EDGE USE CASES

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EDGE STATSTICS & USE-CASES

Industry	% of total edge use cases	2025 hardware value,[1] $ billion
Travel, transport, and logistics	24	~35–43
Cross-vertical	9	~32–40
Retail	10	~20–28
Media and entertainment	1	~17–25
Public sector and utilities	10	~16–24
Global energy and materials	13	~9–17

Industry	% of total edge use cases	2025 hardware value,[1] $ billion
Advanced industries	10	~5–13
Healthcare	10	~5–13
Infrastructure	6	~4–11
Chemicals and agriculture	5	~4–11
Banking and insurance	1	~2–7
Consumer	4	~1–5

Total: ~$175 billion–$215 billion

[1]Hardware value includes opportunity across the tech stack (ie, the sensor, on-device firmware, storage, and processor) and for a use case across the value chain (eg, including edge computers at different points of architecture).

THE TOP THREE..

- Travel, Transportation and Logistics

- Global Energy and materials

- Public sector and Utilities

Travel, transport, and logistics

	Overview	Computing Needs	Edge Computer	Ecosystem	Environment
Autonomous vehicles	-Must make instantaneous decisions based on the data collected via LIDAR, RADAR and video cameras -Once the car is back in the garage, data may be offloaded to the edge computer	Real time decisions – to avoid fatal consequences. Decision on brakes, acceleration etc..	-Autonomous vehicle -Garage based data center *(mobile micro data center deployed at telecommunications network edge)*	-Autonomous vehicle OEMs and Integrators -Automotive OEM suppliers -LIDAR/RADAR and video camera vendors	-Rugged -Broad variation in temperature, vibration and connectivity.
Location based advertising	-In public transportation- uses the location of a vehicle to customize display ads near consumers -5G can help with that	-Localized computing power -Devices with compact form factor	-Processor embedded in display systems on vehicle.	-Local, state and national transport authorities -Advertising agencies	-Outdoor environment with intermittent connectivity

Global energy and materials ⚡

	Overview	Computing Needs	Edge Computer	Ecosystem	Environment
Off-shore drilling rigs (Oil and gas)	Highly digitized drilling rigs generate data from sensors. This data needs to be processed on the rig to avoid equipment damage & interruption in operations (can be a 5G use case)	Real time decisions – to avoid fatal consequences. Rugged form factor – Device must function in harsh conditions, at-sea conditions	Hyper converged Edge appliance	• Oil field service companies • Hyper converged solutions vendors	• Harsh external environment
Health and safety in mining	Sensors on monitoring equipment generates data that needs to be processed in real time to improve workforce productivity and workplace safety	Data must be processed in real time to avoid any fatal accidents. Computer must withstand harsh mine environment	Hyper converged Edge appliance	• Mining corporations • Hyper converged solutions vendors	

Public sector and utilities

	Overview	Computing Needs	Edge Computer	Ecosystem	Environment
Water quality monitoring	HCI appliance process the data onsite to monitor water quality in real time.	Real time decisions – with no connectivity. Rugged form factor – Device must withstand outdoor environments	Hyper converged Edge appliance	• State utility companies • Hyper converged solutions vendors	• Varying temperatures • Moisture
Congestion lanes	Sensors and video-camera deployed on roads and at traffic lights capturing data on the traffic flow- Info is transmitted to an HCI appliance hosted at intermitted street locations.	Data must be processed in real time to avoid congestion issue Efficient storage – Video data for analytics	Hyper converged Edge appliance	• State infrastructures companies • Hyper converged solutions vendors	• Outdoor environments. Harsh conditions

GAMING USE CASE AT THE EDGE

GLOBAL GAMING MARKET TODAY

- **60%** of Americans play video games daily.

- **200M** gamers in the US and Canada.

- Gamers age 18 or older represent more than 70% of the video game-playing population.

- Adult women represent a greater portion of the video game-playing population (33%) than boys under 18 (17%)

- Gamers in North America estimated to have spent $33 billion on gaming.

PROBLEMS ?

- 90% of the gamers are negatively impacted by lag when playing

- 44% of competitive gamers lose matches due to network lag

- 1 in 3 Gamers quit gaming when experiencing lag

- 68% expect ISP's to deliver a consistent low latency experience

- 90% of folks interested in a solution to lag are willing to purchase directly from the ISPs

- **Issues** – Latency, Jitter and Packet loss (ping) in game

- Why don't publishers just move the game to the Edge and look for the suitable Edge Infrastructure?

- Mobile gaming is the perfect consumer use case for 5G.
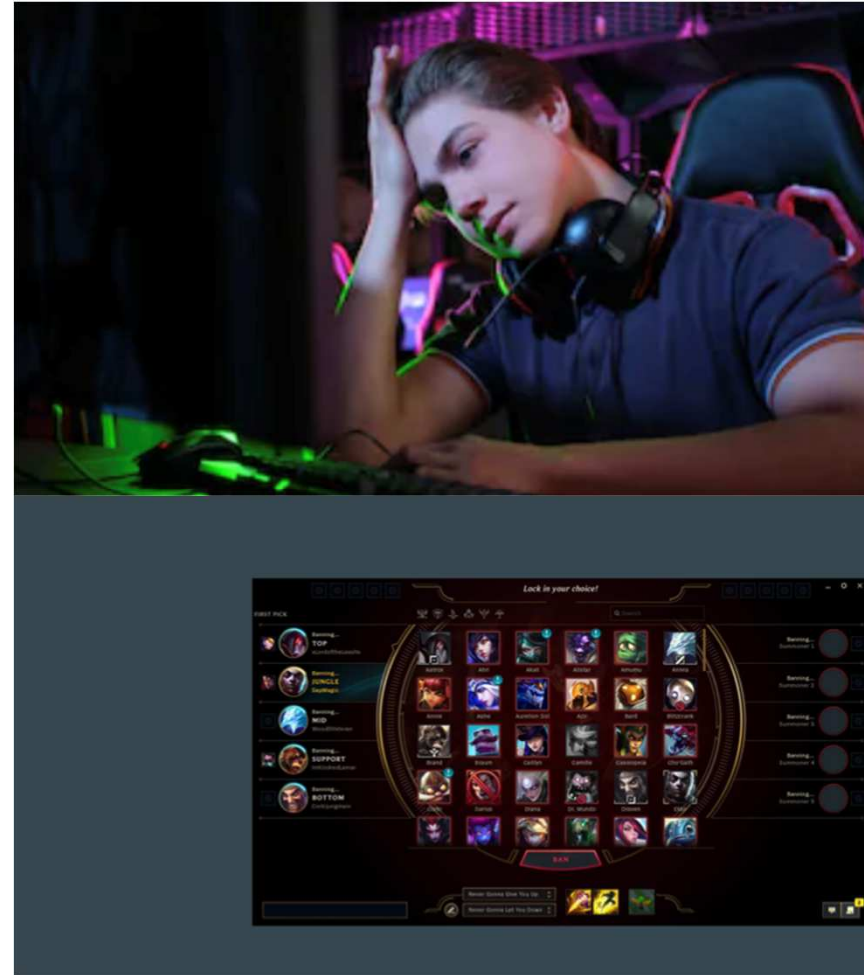
THE EDGE OF REALITY- XR (AR/VR) MARKET

The Immersive Market

Immersive technology revenue: 2019-2022
Billions of USD, worldwide

- Virtual Reality
- Mobile Augmented Reality
- Augmented/Mixed Reality headsets

2022
$18.1B
XR market

$15B
$11B
$8B
$4B
$0B

2019: $3.8B, $2.6B, $1.0B
2020: $5.3B, $3.4B, $1.6B
2021: $7.4B, $4.0B, $2.8B
2022: $8.9B, $4.5B, $4.7B

Hardware
Software

70%
35%

Mobile AR
Virtual Reality

2015 2016 2017 2018 2019 2020
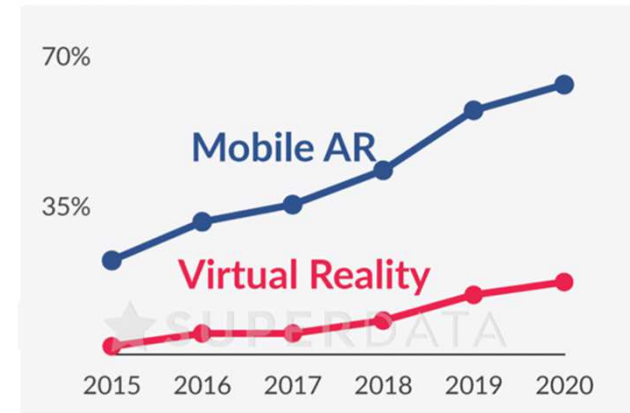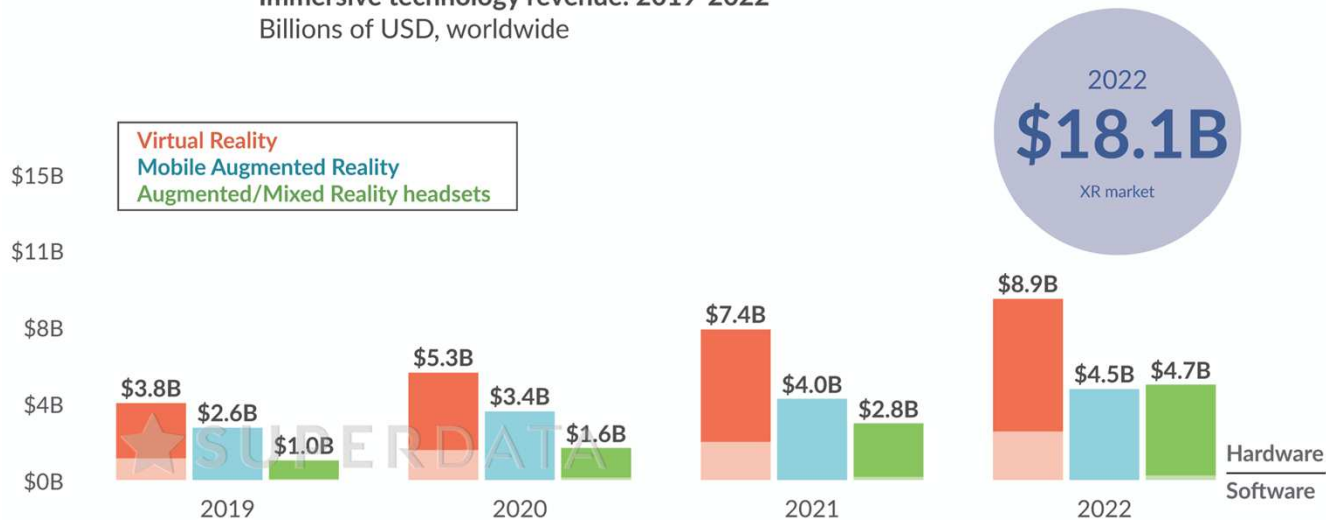
Field Training

Real–Time Diagnostics

Collaboration

Remote Design

XR USE-CASES

Situation Assessment

Site Planning & Ideation

Supervised Hands-On Training & Guidance

TUDIOS

Remote Technical Assistance & Field Servic

XR USE-CASES

Digital Healthcare

5G/EDGE USE CASE IN MANUFACTURING

- Oil and gas
  - Edge computing technology can be used for remote pumping and distribution sites, connected through 5G networks to a main automation system.

- Food and Beverages
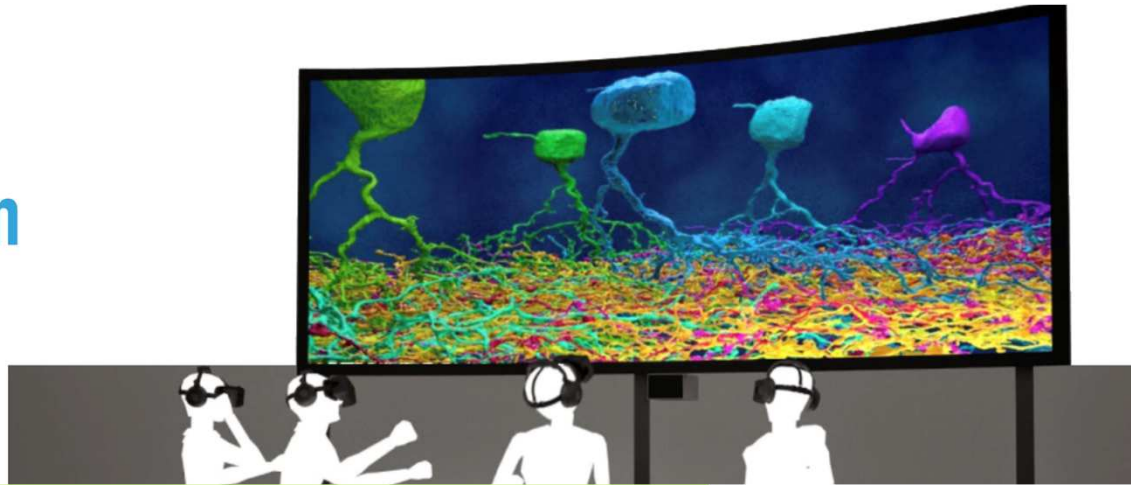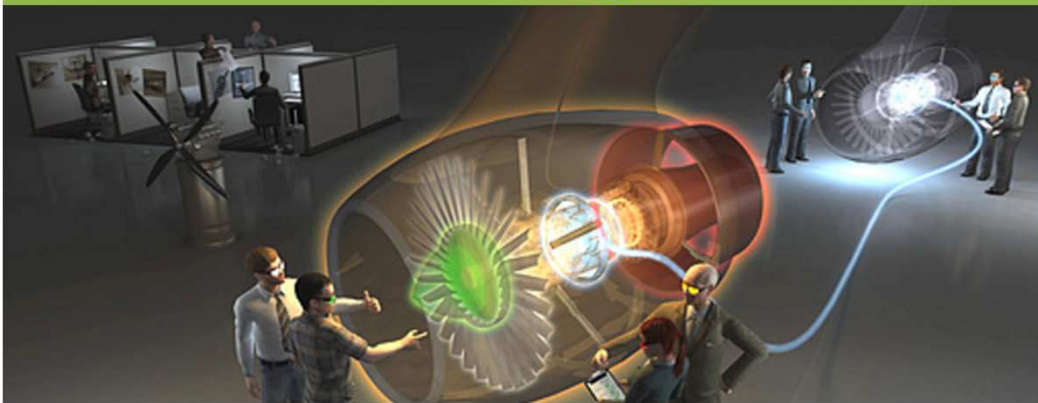 - Getting data for items onboard refrigerated trucks, utilizing 5G connection and sending it for analysis on the edge allows for real-time, automatic control.

- Consumer goods manufacturing
  - The advent of appliance-like edge platforms with integrated 5G connectivity will make it easy and cost-effective to include smaller, less technologically sophisticated suppliers, creating a truly intelligent, end-to-end supply chain

EDGE USE CASE IN RETAIL

- Big data and analytics

- Promoting operational efficiency

- Customer experiences/Customer trends

- Security & surveillance

- Augmented reality in Retail

  - In the next 10 years, **retail shopping** is going to change more than it has in the history of retail.

  - Stores will be like Websites and Websites will be like stores.

  - Smart mirrors in dressing rooms

- We can hear more use case info from Target

HARWARE MANUFACTURERS ATTENDING OCP WORKSHOP

- Wiwynn Showcases Edge Solution (EP100) for 5G/NFVI at OCP Regional Summit 2019
- Western Digital Receives 2019 IoT Edge Computing Excellence Award from IoT Evolution World for their MMC embedded flash drives.
  - Surveillance & analytics.

- Supermicro Expands Intelligent Edge Product Portfolio to address emerging AI and 5G Technologies
- Supermicro Introduces New Edge Computing and IoT Solutions

- ASUS Introduces New Edge Computer PE200U and AIoT Solutions at Embedded World 2019
- ASUS Showcases Latest AIoT Solutions for AI Edge-Computing Applications at CES 2020

- Sesame Discovery Edge

- Nokia AirFrame Open Edge Server - Edge Cloud Data Center Solution for the 5G Era

THANKS