Smart Education Solution

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LEADING *NEW ICT*

Future-Oriented Education Concept — from Formalism to Personalization Education

Formalism Education

Stereotyped
teaching subjects

**Education is run under the mode
of industrialized operations.
Students' learning and growing
results are the same.**
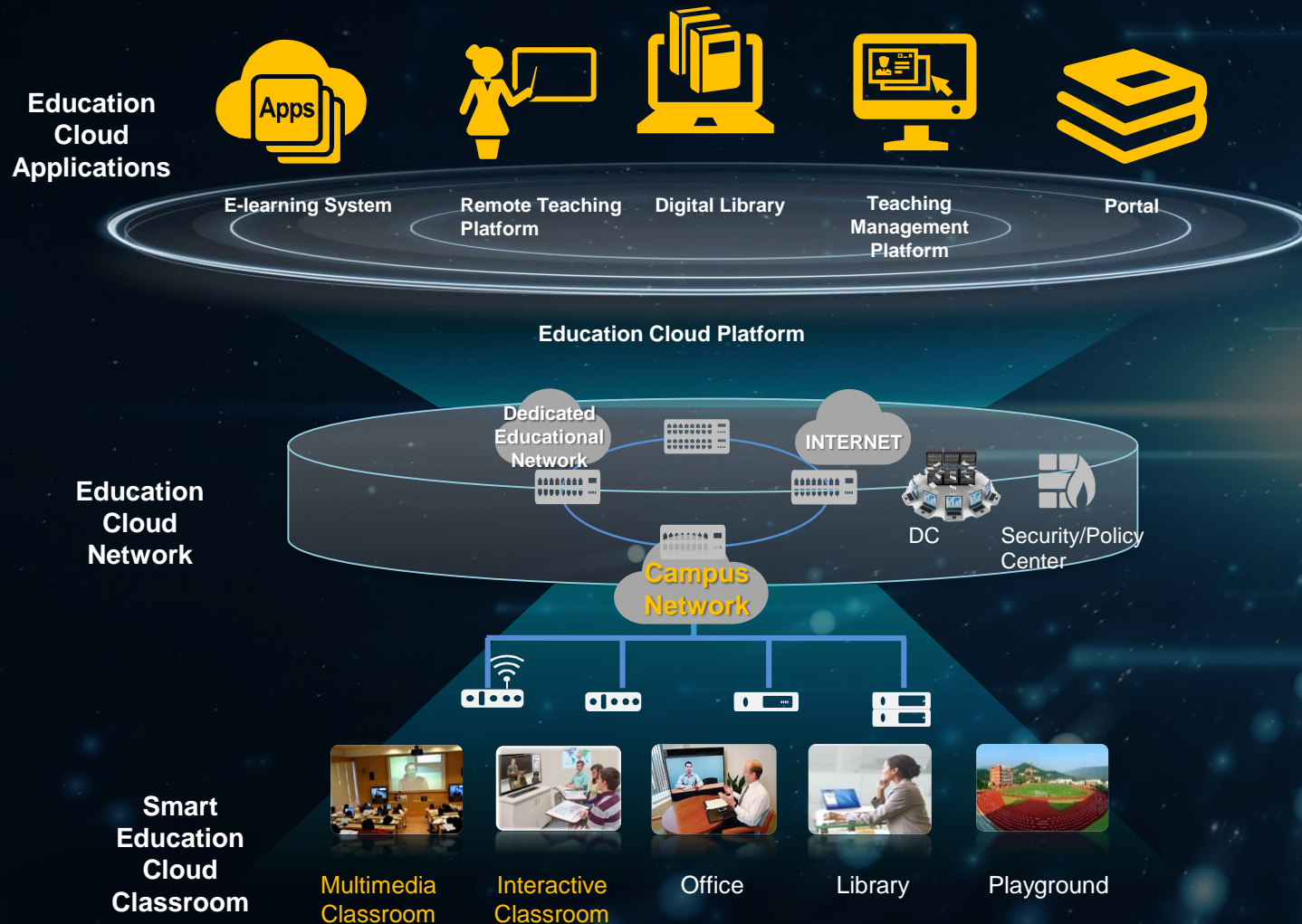
vs.

Personalization Education

Innovative
sprouts

**Every student is not the same.
They are unique individuals
with different needs and desires.**

Personalization education (progressive education)
advocates student-centered courses with the life as the content,
and teaching methods of solving problems,which weakens the
authority consciousness of teachers, puts emphasis on the
cooperative spirit of schools and realizes individualized teaching.

ICT Promotes the Development of Personalization Education

Huawei Education Cloud Solutions — Innovative Education Models, Enrich Learning Methods, Refined Education Management

Education Cloud Applications

E-learning System   Remote Teaching Platform   Digital Library   Teaching Management Platform   Portal

Education Cloud Platform

Dedicated Educational Network   INTERNET   DC   Security/Policy Center

Education Cloud Network

Campus Network

Smart Education Cloud Classroom

Multimedia Classroom   Interactive Classroom   Office   Library   Playground

Unlimited sharing: education cloud applications

• future-oriented, cutting-edge experience
• Ubiquitous access,eliminates informationsilos
• Actively learning anytime and anywhere

Promote fairness: education cloud network

• Implement interconnection with different schools downwards and interconnection with higher-level education management institutions upwards
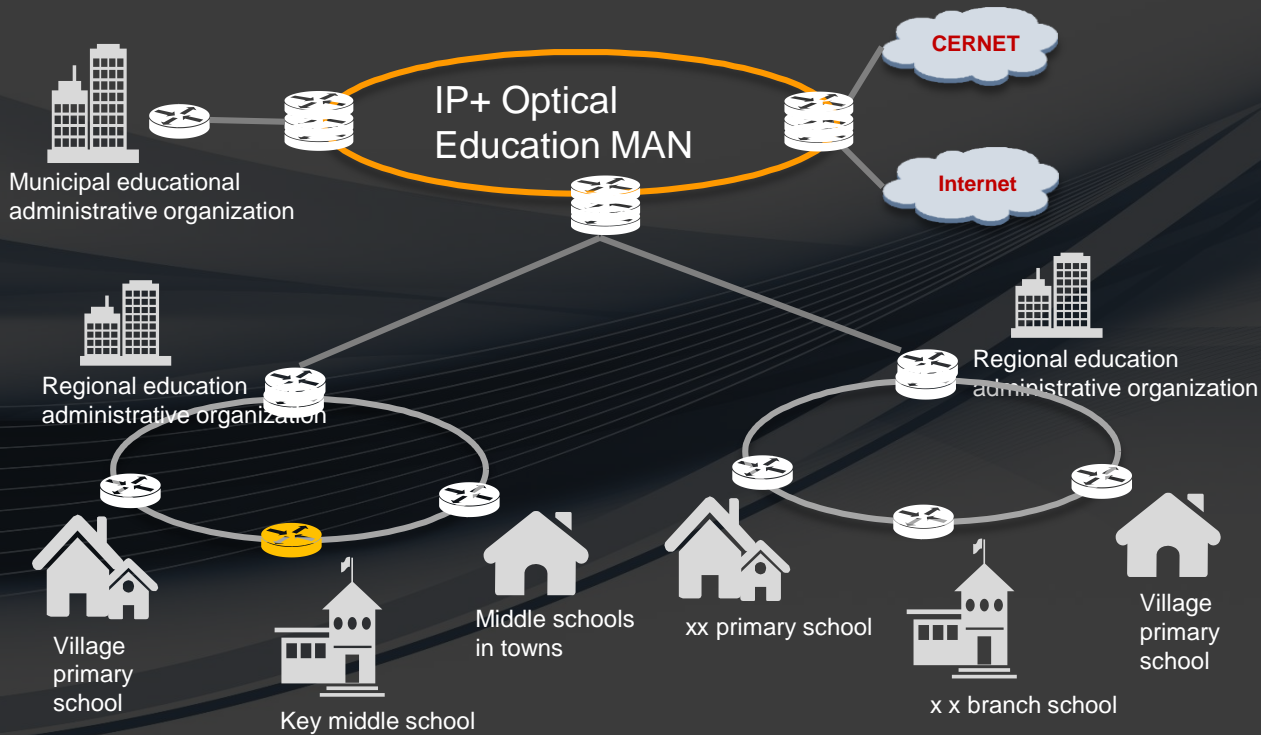• Different services are used with the VPN tunnel for security transmission to implement security isolation.

Free learning: education cloud classroom

• Improve the study and management efficiency
• Achieve high-quality resource sharing

Online Learning Platform

Books
- Outmoded content
- Single model

Learning
- Single learning place
- Lack of communication between teachers and students

Resources
- Lack of high-quality resources
- Lack of sharing

Convenient Communication

Improving the Learning Efficiency

Learning Anytime and Anywhere

Convenient Course Management

Convenient Course Arrangement

Copyright Protection

Multi-aspect learning quality assurance
Tracking the learning based on learning plans, stage assessment of learning effect based on the examination points, fair exam management based on on-line examination,

Open interfaces with copyright protection
RTMP as the streaming media transmission protocol

prevents video resources from being obtained illegally and opens the introduction of the third-party resources,

Customized services
Customize products for customers based on different service requirements

Education MAN — Interconnection between Schools

CERNET

Internet

IP+ Optical Education MAN

Municipal educational administrative organization

Regional education administrative organization

Regional education administrative organization

Village primary school

Key middle school

Middle schools in towns

xx primary school

x x branch school

Village primary school

Campus Network

Classroom | Dining Hall | Dormitory | Playground

High-speed core network

Two-layer-based network structure enables reliable interconnection with education administrative organizations

The VPN multi-service bearing ensures service quality

High reliable MAN

Fast convergence of hardware BFD in 200ms enables education applications uninterrupted

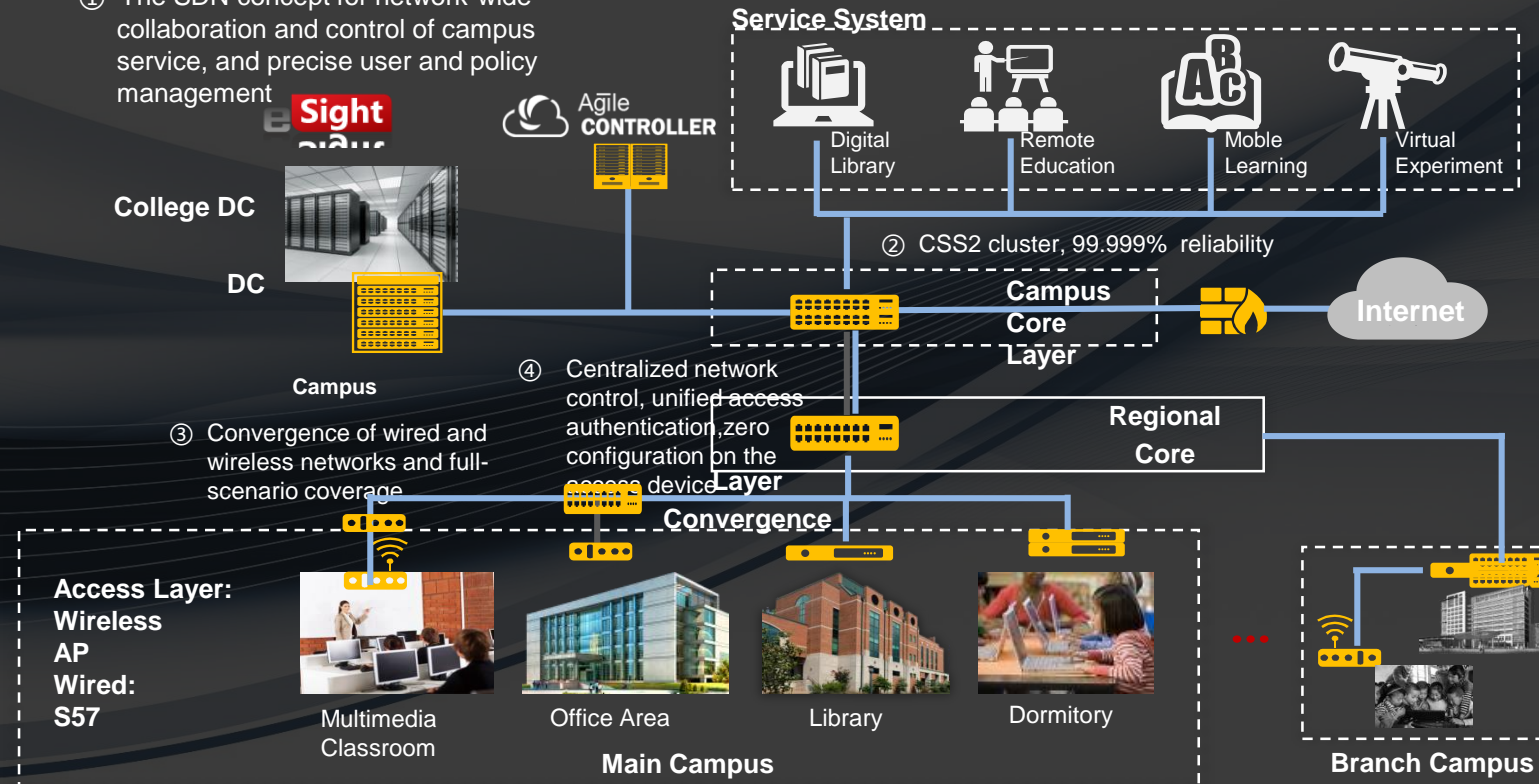3G network backup for access to the network at any time

High-quality access network

The MPLS VPN multicast scheme ensures the service quality of educational videos

Five-level QoS scheduling ensures school teaching services first
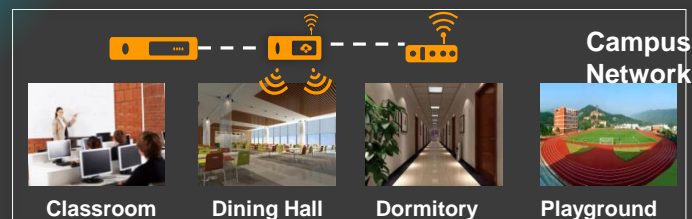
Agile Campus Network

① The SDN concept for network-wide collaboration and control of campus service, and precise user and policy management

Sight

Agile **CONTROLLER**

College DC

DC

Campus

③ Convergence of wired and wireless networks and full-scenario coverage

④ Centralized network control, unified access authentication,zero configuration on the access device

Access Layer:
Wireless
AP
Wired:
S57

Service System

Digital Library | Remote Education | Moble Learning | Virtual Experiment

② CSS2 cluster, 99.999% reliability

Campus Core Layer

Internet

Regional Core

Layer
Convergence

Multimedia Classroom | Office Area | Library | Dormitory

Main Campus

Branch Campus

Access to the network anytime anywhere

- High-performance wireless network coverage for campus, inceasing the covering area by 20% and reducing hardware investment

Teaching services integration

- integrated wired and wireless network
- Open service interfaces and unlimited expansion of education cloud service
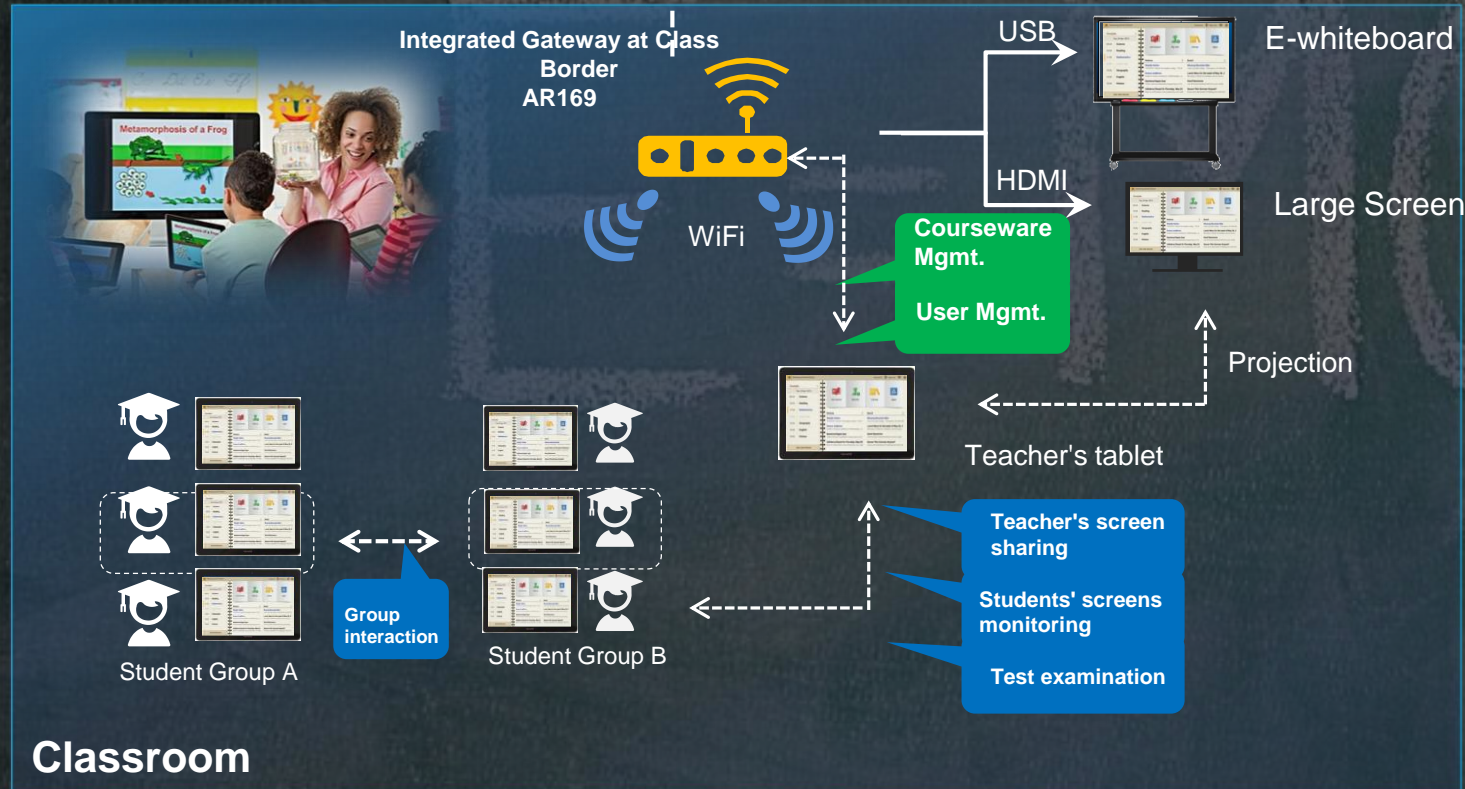
Simplifying network management

- Fast device deployment, automatic planning/ optimization/ inspection

Ensuring the network access security

- User-based in-depth application traffic control
- Convenient online source tracing prevents the illegal behaviors from hiding

Smart Classroom — Interactive Teaching Solution

School Egress

Integrated Gateway at School Border AR3670

Integrated Gateway at Class Border AR169

USB → E-whiteboard

HDMI → Large Screen

WiFi

Courseware Mgmt.

User Mgmt.

Teacher's tablet

Projection

Student Group A

Group interaction

Student Group B

Teacher's screen sharing

Students' screens monitoring

Test examination

Classroom

Interactive mode improving learning interest

Support regional resource sharing, multiple types of test items, easy to find key and difficult points, good effects of micro-class tools

All-in-one gateway, easy to maintain

CCE integrated with gateway, switch, USB, Bluetooth, WIFI, local interaction platform and many other functions

Intelligent terminal management improves teaching efficiency

Any office realizes the application management and control of Huawei Pad,

Smart Classroom — Solar Power Integrated Classroom

Housing design and internal devices can be customized as required

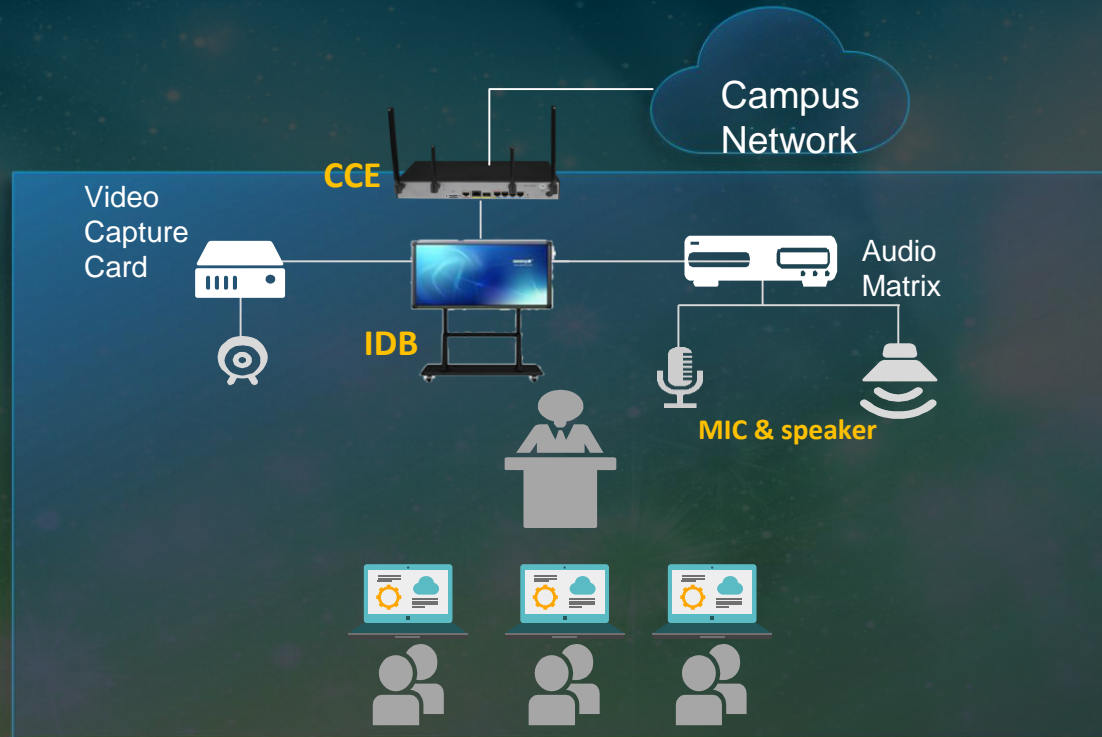| anti-seismic	Environmental protection	Convenient installation position	Installation workload: 5㎡ 1person/day	Windproof	Solar power supply	Convenient transportation	Customized

Various network access modes
Wired, wireless, 3/4G meets the requirements of remote areas

Green energy-saving
Solar energy utilization rate is increased by 30%

Multiple power supply modes
Support multiple kinds of power supply systems, such as solar energy, batteries, mains supply, generators

Secure and reliable
Integrated with access control, fire alarm and monitoring systems, ensuring the school safety

Smart Classroom — Multimedia Classroom

Campus Network

CCE

Video Capture Card

IDB

Audio Matrix

MIC & speaker

Break the limit of the traditional teaching

- Real-time P2MP distance education
- Offline recording and playback

Simplify multimedia device deployment

- WIFI and PC, all-in-one projection, saving investment
- Electronic whiteboard and VoIP-assisted teaching improve the teaching efficiency

Rich multimedia teaching resources

- Multiple formats, such as video, flash and office 7x24 uninterrupted sharing

Huawei Education in the World

- Moscow State University — TOP200
- Saint Petersburg State University — TOP251

Russia

China
- Tsinghua University — TOP25
- Peking University — TOP41
- Fudan University — TOP51
- Nanjing University — TOP130
- Beijing Normal University — TOP252
- Wuhan University — TOP273
- Xi`an Jiaotong University — TOP331
- Sun Yat-sen University — TOP307
- Beihang University — TOP381

Netherlands
- Erasmus University Rotterdam — TOP126

Canada
- University of Toronto — TOP34

Germany
- University of Stuttgart — TOP251

UK
Poland
- University of Warsaw — TOP344

- University College London — TOP7
- Imperial College London — TOP8
- University of Edinburgh — TOP21
- Newcastle University — TOP162

USA
- Massachusetts Institute of Technology — TOP1
- University of Tennessee — TOP390
- University of Nebraska–Lincoln — TOP500

Thailand
- Chulalongkorn University — OP253
- Mahidol University — TOP295

Hongkong
- University of Hong Kong — TOP26
- Hong Kong Baptist University — TOP288

Malaysia
- University of Malaya — TOP146
- University Putra Malaysia — TOP331

Australia
- University of Melbourne — TOP42
- University of Queensland — TOP46
- RMIT University — TOP273
- Southern Cross University

Indonesia
- Universitas Gadjah Mada — TOP551

South Africa
- Stellenbosch University — TOP387

New Zealand
- Lincoln University — TOP373

70+ countries and regions

120+ universities cooperation

"Telecom Seeds for the Future" Program

5000+ HAINA* professionals

*Huawei Authorized Information and Network Academy

Data source: 2016QS World University Rankings

Colleges and universities

Newcastle · UK

Solution

- **100G** links between Campus core and DC
- **2000+** WLAN APs deliver full WIFI coverage
- Unify User management

Benefits

- Upgrade the speed of the campus network
- Make network higher scalability and availability
- TCO reduction by Green and compact design

Interactive learning

Gauteng, South Africa

- Build Unified Regional Education Cloud

- Cover **2200** Schools

- Provide **88000** E-Schoolbags

"We therefore elected an e-Learning solution that could mediate the curriculum meaningfully, and in a sustainable manner, whilst being financially viable."

Phumla Sekhonyane
Head of Communications
for the Gauteng Department of Education

THANK YOU