Microsoft

Dream.
Build.
Launch.
Run.
Repeat.

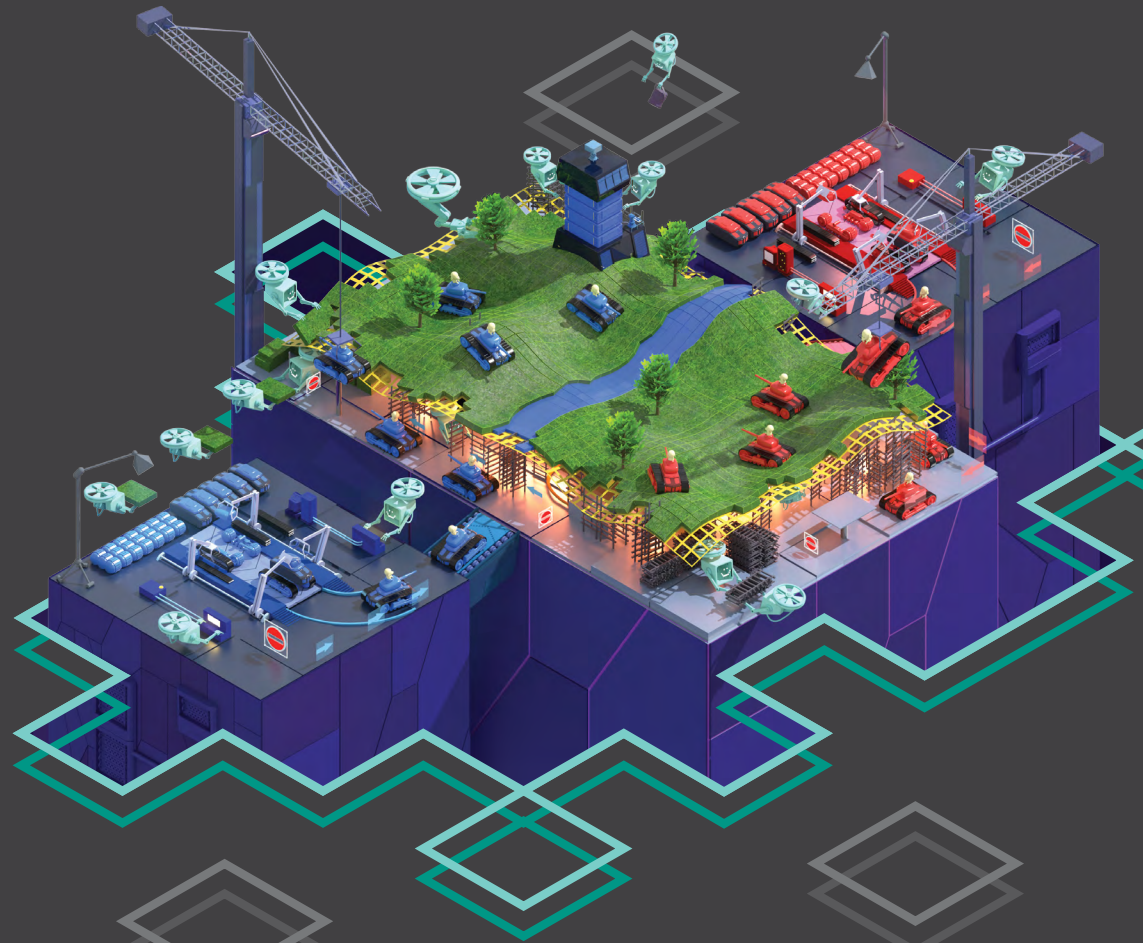Microsoft Game Stack. Achieve More.

Microsoft Game Stack.
Achieve More.

The products within the Microsoft Game Stack were built for people like us — developers who dream big and need tech solutions that say yes to wherever that dream takes them.

Game Stack brings together our best resources to create a full technology stack that helps you in the development process — no matter where you are on your journey, or how big or small your team might be.
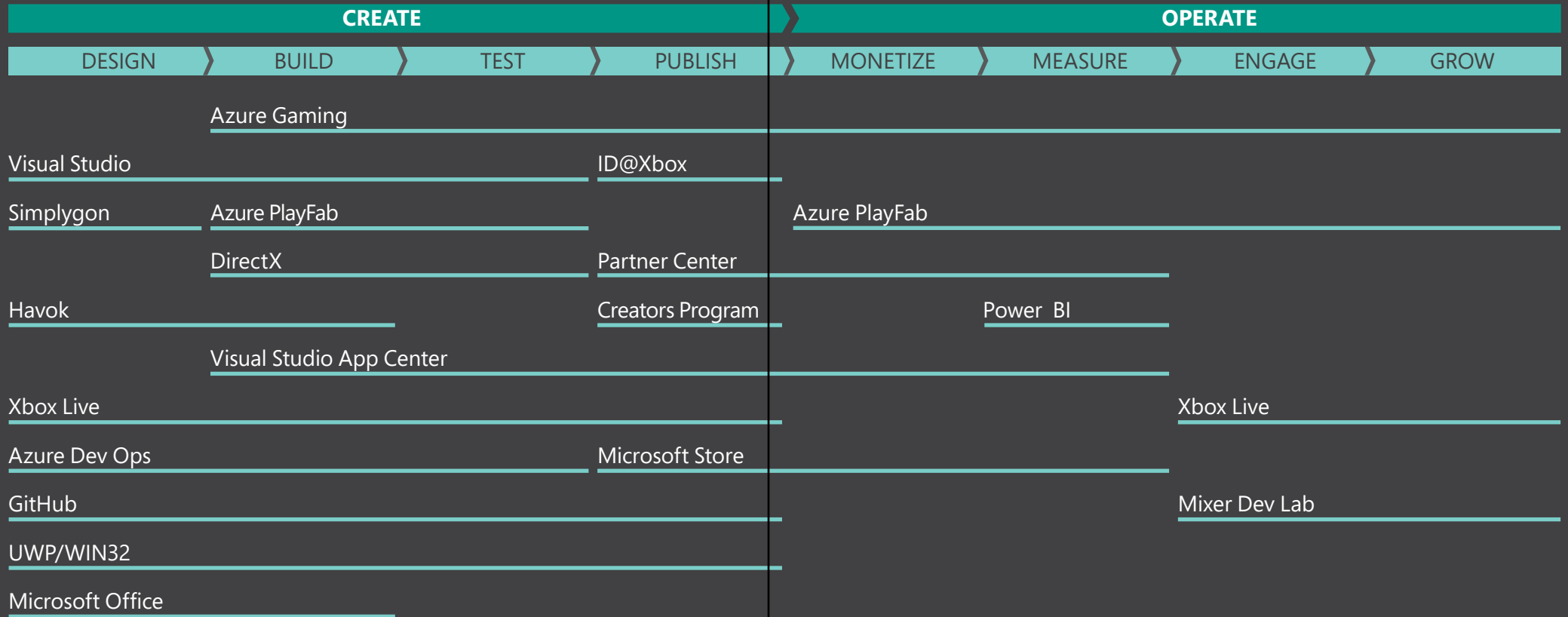
So, whether you're looking to host your game in the cloud, analyze and optimize your live titles, or reach the most passionate and engaged gamers on the planet, Microsoft Game Stack can help you achieve more.

Here's to making the game of your dreams.

Microsoft Game Stack

Microsoft helps you achieve more, regardless of what stage of the developer journey you're on.

CREATE				OPERATE			
DESIGN	BUILD	TEST	PUBLISH	MONETIZE	MEASURE	ENGAGE	GROW

Azure Gaming

Visual Studio · ID@Xbox

Simplygon · Azure PlayFab · Azure PlayFab

DirectX · Partner Center

Havok · Creators Program · Power BI

Visual Studio App Center

Xbox Live · Xbox Live

Azure Dev Ops · Microsoft Store

GitHub · Mixer Dev Lab

UWP/WIN32

Microsoft Office

DESIGN

Creating a great game starts with great game design. We're invested in helping you achieve that. aka.ms/gsgdesign

Azure DevOps
Plan smarter, collaborate better, automate and ship faster with a complete end-to-end set of modern DevOps services. Use the full toolchain or pick and choose the DevOps components that complement your existing workflows.
aka.ms/gsgazuredevops

Microsoft Office
Whether it's Project to manage your game development progress, Excel to model your game play impact, or Teams to bring together a distributed team with chat, Visual Studio integration and meetings and virtual conferencing, Microsoft Office gets your design well underway.
aka.ms/gsgoffice

Mixed Reality
Develop VR experiences for a range of mixed reality headsets. Build UWP apps for the Microsoft Store, or Win32 apps for SteamVR, the choice is yours. Mixed reality also allows you to target both integrated graphics cards or high-end gaming rigs for immersive experiences.
aka.ms/gsgmr

Simplygon
Simplygon is the gold standard for on-premise automated 3D Optimization. Adapt your 3D assets to run smoothly on any platform.
aka.ms/gsgsimplygon

BUILD

Part of the success of your game depends on every stage of the development process getting equal attention. Microsoft has a toolbox ready for you to rely on no matter what you're creating.
aka.ms/gsgbuild

DirectML

DirectML allows you to use trained machine learning models in your Windows apps (C#, C++, and JavaScript). Hardware optimizations for CPU and GPU additionally enable high performance for quick evaluation results through DirectML.
aka.ms/gsgdirectml

DirectX

Microsoft DirectX graphics provides a set of APIs that you can use to create games and other high-performance multimedia applications. DirectX includes support for both 2D and 3D graphics.
aka.ms/gsgdirectx

GitHub

GitHub is a development community inspired by the way you work. From open source to business, you can host and review code, manage projects, and build games and software alongside 31 million developers.
aka.ms/gsggithub

Havok

Havok is a modular suite of software development kits for game engines that puts the power in the hands of creators, enabling state-of-the-art believability and interactivity through advanced physics simulation and pathfinding, while mitigating the overall cost and risks associated with creating today's leading video games.
aka.ms/gsghavok

Orleans

Created by Microsoft Research, Orleans is an open-source framework for building distributed high-scale computing applications such as multiplayer games. It's been used by Halo, Minecraft, and PlayFab.
aka.ms/gsgorleans

Visual Studio

Building your games with DirectX, Unity, or Cocos? Use Visual Studio to create once and publish to 21 platforms, including all mobile platforms, WebGL, Mac, PC and Linux desktop, web or consoles. Use powerful cross-platform tools to make your interactive content run great on any device.
aka.ms/gsgvisualstudio
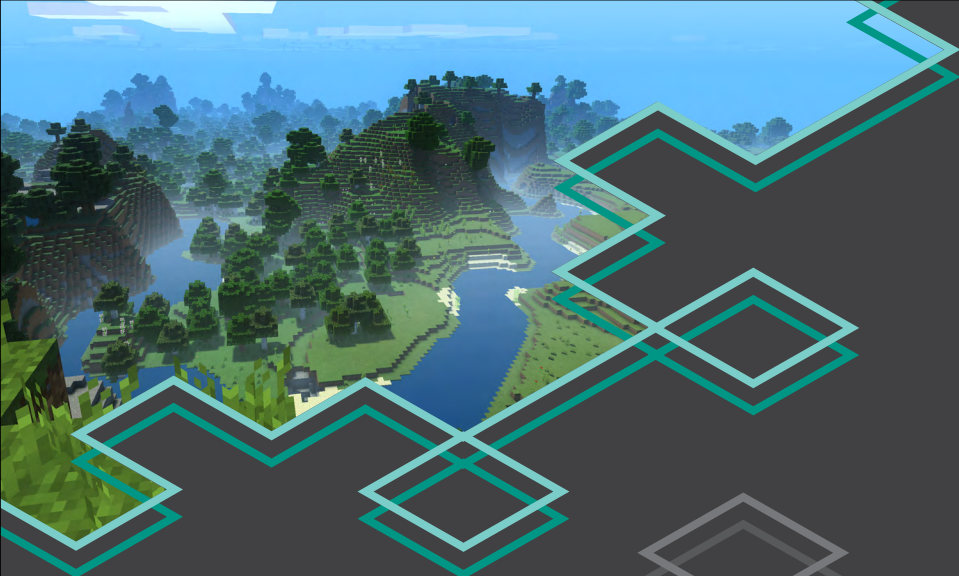
TEST

Before you introduce your game to the world, test with confidence using manual and exploratory testing tools.
aka.ms/gsgtest

Partner Center

Partner Center and Microsoft Store provide the ability to flight your game updates and fixes, and even provide 5x5 codes and beta access for specific people so you can make sure your game is ready to go.
aka.ms/gsgpartnercenter

PlayFab Content

Make the most of your soft launch window by leveraging PlayFab to run experiments, monitor performance, and tune configuration to boost key stats like retention and monetization.
aka.ms/gsgplayfab

Visual Studio

Write high quality code with comprehensive testing tools. Using Visual Studio, you can write code faster, debug and diagnose with ease, test often, and release with confidence.
aka.ms/gsgvisualstudio

Visual Studio App Center

Whether you're building your games with Unity, MonoGame or native in Java and Swift, take your game development to the next level with App Center. Run and test on real Android and iOS devices, diagnose with ease, and release with confidence.
aka.ms/gsgappcenter

PUBLISH

When your game is ready to ship, our platform and tools can empower you to reach the most passionate and engaged gamers, no matter where they play.

aka.ms/gsgpublish

Azure Spatial Anchors

Build cross-platform, multiplayer AR apps that map, pin 3D content to, and recall precise points of interest, enabling you to deliver location-based or large-space social gaming. Deploy across iOS, Android, and HoloLens devices.

aka.ms/gsgspatialanchors

Creators Program

Creators Program strives to make it simple for any developer to publish their game to Xbox or Windows. No concept approval required, and a simplified certification process, allows you to quickly publish your game across the Microsoft ecosystem.

aka.ms/gsgxblcp

ID@Xbox

The ID@Xbox program enables qualified game developers of all sizes to unleash their creativity by self-publishing digital games on Xbox One and Windows 10 with Xbox Live, giving studios the tools and support needed to maximize their success.

aka.ms/gsgidatxbox

Partner Center

Whether you're an app creator, game developer, or retail partner, we can help you reach more customers, provide greater service, and get help promoting and monetizing games.

aka.ms/gsgpartnercenter

UWP

Universal Windows Platform (UWP) is an open source API to help develop apps and games that run on Windows 10, Xbox One and HoloLens without the need to be re-written for each. It supports Windows app development using C++, C#, VB.NET, and XAML.
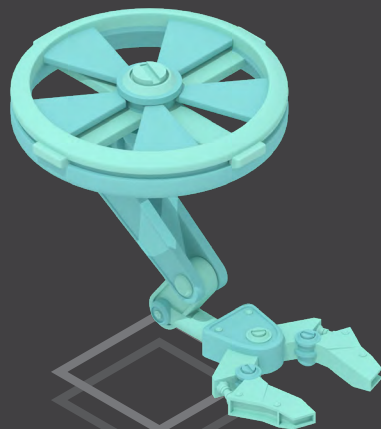
aka.ms/gsguwp

MONETIZE

The strategies to monetizing your game are constantly evolving. Thankfully, so are we.
aka.ms/gsgmonetize

Microsoft Store

The latest Store options help you reach more customers, improve your productivity, and promote and monetize your apps and games.
aka.ms/gsgstore

PlayFab Commerce

PlayFab's in-game commerce system, with features like receipt validation, targeted stores, player segmentation, and commerce analytics, allows you to boost revenue, engagement, and retention.
aka.ms/gsgplayfab
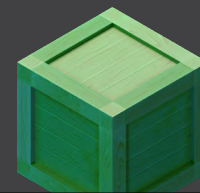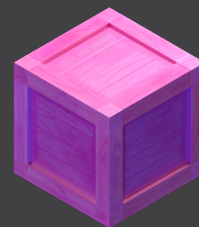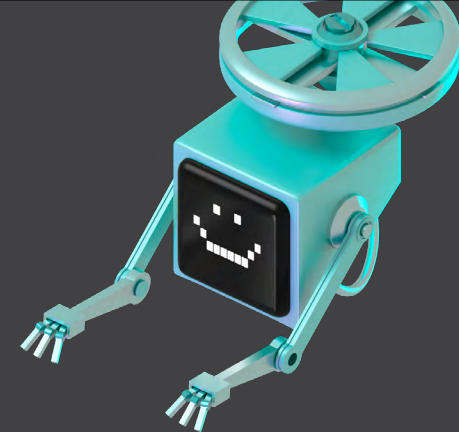
MEASURE

Data without insight is just numbers. Use these services to gain the insights that will help you better test, measure, and learn your way to success.
aka.ms/gsgmeasure

Azure Gaming

With Azure's AI and Machine Learning capabilities, you're set up for success in building cloud-based measurement tools that will be with you wherever your players are.
aka.ms/gsgazure

PlayFab Analytics

Go beyond simple vanity metrics, to fully actionable analytics, with PlayFab's powerful real-time data pipeline, data exchange, dashboards, and reports. Measure what really matters, then make changes quickly to implement a fully iterative development loop.
aka.ms/gsgplayfab

Power BI

Business intelligence and analytics from Microsoft Power BI can be customized, extended, and embedded in applications using our comprehensive set of APIs and fully documented SDK libraries.
aka.ms/gsgpowerbi

Visual Studio App Center

Monitor the health of your app and triage issues faster with live crash reporting, detailed diagnostics, and full stack traces. Integrate this data into PlayFab for even deeper insights on your player experience and respond accordingly.
aka.ms/gsgappcenter
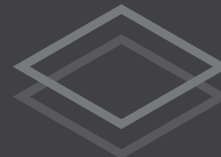
ENGAGE

Ensure your breakthrough game breaks through. These services will help you drive discoverability and richly engage your players.
aka.ms/gsgengage

Mixer

Live streaming video on console, PC, or mobile with sub-second latency and unique interactive capabilities. Mixer is blurring the lines between watching and playing – giving game developers a new way to engage audiences.
aka.ms/gsgmixer

PlayFab

Extend your game's lifecycle by deeply engaging your players with targeted experiences using PlayFab's full suite of LiveOps capabilities, including live events, messaging, offers and promotions, content updates, and more.
aka.ms/gsgplayfab

Xbox Live

Engage gamer communities inside and outside of your game across PC, mobile, console and the web. Xbox Live includes Achievements, Leaderboards, Parties, Clubs, and cross-platform play.
aka.ms/gsgxbox

GROW

Microsoft has multiple solutions to help grow your player base. These tools and services will help lower the cost of user acquisition.
aka.ms/gsggrow

Azure Gaming
As your game grows, so does the needs of your infrastructure. With Azure, you can dynamically scale across 54 Azure regions around the world, including China, more than any other cloud provider.
aka.ms/gsgazure

Mixer
Grow your player base through interactive live streaming video on console, PC, and mobile. Featuring sub-second latency and unique interactive capabilities.
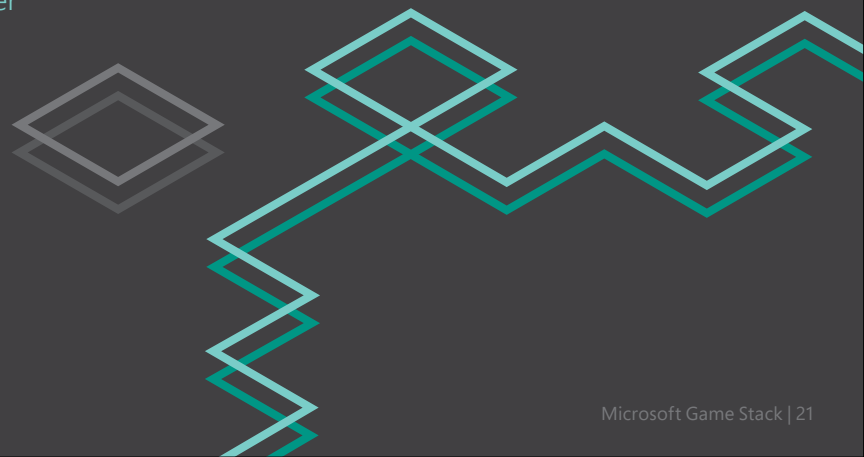aka.ms/gsgmixer

PlayFab
Configure real-time segmentation and deliver custom experiences with player messaging, leaderboards, tournaments, and commerce to help grow your player base.
aka.ms/gsgplayfab

Xbox Live
Grow your game with a social network for gamers of more than 60 million monthly active users across console, PC, mobile, and the web.
aka.ms/gsgxbox

AZURE

With Azure, you can bring your game to market quickly, deliver it on any end-point, and scale your game on a global platform with 54 Azure regions.
aka.ms/gsgazure

- Ubisoft's Rainbow Six Siege uses Azure to dynamically deliver immersive multiplayer games globally
- Halo 5 uses Azure Cosmos DB to elevate social gaming with Spartan Companies
- Funrock runs high performance infrastructure built on Azure

- Xbox Game Studios, previously known as Microsoft Game Studios, delivers epic Xbox experiences by analyzing hundreds of billions of game events each day across Minecraft, Halo, Forza, and Gears of War
- Hitman, from IO-Interactive, slays expectations using Azure to analyze player behavior in real-time

Azure can help you safely and securely store player data, dynamically scale your multiplayer experiences, and save you money as your game grows.

Smart Scaling

- Virtual machines (VMs) with Windows and Linux OS images -scale anywhere from one to thousands of VMs with built-in virtual networking and load balancing, while taking advantage of hybrid consistency with on-premise systems
- Service Fabric - focus on building your game and let Azure solve the hard distributed systems problems such as reliability, scalability, management, and latency.
- Azure Kubernetes Service (AKS) is a fully managed service that simplifies the deployment and operations of Kubernetes and enables you to dynamically scale your application infrastructure with confidence and agility.

Data Services

- Blob storage - get cloud storage for game data, including all files types and unstructured data like images, audio, video, and more.
- Azure Cosmos DB is a globally distributed, multi-model, low-latency database solution to read, write, and query game and player data faster and with schema flexibility. Backed by a 99.999% availability SLA.
- Azure SQL Database is the intelligent, fully managed relational cloud database service that provides the broadest SQL Server engine compatibility, all while using your existing licenses.

XBOX

Xbox Live is committed to building a more inclusive gaming network that connects gamers across devices, while providing tools that help developers build richer and more engaging experiences.

This year, Xbox is introducing a new mobile SDK to help developers expand Xbox game services to iOS and Android.

As Xbox Live expands across console, PC, and mobile devices, we are working towards creating a safer, more inclusive gaming community.
aka.ms/gsgxbox

Trusted Game Identity

Use a gaming focused, single sign on identity that works across platforms with privacy controls as well as continuously updated family safety.

Vibrant Gaming Community

Take advantage of Xbox Live's growing community and experiences both inside and outside your game, and across devices to enable richer discovery and gamer engagement.

Frictionless Integration

Xbox Live game services on mobile are available a la carte with no Xbox Live certification requirement, just choose the features that are right for your game and comply with player privacy and on-line safety terms of service.
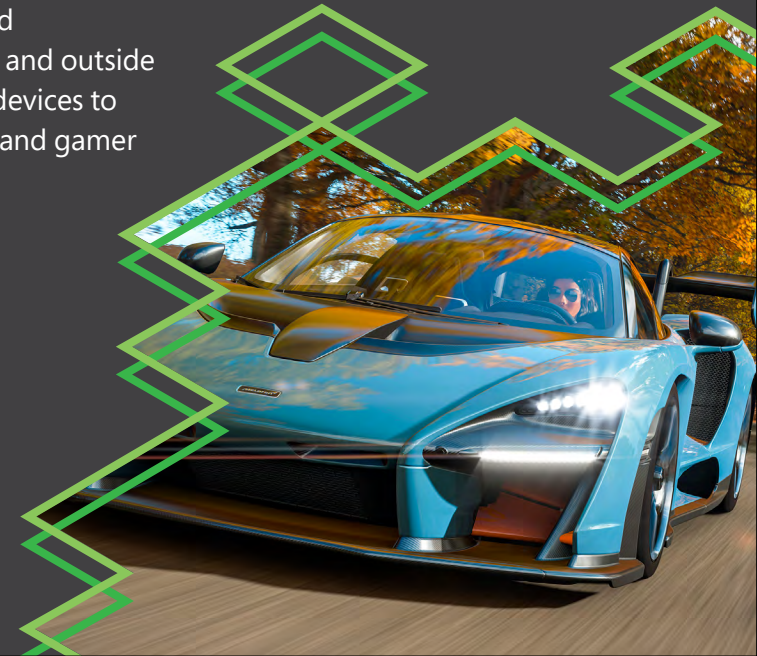
PLAYFAB

PlayFab is the complete backend platform to build and operate live games. It's a mix of game services, data analytics, and LiveOps tools, all in a unified solution.

In a world of ever-increasing competition for attention, PlayFab provides everything you need to launch quickly, optimize player engagement, and extend your game's lifecycle.

Build with the platform used by Rainbow Six Siege, Idle Miner Tycoon, Sea of Thieves, and many others.

aka.ms/gsgplayfab

Fast

Launch sooner, and more cost-effectively, than doing it all yourself

- Simplify development with full access to all backend services from day one
- Monitor and react to game data in real-time

Comprehensive

Everything you need in one unified, device agnostic solution

- Works across all consoles (Xbox, Switch, PlayStation), PC's, and mobile devices (iOS and Android)
- Manage the entire gamer lifecycle of acquisition, engagement, and retention from an integrated command control center for your entire team

Global Scale

Launch smoothly and confidently

- Bet your business on a reliable and secure cloud infrastructure that spans 54 data centers worldwide.
- Go global with support for China hosted multiplayer services

Real-Time

Easily operate your live game with real-time experiences that are unique and targeted

- Monitor real-time player activity and respond intelligently with data driven actions
- Deploy content configuration changes on-the-fly (rules, triggers, A/B testing)
- Configure real-time segmentation and deliver custom experiences with player messaging, leaderboards, tournaments, and commerce.

THE PLAYFAB LIVEOPS PLATFORM

- Dashboards
- Reports
- A/B Testing
- Data warehousing
- Event search
- ML-driven insights
- Import 3rd party data

ANALYTICS
Measure and react in real-time

CONTENT
Engage players with frequent updates

- Remote configuration
- Storage
- User generated content
- News
- Real-time updates
- Localization support
- Integrated CDN

- Serverless scripting
- Actions
- Rules
- Scheduled tasks
- Webhooks
- Admin APIs

AUTOMATION
Customize experiences with cloud-hosted logic
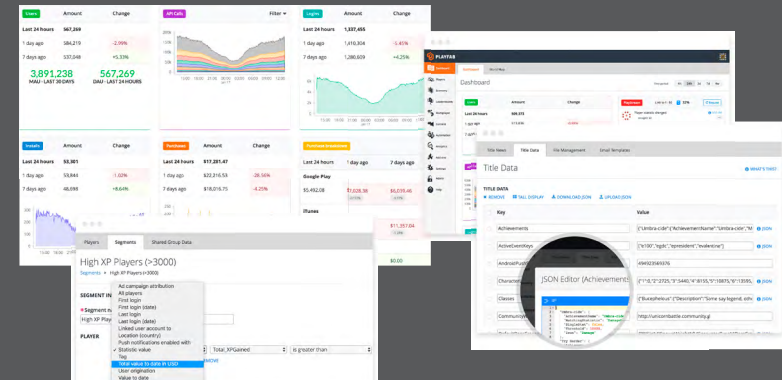
PLAYER MGMT
Stronger, secure relationships

COMMERCE
Sell more virtual goods, more easily

- Virtual currencies
- Item catalog
- Stores
- Promotions
- Inventory
- Receipt validation
- Drop tables
- Subscriptions

- Real-time voice chat
- Voice transcription
- Push notifications
- Email
- In-game messaging

COMMUNICATION
Foster healthy player communities

MULTIPLAYER
Build social experiences with cross-platform play

- Leaderboards
- Tournaments
- Prize tables
- Matchmaking
- Server orchestration
- Guilds / Clans
- Gifting / trading

- Authentication
- Player profile
- Support
- Banning
- Real-time segmentation
- Roles and permissions

PRE-INTEGRATED WITH ALL YOU NEED

All thoroughly tested and always up-to-date.

Platforms

Windows | iOS | HTML5 | STEAM | PS4 | Facebook

Android | XBOX ONE | NINTENDO SWITCH | twitch

Engines

unity | Corona Labs | Cocos2d-x | DEFOLD | Java

UNREAL ENGINE | lumberyard by amazon

VISUAL STUDIO

Visual Studio is Microsoft's best-in-class integrated development environment. When it comes to game development, the Visual Studio family, including Visual Studio, Visual Studio Code, and Visual Studio for Mac, empowers you to create amazing games on the platform of your choice while targeting the broadest range of devices.

Whether you're using DirectX, Unity, Unreal or Cocos to create games and immersive experiences for your users, Visual Studio provides a powerful set of tools for developing and debugging your code, enabling you to identify issues quickly and efficiently directly from within the editor.

Take advantage of the AI-powered IntelliCode to get bespoke code completion recommendations based on your source code. Set breakpoints and evaluate variables and complex expressions whether you're running within the engine editing environment like Unity Editor or if you're debugging an externally managed DLL your project uses.

No matter the language or the OS you're programming with, when you need to collaborate, Visual Studio's Live Share will instantly share your project with a teammate. Co-edit and co-debug while sharing audio, servers, terminals, diffs, comments, and more without teammates needing to clone a repo or set up their environment.

And when you need to use the cloud, Visual Studio can connect to Azure services directly from within the IDE itself, making it easy and efficient to build out scalable solutions for any game type.

aka.ms/gsgvisualstudio

DIRECTX

Microsoft DirectX is the choice to make for the highest performance 2D and 3D graphics and multimedia. DirectX 12 is faster and more efficient than any previous version. Direct3D 12 enables richer scenes, more objects, more complex effects, and full utilization of modern GPU hardware on Windows 10 PCs and Xbox One. The extensive features and deep platform integration of DirectX provide the power and performance needed by the most demanding games.

aka.ms/gsgdirectx

OTHER PRODUCTS IN THIS GUIDE

- Azure DevOps
  aka.ms/gsgazuredevops
- Azure Spatial Anchors
  aka.ms/gsgspatialanchors
- Creators Program
  aka.ms/gsgxblcp
- DirectML
  aka.ms/gsgdirectml
- GamePass
  aka.ms/gsggamepass
- GitHub
  aka.ms/gsggithub
- Havok
  aka.ms/gsghavok
- ID@Xbox
  aka.ms/gsgidatxbox
- Microsoft Office
  aka.ms/gsgoffice

- Microsoft Store
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- Mixed Reality
  aka.ms/gsgmr
- Mixer
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- Orleans
  aka.ms/gsgorleans
- Partner Center
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- Power BI
  aka.ms/gsgpowerbi
- Simplygon
  aka.ms/gsgsimplygon
- UWP
  aka.ms/gsguwp
- Visual Studio App Center
  aka.ms/gsgappcenter

Microsoft Game Stack.
Achieve More.

aka.ms/microsoftgamestack