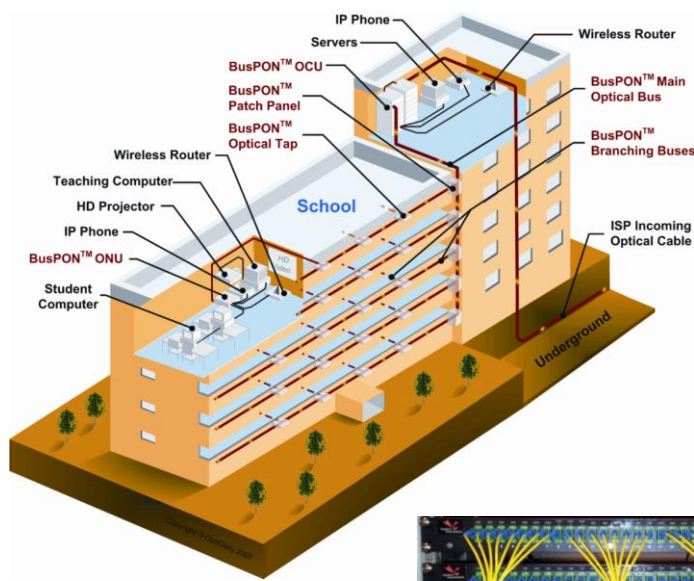


School Optical Network

Imagine in each classroom, students can enjoy real-time full HD (1080p) video conference with oversea schools, at the same time 40 students can concurrently access WiFi network for E-Learning and Cloud application. *Trinity Photonics* provides one-stop School Optical Network solutions for academia, not only delivering bi-directionally 1 / 10 / 40 Gbps per node bandwidth to realize borderless classroom environment for excellent teaching and learning activities, but also realizing the goal of "growing network" based on our novel technologies. Thus the School Optical Network can be continuously scalable (network node number) and upgradable (bandwidth per node) to cater for the never ending demands.

Features:

- Each classroom 1 / 10 / 40 Gbps duplex bandwidth
- Terabit (Tbps) Optical Backbone
- Whole school HD 1080p video broadcast
- Bandwidth can be upgraded anytime
- Can increase no. of node anytime
- Telecom graded core switches (L3)
- Compatible and can be integrated with old network
- Centralized control and management
- Multiple services in one network
- Secure private network (e.g. SAMS)
- Simple network architecture, easy to install



Application:

- Real-time HD 1080p live broadcast
- HD media digital library
- HD campus TV
- E-Learning
- Distant learning and activities
- Cloud application
- Whole school WiFi network, each node can serve 40+ users concurrently
- HD surveillance and monitoring
- Ultra fast file transfer



Optical Central Unit (OCU) installed in server room



Optical Network Units installed in classroom

First Fiber-to-Classroom School in HK

電訊管理局局長參觀樂善堂楊葛小琳中學「光纖課室」



憑藉和記環球電訊支持教育的宗旨，於全港大部份中小學校鋪設世界先進的「光纖到校」網絡，享用互聯網服務。樂善堂楊葛小琳中學更率先光纖直達至每個課室，讓每個課室能夠享用高速「Gbps級」資料科技應用於教學。如此先進的學校設施科技基礎，得到電訊管理局局長及總監陳麗芝女士、先生，以及一眾高層於2月25日到該校參觀。

當日，樂善堂楊葛小琳中學副校長、資訊科主任鍾建華、和記環球電訊網絡發展總經理周國權、電訊管理局局長及電訊管理層其他高層人士講解「光纖到校」網絡和「光纖課室」於教學上的好處。鍾氏主任說：「光纖課室」在學校有顯項應用，詳情可見附表：

1. 光纖課室 配合的教學應用
 - 播放高清影片—校園中播放高清晰度的影片對每個課室，例如播放高質素的科學實驗或大自然紀錄片提高學習的趣味，以及提升教學效果。有了「光纖課室」，學校只需把影片存放在學校的中樞，可以在任何一間課室查看有關錄像教材，方便老師使用。
 - 遠程視像教學—可以在任何一個課室與本地或海外學校進行遠距視像會議，毋須親臨在某一課室。
 - 直播校園活動—可以把正在學校舉行的活動直播傳、講座等，即時直播到每一課室，解決學生因交通不便而無法到課的問題。

► 採用最新研發的光纖鋪設技術 大大節省成本

Visit of Director General of the OFCA to the school installed Fiber-to-Classroom network with HD video broadcast demo (HGC Newsletter)

Installing "Growing" Optical Network for Schools

校園建可生長光纖網絡



自從三立光學（Trinity Photonics）為香港校園鋪設光纖網絡，這項網絡的擴展與升級，已成為不少中小學校的關注焦點。不少中小學校也紛紛開始鋪設全光網絡，讓互聯網服務更便利，由香港科技園公司研發的「光纖到校」網絡，成為學校單體光纖網絡（Bus Passive Optical Network, 簡稱PON），真正解決網絡問題。

香港特約通訊社記者在Trinity Photonics參觀了這項光纖網絡，在這項網絡中，每間課室都鋪設了光纖到課室，讓每個課室都能享受高速、穩定的互聯網服務。這項網絡的擴展與升級，已成為不少中小學校的關注焦點。不少中小學校也紛紛開始鋪設全光網絡，讓互聯網服務更便利，由香港科技園公司研發的「光纖到校」網絡，成為學校單體光纖網絡（Bus Passive Optical Network, 簡稱PON），真正解決網絡問題。

不同於傳統的網絡，「光纖到校」網絡的擴展與升級，已成為不少中小學校的關注焦點。不少中小學校也紛紛開始鋪設全光網絡，讓互聯網服務更便利，由香港科技園公司研發的「光纖到校」網絡，成為學校單體光纖網絡（Bus Passive Optical Network, 簡稱PON），真正解決網絡問題。

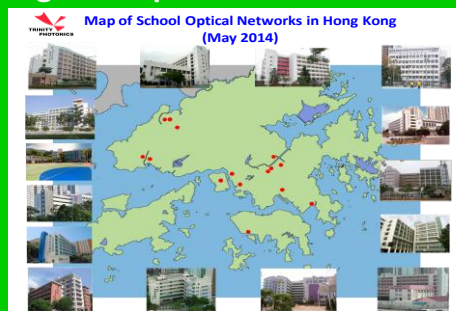
Novel Technologies to cater the never-ending demand and upgrade for schools (Ta Kung Pao, 9 May 2014)

"The Best SME ICT (Adoption) Gold Award" – School Optical Network



Collaborated with PLK Jimmy Wong Primary School to realized "growing" School Optical Network (Hong Kong ICT Award 2014)

Provide Unlimited Bandwidth for Whole School E-Learning Development



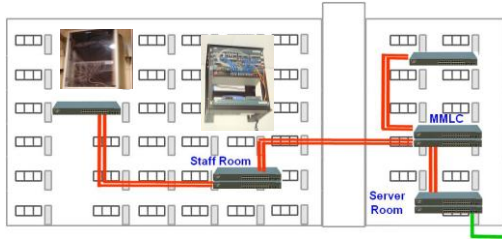
Fiber-to-Classroom solution support high speed and stable bandwidth for large scale two-way simultaneous WiFi access

Traditional School Network vs School Optical Network

Traditional School Network

➤ Complicated Infrastructure

- Multi-layer of intermediate switches and electricity supplies
- Bandwidth sharing (bandwidth reduced with number of node)
- Unstable performance
- Complicated network management
- Difficult for trouble shooting and problem solving



➤ Provision of single service in the network

- Provide single service (IP based)
- Require multiple networks for different services



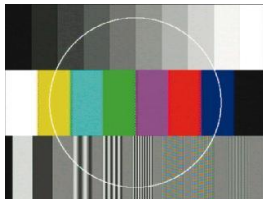
➤ Limitation of UTP cable

- Bandwidth cannot be larger than 1Gbps
- Serviceable distance should be < 100m
- Change of cable is required for high bandwidth demand



➤ Cannot support HD network application

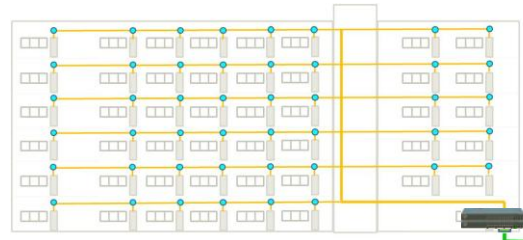
- Cannot provide HD broadcast
- Cannot offer continuous upgrade
- Cannot provide concurrently 40+ WiFi access
- Not support Cloud teaching and learning



School Optical Network

➤ Simplified Infrastructure

- No intermediate switches and electricity supplies
- Dedicated bandwidth of duplex 1 / 10 / 40 Gbps or above
- Terabit Optical Backbone with stable performance (Telco grade)
- Centralized network management
- In service scalability (node adding)



➤ Multiple services in ONE network

- HD Video/ Campus TV network
- Large scale eLearning Platform
- Large scale wireless network (WiFi, WiMax, 3G/4G)
- Remote Interactive Learning and Teaching Center
- 1000M Internet/Intranet
- isolated SAMs system
- Surveillance (camera) network
- PA system



➤ Ultimate medium – single mode fiber

- Unlimited bandwidth delivery (> Tbps)
- Cater for all network application in future
- Simultaneous delivery of multi-service in one fiber (WDM)
- Cope with all future upgrade (number of nodes and service)
- Serviceable distance of 50km



➤ Support HD Multimedia network application

- Offer real-time HD broadcast to all classroom
- Can be continuously upgraded and node adding
- Support 40+ concurrently WiFi access
- Easily deliver all Cloud and E-learning and teaching activities



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