Microsoft

Training, Simulation, Wargaming

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Agenda

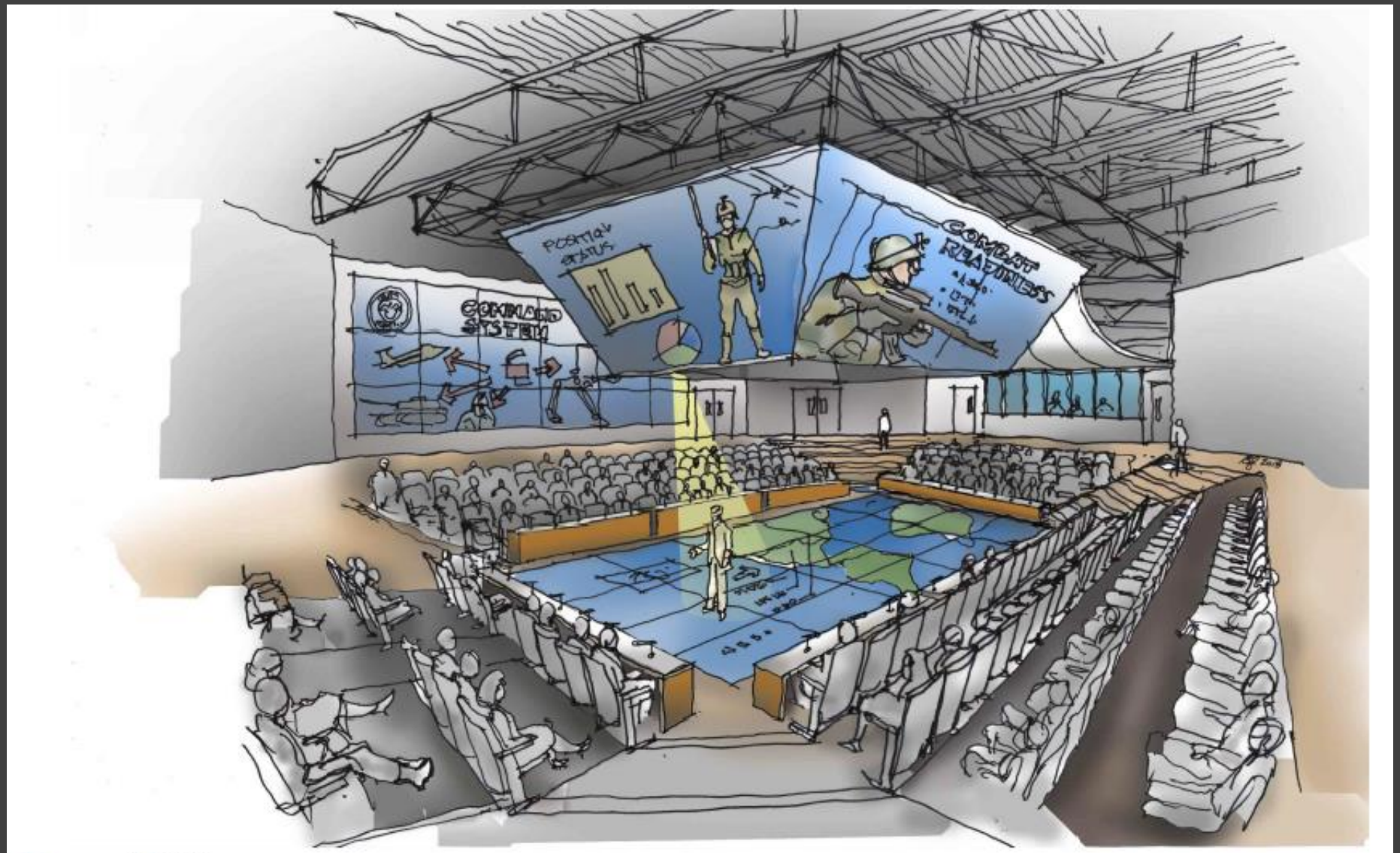
Simulation Technologies
Partnerships
Get Started

Simulation and Technologies

Operational Planning has not changed much since inception

- Long attribution cycles / delayed decisions
- Largely 2 dimensional / 80% paper based.
- Expanded warfare domains are not in current models
- Can’t stream games to distributed users globally
- Limited real-time analytics, reporting
- No online ecosystem of solutions / modules marketplace
- Decoy & deception maneuvers challenging on 2D boards
- Hardware simulators are extremely costly to develop and maintain

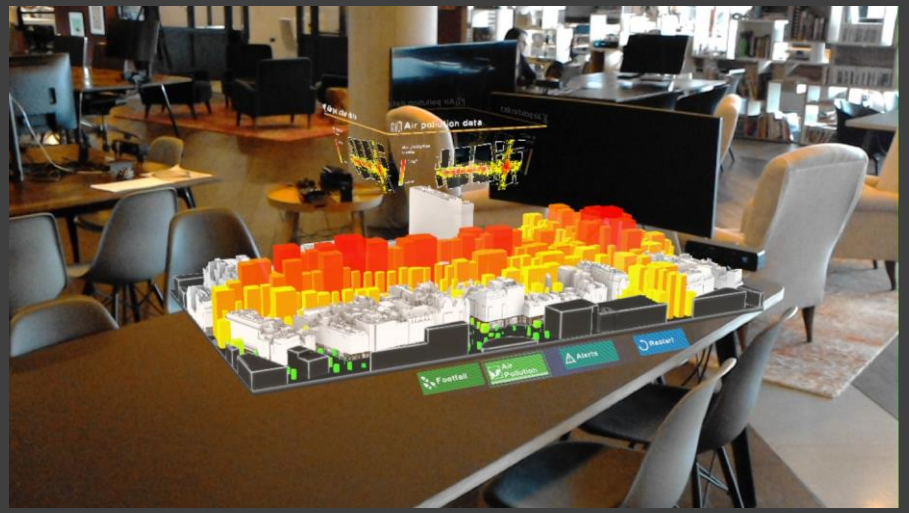
Physical and Virtual Space Integration



Wiley|Wilson | BURNS MCDONNELL
JOINT VENTURE

AUDITORIUM

Adaptive Technology for Training & Simulation



Building AI systems using simulations & Reinforced Learning

Microsoft / AirSim

Watch 426 | Star 5,399 | Fork 1,383

Code | Issues 252 | Pull requests 8 | Projects 1 | Wiki | Insights

Join GitHub today

GitHub is home to over 28 million developers working together to host and review code, manage projects, and build software together.

Sign up

Dismiss

Open source simulator based on Unreal Engine for autonomous vehicles from Microsoft AI & Research

drones · ai · self-driving-car · autonomous-vehicles · autonomous-quadcoptor · research · computer-vision · artificial-intelligence · deeplearning · deep-reinforcement-learning · control-systems · pixhawk · cross-platform · platform-independent · airsim · unreal-engine · simulator

1,350 commits | 10 branches | 16 releases | 68 contributors

Branch: master | New pull request | Find file | Clone or download

sytelus Merge pull request #1253 from hxdnshx/hxdnshx-patch-1 ... Latest commit 14f12f9 4 days ago

.vscode	added demo video link for camera noise and interference	5 months ago
AirLib	Set "SeeDocsAt" value from setting_json.md to setting.md	5 days ago
AirLibUnitTests	Added DepthNav	18 days ago
DroneServer	Plugin refactoring to sync with AirLib (Part 2)	2 months ago
DroneShell	squashing last 3 commits to get rid of visuallint	2 months ago
Examples	Added DepthNav	18 days ago
HelloCar	Plugin refactoring to sync with AirLib (Part 2)	2 months ago
HelloDrone	C++ API chaining, higher takeoff, Doc update - part 1	a month ago
LogViewer	Merge pull request #922 from Microsoft/review/px4_landing	4 months ago
MavLinkCom	Controllers API refactoring	2 months ago

PHYSICAL WORLD

DIGITAL WORLD

AUGMENTED REALITY

VIRTUAL REALITY

MIXED REALITY SPECTRUM

MIXED REALITY HELPS SOLVE FOUNDATIONAL BUSINESS PROBLEMS

Remote assistance

Empower employees to work together, even when they're worlds apart.

Training & task guidance

Enhance learning with step-by-step instructions that help employees learn new skills faster.

Collaborative visualization

Visualize room layouts and product designs before building out physical models.

Contextual data access

Gain real-time insight from the working environment to improve operational efficiency.

MIXED REALITY VALUE PROPOSITION

Improved skilling

4x improvement to service time among employees receiving who receive mixed reality training. 80% of companies improve collaboration across cross-functional teams using mixed reality.

Efficiency and quality gains

25% boost in productivity, plus errors reduced to effectively zero, with directions and data given in mixed reality.

Empower First-line Workers

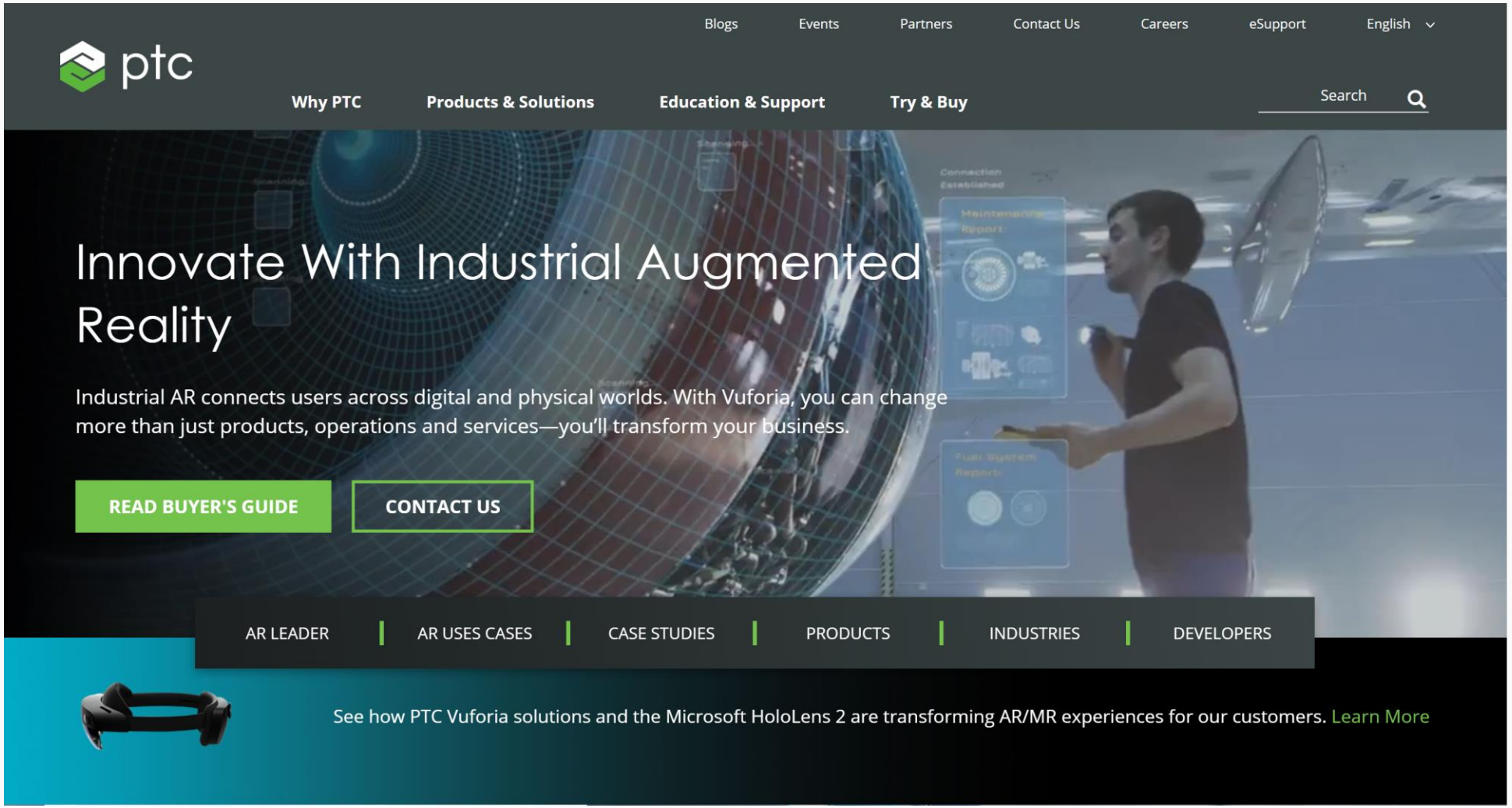
Bring innovative technology and drive digital transformation across your first-line workers, an audience traditionally underserved by tech.

https://www.youtube.com/watch?v=uIHPPtPBgHk

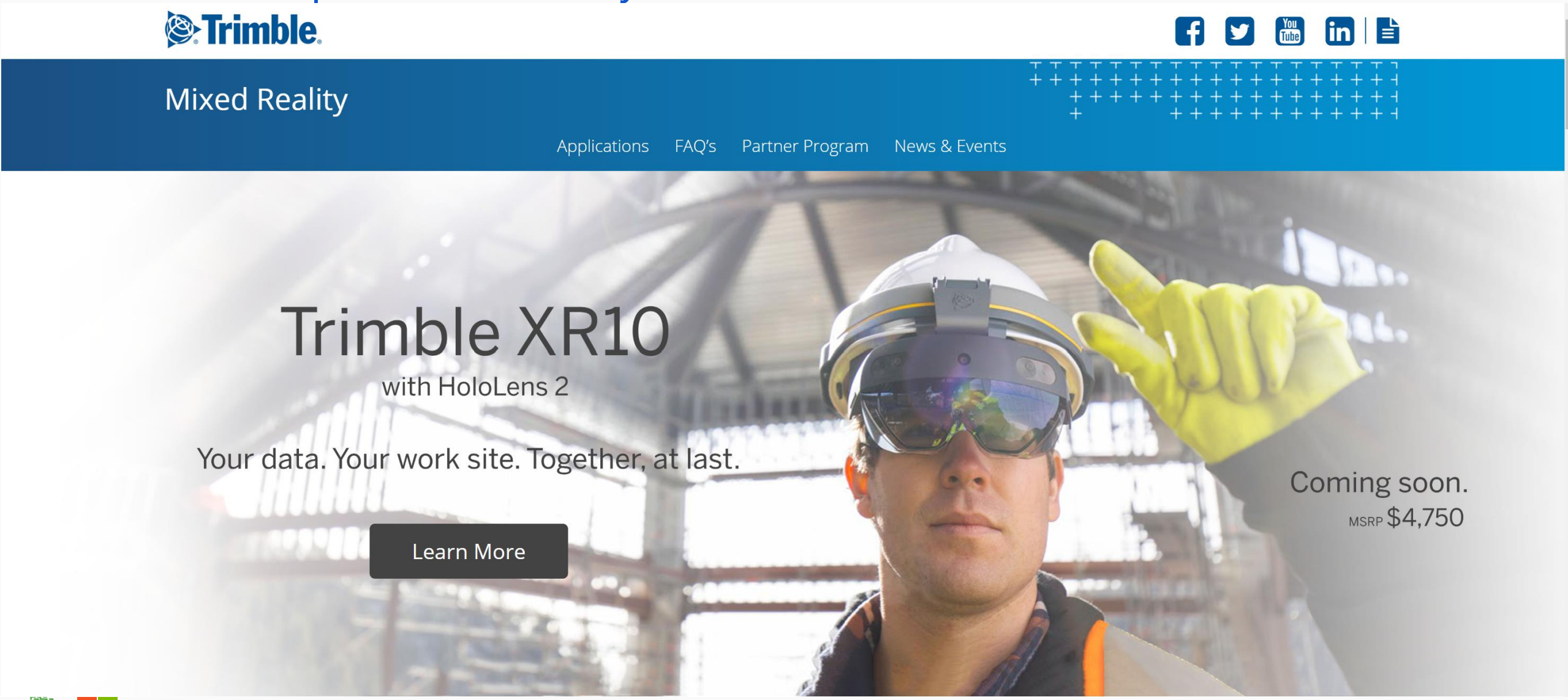
Partnerships

PTC - https://www.ptc.com/en/products/augmented-reality
Trimble - https://mixedreality.trimble.com/
Taqtile - https://taqtile.com/manifest/
iPerformix - https://www.iperformx.com/

PTC – https://www.ptc.com/en/products/augmented-reality



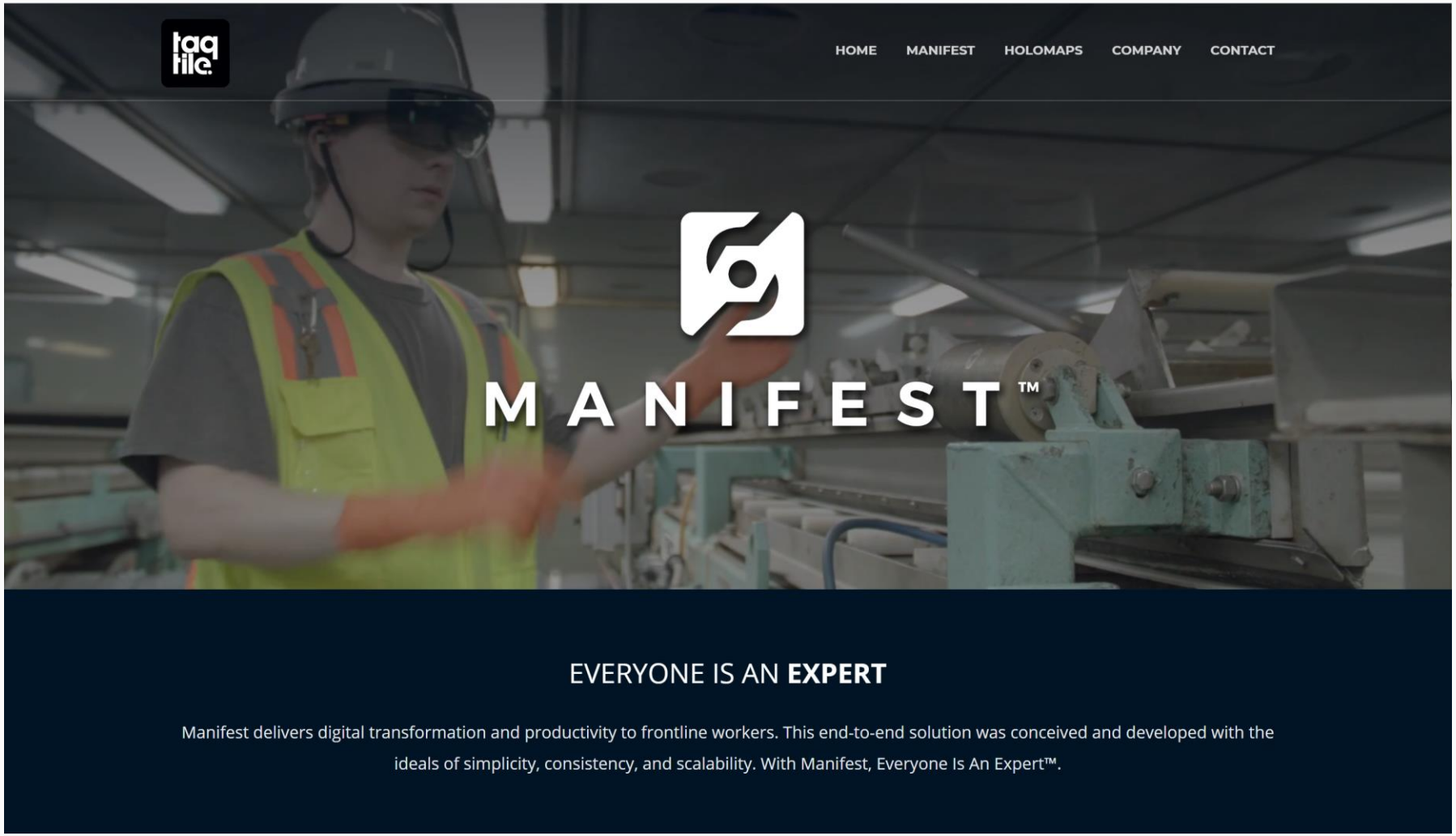
Trimble – https://mixedreality.trimble.com/



iPerformX – www.iPerformX.com

iPerformX is an adaptive training ecosystem designed to cultivate measurable outcomes and improved performance over time across the continuum of learning.

Taqtile -https://taqtile.com/manifest/



US ARMY 128th AVIATION LOGISTICS School Transformation Phase2

Marion Hammond
Digital Advisor
Microsoft

Overview

Three Phase Overview

128th Brigade and Microsoft through and DA envisioning session discussed various innovative solutions that would enhance the training experience, return time to facilitators and instructors to cultivate the learning experience. In our approach to build the best training ecosystem possible, we're envisioning means that would facility the transformation of USAAL training environment via a phased approach consisting of product integrations and innovation.

Foundational Phase:

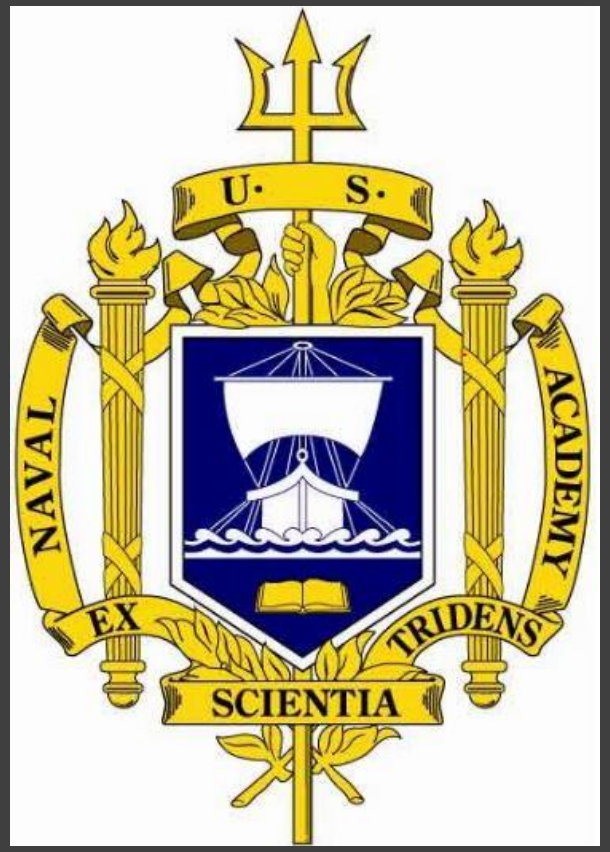
The first phase places all USAAL hosted applications in Azure, taking advantage of the largest and most certified cloud infrastructure. This lift and shift integration unifies our technologies to save trainers time and simplify interaction for trainees.

Insights Phase:

The second phase leverages analytics with Power BI in order to gather insights, supporting the transformation of the learning environment and allowing trainers and faculty leaders to more easily make data driven decisions as well as a means to enhance, design and develop curriculum for the infusion of creative training platforms

Innovation Phase:

The third, future-forward phase will consist of incorporating artificial intelligence (AI), machine learning and smart spaces in order to have a deeper impact on trainee outcomes. The intelligence gathered from smart technology will be used as an indicator of student success to create a more advanced, effective learning environment that takes advantage of capabilities such as modeling and simulation, Virtual Reality (VR), Machinima and Intelligent Edge devices.



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U.S. Naval Academy

Strategic Partnership

May 2019

USNA Visit

10 October 2018

USNA - Microsoft Partnership

- USNA Foundation deployed Office 365
- Met with VADM Michael Miller & Byron Marchant in December 2013; follow-up with Dave Aucsmith
- Hopper Hall: Center for Cyber Security Studies
  - $250M Military Construction (MILCON) project approved by Congress in 2014
  - Microsoft Donation of $1M in 2016
  - Broke ground for Hopper Hall on Oct 2016, Joe Cheneler
  - USNA was the first institution of higher learning in the U.S. to create mandatory cyber security classes. Cyber I is a fundamentals class taken plebe (freshman) year. Cyber II is a deeper treatment of technical topics, taken second-class (junior) year. USNA has also added an academic major in Cyber Operations, the first midshipmen within that major graduated in May 2016.
- VADM Ted Carter Microsoft EBC visit July 2015
- Midshipmen participated in the HoloLens grant contest September 2015
- Hack-the-Yard in Dahlgren Hall March 2016 – Microsoft employees assisted (STEM)
- Naval Academy Museum Schoolhouse @ Sea April - May 2016
- Scott Charney presented at Joint Service Academy Cyber Security Summit in March 2017
- Midshipmen Summer Intern Program; 3 in 2017 and 1 in 2018 (Joe Wallis)
- Satya Nadella and Toni Townes-Whitley visited Annapolis October 2018
- USNA team visits Microsoft May 2019

Strategic Areas to Explore

Innovation

- Maker's Space & The Garage partnership
- Mixed Reality: HoloLens DevOps
- Hack-a-Thon partnership

Cyber

- USNA Cyber Operations Center / Lab – partnership with CDOC)
- Continued lecture/speaking opportunities

Futures

- Artificial Intelligence
- Quantum Computing

Cpl. Samantha K. Braun

Get started

Digital Advisory Services: Training / WarGaming Quickstart (DAG)

Digital Advisory Services engagements work with customers (DOD, NATO, Civilian, etc.) to develop a digital transformation plan that deliver new capabilities requiring expertise from across the Microsoft ecosystem (Gaming, Cloud, AI, R&D, Robotics, Security, Ventures, Academic Alliances, etc.). We provide unique services (globally), cleared resources, with depth of knowledge in wargaming, modeling, simulation, and training.

Cloud-Powered Games

Azure gaming overview - https://azure.com/gaming

Documentation, SDKs and samples

Using Cloud services for UWP games - https://docs.microsoft.com/en-us/windows/uwp/gaming/cloud-for-games

Azure SDKs - https://azure.microsoft.com/en-us/downloads/

Thank You!

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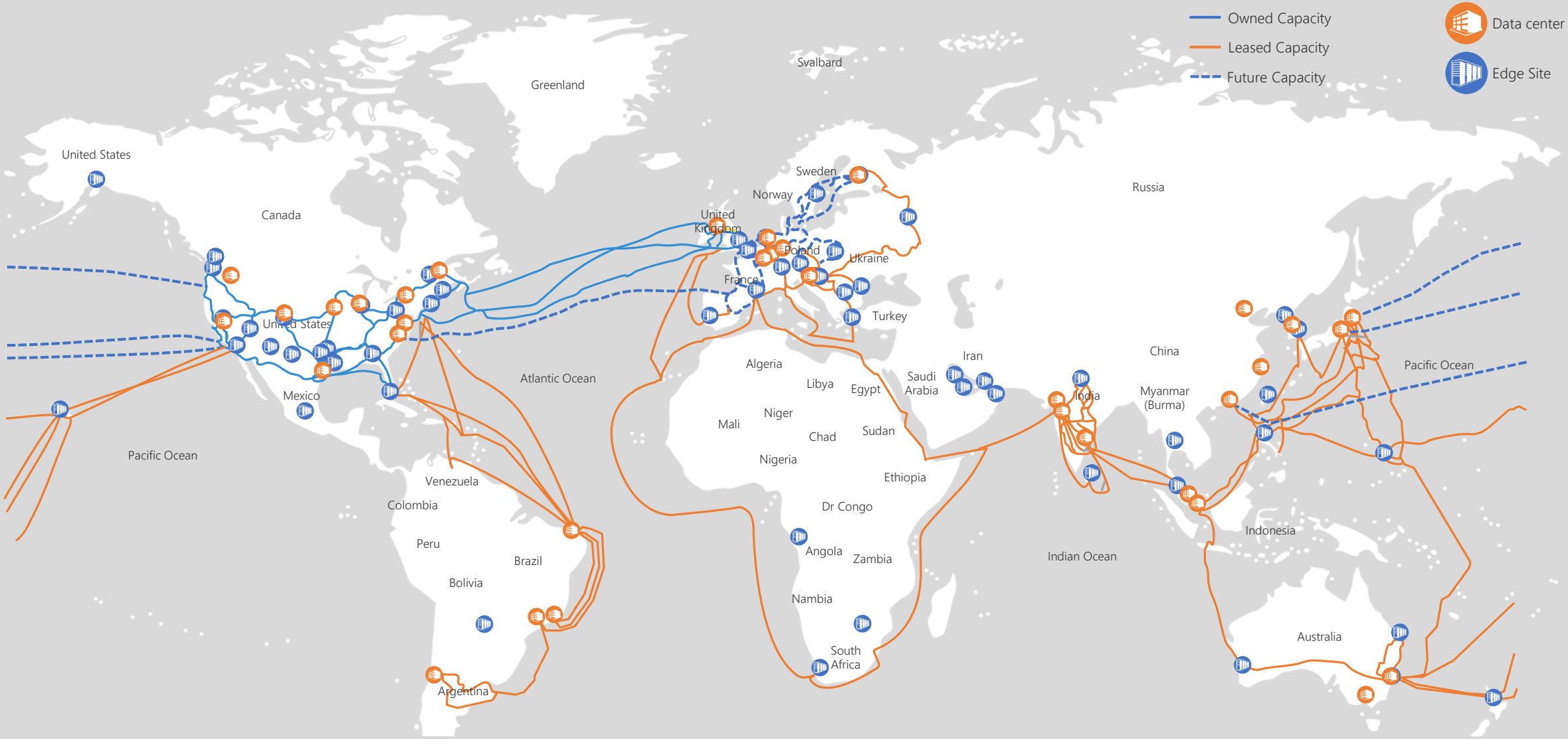
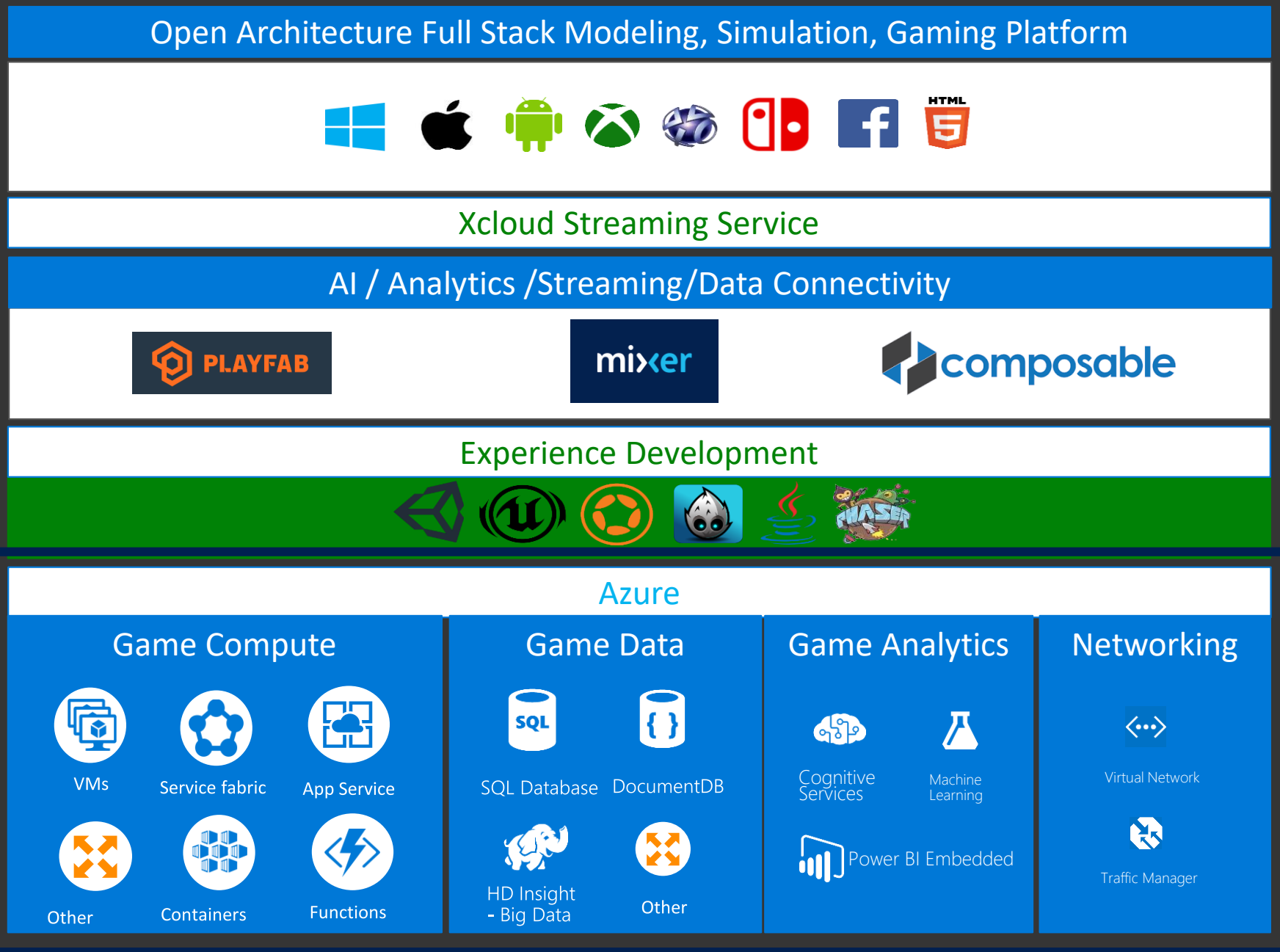
Shaping standards for interactive experiences

OPTIMIZED FOR LATENCY AND BANDWIDTH

DCs and Network sites not exhaustive



Microsoft Highly Confidential 2018



Game play on any device, add data sources dynamically

Full Stack LiveOps, Real-time Control, Game Services

Build games, monetize through SaaS model, marketplace of game modules

Built on a foundation of security, availability, trusted Azure platform -34 regions globally.