

Practical Tips for WiFi 900



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Before you prepare the spec

- Need to know about your need
 - Your need = your plans in elearning
 - In the coming 3 years (subscription contract period)
 - Need to know about EDB guideline
 - There are many fake message in the market
 - Not sure who initiate it
 - Like
 - Establishing the WiFi by phases
 - Must / must not involve the BB
 - Funding usage & financial arrangement

Before you prepare the spec

- Need to know, there are many vendors / SI want to share this big market

- HK?
- HG?
- Wh?
- AS?
- Mi?
- Cy?
- IT?
- JO?
- Su?
- AV?
- JA?
- Ma?
- Ri?
- Fu?
- Ko?
- Ap?
- Sa?
- Ci?
- Mc?
- Mo?
- DT?
- Ed?
- Le?
-

Before you prepare the spec

- **Their** aim(s) is/are to



and/or



ervices

Before you prepare the spec

- **Your** aim(s) is/are to



and/or



services

You can and you should

- See more
- Ask more
- Source of Info
 - EDB
 - WiFi 100, 900 (I), (II) Schools
 - Professional Association (e.g. AiTLE)
 - Peer community (WaaS, SSC, LwL, TestBed)

Your Tender

- EDB already helped a lot

School A

4.1 Standard Provision

- WiFi Internet accessing using IEEE 802.11 a/b/g/n network in a

Page 1

standard classroom. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2014/15 school year.

- Number of concurrent connections shall commensurate with the maximum number of students in a class with at least 1 Mbps upload / download bandwidth per connection for browsing web pages.
- Use Hong Kong Education City accounts for authentication to save the effort for device registration.
- Provide Internet content filtering service based on filtering profile commonly adopted by most schools.

Your Tender

- EDB already helped a lot

School B

3.1 Standard Provision (to be amended according to the School)

- WiFi Internet accessing using IEEE 802.11 a/b/g/n network in a standard classroom. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2014/15 school year.
- Number of concurrent connections shall commensurate with the maximum number of students in a class with at least 1 Mbps upload / download bandwidth per connection for browsing web pages.
- Use Hong Kong Education City accounts for authentication to save the effort for device registration.
- Provide Internet content filtering service based on filtering profile commonly adopted by most schools.
- Not to rely on any existing network facilities and cabling of the School, nor interfere with the existing WiFi network of the School.
- Operate the WiFi network using managed service model, provide end-to-end service including provision, monitoring and maintenance service.
- Ensure at least 99.7% availability of the WiFi service. (That implies at most 24 hours downtime per year.)
- Support four-hour response time and four-hour service recovery with active monitoring.
- Helpdesk support with support hours from Mon to Sat 8:00 am to 6:00 pm.
- Provide monthly monitoring reports for the School.

Standard Provision

From schools' experience in the Support Scheme for e-Learning in Schools, the following provision is considered sufficient for students to access the e-learning resources and conduct common e-learning activities. It is outlined here for schools' reference in figuring out the expected service to be delivered by the WiFi network.

- **WiFi Internet**
network is
to be covered
for the 20

Draft

**Buildup of WiFi Network
Information Note to Schools**

- **Number**
maximum
upload / d
pages.

Introduction

For your school's preparation of enhancing / topping up the IT infrastructure, you may make reference to this information note in considering the **standard** provision and **add-on** services required by your school.

- **Authentic**
authentic

Standard Provision

- **Internet Content Filtering Service** — based on filtering profile

Practical Tips for WiFi 900

- Standard Provision
- Add on Provision
- Terms of Payment

Practical Tips for WiFi 900

- Standard Provision
 - WiFi Internet Connectivity
 - Number of Concurrent Connection
 - Authentication Method
 - Session Control
 - Internet Content Filtering Service
 - Existing Network Facilities
 - Existing Broadband Network
 - Managed Service
 - Service Level Agreement

**Need to
know
them all
and suit
your
school
need**

Practical Tips for WiFi 900

- Add on Provision
 - WiFi Coverage
 - Broadband Service
 - Authentication Method
 - Session Control
 - WLAN System Access Control
 - MAC Address Monitoring
 - Internet Content Filtering Service
 - Integration of networks
 - Internet addresses subscription & configuration
 - Monitoring of WiFi Network
 - Redundancy
 - Supporting hours
- Need to know them all and suit your school need**

Know < > Configure

Know < > Fix

Know < > Maintain

We need to change our
mindset

Set priority to our job

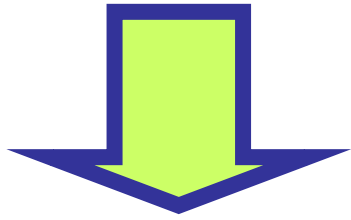
My job priority

1. Teaching

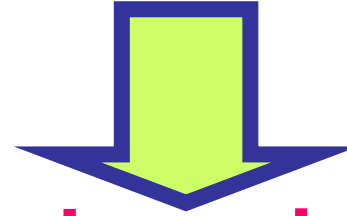
2. IT Administration & Support

- Computer, Network, Server, Copier, Printer, Backup, Intranet, Inventory, LMS
- Audio Visual Support
- Classroom support
- Information Security

My job priority



1. Teaching



2. Support Colleague : eLearning, WiFi

3. IT Administration & Support

- Computer, Network, Server, Copier, Printer, Backup, Intranet, Inventory, LMS
- Audio Visual Support
- Classroom support
- Information Security

Basic consideration

- WiFi scale
- 1 BB / 2 BB
- Authentication
- Existing network & Integration
- Managed IT Services / Redundancy
- Terms of Payment

School WiFi

- Is an Enterprise WiFi
- Not a large scale home WiFi
- Something that happened in home WiFi device
 - Not happen in Enterprise WiFi
 - In terms of practice, in terms of device capability
 - Need to sound out in your tender

One BB / Two BB

- In WiFi 100
 - Suggest to include additional BB for WiFi network
- In WiFi 900
 - Include or not depends on school need
- Reason :
 - Limitation on Funding usage

One BB / Two BB

- In most schools
 - BB expenditure ← CITG

One BB / Two BB

- WiFi 100
 - Named funding on purchasing Tablet
 - Named funding on subscribing WiFi + **BB**
 - CITG - **BB**



BB (CITG)

One BB / Two BB

- WiFi 900
 - Named funding on purchasing Tablet
 - Enhanced “CITG” [eCITG]



One BB / Two BB

- Whether should have 1 BB / 2 BB depends on
 - Information Security
 - Existing BB bandwidth
 - Plan and need within the subscription period
 - Managed Services need

Authentication

- Standard Provision
 - use Hong Kong Education City accounts
 - for authentication to save the effort for device registration
- WiFi 100 problem
 - Only authentication
 - No limitation on access
 - @ account may have more than 1 device to use school WiFi → OK for colleagues but not for students

Authentication

- Some school changed to use
 - Pre-shared key
 - MAC address filter
 - Active Directory of school
- Idea of having HKEDCITY login
 - To release school IT workload
 - Let school IT focus more on eLearning Support

Authentication

- Pre-Shared Key
 - How long can you keep this as secret
- MAC address filter
 - I am using it
 - For staff WiFi network

	A	B	C	I	J	K	L	M	N
1	Date	Exist	Colleague			no access-list 700 deny 0000.0000.0000 ffff.ffff.ffff			
2	14/1/2013	Yes		40A6.D97		access-list 700 permit 40A6.D97			
3	14/1/2013	Yes		F41B.A11		access-list 700 permit F41B.A11			
4	14/1/2013	No							
5	15/1/2013	Yes		6420.0C6		access-list 700 permit 6420.0C6E			
6	15/1/2013	Yes		6420.0C7		access-list 700 permit 6420.0C71			
7	15/1/2013	Yes		6420.0C8		access-list 700 permit 6420.0C89			
8	15/1/2013	Yes		7CD1.C3D		access-list 700 permit 7CD1.C3D			
9	15/1/2013	Yes		8830.8AF		access-list 700 permit 8830.8AFB			
0	15/1/2013	Yes		98FE.942		access-list 700 permit 98FE.9429			
1	15/1/2013	Yes		98FE.94A		access-list 700 permit 98FE.94A			
17	11/2/2015	No							
18	12/2/2015	Yes		38AA.3CE		access-list 700 permit 38AA.3CE			
19	13/2/2015	Yes		7451.BAB		access-list 700 permit 7451.BAB			
20	26/2/2015	Yes		38B1.DBE		access-list 700 permit 38B1.DBE			
21	3/3/2015	Yes				access-list 700 permit A4D1.D20			
22	3/3/2015	Yes				access-list 700 permit 18F6.438D			
23	4/3/2015	No							
24	7/3/2015	Yes				access-list 700 permit 3451.C93E			
25	9/3/2015	Yes				access-list 700 permit 446D.6C1A			
26	25/3/2015	Yes				access-list 700 permit 0022.FB2A			
27	25/3/2015	Yes				access-list 700 permit 903C.921E			
28	25/3/2015	Yes				access-list 700 permit 08D8.3385			
29	2/4/2015	Yes				access-list 700 permit F025.B7B0			
30	2/4/2015	Yes				access-list 700 permit 789E.D0C2			
31	22/4/2015	Yes				access-list 700 permit E412.1DC			
32	22/4/2015	Yes				access-list 700 permit ACE0.100			
33	7/5/2015	Yes				access-list 700 permit 2C1F.2392			
34									
35									
36									
37									
38									
39						access-list 700 deny 0000.0000.0000 ffff.ffff.ffff			

2015	
	A
1	Date
507	31/10/2016
508	31/10/2016
509	1/11/2016
510	1/11/2016
511	11/11/2016
512	13/11/2016
513	

	A	B	C	D	E	
1	Date ▾	Exist ▾	Colleague ▾	Device ▾	MAC Address ▾	Ir
108	24/10/2013	Yes	Cheung	Notebook	68:5D:43	
110	27/10/2013	Yes	Cheung	Mobile Phone	38:AA:3C	
120	5/11/2013	Yes	Cheung	Tablet	50:01:BB	
121	5/11/2013	Yes	Cheung	Mobile Phone	D0:22:BE	
220	26/2/2015	Yes	Cheung	Notebook	38:B1:DB	
231	22/4/2015	Yes	Cheung	Tablet	E4:12:1D	

Authentication

- MAC address filter
 - I am using it for staff WiFi network
 - How about if you use it for Student network
 - Within year changes
 - IYP changes
 - Solving existing problem is sure need
 - But need to plan for a long term

Authentication

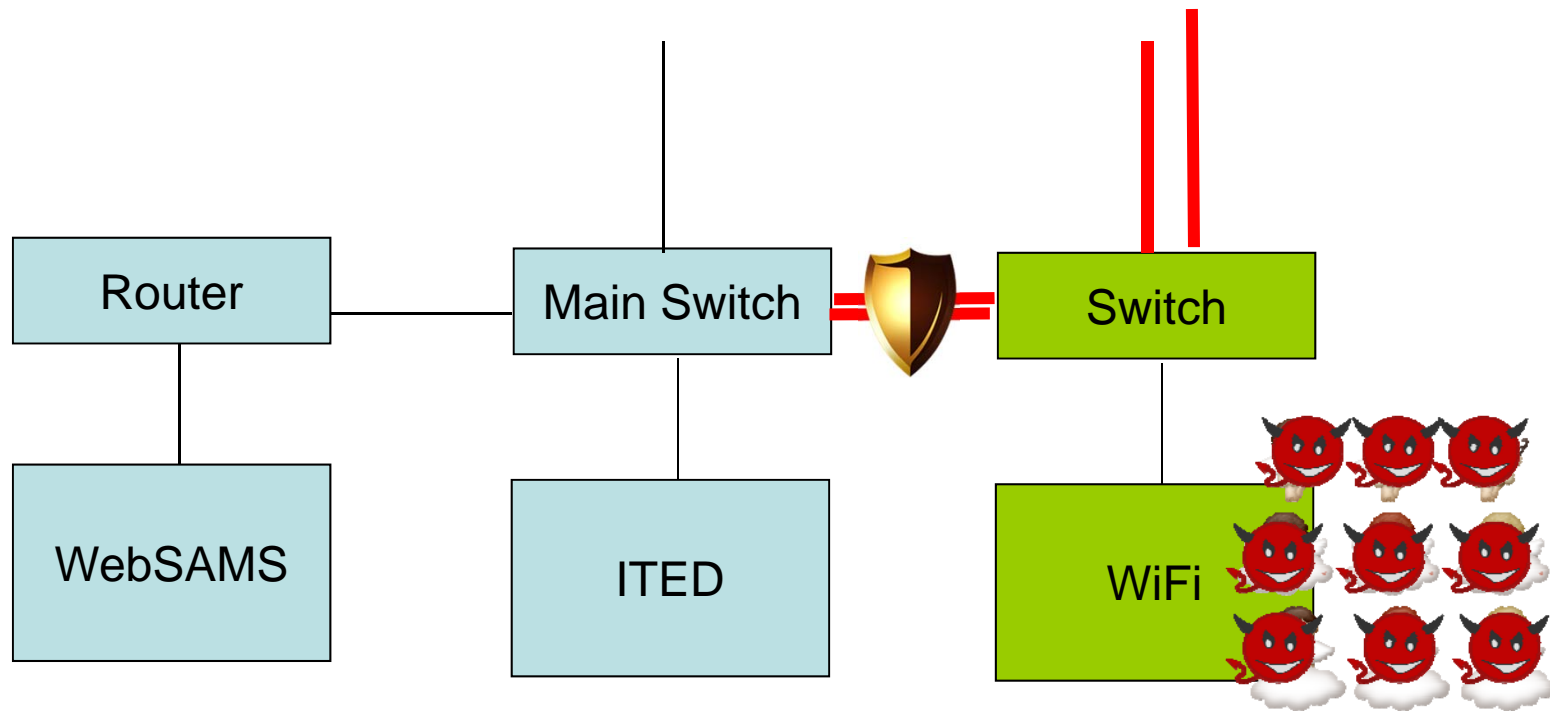
- Active Directory
 - Better
 - Technical Requirement
 - But still many handling works

Authentication

- **HKEDCITY Authentication**
 - Many Enhancements done
 - Session control on student based
 - 0 / 1 / N
 - And more
 - Can add to your tender requirement

Existing network & Integration

- Need Existing network recabbling ?
- Separate network



Monitoring

「WaaSchool 伙伴計劃」登入認證服務 - 李求恩紀念中學

 服務指南

登入記錄

最後更新: 2015-05-08 08:39:22

🔍 📄

第 1 / 6 頁 20

共 103 個記錄, 現在顯示第 1 - 20 個

時間	登入結果	問題類型	登入名稱
2015-05-08	所有	所有問題類型	
2015-05-08 08:39:22	成功		aw1668
2015-05-08 08:39:07	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:38:07	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:35:47	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:32:32	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:29:41	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:25:49	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:18:46	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:15:49	失敗	找不到登入帳號	1454003072419288
2015-05-08 08:10:46	失敗	找不到登入帳號	1454006094395374
2015-05-08 08:09:58	失敗	找不到登入帳號	lkym505
2015-05-08 08:09:58	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:09:38	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:09:08	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:08:48	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:08:22	失敗	找不到登入帳號	1454030006133822
2015-05-08 08:08:02	失敗	找不到登入帳號	1454030006133822

Monitoring

- Only need to view the status
- Or you need more ???
- Like the setting of 0 / 1 / N
- Or even scheduling
 - Add on services

Managed IT Services / Redundancy

- Subscription
 - Not installation by phase
 - Not only hardware maintenance
 - Carefully consider lease-to-own
- Lease to own → any managed IT services when you “own” your equipment ???

Managed IT Services / Redundancy

- Redundancy
 - Instead of wait for someone come and do fix of a classroom AP
 - Any other means ???
 - Like Tuning of other AP ???
 - Spare AP ???

Terms of Payment

- Monthly ???
- Quarterly ???
- Match with your school accounting practice

New tips (after WiFi 100,900i,ii exp)

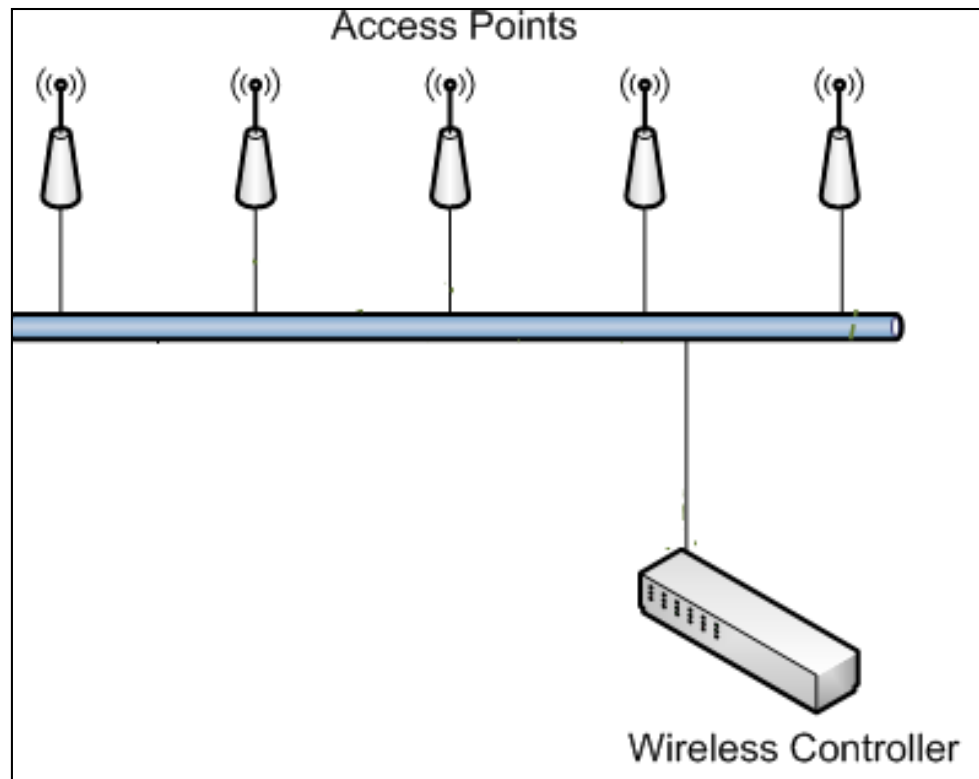
- On site trial before
 - site visit and presentation



圖片來源：<http://www.adhb.govt.nz/newborn/NewNICU/SiteVisit27-03-02/Site%20Visit%202.jpg>

New tips (after WiFi 100,900i,ii exp)

- WiFi Scale / Usage → Controller type
- Controller redundancy



New tips (after WiFi 100,900i,ii exp)

- Project Management Problem
- Charges for related Services
 - e.g. SSID rename

New tips (after WiFi 100,900i,ii exp)

- Procurement Procedure
 - Tendering Procedure
 - EDB requirement
 - School policy, workflow
 - Payment / funding usage (拆帳)
 - UAT

How to know more tips

- Not work individually
- Need to do more research, do more communication
- Get community support
- Attend more related events

AiTLE Support

- Good relationship with different vendor / SI
 - Can hold more neutral event (not sales talk)
 - Help to do liaison when you have problem
- Community Building
 - AiTLE has different series of whatsapp groups
 - WiFi 900 Setup
 - eLearning
 - Platforms
 - Computer Teaching
 - IT Admin, InnoSTEMer

AiTLE Whatsapp Groups

- **WiFi 900**

- [AiTLE WiFi 100/900 Gp1]
- [AiTLE WiFi 100/900 Gp2]

AiTLE Whatsapp Groups

- **eLearning**

- [AiTLE CHI eLearning]
- [AiTLE ENG eLearning]
- [AiTLE MATH eLearning]
- [AiTLE SCI eLearning]
- [AiTLE Tech-Ed eLearning]
- [AiTLE PSHE eLearning]
- [AiTLE ARTS eLearning]
- [AiTLE PE eLearning]

AiTLE Whatsapp Groups

- **Platforms**

- [AiTLE Google for Education Gp1]
- [AiTLE Google for Education Gp2]
- [AiTLE Microsoft for Education]
- [AiTLE Apple for Education]

- **Computer Teaching**

- [AiTLE 中小學電腦科教學]
- [AiTLE HKDSE ICT Group]
- [AiTLE ICT Mock Circle]

AiTLE Whatsapp Groups

- **IT Admin - Stakeholders**
 - [AiTLE IT Coordinator Gp]
 - [AiTLE TSS Group (for TSS only)]
- **IT Admin – Task-based**
 - [AiTLE WebSAMS Admin Gp]
 - [AiTLE Open Source Group]
 - [AiTLE SAM Grant Discuss]
 - [AiTLE School Info Security]

AiTLE Whatsapp Groups

- **STEM (InnoSTEMer)**

- [AiTLE InnoSTEMer]
- [AiTLE Micro:bit Focus Gp]

- **AiTLE Projects**

- [AiTLE SSC Gp]
- [AiTLE TestBed Gp]
- [AiTLE GFE Expert Gp]
- [AiTLE Google Trainer Exam Gp]

To Join AiTLE Whatsapp Gp

- <https://goo.gl/ui4afw>



**Time for sharing today is
not enough**

**More AiTLE Support to
WiFi 900**

<http://www.aitle.org.hk>



Last time, for WiFi 900 (II)

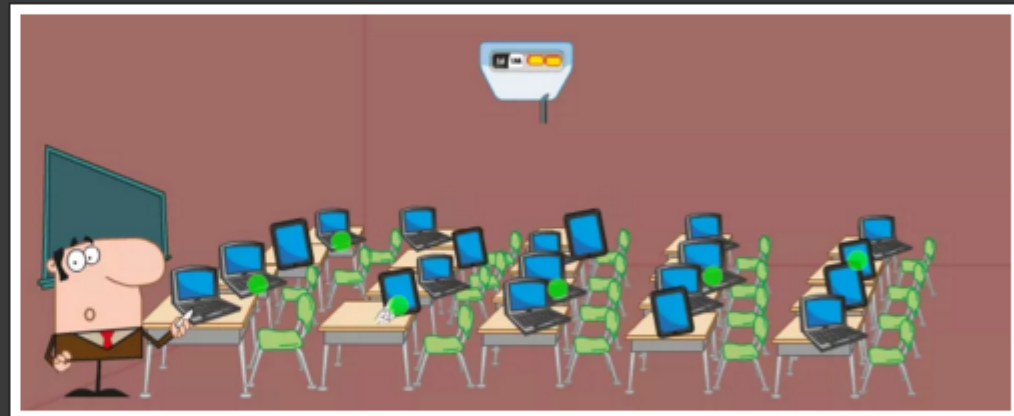
Upcoming events in January

January 2016

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Previous Event

Next Event



01/11/2016

**AiTLE event : Seminar on Setup
consideration for WiFi 900**

Add to Calendar

Rundown of Seminar before

- EDB Sharing / update
- Tender Drafting Workshop
- Contract management
- HKEDCITY Authentication
- WiFi Bandwidth Testing Tool(s) by HKEDCITY
- Schools sharing
- Wireless Solution show

EDB WiFi Course

- Information Technology in Education Professional Development Programmes for School Teachers (2015-2016):
 - **Drafting specification for enhancing WiFi infrastructure in schools**

EDB WiFi Course

- **Session 1** : Tender Drafting Workshop @ CUHK Classroom (180 min)
 - Overview of Different scheme for eLearning in Schools
 - Overview of Preparation of Building up WiFi Infrastructure
 - Brief Introduction of Document reference provided by EDB for WiFi 900
 - Wi-Fi.HK Service

EDB WiFi Course

- **Session 1** : Tender Drafting Workshop @ CUHK Classroom (180 min) – Cont'd
 - Practical workshop for drafting WiFi subscription tender according to the document reference as provided by EDB for WiFi 900 (focus on technical part : meaning, variation and consideration of each part)
 - Standard Provision
 - Add-on Provision

EDB WiFi Course

- **Session 1** : Tender Drafting Workshop @ CUHK Classroom (180 min) – Cont'd
 - A Case Study of a WiFi 100 or WiFi 900 (I)
 - Q&A & Conclusion

EDB WiFi Course

- **Session 2 : School Visit @ WiFi 100 / WiFi 900 (I) School (180 min)**
 - Practical workshop for drafting WiFi subscription tender (focus on Non-technical part)
 - UAT
 - Sharing by Visiting School
 - Site Walk
 - Q&A, Conclusion & Course Evaluation

AiTLE Support to WiFi 900

Thank you



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- Mr. Albert Wong

