Asia-Pacific Media Service Market Report, 2022

—1961-2021—
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Asia-Pacific Media Service Market Report

With the increasing penetration of Internet and cloud technologies in APAC, *Media Service,* **based on the emerging applications on media-related content,   provides comprehensive deployment for the demands of lower technical threshold, costs, etc., thereby driving the development of digital economy**. To offer a more professional and in-depth perspective to industry stakeholders, this report analyses and assesses the development of the *Media Service* market and the competitive landscapes in APAC.

Key Objectives

1 Market Analysis

- **Market Definition, Classification and Value**
- **Macro Background**
- **Market's Value Chain Analysis**
  - ✓ Value Chain Overview
  - ✓ Upstream Analysis
  - ✓ Midstream Analysis
  - ✓ Downstream Analysis
- **Opportunity Analysis**
- **APAC Media Service Market Size, 2016-2026E**
- **Market Trend Analysis**

2 Competitor Analysis

- **Competitive Landscape of Media Service Providers in APAC**
- **Vendor Analysis**

Research Methodology

- **Primary Research:** conducted in-depth interviews, with a mix of industry experts, media service providers, and other industry professionals.
- **Secondary Research:** reviewed and analyzed the information in public domain, such as annual reports, press releases, news articles, etc.
- **Measurement Models:**
  - **Market Sizing Model for Market Forecast**: F&S original market size measuring and forecasting model for market sizing.
  - **Competence Model of Key Players**: F&S original competence analysis model for measuring competitive prowess of each players.
- *Notes*:
  - *This study analyzed market size of media service in APAC based on data available as of Dec 31 2022 with forecast period from 2023 to 2026.*
  - *Geographic scope refers to APAC, which includes Greater China, South Korea, Japan, India, Malaysia, Thailand, Singapore, Indonesia, and Philippines.*

Executive Summary

Market Overview

- ■ **Benefited from favorable macro conditions, APAC media service market experienced outstanding performance over the years, which in turn expanded the market capacity of multiple segments, to be specific:**
- Rapid GDP growth and increasing higher internet penetration of APAC countries lay down solid foundations for media service industry. Governments invested in infrastructures amidst the pandemic, further accelerating the growth of media service industry from supply side.
- The market size of APAC media service has increased from USD372 million in 2016 to USD2,635 million in 2022, representing a CAGR of 39%, and is expected to reach USD6,987 million in 2026, representing a CAGR of 27% from 2023 to 2026.
- Demand for media service will also continue to grow in varied downstream industries, including online gaming, e-commerce, media and entertainment, enterprise and healthcare services, etc., in consideration of accelerated digital transformation in traditional enterprises and expansion of overseas market.

- ■ **Compared with traditional self-built internet video systems, media service has the advantages of lower cost, higher efficiency, higher flexibility and higher global deployment efficiency.**
- Media services refer to resources, utilities or one-stop solutions that are deployed on cloud to enable media content creation, protection, transition, etc.
- Media services contribute to the reduction of investment in infrastructure construction in the early stage, lowering the investment in the development and maintenance of systems and related technologies. With media service, clients can concentrate resources on their core business and improve their overall operating efficiency.

Competitive Landscape

- ■ **Media service providers develop media service offerings and evolve across the value chain, hosting a wide variety of applications on customer demands and use cases on top of the infrastructure resources.**
- Products and services closer to upstream, such as GPUs and servers, show a higher degree of standardization and fewer variations, with performance stability as the key. However, the products and services closer to downstream and users are with a lower degree of standardization, with the diversity, interactivity and usability of functions as the key.
- Cost, integration, HD and threshold are key purchase factors in media service purchases for downstream clients in APAC.

- ■ **Comprehensive media service providers are well positioned to catch the growth opportunities of the media service market.**
- In APAC where the development of media service industry, is witnessing the trend of integration, interactivity and high usability. Nowadays, media services are primarily provided by comprehensive media service providers, which is aligned with their business strategy to enrich application, solution and ecology matrix. Therefore, it is meaningful and more accurate to measure the competitiveness of a media service provider in APAC based on the combined performance in application, solution and ecology to reflect the whole market competitive landscape.

- ■ **Integrated technologies, one-stop service offerings, low-code platforms and enterprises going global are future opportunities for media services providers.**
- Media service providers will offer differentiated services for specific application scenarios and enhance the ability of one-stop solutions. Also, they are expected to extend their business capabilities by providing enterprise clients with integrated, highly-modular media service solutions.

Media Services refer to integrated services that deployed on cloud, and be applied into varying industries to enable content creation, processing, transmission, etc.

- **Infrastructure:** High-performance computing, CDN and high-speed SSD are included. It offers on-demand access to a shared pool of configurable, computing and networking resources which can be instantaneously deployed and easily scaled.
- **Solutions:** By types of media, solutions can be divided into video on demand, live streaming, RTC and Chat. By media production stage, solutions can be divided into content collection, processing, distribution, and delivery.
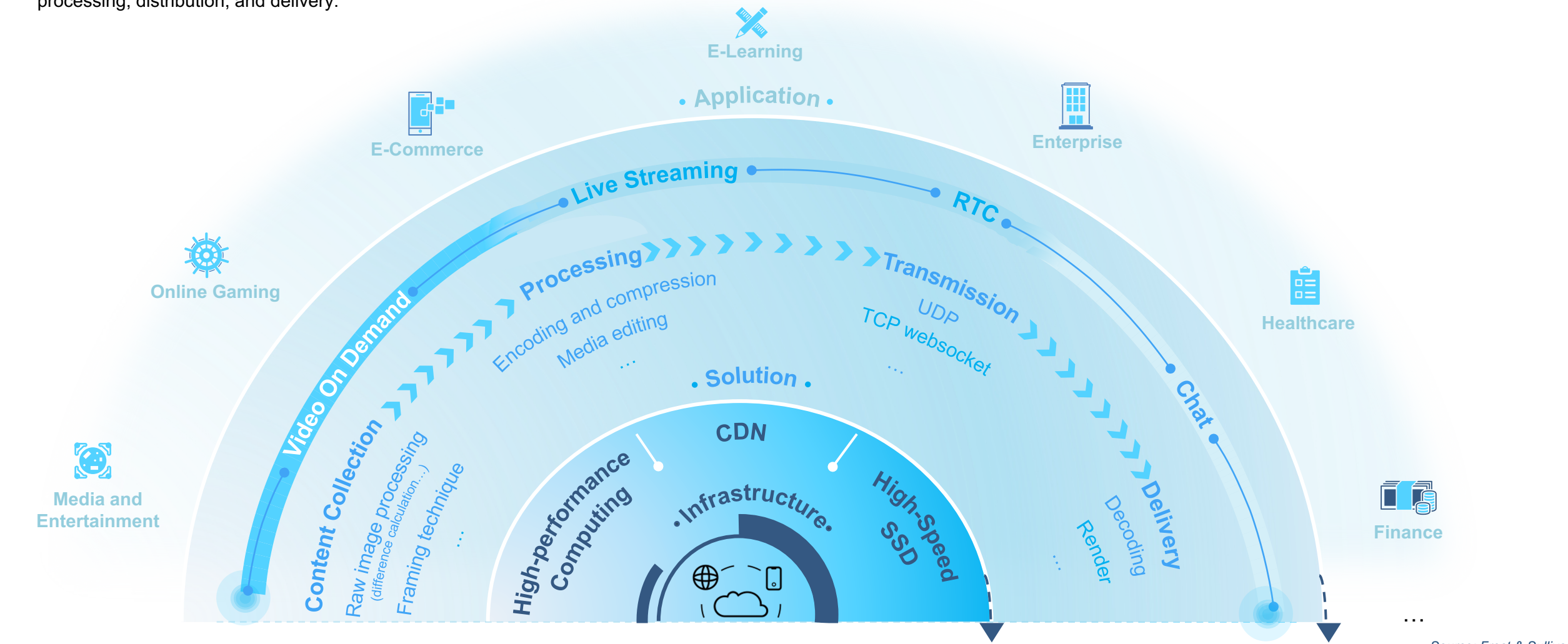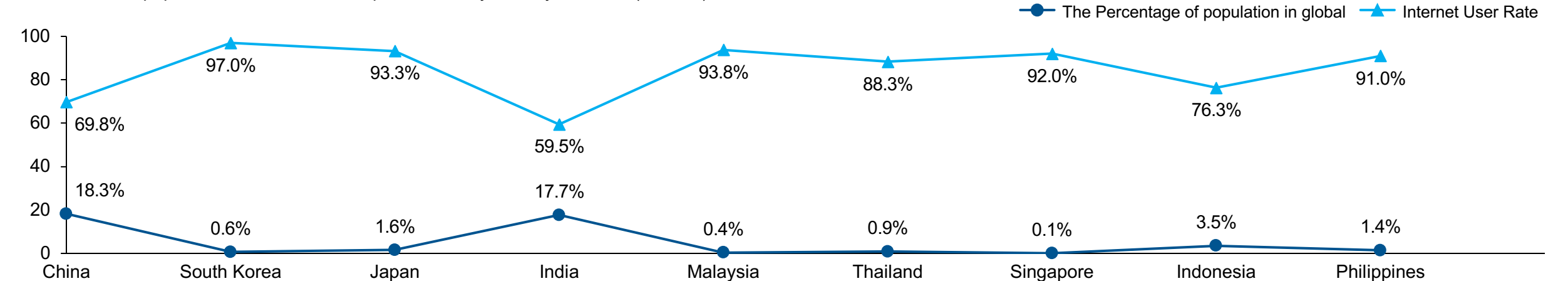

Source: Frost & Sullivan

APAC provides enabling macro environment for media service market in policies, economy, society and technologies

- APAC has provided a favorable environment for the media services market in terms of economic, social, and political aspects, followed by technological improvements in infrastructure and talent to accelerate the development of media services.

Politics	• APAC countries have introduced **policies** to support the development of the digital economy and cloud computing, thereby providing policy support for media services. • Strategic and commercial partnerships have been established between APAC countries on media services.
Economy	• APAC countries' total GDP has grown by 27.2% over the past five years, driving a recovery in the consumer demand of the media market. • The Covid-19 has driven the rapid growth of e-commerce in APAC, with Southeast Asia becoming the fastest-growing region in the world over the past five years.
Society	• APAC has a huge population, which accounts for 43.3% of the world's population, with considerable stock and incremental media service users. • APAC accounts for more than 40% of the world's Internet users, with an Internet penetration rate of 68.8%, offering a solid user base for the development of media services.
Technology	• APAC countries are actively improving their data center, server, and other infrastructure, which now has 1,123 data centers to provide basic facilities for media services. • APAC is actively recruiting and training ICT employees, such as Singapore's Tech for Public Good program to accelerate the recruitment and training of technology talents.

Global share of population size and internet penetration by country in APAC (2021/%)

The Percentage of population in global   Internet User Rate

Country	Internet User Rate	Percentage of population in global
China	69.8%	18.3%
South Korea	97.0%	0.6%
Japan	93.3%	1.6%
India	59.5%	17.7%
Malaysia	93.8%	0.4%
Thailand	88.3%	0.9%
Singapore	92.0%	0.1%
Indonesia	76.3%	3.5%
Philippines	91.0%	1.4%

Source: Wind, Data AI, Internet World Stats, Frost & Sullivan

Comprehensive media service providers develop media service offerings and evolve across the value chain, hosting a wide variety of industry applications on top of the infrastructure resources

Upstream — Midstream — Downstream

Subscription Billing / Usage-based Billing / One-time Deployment | *Annual or Monthly Subscription Billing / Usage-cased Billing*

- Infrastructure -

Chip GPU/CPU...

Server...

Necessary infrastructure required to provide media service, such as chips and servers, etc.

Key Players

1 Traditional Infrastructure Providers

HUAWEI · inspur · IBM
China Mobile · CHINA TELECOM · china unicom

2 Emerging Infrastructure Providers

Tencent Cloud · JD Cloud
BAIDU AI CLOUD · Alibaba Cloud · aws

- Media Service Provider -

Comprehensive Provider

Provide media services to meet diverse demands, leveraging their own platforms and resources to provide one-stop service offerings including both infrastructure (e.g CDN) to integrated solutions.

Tencent Cloud · BAIDU AI CLOUD
UCLOUD · Alibaba Cloud · WWW.KSYUN.COM · aws
Azure · JD Cloud · HUAWEI CLOUD

Exclusive Provider

Provide exclusive solutions to meet specific demand of clients in niche scenarios. Some of them may provide infrastructure or solutions only, or focus on dedicated service sector.

AVAYA · poly · CISCO · AnyChat · BAIJIAYUN
agora · ZEGO · Fsmeeting.com · RONGCLOUD · KEDACOM

- Clients -

Media & Entertainment

Online Gaming

Clients

E-learning

E-commerce

Healthcare

Enterprise

...

◄ – ● Flow of Payment

Key players in the upstream provide necessary infrastructure required to provide media service

GPU market growth in APAC

Continuous optimization of GPU design and construction support the rapid development and improvement of the overall infrastructure of media service in APAC

Video Industry	Demand Analysis of GPUs	Intensity
Multi-screen Video Services	• High concurrency for multiple terminals • Low bit rate codec	
Ultra HD Business	• High quality 4k transcoding, high performance image processing	
Film Special effects	• High quality GPU rendering capabilities • Improved processing speed for special effects	
Cloud Games	• Game computing needs to be done in the cloud, requiring high GPU rendering	

Development of network connectivity

The bandwidth is influenced by the needs of different downstream industries with different technical parameters to meet the needs of different scenarios

Traditional video industry demand：

	Resolution	Framerate	Colour depth	Average bitrate	Bandwidth demand
General 4k	3840*2160	30P	8bit	H.265	22.5Mbps
Standard 4k	3840*2160	60P	10bit	H.265	45Mbps
4k+	3840*2160	120P	12bit	H.265	75Mbps
General 8k	76800*4320	30P	8bit	H.265	90Mbps
Standard 8k	76800*4320	60P	10bit	H.265	180Mbps
8k+	76800*4320	120P	12bit	H.265	300Mbps

Emerging technology industry demand：

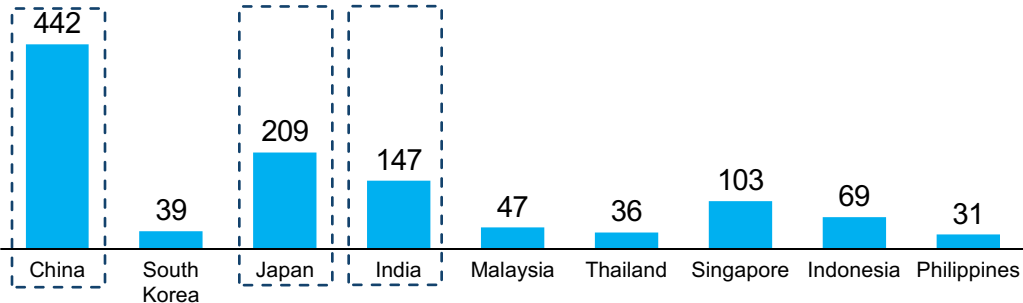|	Discerning thresholds	MTO time delay	Application Network	Bandwidth demand
EI	Full-view 4K 2D	<40ms	4G&5G	20-50Mbps
PI	Full-view 8K 2D	<30ms	4G&5G	20-50Mbps
DI	Full-view 12K 2D	<20ms	5G	200Mbps-1Gbps
FI	Full-view 24K 2D	<10ms	5G	2-5Gbps

(EI: Elementary Immersion, PI: Partial Immersion, DI: Deep Immersion, FI: Full Immersion)
Note: The above represents the various types of immersive experiences in VR/AR

Improvement of infrastructure

Quantity of IDCs in APAC：

China	South Korea	Japan	India	Malaysia	Thailand	Singapore	Indonesia	Philippines
442	39	209	147	47	36	103	69	31

■ The scale of data centers of APAC regions are increasing, which may bring greater economies of scale and reducing network latency for applications in various media service industries.

Key Findings

▪ The development of GPU market is boosting the improvement of media service market in APAC.

▪ Thanks to the growing investment in data centers and cloud services, network connectivity continues to improve, which may allow fast data transmission, elastic computing resource, great interconnectivity and control of devices, therefore creating demand for media services.

▪ Favorable government policies further boost the development of media services in APAC. Governments in APAC have established a large number of data centres in recent years.

▪ With the optimization of the underlying data center, it will provide more efficient, more stable and more energy-efficient computing services for the upper layer of cloud computing services and drive the industry as a whole

Source: Cloud Scene, ASKCI, IDC, Huaon, Frost & Sullivan

Comprehensive media service providers develop full-suite and highly-modular solutions to empower clients' business

- Comprehensive media service providers develop integrated media service solutions for clients by leveraging its wholistic resources, ecological platforms and technological advantages
- Exclusive service providers develop exclusive solutions to support specific issues concerning downstream clients today

Exclusive Provider		Comprehensive Provider

Scope of services:
Network services in hardware and software, like bandwidth, connectivity devices...

Scope of services:
Targeted application software for specific application scenarios

Targeted services provide deeper solutions to pain points and more targeted solutions to meet demand in specific performance

Service strength: can response rapidly to a wide range of vertical industry needs and use cases
Industry know-how strength: can efficiently solve industry-specific problems

- **Comprehensive Provider VS Exclusive Provider-service features**:
- Comprehensive providers' services are less application-specific than exclusive providers
- Exclusive providers have a more homogeneous range of offerings, while comprehensive providers extend their services from the bottom level to the endpoint

- **Service value comparison analysis:**
Comprehensive providers leverage the value of their complete ecosystem and product power from top to bottom, while exclusive providers focus more on granular customer scenarios from bottom to top

- **Comparative analysis of competitive advantages:**
Comprehensive providers leverage their resources to form an ecological and pricing advantage, while **exclusive providers** have the advantage in the application

Scope of services:

Providing infrastructure from CDN and cloud storage, to end-to-end functional modules and standardized video applications

Integrated cloud capabilities for clients, and at the same time for the entire media service industry service providers to attract traffic, leading to development of the whole ecological synergy

Ecological strength: can facilitate the integration of its own platform resources and ecological partners to form a closed loop of services
Pricing strength: can allow for flexible pricing strategy in the long term to attract and retain clients

Comprehensive Provider : Provide media services to meet diverse demands, leveraging their own platforms and resources to provide one-stop service offerings including both infrastructure(e.g CDN) to integrated solutions.

Exclusive Provider : Provide exclusive solutions to meet specific demand of clients in niche scenarios. Some of them may provide infrastructure or solutions only, or focus on dedicated service sector.
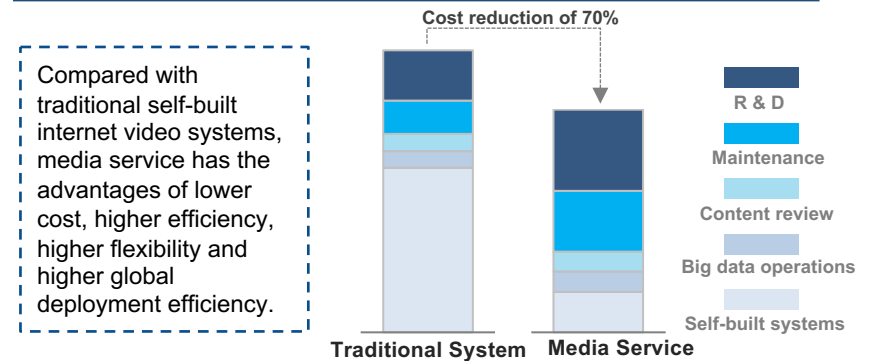
Cost, integration, HD and threshold are key purchase factors in media service purchases

Cost, efficiency and clarity are key concerns for media service clients in APAC

Cost Comparison: Traditional Systems VS Media Services

Compared with traditional self-built internet video systems, media service has the advantages of lower cost, higher efficiency, higher flexibility and higher global deployment efficiency.

Cost reduction of 70%

R & D

Maintenance

Content review

Big data operations

Self-built systems

Traditional System   **Media Service**

Key Purchase Factors

1 **Cost**
- ■ <u>Technology Cost:</u> Upgrading the technology of media services reduces the development and maintenance costs for clients, such as reducing bandwidth costs for video playback by changing bit rates and avoiding additional costs by offering integrated solutions.
- ■ <u>Management Cost:</u> Media services provide clients with comprehensive and integrated products and services to reduce their labor and management costs

2 **Efficiency**
- ■ <u>Media Industry:</u> Traditional media enterprises' IT architecture is difficult to adapt to the cross-network distribution of content in the context of media convergence, suffering from low video transmission efficiency, weak material sharing ability, and other drawbacks.
- ■ <u>E-commerce Industry:</u> The e-commerce industry has a large demand for livestreaming and the delay caused by a weak network environment leads to livestreaming lag, which in turn affects the user and customer experience, so e-commerce clients attach more importance to the efficiency of media services.
- ■ <u>Co-working Industry:</u> As co-working needs to adapt to the requirements of multiple terminal devices and multiple data connections, it puts higher demands on service efficiency.
- ■ <u>Online Education Industry:</u> Online education companies have higher demands for timeliness of media interaction and flexibility of functional integration, leading to improved application and efficiency of online education.

3 **HD**
- ■ <u>High Definition:</u> As users require a higher definition of the video they watch, high definition has become an important consideration for clients when selecting media services.
- ■ <u>High Resolution:</u> As high resolution makes texts more readable, image rendering more accurate, and video distortion less, clients are more concerned with media services that have high resolution.

4 **Threshold**
- ■ <u>Technical Threshold:</u> The technical problem of the current media service is the processing and transmission of video at the algorithm.
- ■ <u>Product Threshold:</u> Out-of-the-box media products and services can lower the development threshold for different scenarios, thus becoming a key factor for clients.
- ■ <u>Solution Threshold:</u> As clients continue to pursue a better end-to-end video experience, full-scene, one-stop, interactive solutions have become the focus of media service solutions.
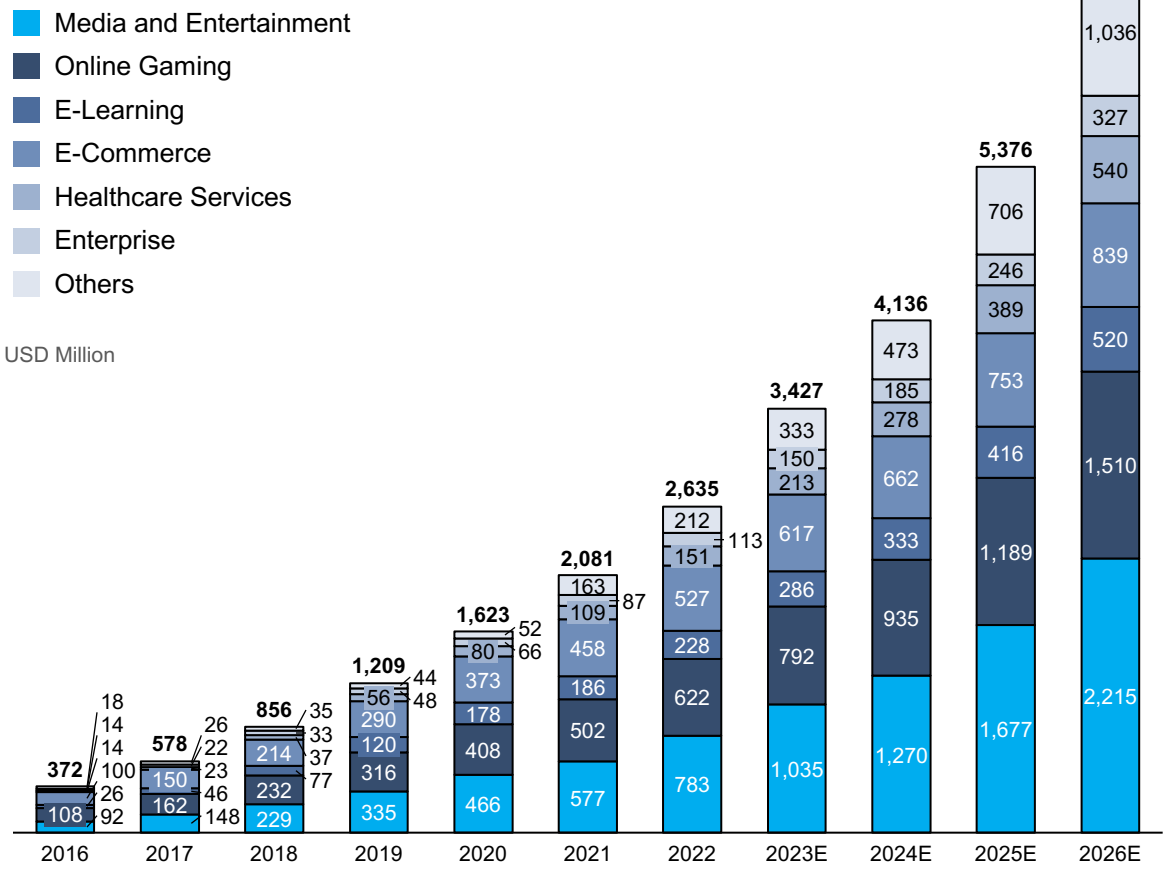
Source: Frost & Sullivan

Benefited from favorable macro conditions, APAC media service market experienced outstanding performance over the years, which in turn expanded the market capacity of multiple segments
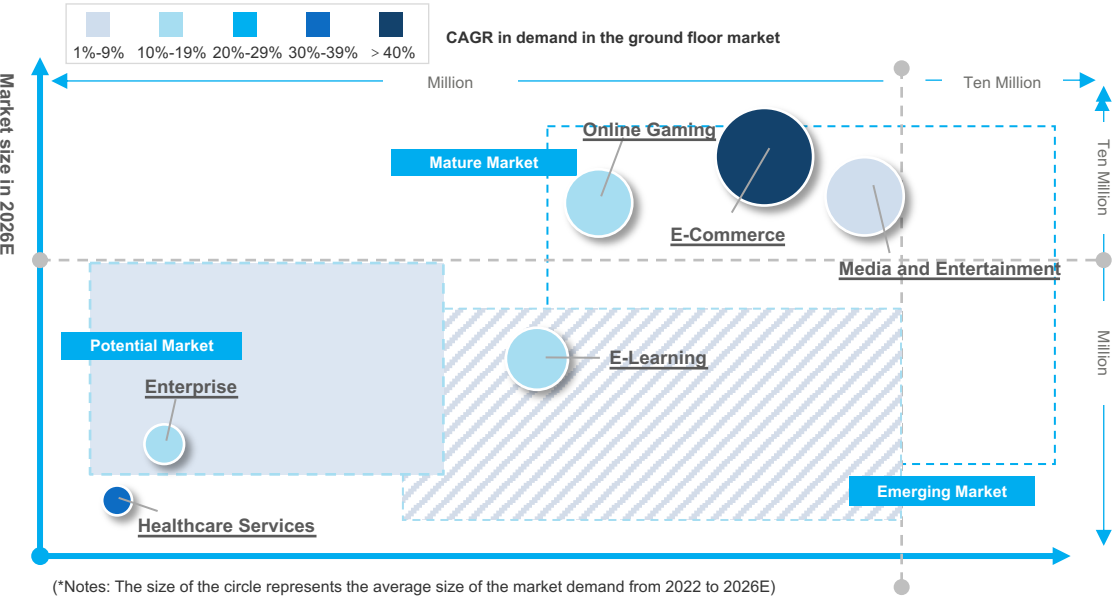
APAC Media Service Market Size, 2016 to 2026E

- The market size of APAC media service has increased from USD372 million in 2016 to USD2,635 million in 2022, representing a CAGR of 39%, and is expected to reach USD6,987 million in 2026, representing a CAGR of 27% from 2023 to 2026.

Notes: 1) Finance sector is included in Enterprise as below. 2) Industrial sector is included in Others as below.

- Media and Entertainment
- Online Gaming
- E-Learning
- E-Commerce
- Healthcare Services
- Enterprise
- Others

USD Million

Media service market has huge potential for demand size across all sectors

CAGR in demand in the ground floor market

1%-9% 10%-19% 20%-29% 30%-39% > 40%

Market size in 2026E

Million   Ten Million

Online Gaming

Mature Market

E-Commerce

Media and Entertainment

Potential Market

E-Learning

Enterprise

Emerging Market

Healthcare Services

(*Notes: The size of the circle represents the average size of the market demand from 2022 to 2026E)

Different industries focus on different needs in the media market

	Cost	Efficiency	Smoothness	Integration	HD	Threshold
Media and Entertainment						
Online Gaming						
E-Learning						
E-Commerce						
Healthcare						
Enterprise						

Vertical Industry Demand Intensity

Source: Frost & Sullivan

Future Opportunity: Integrated Technologies, one-stop service offerings, low-code platforms and enterprises going global are future opportunities for media services providers

Embrace Integrated Technologies to Improve Streaming Quality

Emerging technologies, such as AI, ML, open caching, etc., are being integrated into media service market to enhance content recommendation, improve customer experiences, and boost monetization.

Context and Definition

- ✓ Demand for high-definition video and enhanced customer experience is increasing substantially nowadays.
- ✓ The new demands of the younger generation on the scene require the integration of technologies such as AI, AR/VR in media service

- Call to action -

- ✓ Media service providers must leverage technologies to develop innovative features and make the customer experience more immersive and interactive.
- ✓ Media service providers should partner with technology service vendors to deploy solid video content creation, transition and protection measures.

One-Stop Service Offerings to Add Value for the Clients

One-stop service offerings add value for clients and help their business remain competitive by the integration of infrastructure and solutions, cloud and endpoints, etc. One-stop service is a complete media service solution for the various demands of downstream scenarios, providing added value with cutting-edge technology.

Context and Definition

- ✓ Providing one-stop service offerings alleviates the technical pressure for joint test adaptation.
- ✓ The comprehensive and diverse range of services can provide clients with a wider choice of purchases

- Call to action -

- ✓ By adding innovative technologies and service offerings, services become more appealing to clients and reduce customer churn.
- ✓ Media service providers must integrate downstream demands and technologies to provide easy-to-use and comprehensive services

Use Low-code Platforms to Integrate Solutions

Low-code platform is a development platform that can quickly generate applications without codes or with a small amount of code. **The emergence of the low-code platform makes up for the shortcomings of the past model, allowing clients to reduce development costs and compress development cycles, while still being able to take the initiative in development.**

Context and Definition

- ✓ In the past, the delivery model had defects such as high development cost and long development cycle, while low-code platform can help with development cost and development efficiency.

- Call to action -

- ✓ Media service providers should invest on the low-code platform, in order to satisfy their clients business needs, and to achieve cost reduction and efficiency.

Explore the Incremental Opportunities of Going Global

As Chinese companies actively expand their overseas business, and Chinese media service providers have more advantages in end-to-end and integrated solutions than overseas providers, more and more companies are choosing Chinese providers for their overseas business, because of **faster development of domestic audio and video applications**.

Context and Definition

- ✓ Chinese companies have conducted overseas business and are expecting cloud services to help them achieve business innovation.

- Call to action -

- ✓ Media service providers need to have a global vision and the ability to operate locally, while needing to strengthen security compliance in different regions, and innovating products, services and experiences around customer needs.

Source: Frost & Sullivan

Media service will tend towards application of AI, improvement of supplier capabilities, and go-global business for traditional and internet companies in the future

Degree of Applying Cutting-edge Technologies Deepens

As cutting-edge technologies can decrease the cost, efficiency, intelligence and experience of media services, integration of APAC media services and emerging technologies is becoming deeper.

- **Reduce Costs and Increase Efficiency:**
  AI, big data and other emerging technologies, realize content audit & analysis, and scenario-based integration, and other services, to reduce cost, efficiency, and accuracy of manual audit.

- **Enable Intelligence:**
  Intelligent O&M and intelligent product can be achieved through cutting-edge technologies, including AI, big data, etc., to enhance service experience.

APAC becomes the leading place in the number of AI patents filed and received from 2018 to 2021

Top 10 Countries in Terms of Number of AI Patent Applications and Grants, 2018-2021
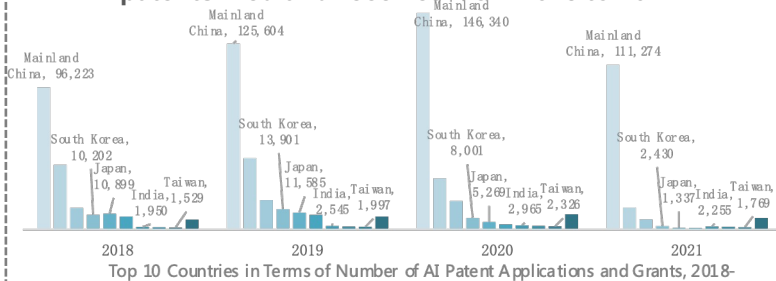
Capability of Media Service Providers' Offerings Improves

As the scope of clients expands and their own needs diversify, the importance of comprehensive and parallel services of providers, become more apparent.

- **Improvement of Diversification Capability :**
  Media service providers are continuously improving their diversified service capabilities to meet the various needs of clients in different industrial application.

- **Development of Integration Capability :**
  Provide clients with a simpler and more unified service based on the integration of technology and ecological resources to promote cost reduction and efficiency.

Integration Capability Features of Providers

- **Technology integration:**
  Help clients reduce costs and increase efficiency through the use and integration of technology resources, such as Tencent Cloud reusing and optimising the infrastructure of the three underlying networks and building individual SDK access terminals

- **Resource integration:**
  Combining our resources and ecological advantages of the Internet and other fields, we integrate the resources required for media services

Keywords of Integration Capability Features Launched by Media Service Providers

## Go-global Business for Chinese Companies Increases

The boom of video and Apps further influences the future development of media services as traditional companies and internet companies gradually develop their go-global business.

- **Internet Enterprises:**
  As Internet enterprises with audio and video as their main business carriers gradually go global, the service opportunities for media service providers increase.

- **Traditional Enterprises:**
  As Chinese enterprises in traditional industries, such as manufacturing, transportation, and energy, develop their going-global business, such enterprises become target clients in the future.

Types of Business for Internet and traditional companies going global
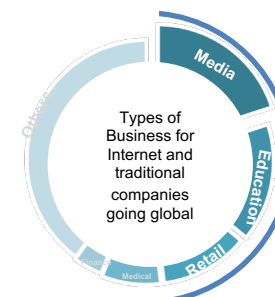
Internet companies
- Long video platforms
- Social platforms
- Short video platform
- E-commerce platforms

- Multinational logistics companies

Traditional companies go global, such as central state-owned enterprises

Internet Industry

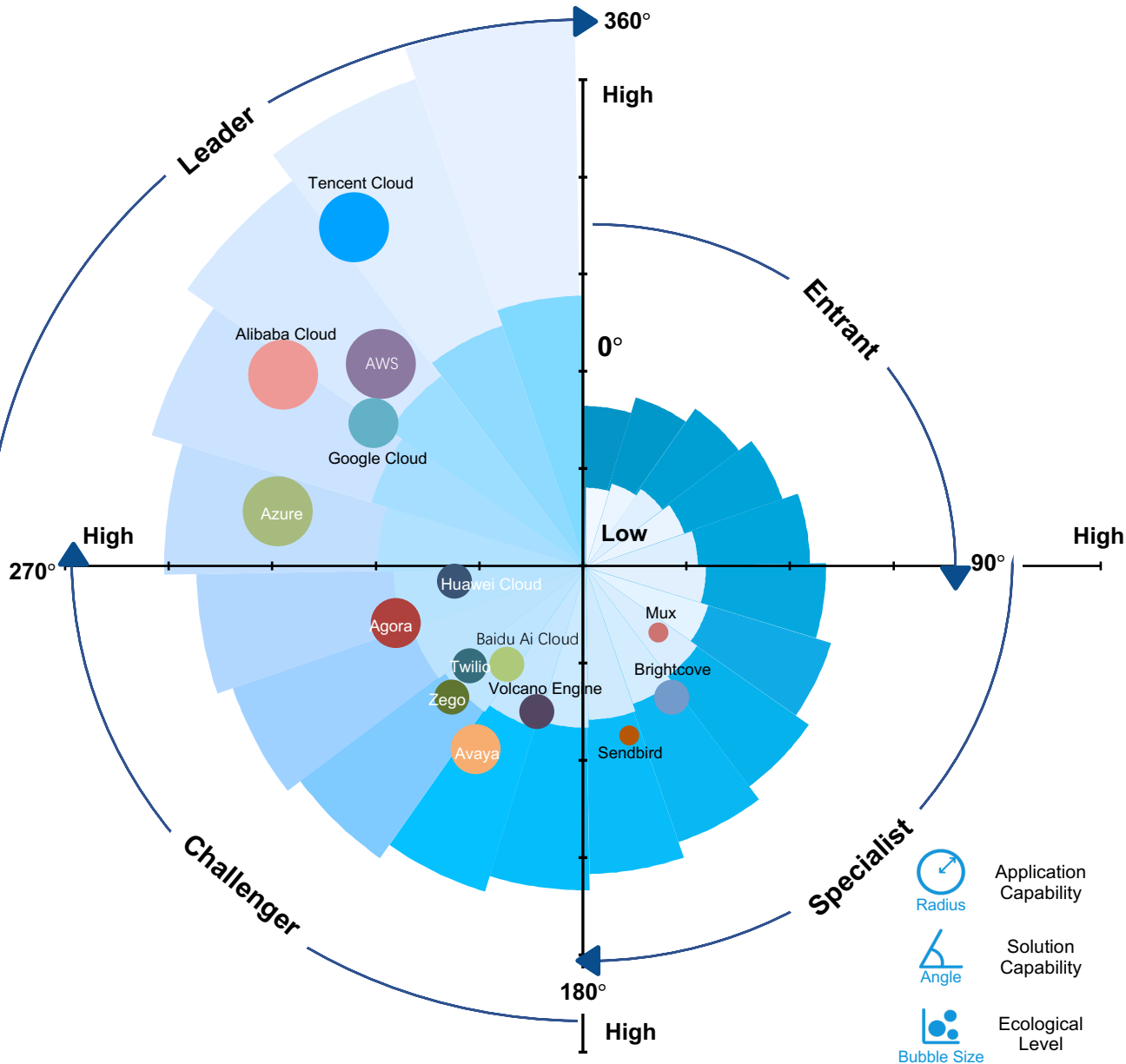Traditional Industry

Source: Tencent Digital Ecosystem Summit, China Netcasting Services Association, Frost & Sullivan
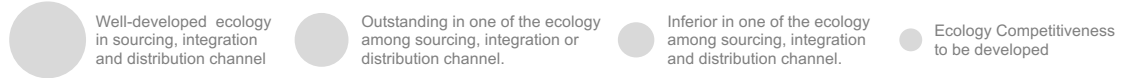
Competitive Landscape of Media Service Providers in APAC

APAC Competitive Leadership Mapping

Evaluation Criteria

❑ **"Application capability" of vendor is expressed as the distance between the center of the circle and the origin of the coordinates (radius)：**
The Distance measures the Application capability of vendor in terms of industry coverage, experience and knowledge, and service quality. The larger the radius the stronger its application capability of the vendor.

❑ **"Service capability" of vendor is expressed as the angle between the center of the circle and the origin of the coordinates to the Y positive axis (angle)：**
The Angle measures the Service capability of vendor in terms of infrastructure resources, platform services, tools, intelligence, security and stability & low-latency. The larger the angle the stronger its service capability of the vendor: i.e 360 degree refers to full marks in service capability.

❑ **"Ecological level" of vendor is expressed as the bubble size（bubble size）：**
The Bubble size measures the Ecological level of vendor in terms of sourcing, integration and distribution channel. Each vendor's competitiveness applies one of the four size classes representing different ecological capabilities.

Well-developed ecology in sourcing, integration and distribution channel

Outstanding in one of the ecology among sourcing, integration or distribution channel.

Inferior in one of the ecology among sourcing, integration and distribution channel.

Ecology Competitiveness to be developed

Key Findings

Tencent Cloud, Alibaba Cloud, AWS, Azure and Google Cloud
are recognized as "Leaders" in the APAC media service market.
o These vendors are consistently leveraging technologies, such as virtual reality, augmented reality, and mixed reality, to make the streaming experience more innovative, immersive and interactive. Also, these vendors offer a robust service portfolio and are consistent in providing their clients with media service to fulfill their demands.

Agora, Huawei Cloud, Baidu Ai Cloud, Twilio, Zego, Avaya and Volcano Engine
are recognized as "Challengers" in the APAC media service market.
o These vendors are gaining the power to drive growth through adding value to their services, differentiating from their competitors, and offering more pricing tiers.

Brightcove, Sendbird and Mux
are recognized as "Specialist" in the APAC media service market.
o These vendors are the niche players which have the potential to build on strong product portfolio and business strategy.

Source: Frost & Sullivan

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Tencent Cloud: Tencent Cloud dominates the media service field with the widest adoption among Media and Entertainment clients in APAC, based on pioneering technology, easy-to-use products, and deep industry experience.
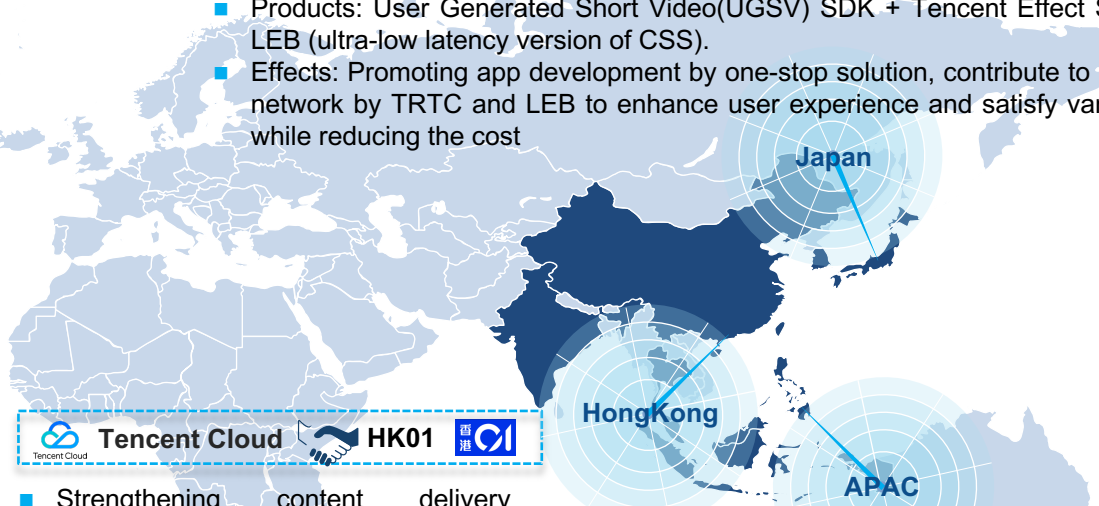
Key Customer Cases in APAC

Tencent Cloud — MIXCHANNEL

- Speeding up APP development and reducing costs and latency
- Products: User Generated Short Video(UGSV) SDK + Tencent Effect SDK + TRTC + LEB (ultra-low latency version of CSS).
- Effects: Promoting app development by one-stop solution, contribute to low-latency and network by TRTC and LEB to enhance user experience and satisfy various scenarios, while reducing the cost

Tencent Cloud — HK01
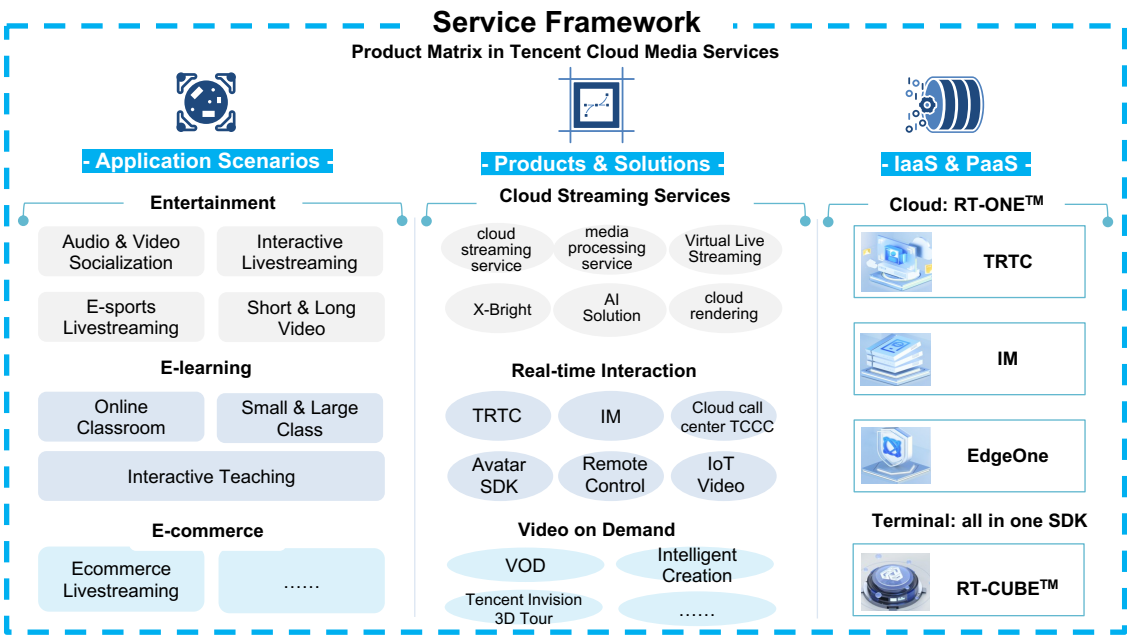
- Strengthening content delivery infrastructure for timely and high-quality news reporting
- Products: Content Delivery Network
- Effects: Improved scalability and enhanced competitiveness, delivering video materials at a lower cost while offering audience a better experience.

Tencent Cloud — ARY ZAP

- High-quality streaming solutions for live broadcasting world's top sports championships
- Products: CSS, Stream Package, StreamLive; deployment on cloud within 20 days
- Effects: Improving ARY ZAP's capability to provide stable live video streaming and reduce stuttering rate by **40%**; while reducing bandwidth and storage costs when compressing video bitrates.

(Map showing Japan, HongKong, APAC)

Service Framework

Product Matrix in Tencent Cloud Media Services

- Application Scenarios -

Entertainment

| Audio & Video Socialization | Interactive Livestreaming |
| E-sports Livestreaming | Short & Long Video |

E-learning

| Online Classroom | Small & Large Class |
| Interactive Teaching | |

E-commerce

| Ecommerce Livestreaming | …… |

- Products & Solutions -

Cloud Streaming Services

| cloud streaming service | media processing service | Virtual Live Streaming |
| X-Bright | AI Solution | cloud rendering |

Real-time Interaction

| TRTC | IM | Cloud call center TCCC |
| Avatar SDK | Remote Control | IoT Video |

Video on Demand

| VOD | Intelligent Creation |
| Tencent Invision 3D Tour | …… |

- IaaS & PaaS -

Cloud: RT-ONE™

- TRTC
- IM
- EdgeOne

Terminal: all in one SDK

- RT-CUBE™

Service Value

- **Laying the Cornerstone of Immersive Convergence**: Tencent Cloud integrates digital and the real world with outstanding performance in media service, accelerating overall digital transformation process and global expansion.

Service Advantages

- **Complete products and services:** The comprehensive service system offers customers a complete and diverse range of products. In addition to general media services, Tencent Cloud integrates network resources into Tencent RT-ONE™ Network to lowering the cost and improving user-experience.
- **Integrated solutions:** Easy-to-use and comprehensive integrated solution with out-of-box SDK improves usability and assist customers lower the technical barrier, especially with the combination of media terminal capabilities into Tencent RT-CUBE™.
- **Leading position and rich experience**: Enjoying rich industry know-how in various sectors, Tencent Cloud boost transformation in varying traditional and emerging fields such as media and entertainment industry, healthcare, etc., thereby facilitating the leading position in the market.

Alibaba Cloud: Due to one-stop deployment, content production, and distribution, Alibaba Cloud provides media services for media enterprises all over the APAC region.

Key Customer Cases in APAC

Alibaba Cloud 🤝 **TVB**

- Delivering a world-class viewing experience to TVB's users
- Products: Auto Scaling with PolarDB relational database
- Effects: Building a reliable infrastructure to overcome application scalability and performance-related issues and delivered content to users
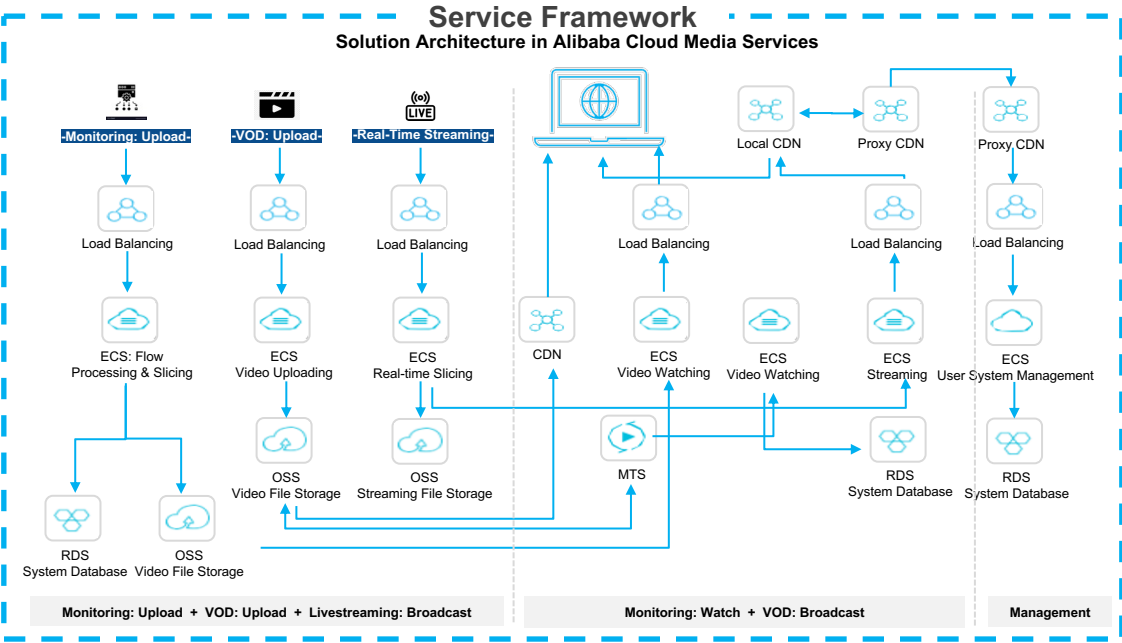
Alibaba Cloud 🤝 **Playerzpot**

- Helping the company to keep the overall operational costs in check
- Products: Cloud Infrastructure platform of media service, including Server Load Balancer, ApsaraDB, PolarDB and others
- Effects: Improving the security, efficiency, and cost of media content production and distribution

Alibaba Cloud 🤝 **ABS-CBN**

- Strategic, scalable and cost-effective solutions for content storage needs
- Products: Secure and reliable OSS across multiple regions
- Effects: Maximizing the ROI of existing workstations and providing a pandemic-proof design to allow content creators to work remotely

Service Framework
Solution Architecture in Alibaba Cloud Media Services

| Monitoring: Upload + VOD: Upload + Livestreaming: Broadcast | Monitoring: Watch + VOD: Broadcast | Management |

Service Value

- **Digitalize Media Journey to Create Content**: Alibaba Cloud's one-stop media solution provides media organizations with media services to produce, upload, process, manage, and deliver digital media content with ease and intelligent insights across multiple formats, platforms, and locations.

Service Advantages

- **One-Stop Solution**: Alibaba Cloud's service capabilities ensure a cloud experience from video production, media storage, video processing, content management, to video play and distribution.
- **Fast Video Distribution**: Based on more than 2,800 global CDN nodes, RTS supports tens of millions of concurrent streams and a maximum end-to-end latency of two seconds.
- **Quick Deployment**: The out-of-the-box video SDK features help rapidly deploy multiscreen live content offerings on all mainstream platforms without changing legacy architecture.

AWS: With targeted solutions, multiple partners, and rich service experience, in APAC, AWS is providing media services to clients in various industries in India and Japan, contributing to the value of converting media workloads.

Key Customer Cases in APAC

aws AWS 🤝 FanCode FANCODE

- Efficiently and cost-effectively support surges in the number of viewers during livestreaming.
- Products: Elastic Compute Cloud (Amazon EC2), Aurora, ElastiCache and CloudFront.
- Effects: Scaling computing capacity and unlocking new business innovations.

aws AWS 🤝 Dream11 DREAM11
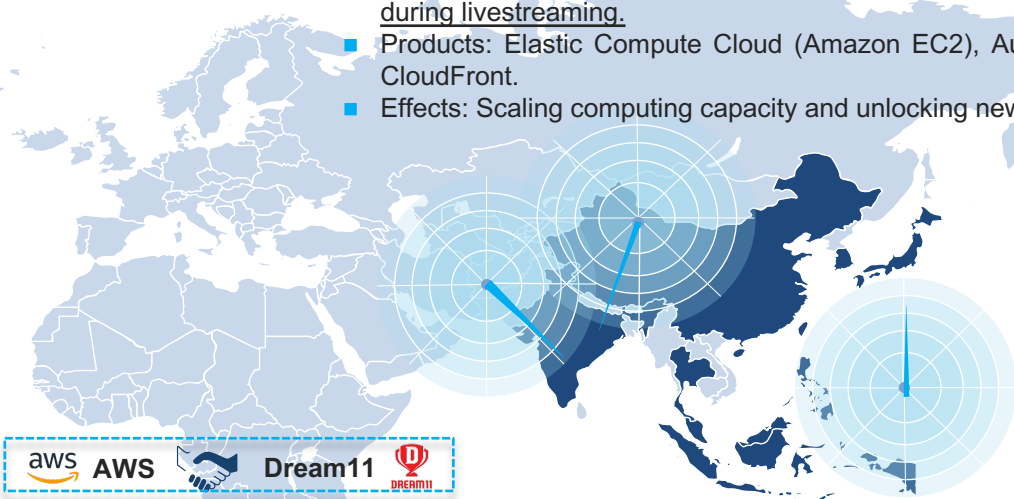
- Cemented its status as the largest fantasy sports platform in India.
- Products: AWS Shield, AWS WAF, Redshift, Neptune, Rekognition ML.
- Effects: Single-Digit Latency with 99.99% Uptime and accelerate product's time-to-market.

aws AWS 🤝 USEN

- Loading and organizing 5 million songs for hundreds of thousands of stores in minutes.
- Products: AI-based BGM streaming, IoT Platform, Lambda, DynamoDB, API Gateway, SQS.
- Effects: Delivering U MUSIC platform, organizing 5 million BGM songs every hour, and achieving stable operation with minimal operational effort.

Service Framework
Solution Architecture in AWS Live-to-VOD Solution
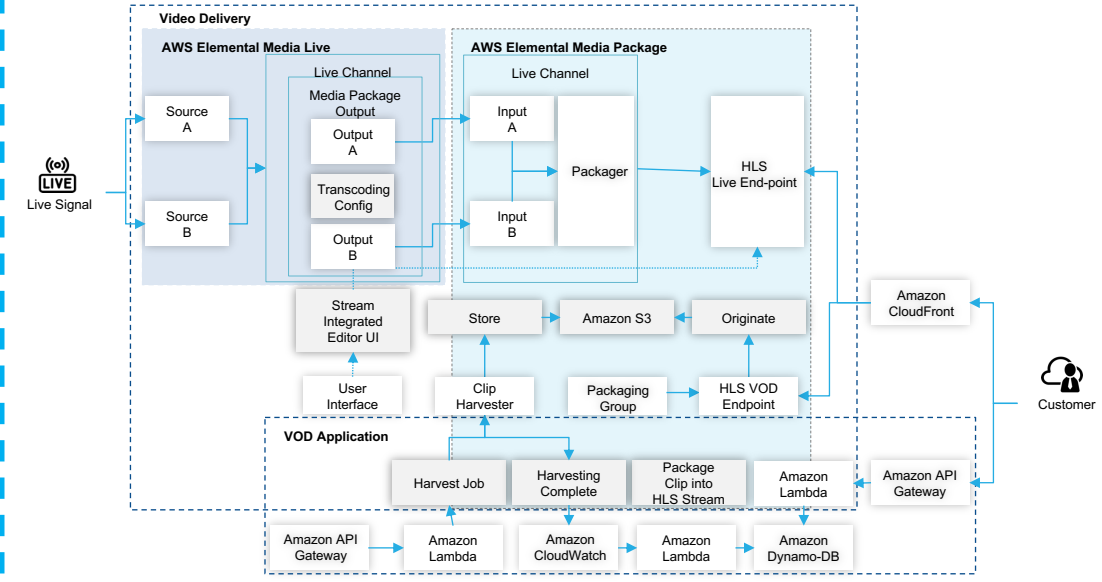
Service Value

- **Transform Media Workloads with the Most Purpose-built Capabilities of Any Cloud**: AWS aligns the most purpose-built media and entertainment capabilities of any cloud against five solution areas. With AWS, clients can select the right tools and partners for your workloads to accelerate production launches and see faster time to content value.

Service Advantages

- **Purpose-built Industry Services and Solutions**: AWS aligns the most purpose-built media capabilities of any cloud, against five solution areas to help clients transform the industry.
- **Numerous Media and Entertainment Partners**: Accelerate deployments support across key solution areas using leading industry technology and consulting partners, including Adobe, Sony, and others; as well as dedicated AWS industry specialists and AWS Professional Services teams.
- **Unmatched Media and Entertainment Experience**: AWS brings the 15 years of experience supporting transformation for leading industry clients such as Discovery, Disney, FOX, HBO Max, Hulu, MGM, The National Football League, Netflix, TF1, Weta Digital and others.

Source: AWS, Frost & Sullivan

Azure: On the basis of content production, distribution, delivery and other advantages, in APAC, Azure provides value to Japanese and Korean clients through media services.

Key Customer Cases in APAC

Azure 🤝 Avex

- Developping a virtual DJ using AI and collaborated with artist Ai Otsuka to host livestreaming, opening up new grounds in entertainment.
- Products: Cognitive Services
- Effects: By analyzing audience emotions and connects to equipment, data, and networks to transform itself and spatial aspects to create music.

Azure 🤝 NC Dinos

- Create a more pleasant and innovative fan media service environment.
- Products: Media AI solutions, Cognitive Service.
- Effects: Building Changwon NC Park as a smart stadium with IT technology.

Azure 🤝 Tsutaya Books TSUTAYA BOOKS

- Accelerating the growth of the streaming subscription business, thus increasing the rate of new customer acquisition.
- Products: SVOD, TVOD, Cognitive Service, Singula subscriber intelligence
- Effects: Increasing campaign conversions by 17% and generating significant growth in the subscription.

Service Framework
Solution Architecture in Azure Media Solution

LiveEvent — Single bitrate RTMP(s)/f-MP4, SCTE-35 Ad-cues, Slate/Ad API → Live Encoder, Live Output → DVR & VOD → Archive → Azure Storage

Streaming Endpoint — Dynamic Packaging, Dynamic Encryption, Dynamic Filtering (AES, Wide Vine, Fairplay, Play Ready)

clients — HLS, Smooth Streaming, MPEG-DASH

Preview-monitoring — Dynamic Packaging, Dynamic Encryption

License / Key Delivery Server — Token, License / Key — Client SDK

Service Value

- **Manage, Transform, and Deliver Media Content**: Use high-definition video encoding and streaming services to reach audiences. And enhance content discoverability and performance with AI, while helping to protect the content with DRM.

Service Advantages

- **Boost Media Discoverability and Performance**: Enhance Apps with new forms of detectable content like spoken words, written text, and faces, as well as speakers, celebrities, and emotions.
- **Support modern content distribution**: Deliver media source file and content streaming and protection formats to client technologies. Use Azure Media Player to deliver content, and providing an enriched, adaptive cloud streaming experience.
- **Scale delivery according to clients' needs**: Azure could Live broadcast a town hall or company meeting, a webinar, or a large sporting event to any online audience, handling audiences of all sizes while controlling the properties of the outgoing video livestreaming.

Source: Azure, Frost & Sullivan

Google Cloud: On the basis of advantages of security, technology, and content, Google Cloud provides media services for Taiwan clients, which in turn contributes to the value of content production and distribution operations.

Key Customer Cases in APAC

Google Cloud 🤝 Chunghwa Telecom

- Improving smart speakers and voice services, to speed up product development.
- Products: Google Speech-to-Text, Google Monitoring
- Effects: By analyzing audience emotions and connects to equipment, data, and networks to transform itself and spatial aspects to create music.
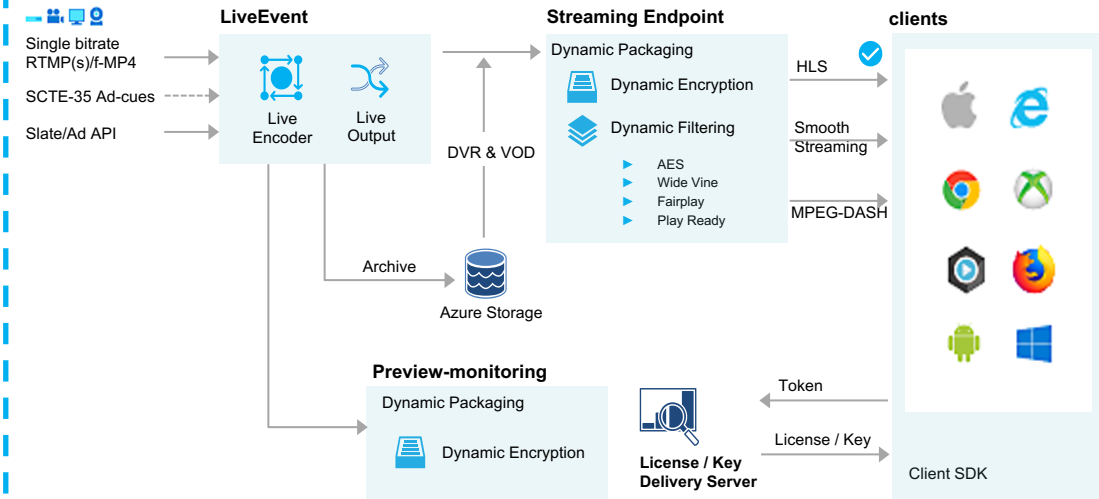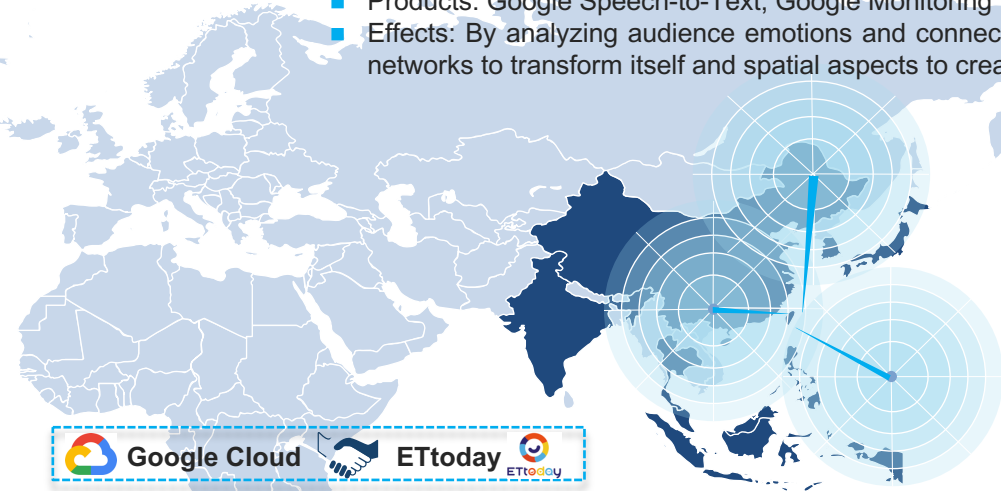
Google Cloud 🤝 ETtoday

- Create a more pleasant and innovative fan media service environment.
- Products: Google Cloud MemoryStore, Google Cloud Partner Interconnect, BigQuery.
- Effects: Reducing development time by 60%, increasing the recognition rate by 10%, and reducing system maintenance costs by 30%.

Google Cloud 🤝 BabyHome

- Improving overall resource efficiency and optimizing user experience.
- Products: Google Analytics, Migrate Google Cloud, BigQuery.
- Effects: Processing large online population, reducing page load time by 3 seconds, and saving $2,400 per month in hosting and bandwidth costs.

Service Framework
Media Services included in Google Media Solutions

Content Production

- **Rendering**
Scale pipeline with secure and performant cloud-native and hybrid rendering, using tools artists already know. Bring jobs on time and under budget.

- **Virtual Post-production**
Empower artists to create and collaborate seamlessly in the cloud. Create secure virtual workspaces backed by Google's global infrastructure.

- **Productivity & Collaboration**
Securely bring teams together and enhance their productivity with Google workspace and Google Meet.

Technology Engagement

- **AI-enriched Video Content**
Time-consuming processes like content search and discovery and automatically enrich videos with intelligence using machine learning capabilities.

- **Audience Insights**
Understand audiences more deeply in near real time with Looker and streaming data analytics platform

- **Data Warehouse Modernization**
Manage petabytes of data seamlessly by utilizing BigQuery with serverless and scalable data warehouse.

Content Distribution

- **Infrastructure Modernization**
Deliver high-quality. Low-latency video content using Google Cloud's storage, networking, and compute infrastructure.

- **Video Processing**
Combining Google Cloud's infrastructure, with partner solutions to process, transcode, and encode livestreaming and on-demand video assets, quickly and securely

- **Archive Migration**
Digitize, store, and preserve most valuable content by migrating content library onto Google Cloud

Service Value

- **Content Production and Distribution Operation**: Google Cloud is aimed to modernize content production and distribution operations while transforming audience experiences across the world.

Service Advantages

- **Protect Content with Multiple Layers of Security**: Google Cloud provides the large-scale identity management, network security, in order to threat detection and response capabilities to protect organizations from current and future threats.
- **Improve Audience Engagement Through Big Data and AI**: Streamline time-consuming processes and automatically enrich media content by cutting-edge technologies, such as AI or big data, for usage scenarios such as content search and discovery.
- **Distribute Content on A Large Scale**: Leverage Google Cloud's storage, networking, and computing infrastructure to quickly and securely process, transcode, and encode live and on-demand video sources, to deliver, digitize, store, and retain high-quality, low-latency content.

Source: Google Cloud, Frost & Sullivan

Baidu AI Cloud: Due to one-stop deployment, content production, and distribution technology, Baidu AI Cloud provides media services for enterprises all over the APAC region.

Key Customer Cases in APAC

Baidu AI Cloud — **SPDB**

- Building the industry's first digital employees for SPDB
- Products: Real-time audio and video
- Effects: Created the industry's first digital employees to help users complete inquiries and business transactions online through multiple platforms

Baidu AI Cloud — **Braze** *braze*

- Pushing notifications to Android devices
- Products: Baidu AI Cloud Push
- Effects: Without requiring to distribute the apps via the App store, fast and timely delivery of information to the end user

Baidu AI Cloud — **Baobao Zhidao**

- Live streaming for specialist lessons
- Products: Baidu AI Cloud VOD, MTC, LSS service
- Effects: Save costs on hardware and software to support the development of the core live streaming business, making the customer a leader over other mother and baby products

Service Framework
Solution Architecture in Baidu AI Cloud Audio and Video Services

Room/User
Equipment / Parameters
Beauty/AR
Screen Sharing

Global low latency real-time communication network
Node 1　Node 2　Node N

Application Management　Quality Control　Statistical Analysis
Real-time merging

Room/User
Equipment / Parameters
Beauty/AR
Screen Sharing

RTC Full Platform SDK　**Live audio and video LSS**　**Object Storage BOS**　**RTC Full Platform SDK**

Client SDK　Server Side　Client SDK

Service Value
- **High quality media services**: Real-time audio and video relies on Baidu AI Cloud's powerful real-time audio and video processing and transmission capabilities and low latency network covering the world to provide users with stable and high-quality real-time audio and video services.

Service Advantages
- **All-platform scenario-based SDK:** Provide a full set of one-stop SDK from the capture side, service side to the playback side, supporting PC/Android/iOS/Web and other platforms. **Intelligent streaming and distribution network**: Nodes are located in 50+ countries and regions around the world, with intelligent link optimisation, optimal node selection and multi-line BGP to solve cross-operator latency and other problems.
- **Baidu AI technology:** Based on Baidu's rich AI capabilities such as voice recognition, face detection and image fusion, it provides content auditing, visual effects and real-time beauty functions and supports media service.

Source: Baidu AI Cloud, Frost & Sullivan

Volcano Engine: Based on the advantages of technology, user experience and content, in APAC, Volcano Engine provides services for Chinese traditional media servicers, resulting in the value of content recommendation application.

Key Customer Cases in APAC

Volcano Engine 🤝 Jinan Daily

- Providing content customization services.
- Products: Content supply and content customization services.
- Effects: Enhancing content penetration and strengthening content pushing based on big data algorithms.

Volcano Engine 🤝 People's Daily

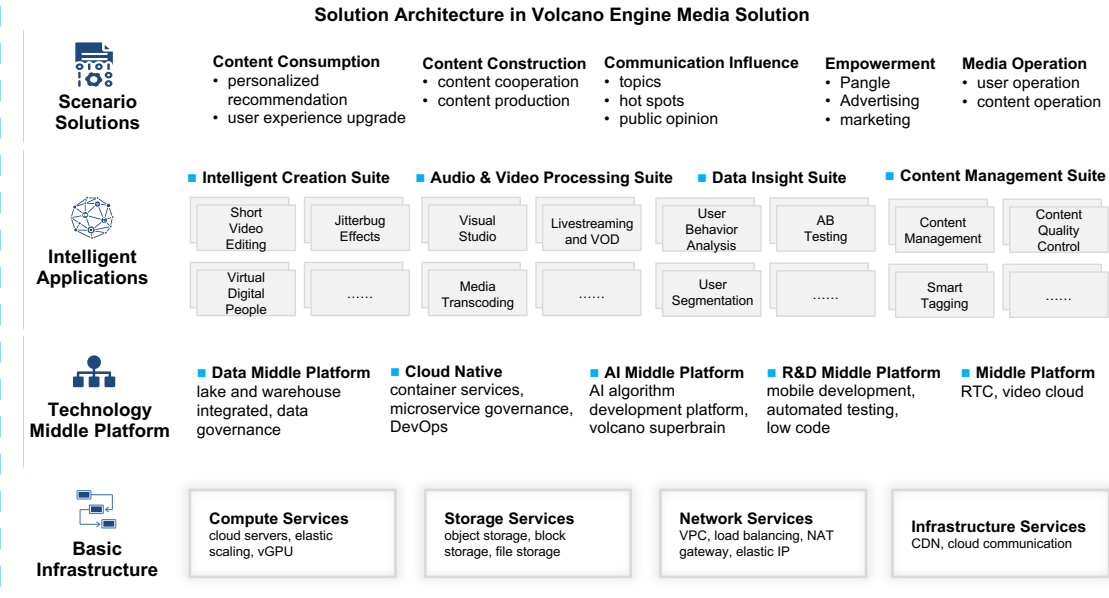- Conducting social media activities through image processing technology.
- Products: Image processing and restoration.
- Effects: The activities held have achieved impacts and positive user feedbacks on major social media platforms.

Volcano Engine 🤝 Zhejiang Daily

- Optimizing users' App experience and enhancing content recommendations.
- Products: Video editing, audio & video acceleration and optimization, content recommendation.
- Effects: Optimizing the video-playing experience, increasing the vitality of community operations, and improving the content ecology.

Service Framework

Solution Architecture in Volcano Engine Media Solution

Scenario Solutions

Content Consumption	Content Construction	Communication Influence	Empowerment	Media Operation
• personalized recommendation • user experience upgrade	• content cooperation • content production	• topics • hot spots • public opinion	• Pangle • Advertising • marketing	• user operation • content operation

Intelligent Applications

- ■ Intelligent Creation Suite: Short Video Editing, Jitterbug Effects, Virtual Digital People, ...
- ■ Audio & Video Processing Suite: Visual Studio, Livestreaming and VOD, Media Transcoding, ...
- ■ Data Insight Suite: User Behavior Analysis, AB Testing, User Segmentation, ...
- ■ Content Management Suite: Content Management, Content Quality Control, Smart Tagging, ...

Technology Middle Platform

- ■ Data Middle Platform: lake and warehouse integrated, data governance
- ■ Cloud Native: container services, microservice governance, DevOps
- ■ AI Middle Platform: AI algorithm development platform, volcano superbrain
- ■ R&D Middle Platform: mobile development, automated testing, low code
- ■ Middle Platform: RTC, video cloud

Basic Infrastructure

- **Compute Services**: cloud servers, elastic scaling, vGPU
- **Storage Services**: object storage, block storage, file storage
- **Network Services**: VPC, load balancing, NAT gateway, elastic IP
- **Infrastructure Services**: CDN, cloud communication

Service Value

- **Abundant Content Recommendation Application**: Based on the recommendation application practice of Toutiao and TikTok, the media service of Volcano Engine recommends the most interesting content for the user and improves the click conversion rate and length of stay of media content.

Service Advantages

- **Leading Video Processing Technology**: Volcano Engine provides audio and video processing services to meet the needs of various media platforms to convert video files to different bit rates and resolutions. It also provides video processing services, such as video editing and smart tagging.
- **Rich Personalized User Experience**: Relying on Volcano Engine AI technology, it provides video creation, virtual host and other capabilities to provide users with a personalized product experience.
- **Massive Content and Media Management**: Take advantage of Volcano Engine's intelligence algorithm and high-quality content to realize the management of massive content with the multi-channel content introduction, content understanding, content quality inspection, and content distribution.

Source: Volcano Engine, Frost & Sullivan

Avaya: Through its personalized content and advanced data security, Avaya provides media and entertainment services and solutions to South Asia clients at APAC.

Key Customer Cases in APAC

Avaya 🤝 MakeMyTrip makemytrip

- Improving the user experience with audio contact and instant messaging solutions.
- Products: Avaya IP Office, Avaya OneCloud.
- Effects: Reducing contact center workload and improving user and customer experience.

Avaya 🤝 Jindal SAW

- Driving business efficiency and growth through remote collaboration and video meeting platforms.
- Products: Avaya Callback Assist.
- Effects: Improving mobility and flexibility of working, and bringing cost efficiency.

Service Framework
Media Products for Avaya Media Solutions

Avaya Experience Platform	Avaya UCaaS	Avaya CPaaS
Incorporate AI, analytics, and resource from across business. Build customer understanding, brand loyalty, and revenues through better use of data.	Shape world of hybrid work. Enable employee experiences that boost productivity and empower people to serve clients faster and better.	Use prebuilt Apps to immediately deliver media contents, enhancing customer, employee and user experience.
Workflow Automation	Unified Messaging	Speech Recording
Self-service Automation	Audio/Video Conferencing	Video Recording
Preview Dialing	Call Recording	Text-to-Speech
Conversational AI	Instant Messaging	Multimedia Messaging
Screen Recording	Online Presence	Send Multimedia Content
……	……	……

Service Value

- **Technology That Achieves clients' Business**: Based on the four priorities of data utilization, service excellence delivery, hybrid work support, and data security, Avaya provides products or solutions to improve the user experience and grow customer business.

Service Advantages

- **Making personalized content**: Based on AI, Avaya builds user profiles through data collection, storage and analysis, and takes full-process charge of personalized content based on user characteristics.
- **Advanced Data Security**: Avaya enhances the data security by verifying the identity of users or clients in their native language through cutting-edge technologies, such as facial biometrics and image retrieval. Also, Avaya would solve problems in their native languages in accordance with local data policies.

Source: Avaya, Frost & Sullivan

Huawei Cloud: Mainly focused on the Chinese market, Huawei leverages its rich service and ecological resources to provide media services to a wide range of industries, especially in the video security industry
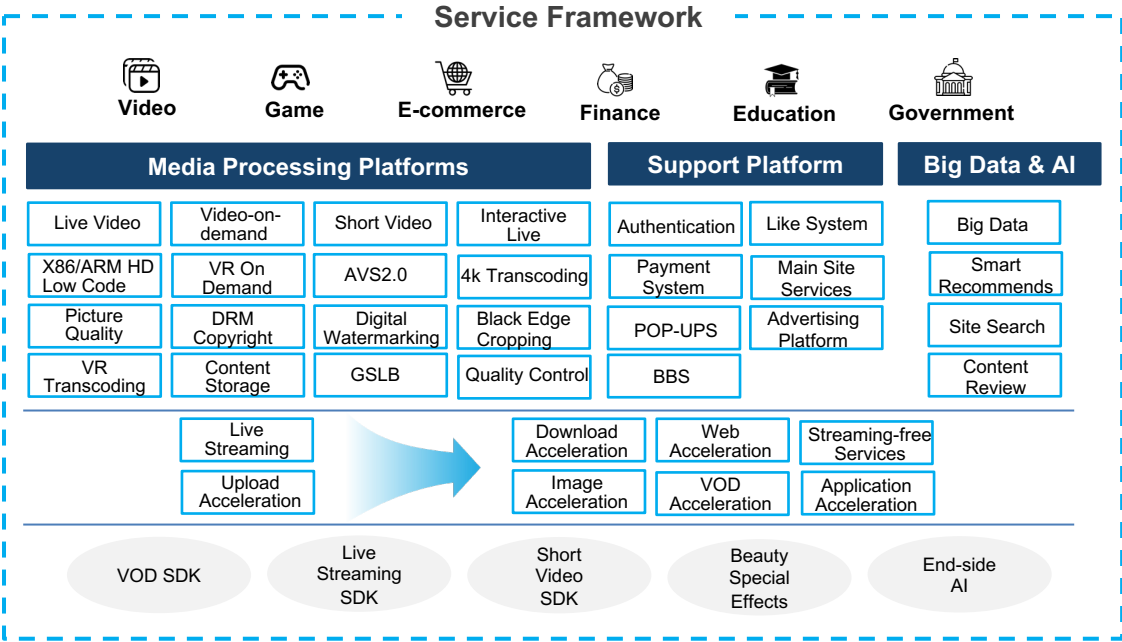
Key Customer Cases in APAC

Huawei Cloud 🤝 **Air China**

- End-to-end video conferencing solutions
- Providing full support for 1080P and 60-channel UHD effects, and also upgrading of video conferencing systems

Huawei Cloud 🤝 **Ai Xuexi**

- Ultra-low latency online interactive classroom
- Products: Huawei Cloud RTC real-time media service
- Effects: Richer classroom interaction and smoother teaching, allowing clear and smooth teaching in different scenarios and networks

Huawei Cloud 🤝 **Yunnan Power**

- New generation of video conferencing system
- Products: a fully cloud-based converged media platform and independently controllable video terminals
- Effects: the first cloud video application case in the power industry to be deployed

Service Framework

Video	Game	E-commerce	Finance	Education	Government

Media Processing Platforms

Live Video	Video-on-demand	Short Video	Interactive Live
X86/ARM HD Low Code	VR On Demand	AVS2.0	4k Transcoding
Picture Quality	DRM Copyright	Digital Watermarking	Black Edge Cropping
VR Transcoding	Content Storage	GSLB	Quality Control

Support Platform

Authentication	Like System
Payment System	Main Site Services
POP-UPS	Advertising Platform
BBS	

Big Data & AI

Big Data
Smart Recommends
Site Search
Content Review

Live Streaming	→	Download Acceleration	Web Acceleration	Streaming-free Services
Upload Acceleration		Image Acceleration	VOD Acceleration	Application Acceleration

VOD SDK	Live Streaming SDK	Short Video SDK	Beauty Special Effects	End-side AI

Service Value

- With **extreme HD, extreme intelligence, extreme capacity, extreme security and reliability**, and minimal operation and maintenance, Huawei Cloud Link injects new momentum into the development of the digital economy and brings users a unified and efficient executive-grade media service experience

Service Advantages

- **Technology Advantage:** Huawei's 28 years of audio and video communication technology and core independent intellectual property rights
- **Extensive Industry Experience:** Widely serving TOP users in various industries such as government, finance and medical
- **Prosperous Ecological Advantage:** Huawei Cloud leverages its own services and partner resources to provide more complete and coordinated products and services

Source: Huawei Cloud, Frost & Sullivan

Agora reaches global markets with a focus on the entertainment and education industries by adopting the strength on powerful real-time interactive capabilities

Key Customer Cases in APAC

Agora 🤝 Xindongfang XDF.CN

- <u>Underlying real-time audio and video technical support</u>
- Fast and smooth expansion in the face of unexpected traffic and resource constraints, ensuring stable quality and zero post-launch failures
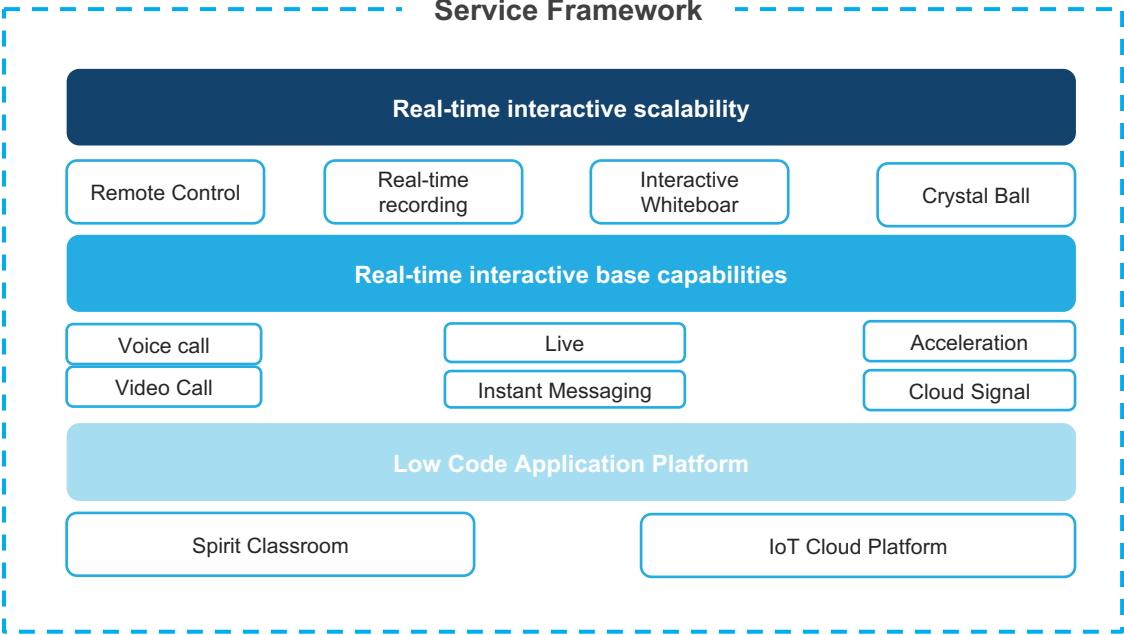
Agora 🤝 SuperGaming

- <u>In-game real-time communication</u>
- Effects: the seamless voice chat experience delivers superior quality audio and eliminates unwanted disruptions

Agora 🤝 BlaBla Live

- <u>The Power of Real-Time Engagement</u>
- Products: real-time audio and video
- Effects: provide engaging and 1-on-1 or small group classes on diverse topics to enhance the language learning journey

Service Framework

Real-time interactive scalability

| Remote Control | Real-time recording | Interactive Whiteboar | Crystal Ball |

Real-time interactive base capabilities

| Voice call | Live | Acceleration |
| Video Call | Instant Messaging | Cloud Signal |

Low Code Application Platform

| Spirit Classroom | IoT Cloud Platform |

Service Value

- As a **real-time interactive cloud service provider**, Agora focus on HD real-time call cloud service solutions for mobile

Service Advantages

- **Flexible Set-up, Flexible Development**: rich API portfolio, simple API calls, easy to create real-time interactive scenarios; ultra-flexible product portfolio, diverse functional suites, solutions for understanding industry scenarios
- **Real-time Interactive Scenarios:** highly available and high quality real-time interactive services
- **Focus On Global Capabilities And Partners:** Agora Cloud Marketplace integrates the best global resources to provide services for overseas enterprises and enterprises going abroad
- **Stable And Highly Available And Trustworthy:** no network-wide incidents for 8 consecutive years
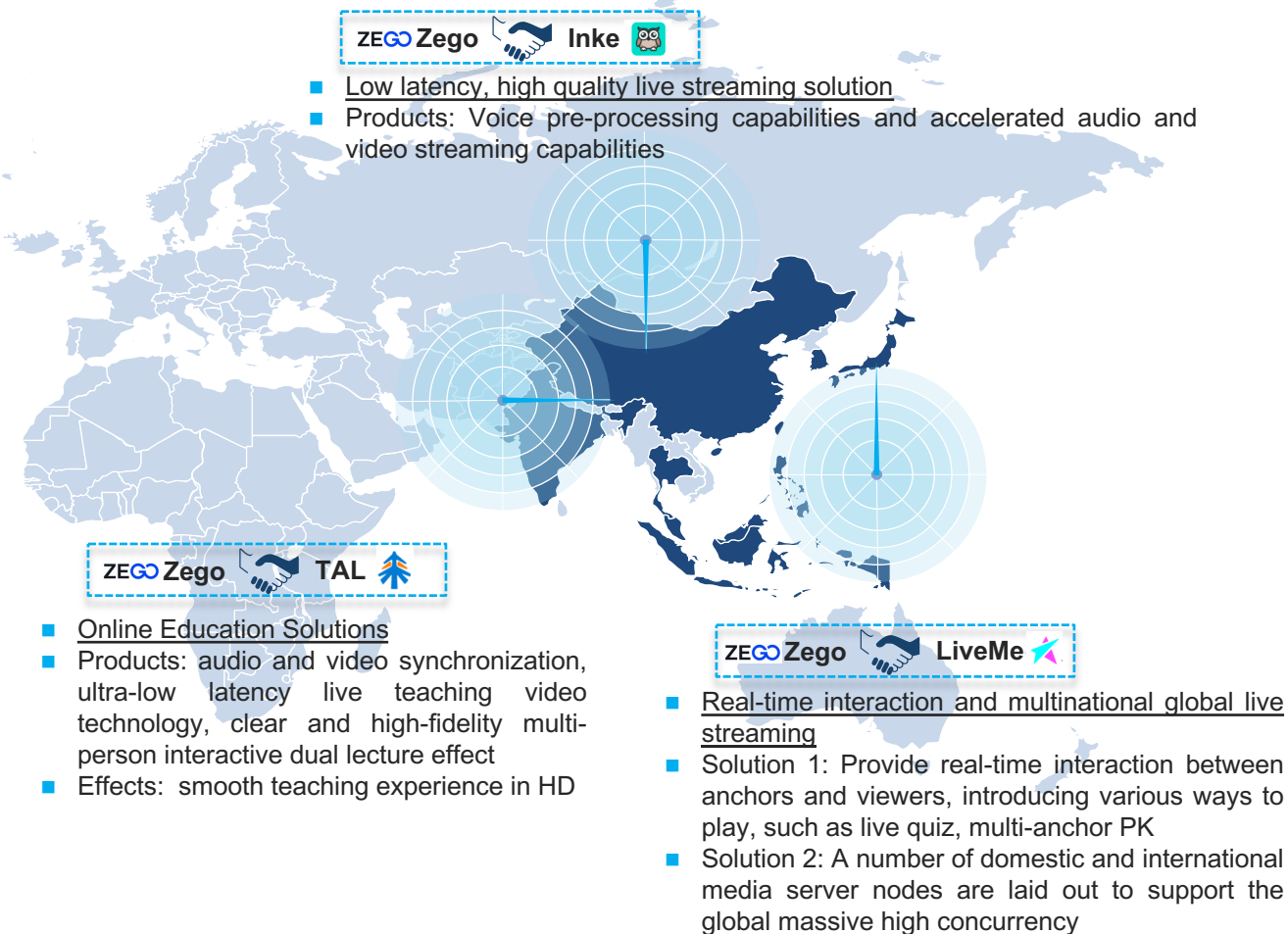
Source: Agora, Frost & Sullivan

Zego utilises prominent technology and networks to provide solutions to multiple industries, particularly in entertainment and education industry in Asia
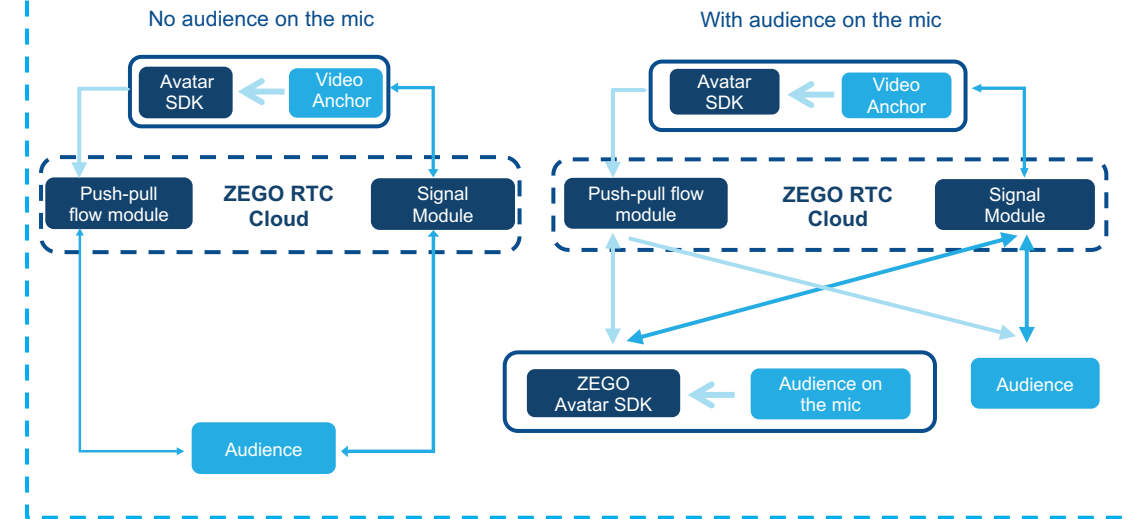
Key Customer Cases in APAC

ZEGO Zego 🤝 Inke 🦉

- Low latency, high quality live streaming solution
- Products: Voice pre-processing capabilities and accelerated audio and video streaming capabilities

ZEGO Zego 🤝 TAL ✈

- Online Education Solutions
- Products: audio and video synchronization, ultra-low latency live teaching video technology, clear and high-fidelity multi-person interactive dual lecture effect
- Effects: smooth teaching experience in HD

ZEGO Zego 🤝 LiveMe ✦

- Real-time interaction and multinational global live streaming
- Solution 1: Provide real-time interaction between anchors and viewers, introducing various ways to play, such as live quiz, multi-anchor PK
- Solution 2: A number of domestic and international media server nodes are laid out to support the global massive high concurrency

Service Framework
In Live Streaming

→ Push-pull flow
→ Real time signal

No audience on the mic

With audience on the mic

Service Value

- **Committed to creating service value with top cloud communication technology**. Leveraging the capabilities of basic cloud service providers with services covering hundreds of audio and video interactive business scenarios and exceeding 3 billion minutes in a single day

Service Advantages

- **Technical Advantages:** With the core technology of real-time interaction, focusing on self-researching audio and video engines, reaching international top level in audio pre-processing, network adaption and cross-platform compatibility
- **Rich Industry Experience:** accumulated in-depth experience in the entertainment industry and have a better understanding of the content of the scene

Source: Zego, Frost & Sullivan

Sendbird is focused on Asia, providing media services for a variety of industries using flexible and powerful APIs and other technologies

Key Customer Cases in APAC

Sendbird 🤝 StockViva

- <u>Chat API and focusing on developing value-added features</u>
- Reliable support was a significant factor in StockViva's selection of a chat API, and with Sendbird's strong presence in APAC in conjunction with speedy response times, this ensured there would be no timezone issues
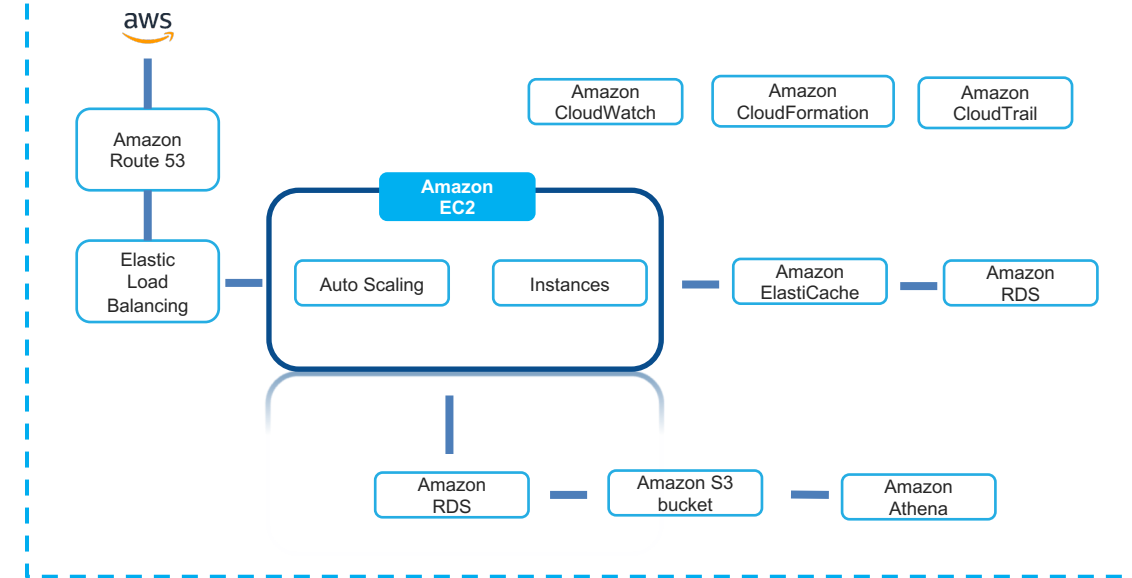
Sendbird 🤝 Paytm paytm

- <u>Building messaging functionality in-house</u>
- Products: Sendbird Platform API supports Paytm with the necessary building blocks to create many of the rich features and interfaces it currently uses
- Effects: a convenient and rich experience for end-users, entirely contained within the company's ecosystem.

Sendbird 🤝 HappyFresh 🍊

- <u>Sendbird's Chat API</u>
- Happyfresh connects its clients with highly-trained personal shoppers to deliver quality products

Service Framework
In The Case Of AWS

aws

- Amazon Route 53
- Elastic Load Balancing
- **Amazon EC2**
  - Auto Scaling
  - Instances
- Amazon CloudWatch
- Amazon CloudFormation
- Amazon CloudTrail
- Amazon ElastiCache
- Amazon RDS
- Amazon RDS
- Amazon S3 bucket
- Amazon Athena

Service Value

- **Building connections in a digital world.** Digital doesn't have to mean impersonal. That physical boundaries shouldn't create relationship boundaries. Sendbird believe in authenticity over superficiality, and in conversations over text messages.

Service Advantages

- **Broadcast Livestreams Directly In Customer App:** Drive monetization with an extensible platform, Gamify engagement or inject chat with live analysis to engage users, Sales Conversion and TMON's live-commerce
- **User-friendly:** clients can access the product directly through the API, making it easy to get started and use, thus responding quickly to market demand

Source: Sendbird, Frost & Sullivan

Twilio leverages powerful platform technology to deliver rich audio and video service technology to a wide range of industries worldwide

Key Customer Cases in APAC

Twilio 🤝 **Talkpush**

- Appointment Reminders, Click to Call, IVR
- Products: programmable Messaging and programmable Voice
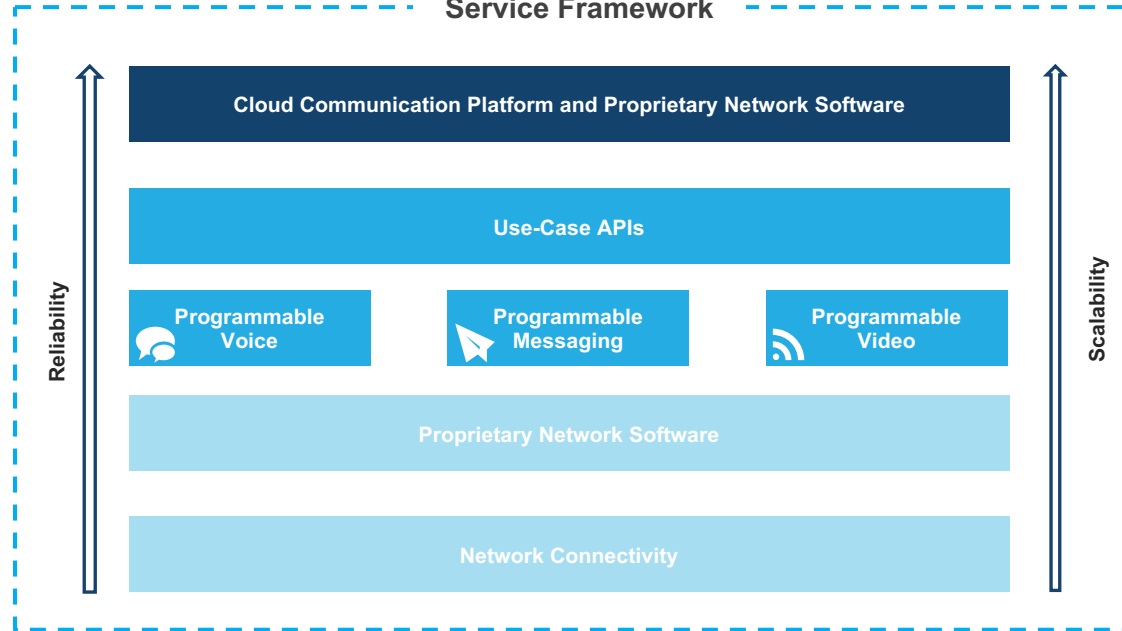
Twilio 🤝 **Chope**

- Programmable Voice
- Products: Chope's vision of a stress-free, automated reservations system came to life with the integration of Twilio interactive voice response and Ticktok's queueing technology

Twilio 🤝 **Crytpo**

- Programmable messaging email (Twilio SendGrid)
- Solution: Twilio SendGrid Email API; Twilio Programmable Messaging; Twilio Segment

Service Framework

Reliability →

Scalability →

Cloud Communication Platform and Proprietary Network Software

Use-Case APIs

| Programmable Voice | Programmable Messaging | Programmable Video |

Proprietary Network Software

Network Connectivity

Service Value

- **Twilio's mission is to unlock the imagination of builders.** As the customer layer for the internet, powering the most engaging interactions companies build for their clients, delivered as a developer-first cloud platform with global reach and no shenanigans pricing.

Service Advantages

- **Customer Data Platform (CDP) :** giving you a complete view of clients with real-time first-party data that continuously enriches the understanding of them
- **Agility Of Innovation:** customizable apps give you the freedom to create a completely custom experience that's unique to your business and a perfect fit for your clients.
- **Flexible Pricing:** only pay for what you need and scale up on demand.

Source: Twilio, Frost & Sullivan

Brightcove offers a wide range of services and industries, providing media services to the vertical industries in global

Key Customer Cases in APAC

Brightcove 🤝 BOSS BOSS

- <u>Hit 70,000 live views with first-ever 3-D video fashion show</u>
- Creating fully customized video players for cross-platform distribution for the live, 3D experience to work online, mobile, and across social channels, with the ability to share the content with just one-click
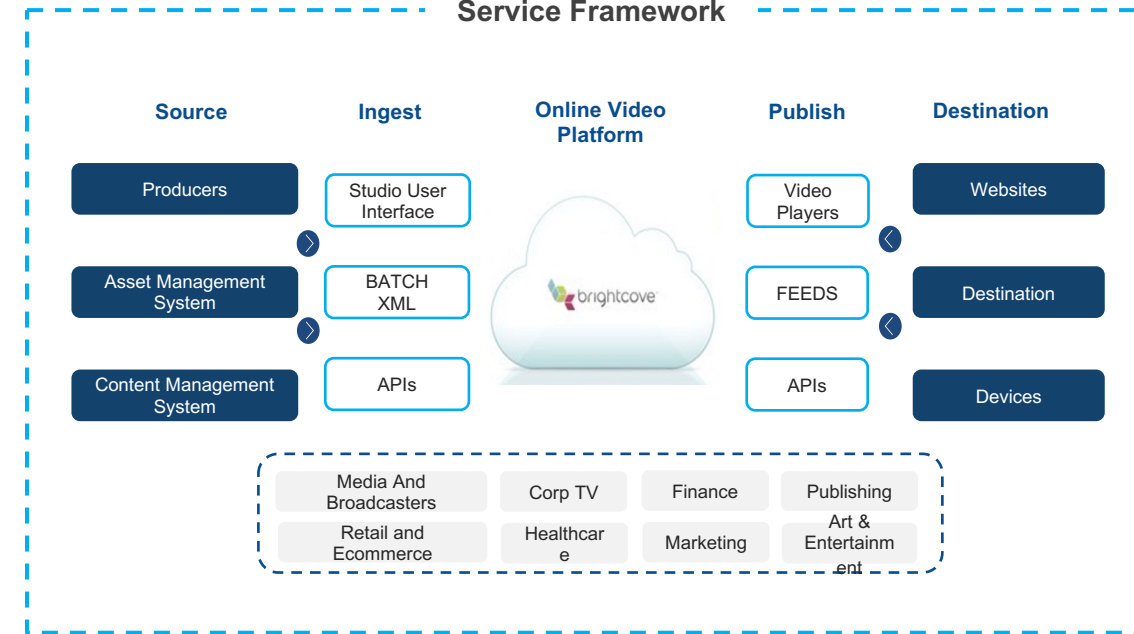
Brightcove 🤝 Mc 🅜

- <u>Internal communication</u>
- By deploying video training on iPads and using Brightcove on the back end, McDonald's Japan revolutionized training for their multi-lingual employee base.

Brightcove 🤝 SONY Music

- <u>Live performances</u>
- Support Stagecrowd's flawless track record and help provide the best livestream performances for music fans around the world

Service Framework

Source	Ingest	Online Video Platform	Publish	Destination
Producers	Studio User Interface		Video Players	Websites
Asset Management System	BATCH XML	brightcove	FEEDS	Destination
Content Management System	APIs		APIs	Devices

Media And Broadcasters	Corp TV	Finance	Publishing
Retail and Ecommerce	Healthcare	Marketing	Art & Entertainment

Service Value

- **Expanding the boundaries of what's possible with video.** Brightcove Online Services is a converged media content distribution levelprovides cloud-based services for video

Service Advantages

- **Global Scale:** 16 data centers around the world
- **A Strong Eco-source:** partnerships with major media and brands
- **Industry-leading (Indeed, Industry-founding) Experience:** Brightcove was founded 15 years ago by knowledgeable people in the video world - people who saw the potential and power of video and set out to develop the technology to effectively stream it to the world
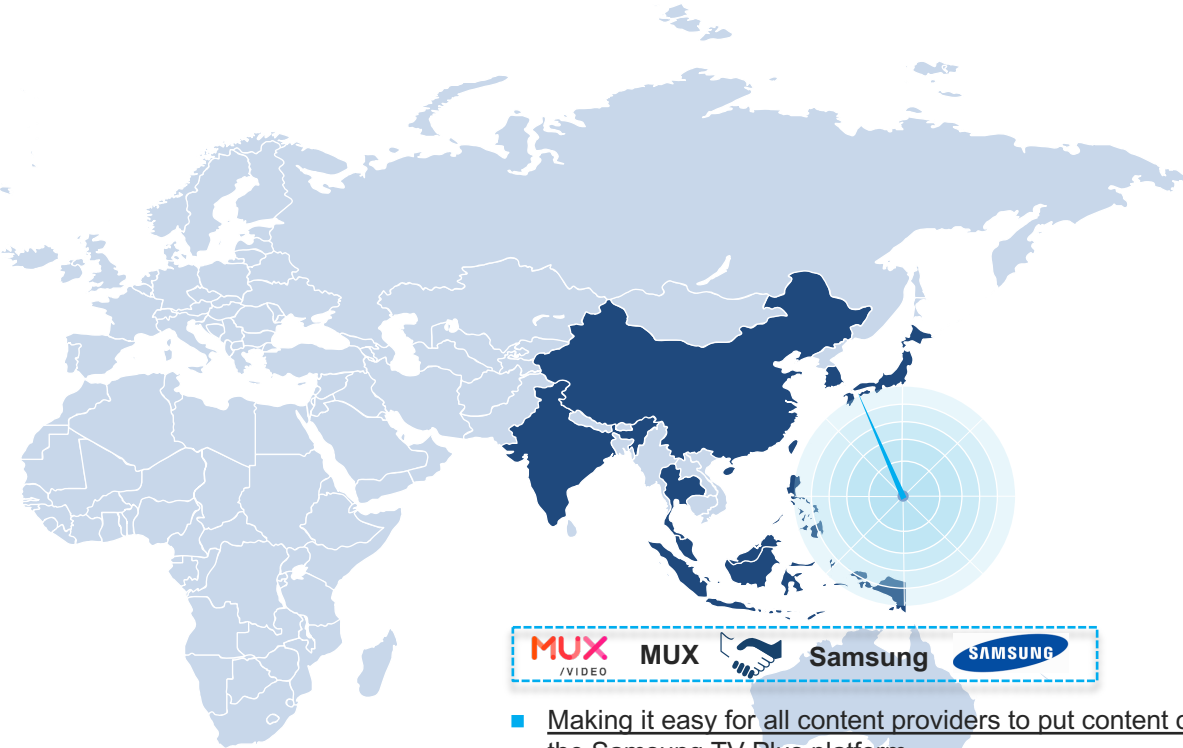
Source: Brightcove, Frost & Sullivan

Mux uses powerful API capabilities and simplification mechanisms to lower the technical barrier to media services, but has relatively fewer customer cases in APAC
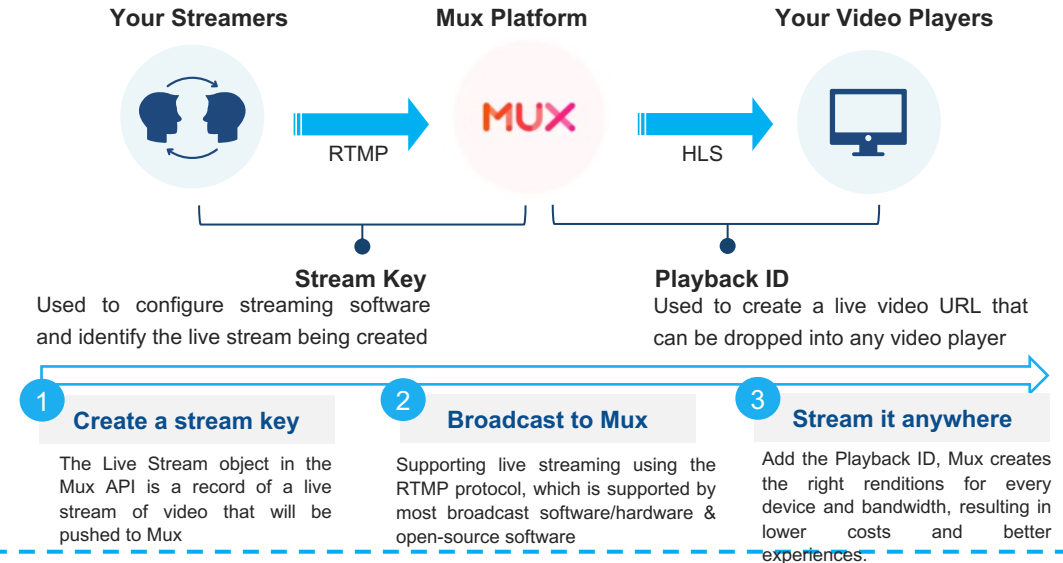
Key Customer Cases in APAC

MUX 🤝 **Samsung** SAMSUNG

- Making it easy for all content providers to put content onto the Samsung TV Plus platform.
- Product/Service: pre-transcode, SSAI, VOD, cloud native platform.
- All Content providers, including traditional broadcasts and niche providers, on the platform can produce, upload, and distribute content using fast and easy-to-use channels.

Service Framework

MUX Live Streaming Framework Overview

Your Streamers → RTMP → **Mux Platform** (MUX) → HLS → **Your Video Players**

Stream Key
Used to configure streaming software and identify the live stream being created

Playback ID
Used to create a live video URL that can be dropped into any video player

1 Create a stream key
The Live Stream object in the Mux API is a record of a live stream of video that will be pushed to Mux

2 Broadcast to Mux
Supporting live streaming using the RTMP protocol, which is supported by most broadcast software/hardware & open-source software

3 Stream it anywhere
Add the Playback ID, Mux creates the right renditions for every device and bandwidth, resulting in lower costs and better experiences.

Service Value
- The goal is to "**make online streaming video easy for everyone**", starting with creating a high quality of streaming experience and removing the technical complexity

Service Advantages
- **Powerful video API:** build a satisfying video experience
- **Simplify video streaming:** the Mux API makes it simple to automatically create video files for playback on any platform and with the support of video playback tools via Mux in just two easy steps
- **Competitive pricing:** provide clients with competitively priced products and services
- **No plug-ins or proprietary players are required**: Synchronize video playback: Synchronize live stream playback with other components in users' Apps, such as chat, activity feed, and fitness tracking, or even create a co-viewing party for users watching the same live stream.

Source: Mux, Frost & Sullivan

A 3-step approach is employed to analyze APAC media service market, score and prioritize key players

APAC media service market overview and competition landscape is evaluated through 3 step mapping approach

Step 1
Category key players in media services industry and conduct in-depth interviews with industry experts

Industry Experts	# of Samples
Media service competitors	20
Infrastructure providers	10
Industry associations	5
downstream clients	20
Academic institutions	5
Total	**60**

• In step 1, interviewees are selected based on criteria including working experience and familiarity with media service industry
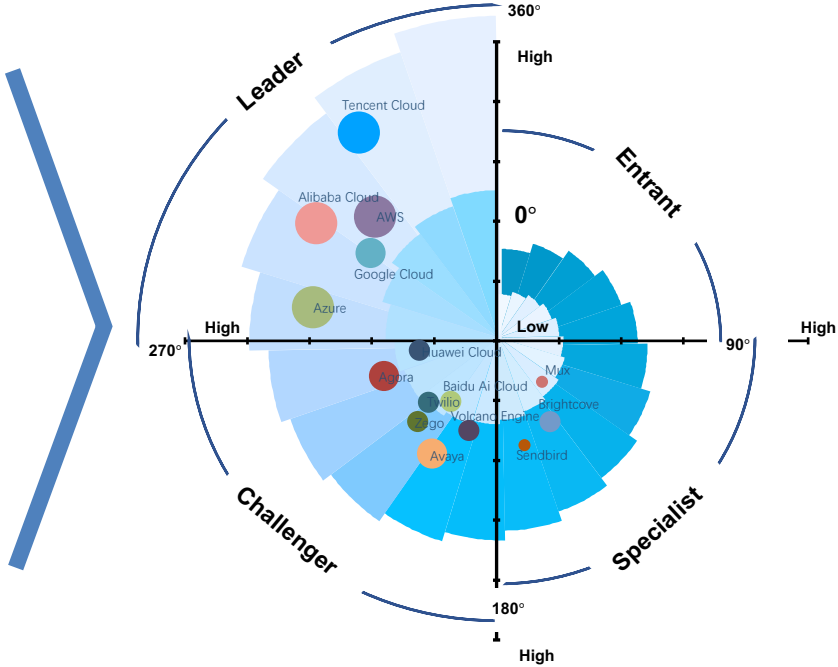
Step 2
Certain criteria will be chosen as the cut-off points for four quadrants respectively
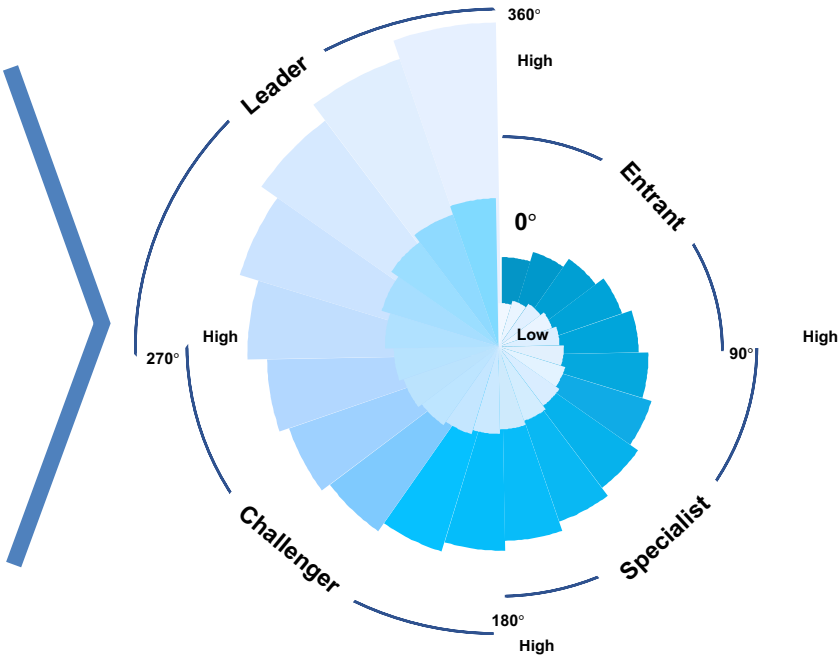
• Then, level of performance of each key players will be evaluated by industry experts
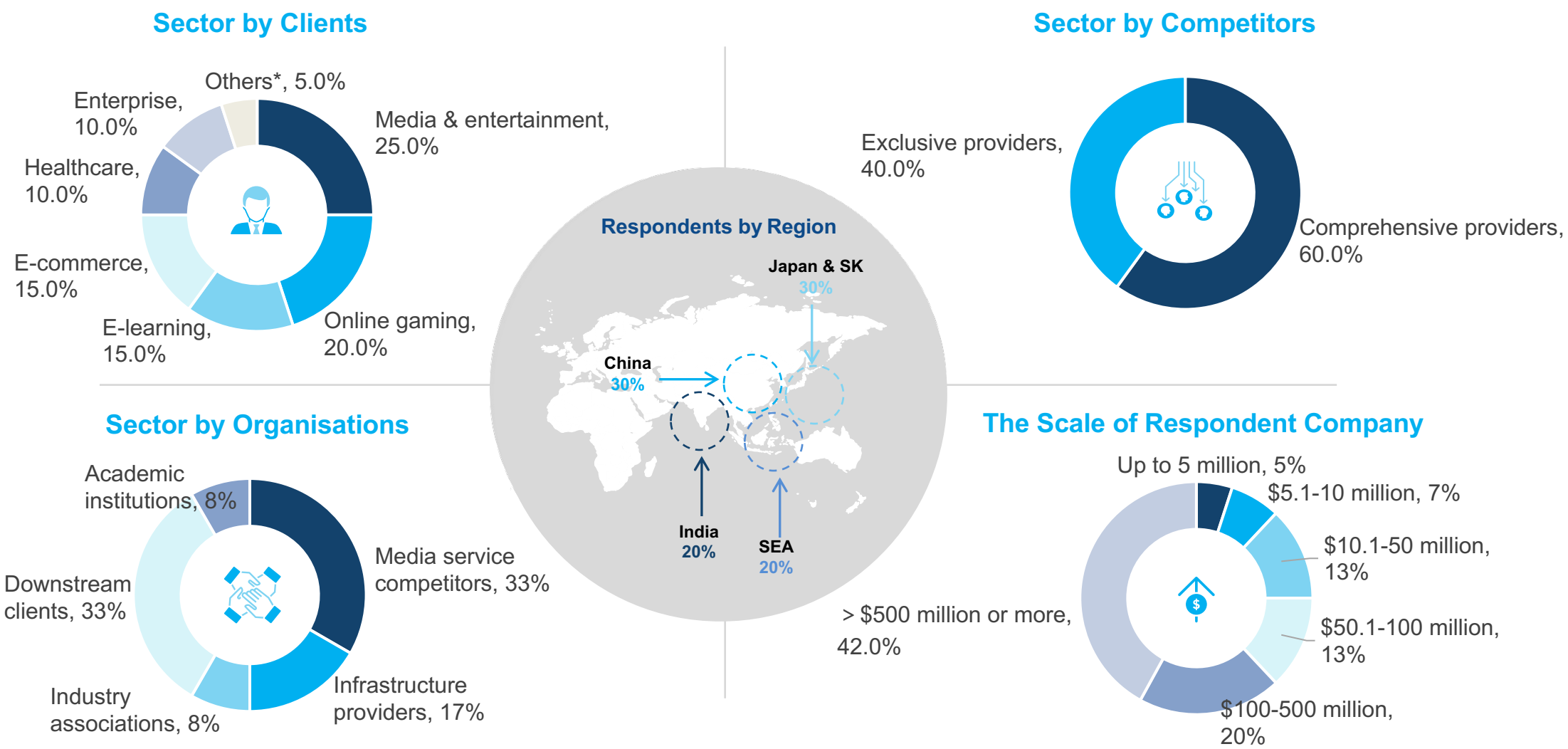
Step 3
Score, segment and prioritize media service providers based on key evaluation matrix

• Adjust ranking of different key players through competitiveness evaluation

Primary research, secondary research, and the measurement of market size and competitiveness are primarily included in this report

Sector by Clients

- Others*, 5.0%
- Enterprise, 10.0%
- Healthcare, 10.0%
- E-commerce, 15.0%
- E-learning, 15.0%
- Online gaming, 20.0%
- Media & entertainment, 25.0%

Sector by Competitors

- Exclusive providers, 40.0%
- Comprehensive providers, 60.0%

Respondents by Region

- Japan & SK 30%
- China 30%
- India 20%
- SEA 20%

Sector by Organisations

- Academic institutions, 8%
- Downstream clients, 33%
- Industry associations, 8%
- Infrastructure providers, 17%
- Media service competitors, 33%

The Scale of Respondent Company

- Up to 5 million, 5%
- $5.1-10 million, 7%
- $10.1-50 million, 13%
- $50.1-100 million, 13%
- $100-500 million, 20%
- > $500 million or more, 42.0%

*Others include industrial sector and other industries
SK—South Korea; SEA—South East Asia

THANKS!

P.S. Sincere thanks to Tencent Cloud in assisting our research by providing relevant data and cases in media services.