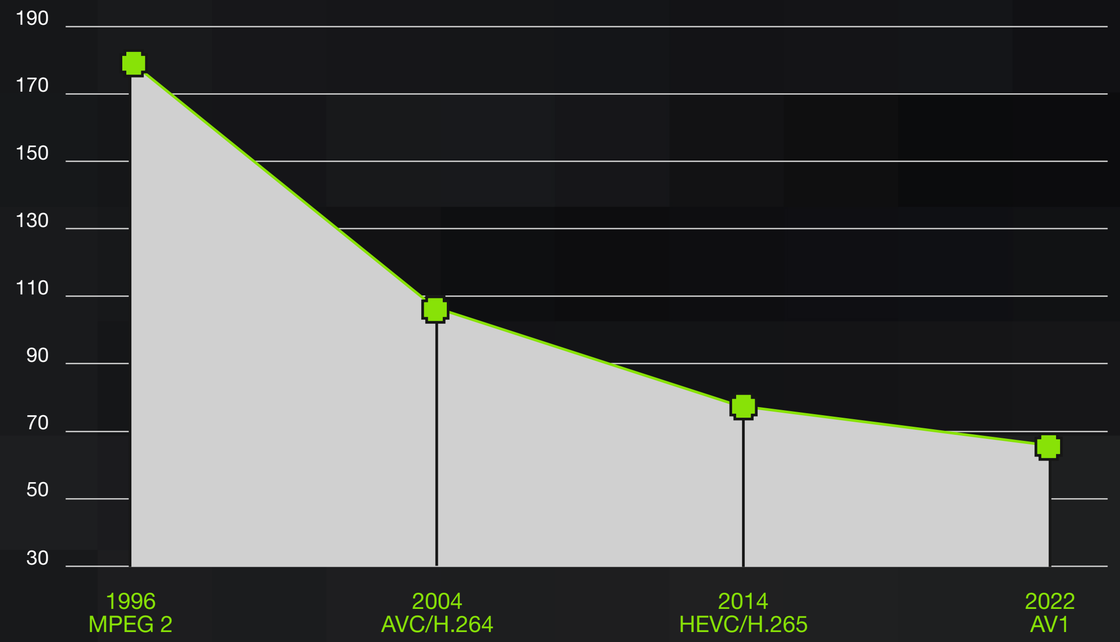
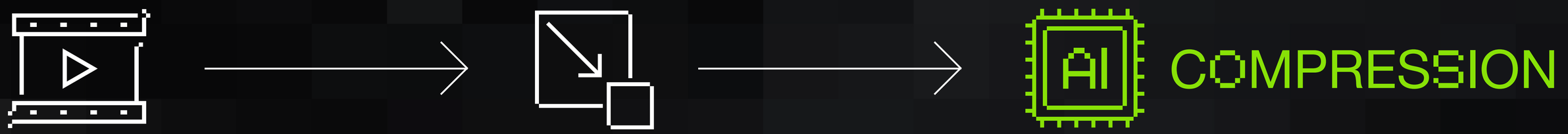


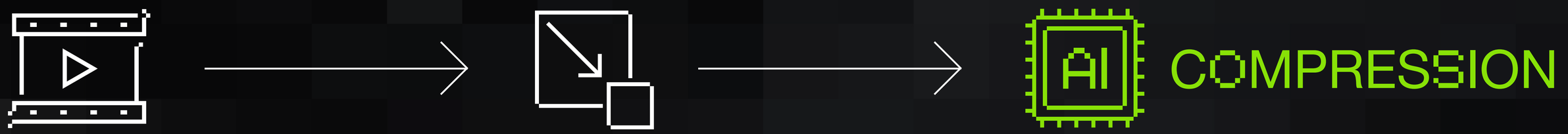
COLLAPSE OF THE INTERNET DATA INFRASTRUCTURE

THE FUTURE



- 80%+ better compression
- Optimise video quality for human visual system
- Flexible and widely adoptable
- Rapidly growing hardware and software ecosystem

THE FUTURE



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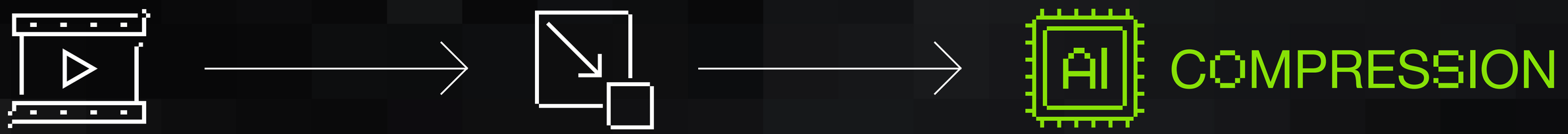

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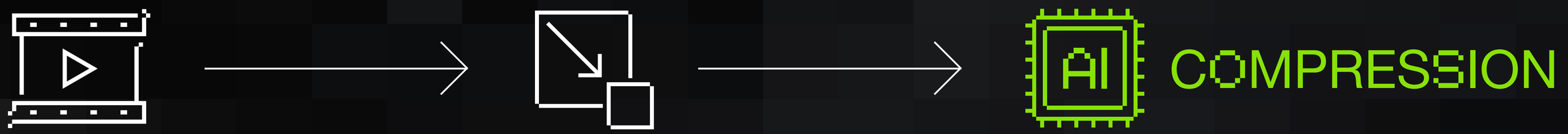

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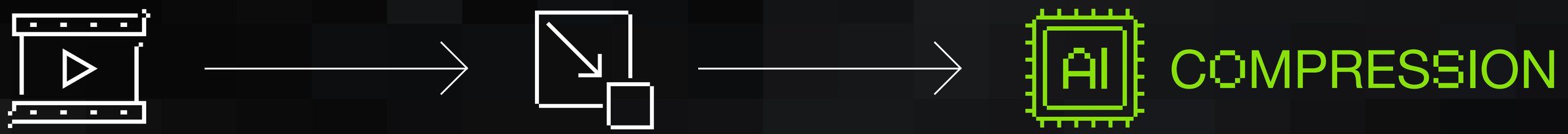

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THE REACH

STAKEHOLDERS

END USERS

- Removes bandwidth constraints for users
- Higher quality content; a leap in customer experience
- Unlocks new types of content

CONTENT PROVIDERS

- More than 5x reduction of bandwidth costs
- Expands market access: millions more customers reached
- Accelerates adoption of new technologies

BIG PICTURE

THE INTERNET INFRASTRUCTURE IS CRUMBLING UNDER THE WEIGHT OF NEW DATA

WE'RE WORKING TO SOLVE THAT.

CONTACT US

SEBASTJAN CIZEL
ML Lead

deeprender.ai

sebastjan.cizel@deeprender.ai

@scizel

COMPRESSION WITHOUT LIMITS

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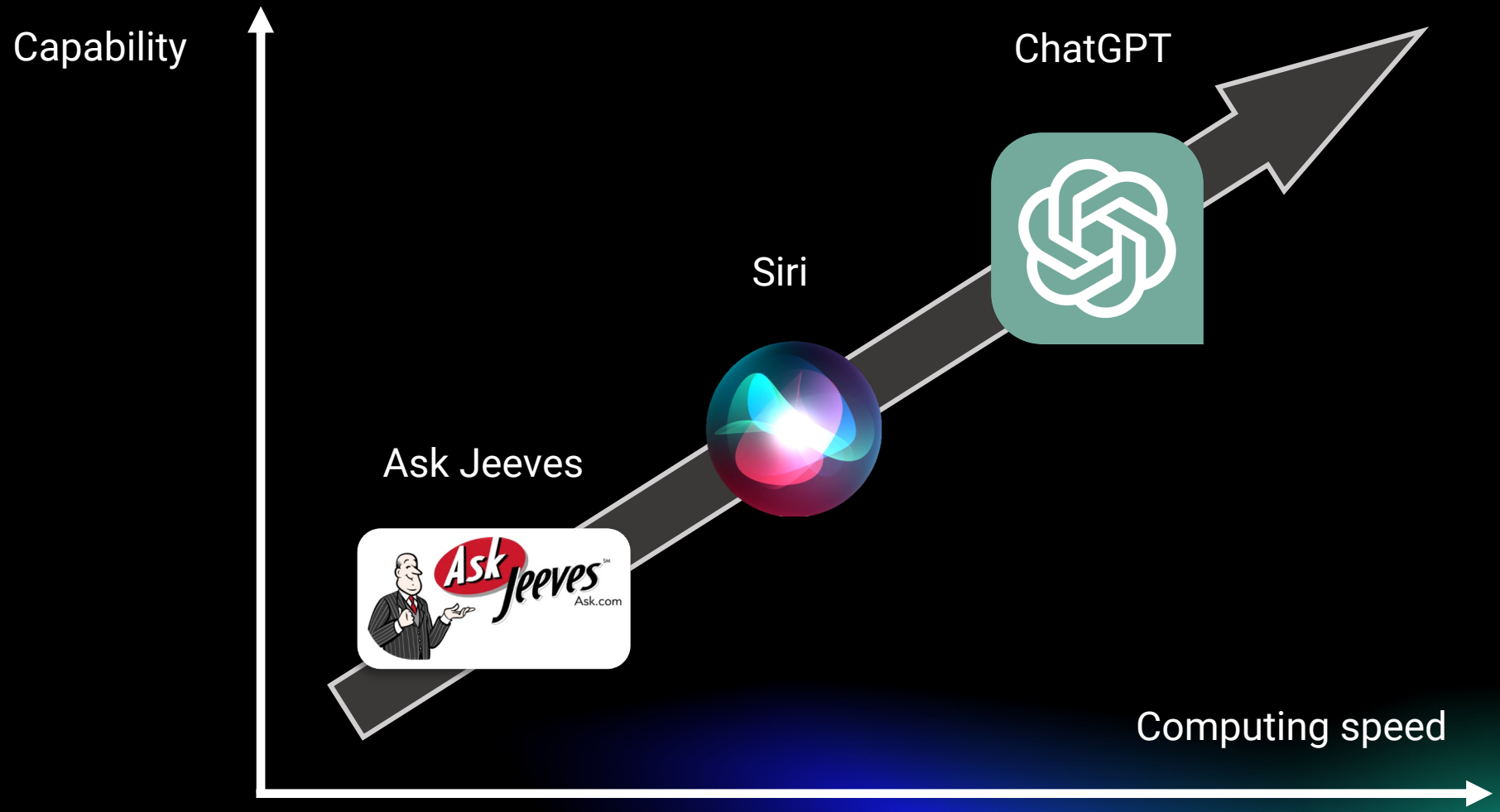
ip group
visionary ventures

LUMAI

James Spall
Co-Founder

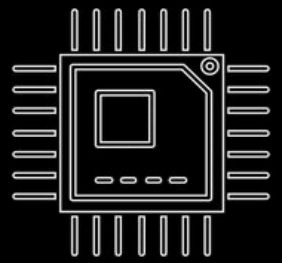
Next-generation hardware for AI: the return of analogue processing

AI capability is driven by compute speed ...

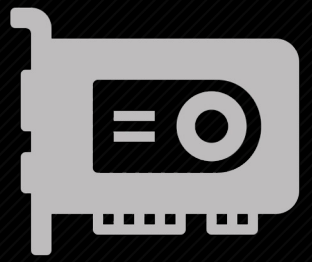


... and AI now runs on dedicated processors

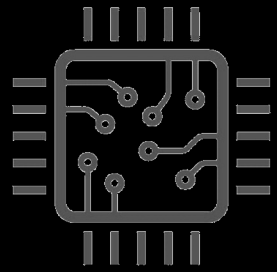
CPU



GPU



ASIC



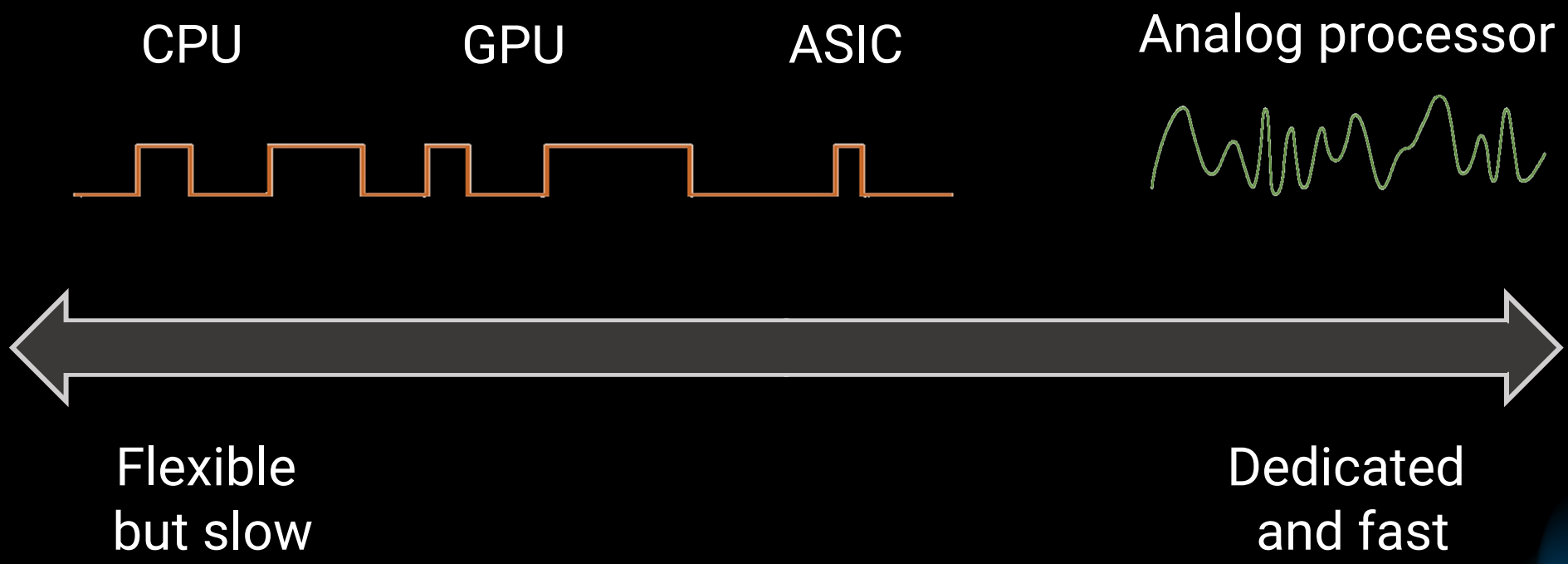
General computing

Accelerator

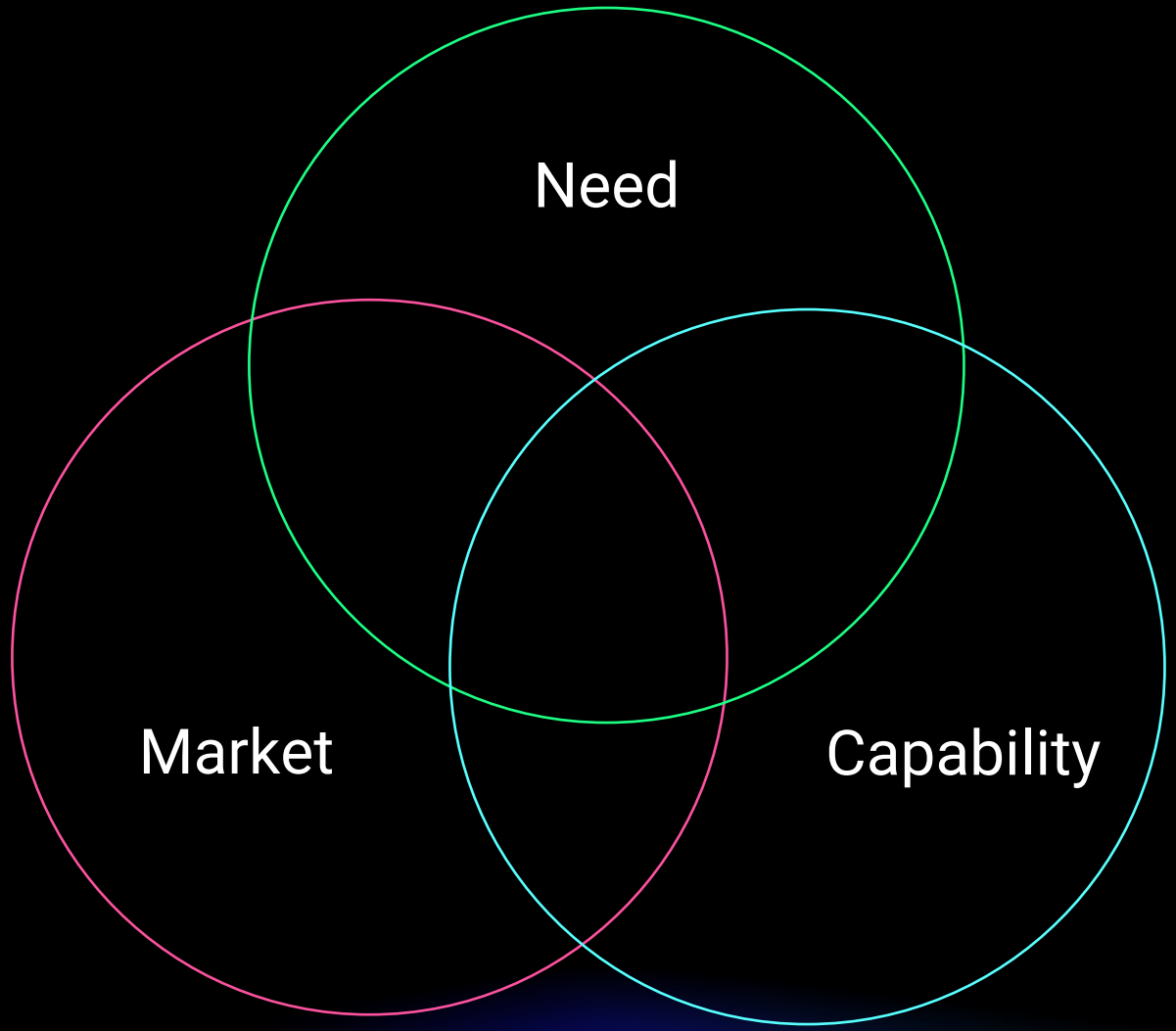
Flexible
but slow

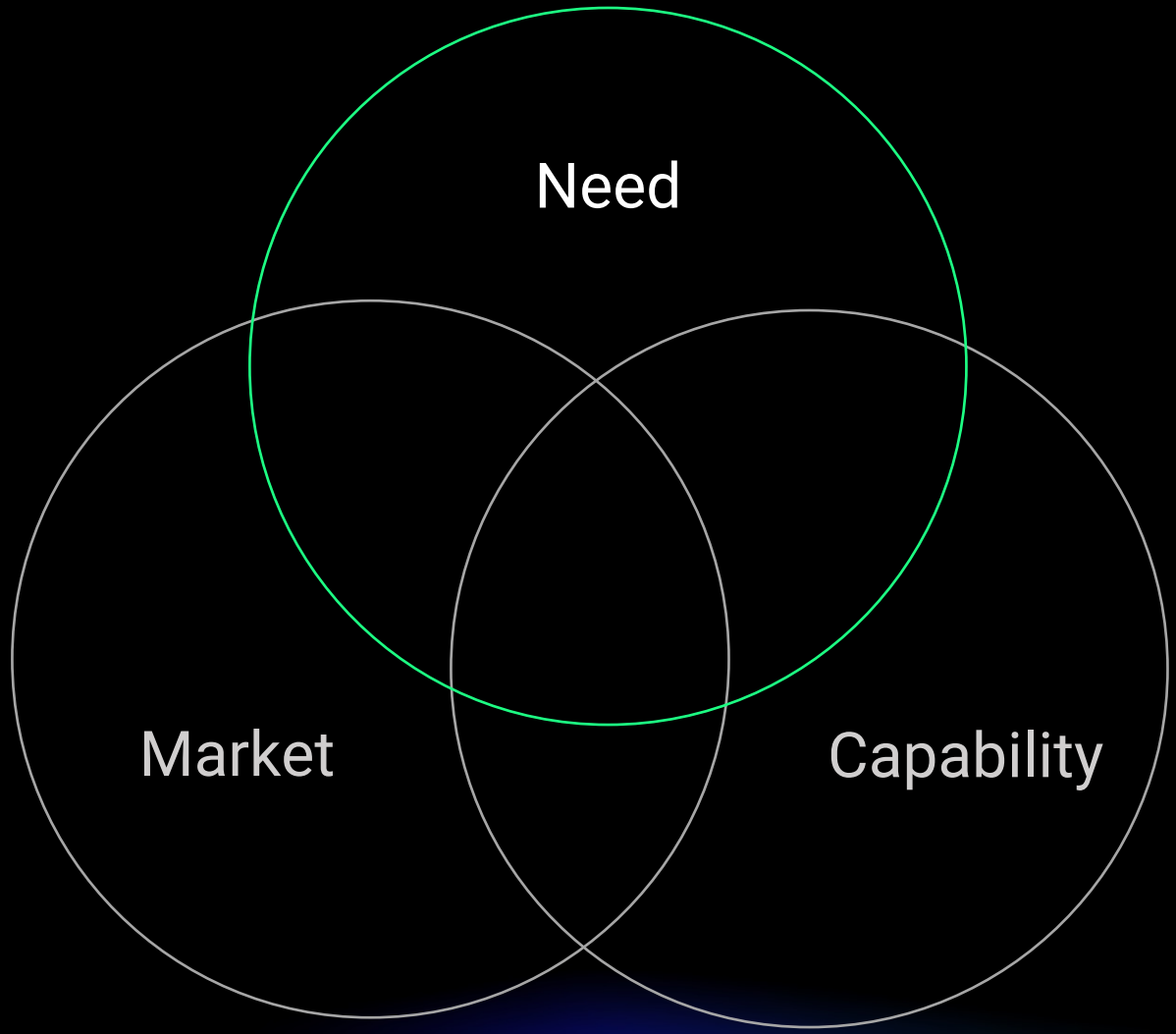
Dedicated
and fast

Analog computing is the next step

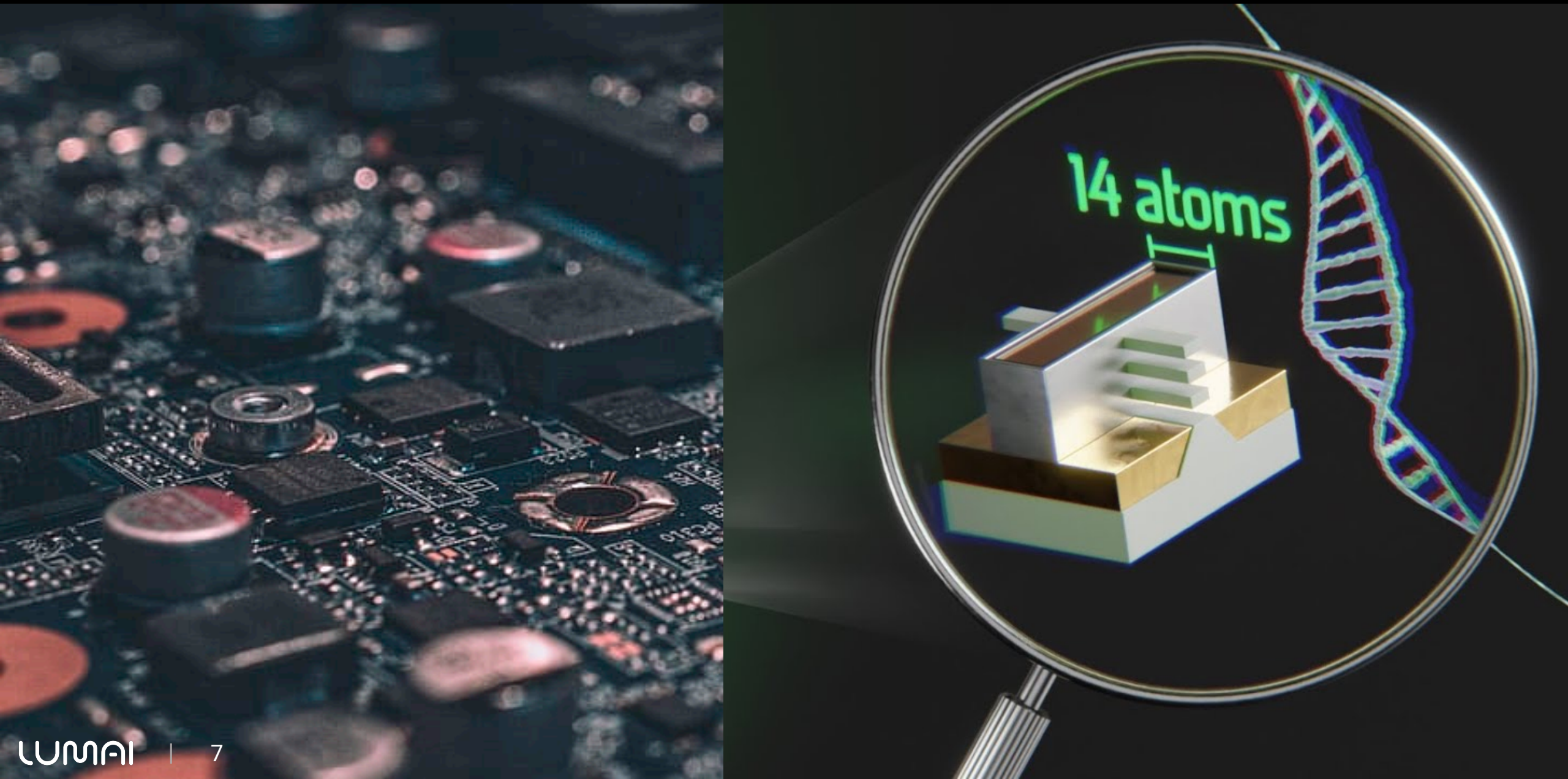


But why now?




Need
Market
Capability

Digital hardware has its limits



Energy consumption is growing unsustainably

Data centres used 14% of Republic of Ireland's electricity use

3 May 2022

Data centres are full of computer servers which are central to the operations of online businesses

By John Campbell
BBC News NI Economics & Business Editor

Bloomberg US Edition

Live Now | Markets | Economics | Industries | Tech | AI | Politics | Wealth | Pursuits | Opinion | Businessweek | Equality | **Green**

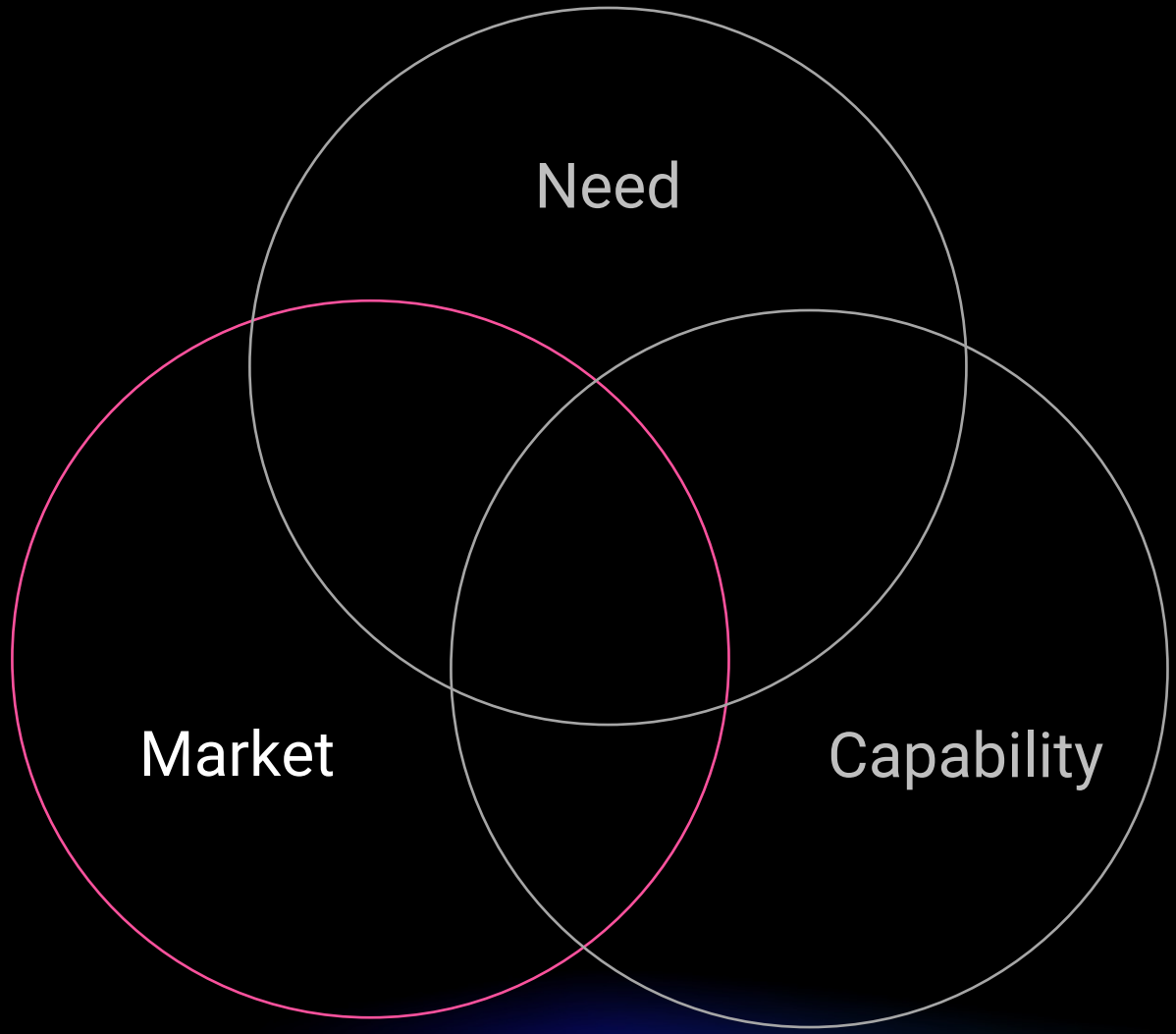
Green
New Energy

Artificial Intelligence Is Booming—So Is Its Carbon Footprint

Greater transparency on emissions could also bring more scrutiny

Green Tech

Why AI's growth makes datacentre sustainability more important than ever


Need
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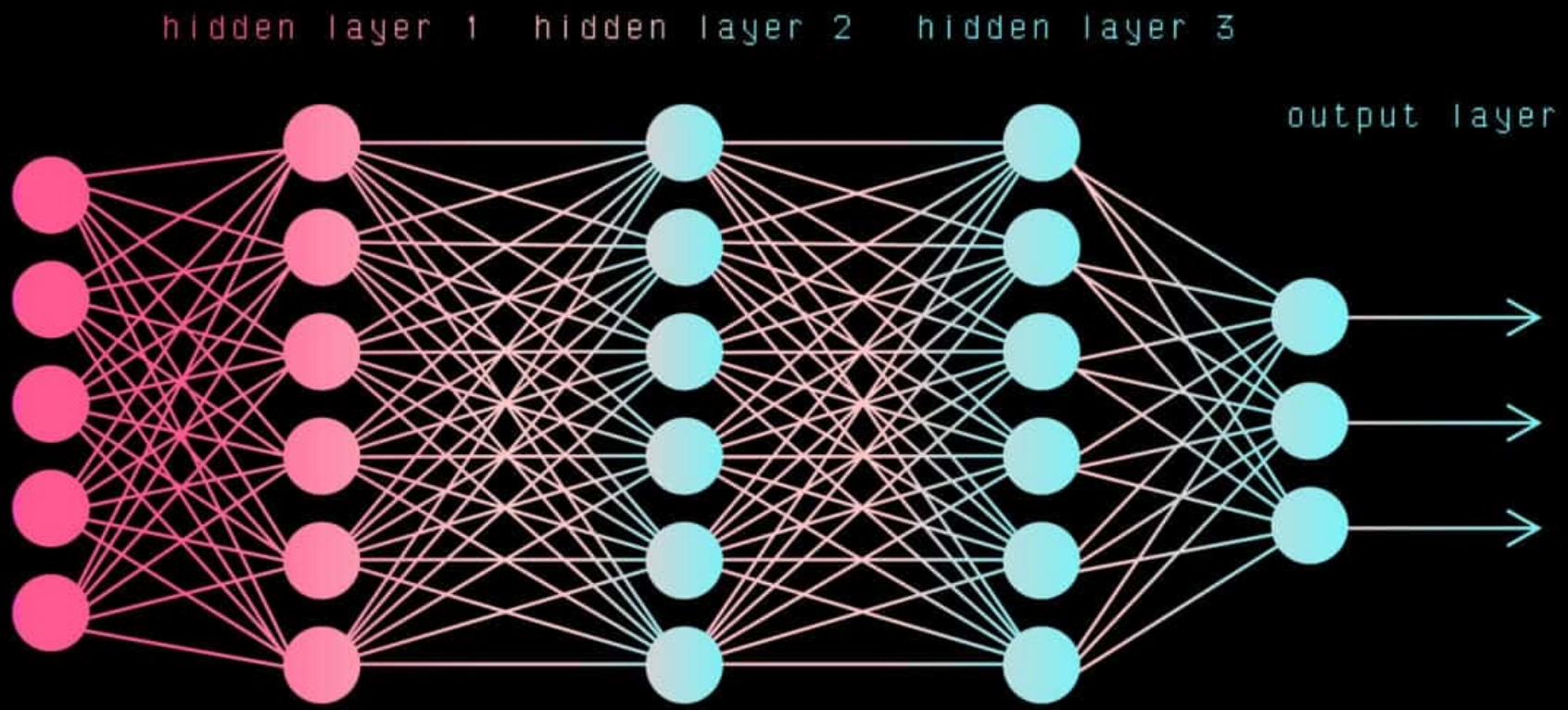
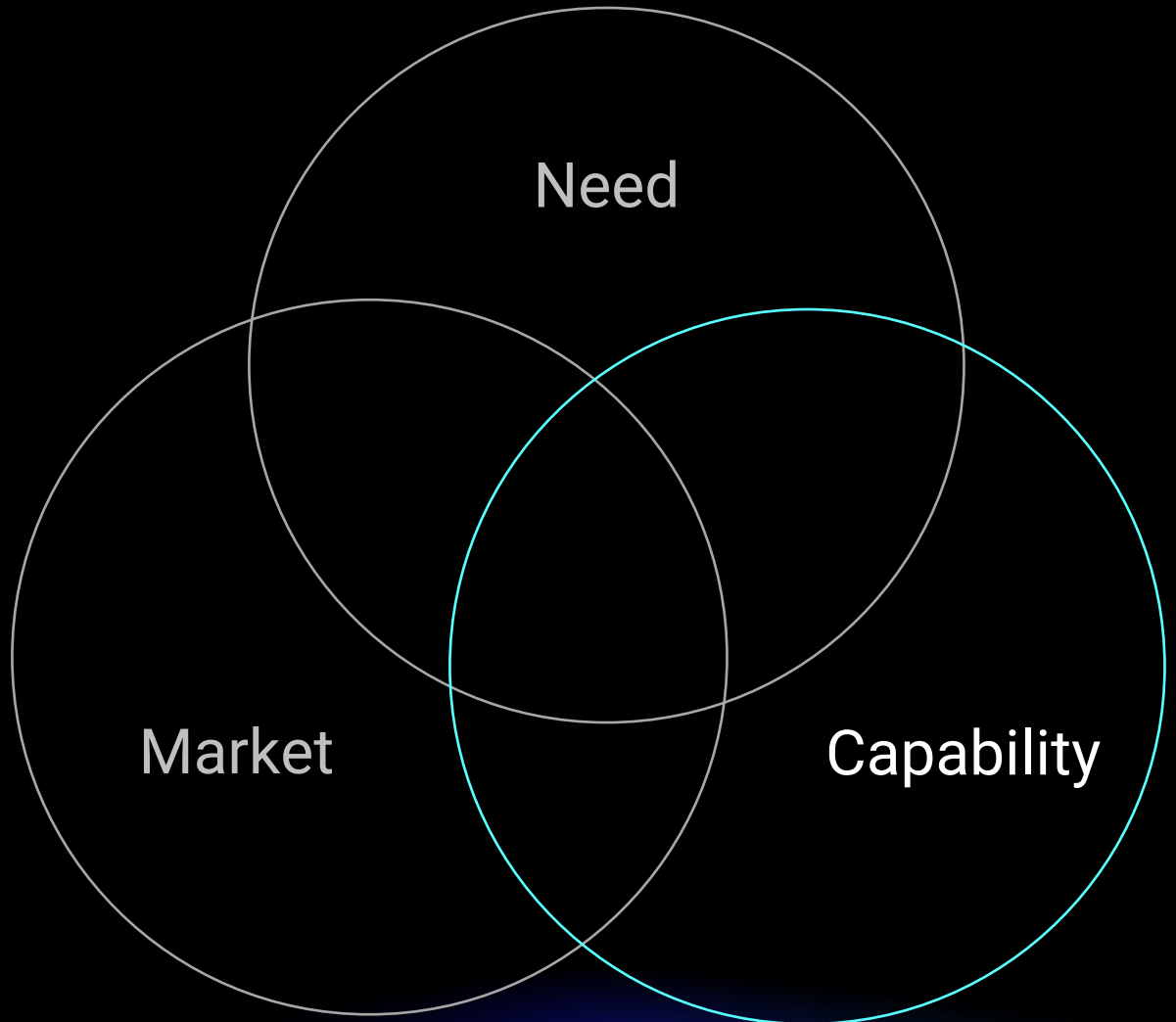
Capability

AI only needs a few simple operations



Growth of cloud compute creates perfect market


Need
Market
Capability

Optical computing

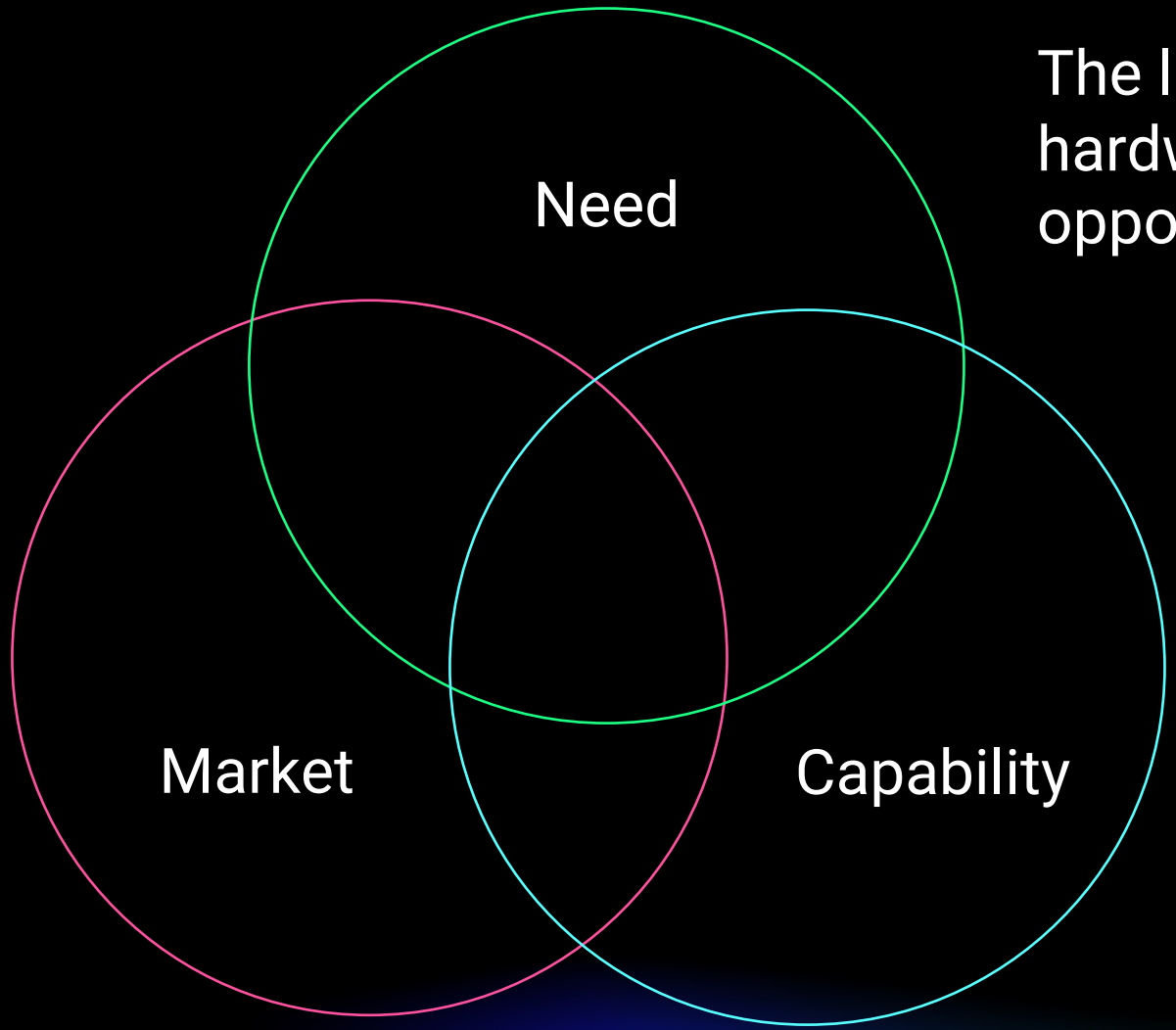
Analog Operations

Faster clock speeds

Multiple wavelengths

Negligible power consumption

Summary



The limits of current hardware provides an opportunity

AI and cloud provides the perfect market

The next-generation of computing is optical

Challenges remain

- Networking data to and from the cloud
- Scaling the number of processors in each datacentre
- Efficiently connecting different types of processor

Contact us

james.spall@lumai.co.uk

www.lumai.co.uk

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Panel Discussion.

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