

Technology against Pandemic

Online Education Insights and Practices

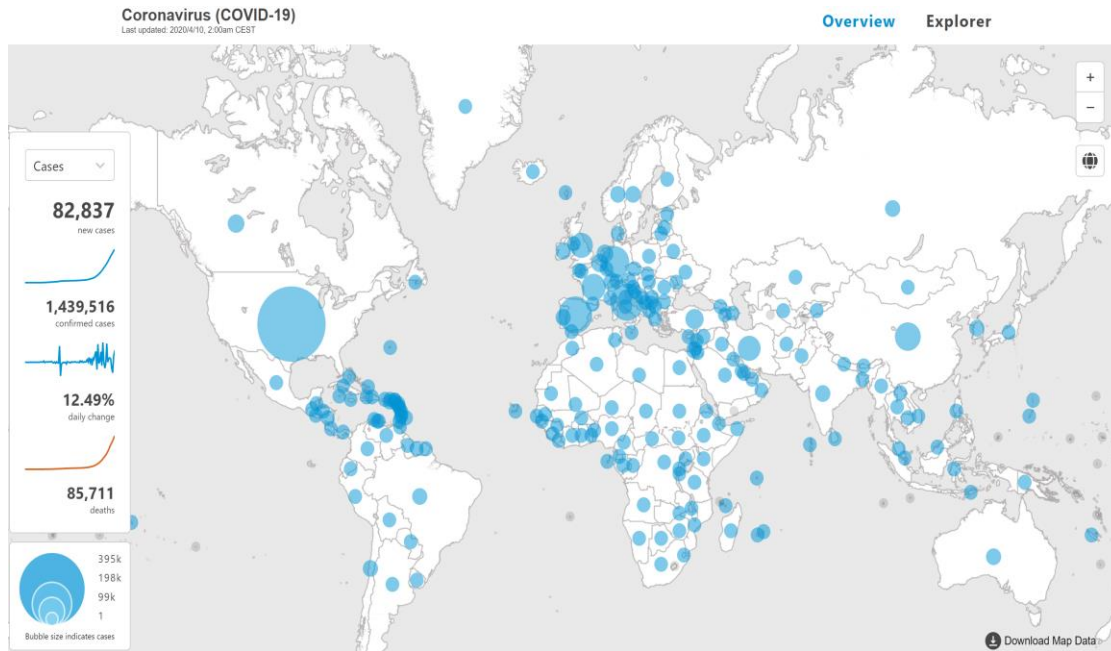
Newman Wu Gang
Director of Strategy, Huawei
VICE-RAPPOREUR FOR ITU-D Q 2/1



COVID-19, a potential “once-in-a-century pathogen”

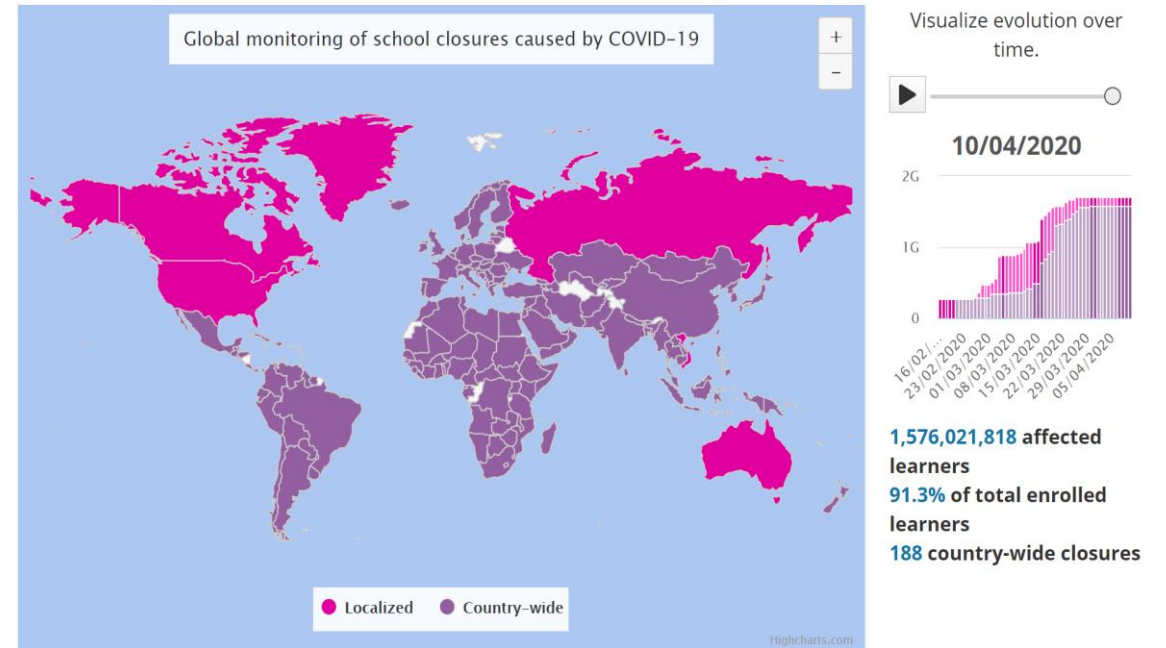
COVID-19 Dashboard - WHO

as of 2:00am CEST, 10 April 2020



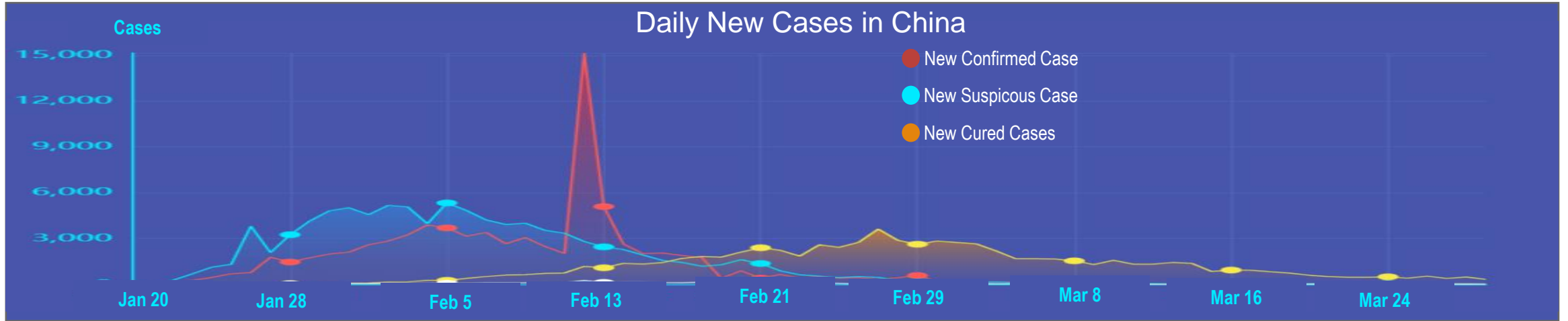
COVID-19 Impact on Education-UNESCO

as of 10 April 2020



COVID-19 in China

Source from : http://fms.news.cn/swf/2020_sjxw/2_1_xgyq/index.html?v=0.4456426739804553



Jan 23
Wuhan City
was closed

Jan 25
All provinces getting into **primary health emergency response**

Feb 3
Huoshen Mountain & Leishen Mountain hospital established

Feb 20
Mostly cities were closed in China

March 26
55 newly confirmed cases, of which 54 were imported cases abroad

After the Great Efforts, the Difficult Time is Almost to Pass

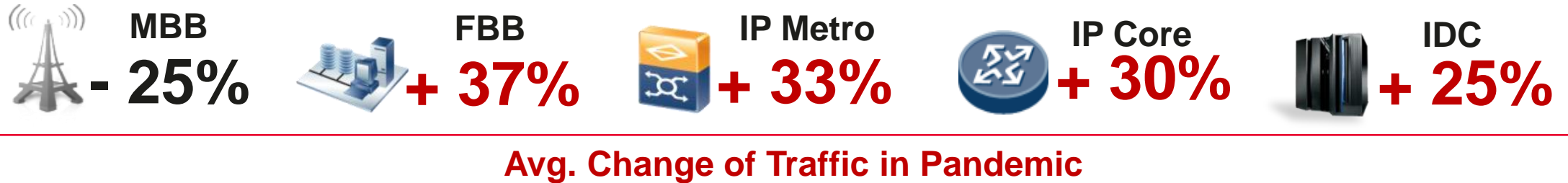
As of March 25, 2020

Chinese operators actively fight the pandemic
Ensuring effective network operation...

 **+ 63,000**
New Site (4G/5G)

 **+ 357,000**
Person-times / O&M

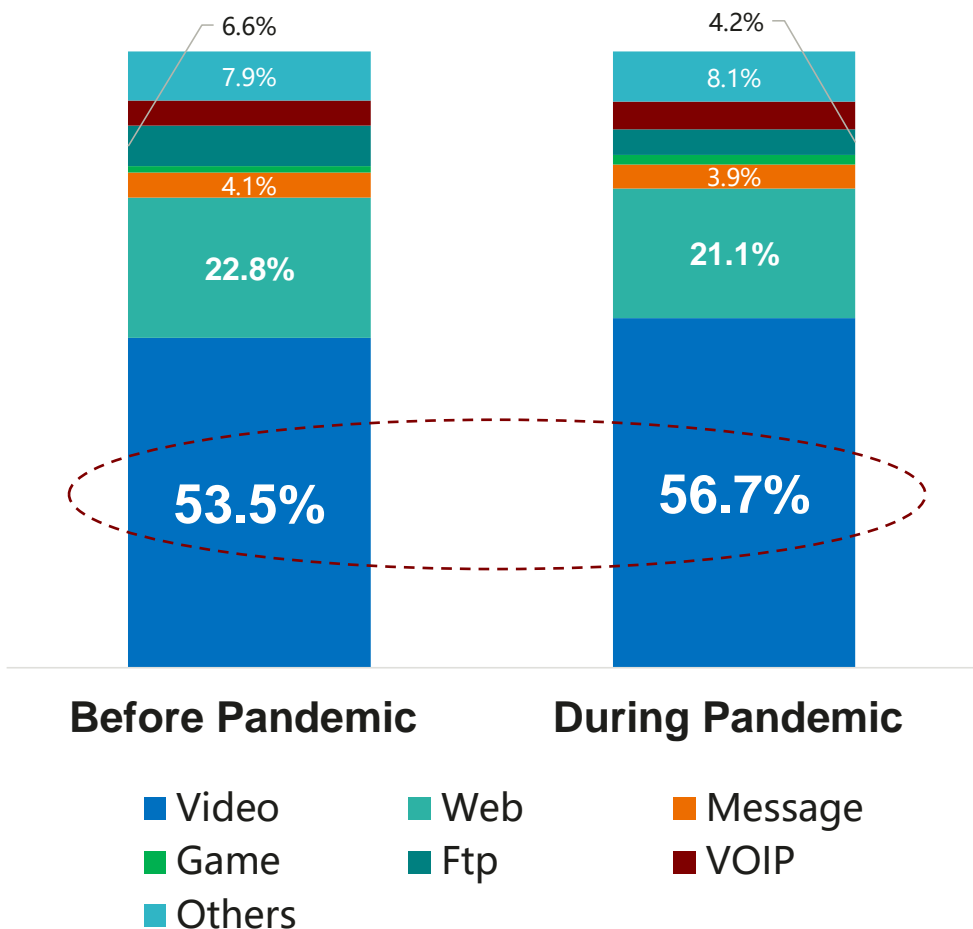
Traffic Model Summary for Network Influence...



No large-scale network congestion with impact controlled

- Model 1: **stay home** driving MBB traffic decreased up to 25%, some traffic offloaded to FBB/WIFI
- Model 2: MBB traffic increased in **countryside**, voice decreased however particularly increased in indoor
- Model 3: **online education** is mainly carried **within province**, bring traffic growth mainly to **IP Metro**
- Model 4: online office, especially telemeeting happened cross province, bring traffic growth to **IP Core**
- Model 5: most of newly developed home services traffic is **diverted to OTT CDN** network

Video based Service Now is Main application @ Network



- Home value-added services increased rapidly
- Proportion of **video** increased by **3.2pct**
- **Video-based applications** became mainstream, such as online education / videoconferencing...
- Driving demand for network infrastructure and server expansion

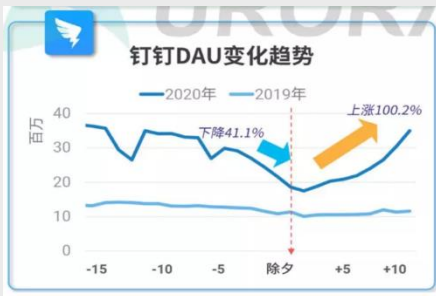
*: Source from Operator M

Service Applications Trend @2020

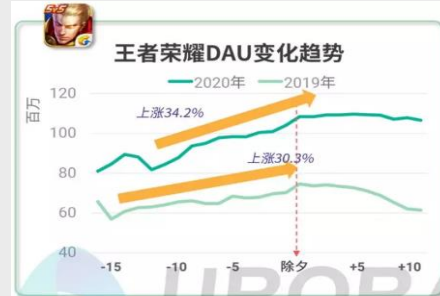
During the Epidemic, **Spurt of Growth @ Online Applications**

TOP Apps. DAU increasing largely, even to **100%***

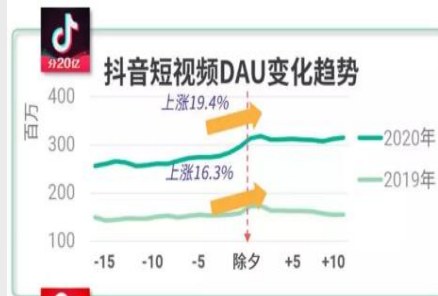
Class/office online



Game



Short Video



Long Video



Blog



DAU: Daily active users

Offline → Online, bring the total use time of Internet applications increased by **26%***

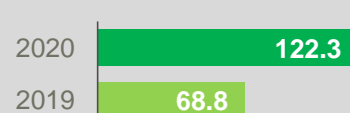
DingDing



Glory



TiKToK



iQIY



SINA Blog



*: Source from Aurora Mobile

As a Result, Shocked Business Data in Pandemic...

Online Education
as **“NECESSITY”**



Max. new daily register: **1,500,000**
Total users reach **100M** in one month



Expansion of **100,000**
cloud servers in 8 days,



Video & Games become **“FAVORITE”**

Online movie: <Lost in Russia>
Total clicks: ~ **600,000,000**
All audience: ~ **18,000,000,000.**



Peak daily sales:
~ **\$300,000,000**

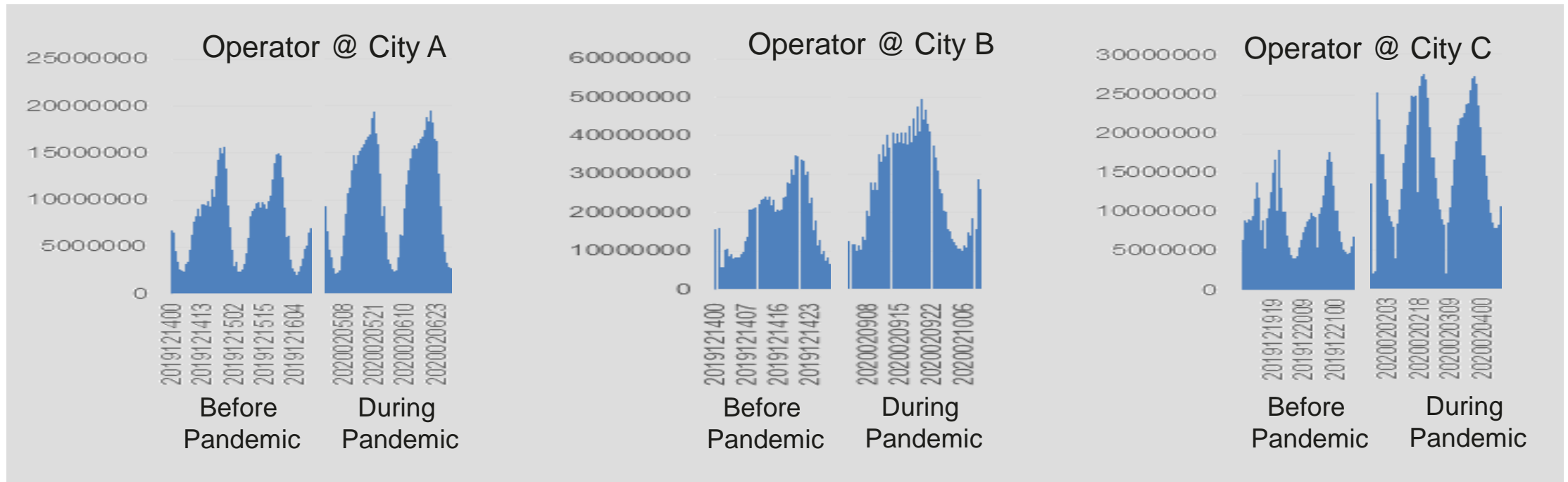
Online hospital become **“No.2
BATTLEFIELD”**



Online inquiry patients reach **2,800,000**
Over **100 tickets** by 1 doctor average

*: Source from *internet*

Online Education in Daytime is the Big Thing During Pandemic



- Access network OLT traffic surged, in generally reaching **37%**, and some increased by **50-100%**
- Traffic increased rapidly during the day, reaching the peak compare with that in the night before the pandemic.

Challenges of Teaching and Learning during Education Disruption of COVID-19

Connection

- Lack or insufficient of Internet connection in developing countries
- Same as rural area in developed countries

Platform

- How to select the right learning platform
- inter-operate of various online learning platform

Course Resources

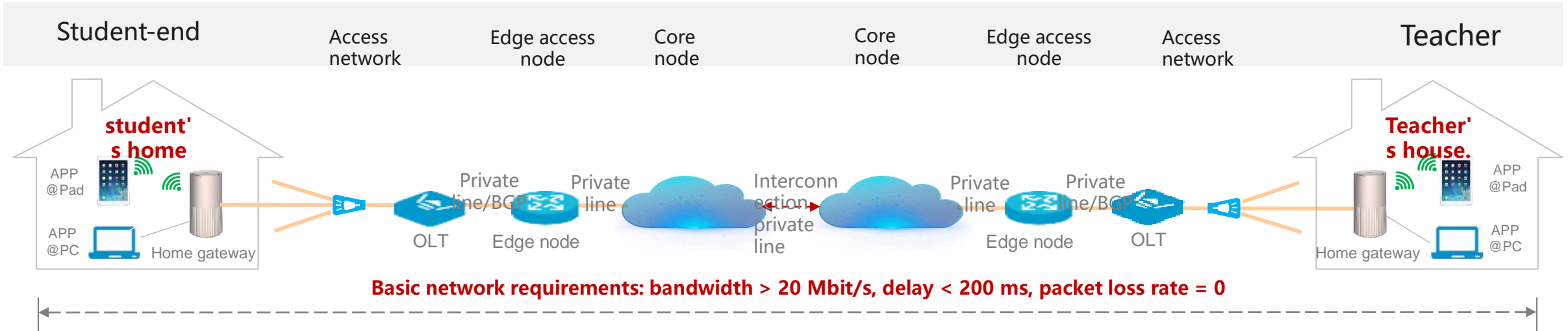
- Public course resource might not directly meet your need
- Lack of localized course resources

Capacity Building

- Change the way of teaching
- Knowledge of ICT AI, bigdata, Cloud...





Home Network is the Main Access Point



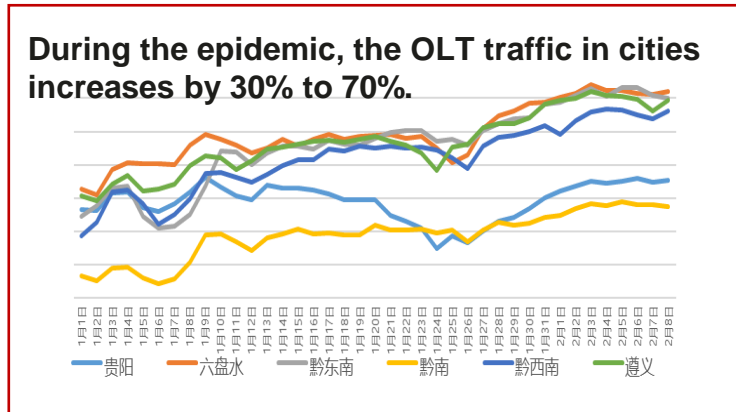
Platform problem: insufficient server capacity

Online Education Blowout Development

 **Alibaba DingTalk: 50 million students attend classes.**
钉钉 Continuously expands 100,000 ECSs.

 **Tencent Class: 128-fold increase in the number of learners**
More than 100,000 cloud hosts can be expanded within 8 days.

Access network problems: congestion + low (uplink) rate



(Source: Huawei iLab)

Home network problems: poor Wi-Fi experience

Strong Wi-Fi interference

Poor Wi-Fi coverage

Percentage: 90%

Release of Online Education Packages from Operator



200M e-learning Broadband

- **200Mbps uplink**
- **200Mbps downlink**
- **Online education accelerates**

- Customized home education gateway to ensure user experience of online education;
- Built-in AI chip, millisecond-level service identification, guaranteeing zero network stall;
- Introduced a new service for learning broadband packages to meet the live broadcast + two-way interactive uplink and downlink broadband experience

Learning Never Stops: Learn-Practice-Examination

Learning at Home



Practice at Home



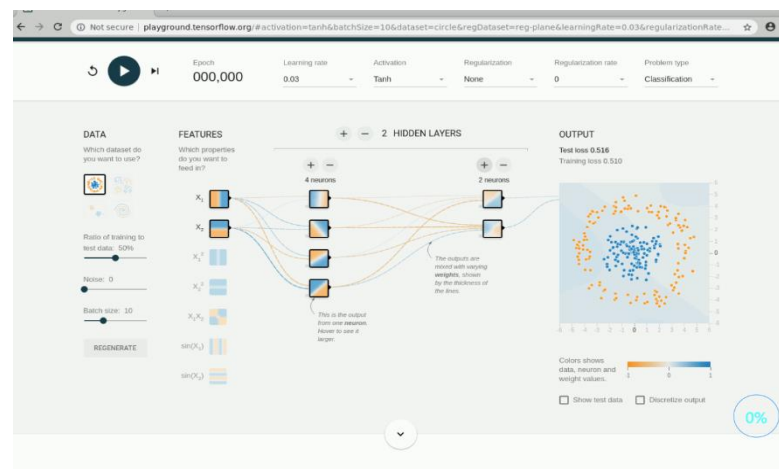
Examination Anywhere

Learning Online



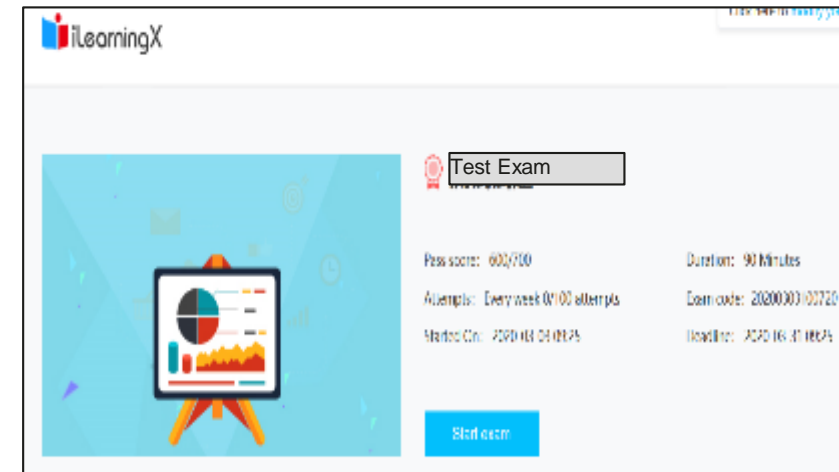
Source: PKUA

Practice Online



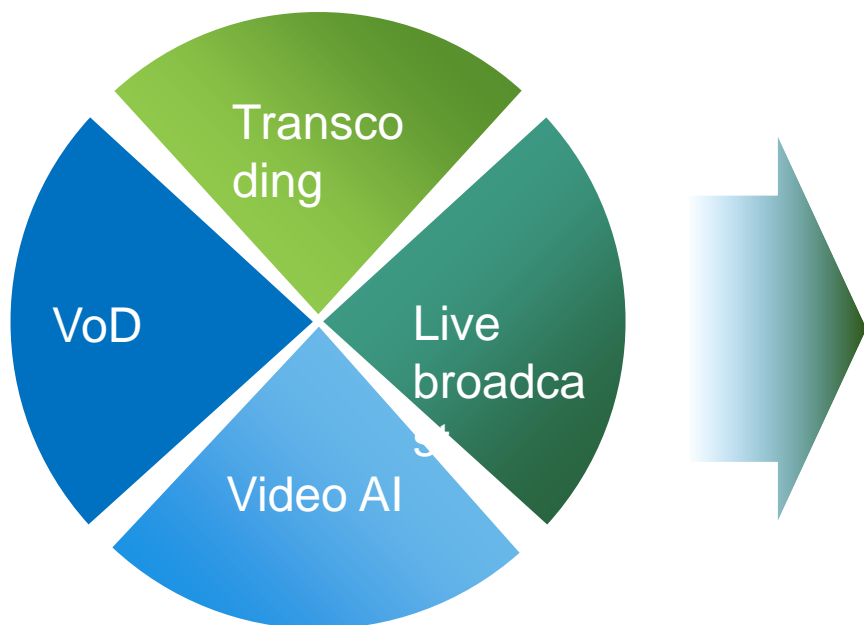
<https://www.xiaoqiqiao.com>

Exam Online



Audio+Video+ AI Are Key Requirements of Online Education

Online education Platform



Audio and video technologies

Mobile learning



Concurrent learning



MOOC Classroom



Interactive live broadcast

Online Education Service Reference Architecture

Student

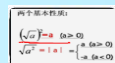
Teacher

School

Terminal



Mobile



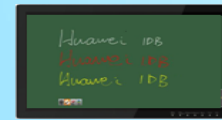
Tablet



PC



TV

Electronic
whiteboard

Video terminal

Platform

Online education

Online learning
platformRemote interactive
teaching platformEnterprise
internal training
platformTeaching affairs
management

Portal platform

Course
management

Cloud Service

Video service

Public cloud IaaS&PaaS

Media
transcodingVideo on
Demand

Live video

Cloud
computing

Cloud storage

Cloud
distribution

AI

Online learning and home office services are booming, bringing opportunities for home broadband.

Online Education Agent

The Ministry of Education suspended classes and kept studying.

22 online platforms and 24,000 courses

Tencent class

The number of online learners increases by 128 times.

Scale in 2020
300 million, 433 billion
(iiMedia)

The three major carriers step up online education and promotion. Covered 109 million users

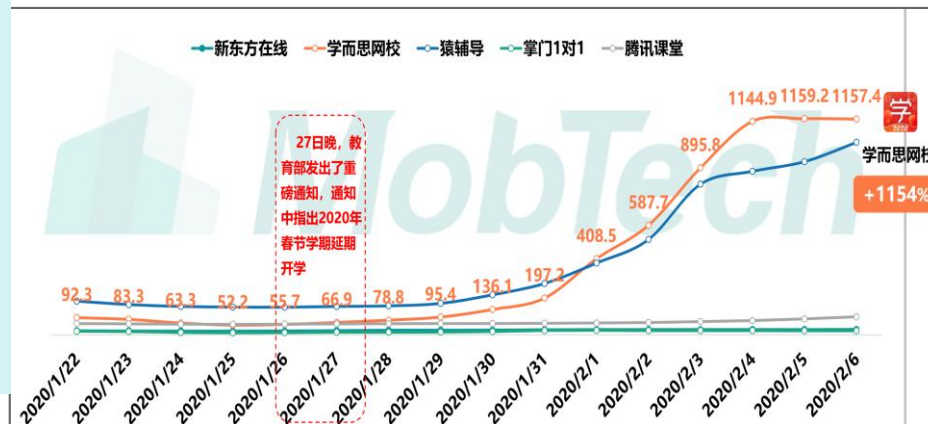
类型	服务项目	服务内容	企业	覆盖用户
远程教育	天翼云课堂	在线教学	中国电信	面向全国大中小学提供在线课堂服务, 日均服务超1000万人次
	智享云课堂	网络教学及资源	中国联通	湖北联通免费“云课堂”助力1195所学校百万学子“停课不停学”
	云视听名师直播课堂	远程直播教学	中国移动	已覆盖全国30省, 帮助3240万师生开课

Educational institutions

Offline Classes Go Online

Delivering courses free of charge, greatly reducing customer acquisition costs

Daily APP activity is 20 times higher than that before the epidemic.



Operator

China Telecom

Cloud Live Classroom

319 schools with a total of 1.01 million students

- The e-surfing ultra-HD "cloud class" covers 101 schools, covering 66,000 students and a total learning duration of 107,000 hours.

China Unicom

Wo Learning Launches Free Public Service

Cover 47 million users

- 10 million free quality courses, which users in Hubei additional free open site 1146, 3531 hours of courses.

China Mobile

Online distance education, covering person-times

60.7 million; duration: 48.01 million minutes

- A total of 16,938 schools and education boards were served, with a cumulative total of 104,700 classes

Partner to UNESCO ICHEI: International Institute of Online Education (IIOE) Platform

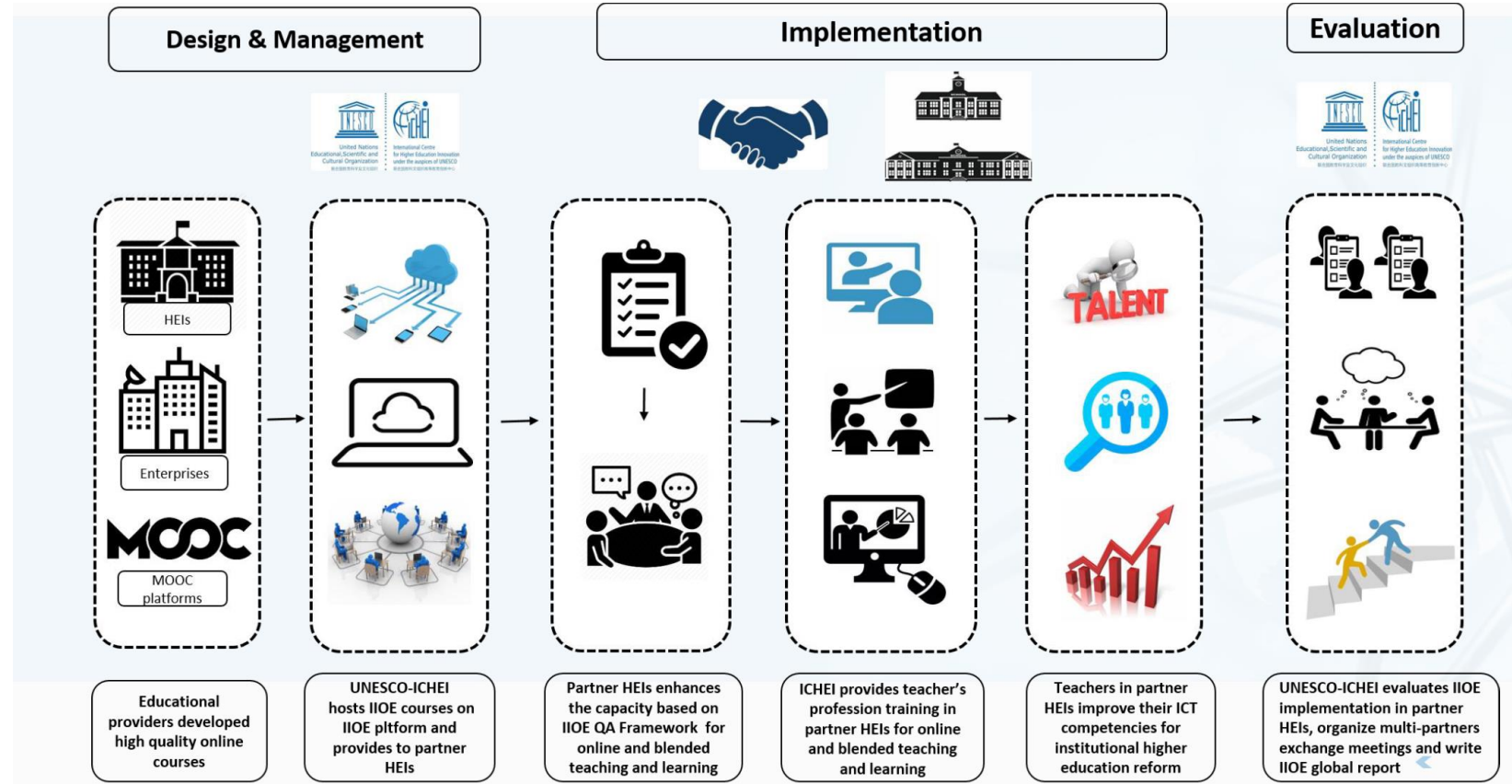


UNESCO Institute for Information Technologies in Education

HOME

Combat COVID-19: Keep learning. Together we are on the move!

Partners

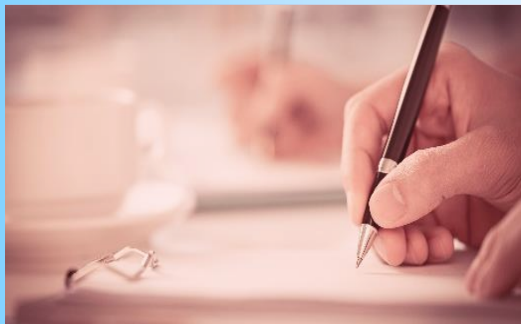


<https://iioe.ichei.org/>

KSF to Online Education for Educators and Students

Online Education Program

Learning Never Stops



- Open online courses
- Support with connectivity and platform
- Enabling cloud-based experiments

Learning Resources



- Collaboratively build local course resources
- Awards for best practice

Capacity Build



- Online ICT training for educators
- Webinars to share online learning experience

- Online education summit with partners
- Collaboration with partners



TECH
4ALL

Learn 

Contactless online education
systems for educators and students