



CDP-CCIE Lab Preparation Programme



Table of Content

INTRODUCTION.....	1
WHY CCIE?.....	2
IDC FINDINGS: SKILLS SHORTAGE IN NETWORKING TECHNOLOGIES	3
PROGRAMME RATIONALE.....	4
PROGRAMME OVERVIEW	4
PROGRAMME STRUCTURE	5
QUALITY CONTROL	6
COST.....	7
PAYMENT SCHEDULE	7
BENEFITS TO THE EMPLOYERS.....	8
BENEFITS TO THE NETWORK PROFESSIONALS.....	8
CCIE ROUTING AND SWITCHING LAB TECHNOLOGY DETAILS	8
ELIGIBILITY CRITERIA	10
APPLICATION & REIMBURSEMENT PROCESS.....	10
CONTACT PERSON	11

Introduction

CDP-CCIE Lab Preparation Programme is a collaboration between MDeC and IMS Asia to increase the number of Cisco Certified Internetwork Experts (CCIEs) in Malaysia. This programme will provide guidance and ease the burden to take up the prestigious certification. This collaboration programme is strongly supported by Cisco Systems.

The collaboration is the 1st under the MSC Malaysia “Get IT Certified!” Campaign which was launched in January 2008. The campaign objectives are to promote professionalism and skills enhancements amongst ICT professionals through adoption of certification, to encourage organisations to invest in their human capital development and continue to encourage the adoption of organisational based certification.

The campaign is an exclusive initiative under the umbrella of MSC Malaysia Capability Development Programme. The MSC Malaysia Capability Development Programme is an MDeC initiative designed to help ICT organisations and individuals to maximise their potentials by adopting global good practices, process improvements and professional certifications. To-date, more than 1,000 organisations have benefited from these programmes offerings awareness dialogues, workshops and incentives to adopt global standards.

Why CCIE?

The **Cisco Certified Internetwork Expert (CCIE) Certification** is the highest-level professional certification awarded by Cisco to individuals who have shown the capability to handle the subtleties, intricacies and challenges of Networking. It is a highly recognized professional certification within the Networking Industry. Even though the CCIE Programme has been around for over twelve years, less than 3% of Cisco Certified individuals have made it to the CCIE level.

Worldwide, there are about 15,658 active CCIEs. In Malaysia, there are around 71 CCIEs. Malaysia is currently ranked 26th. In the next 3 to 5 years, we are targeting to be in the top 10 in the world for CCIE population. To achieve the above goal, we are targeting to develop 60 CCIEs every year in Malaysia.

Top Ten Countries with CCIE population:

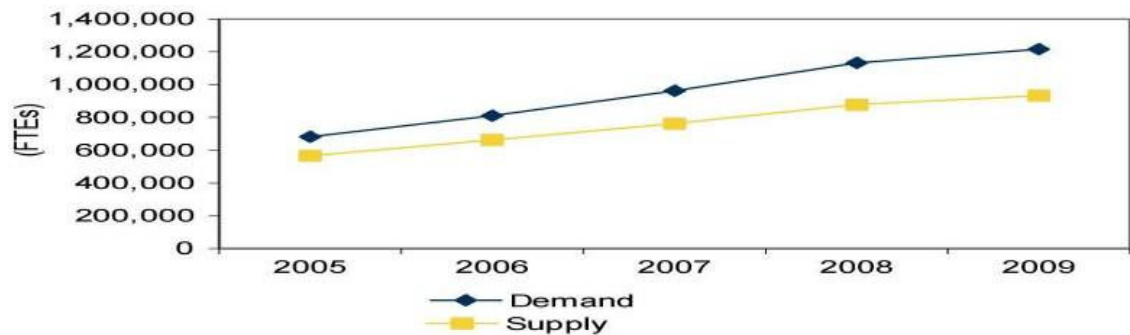
Country	No. of CCIEs
USA	4731
China	2233
Japan	923
UK & Korea	808
Canada	634
Germany	570
Australia	470
Belgium	242
Russia	239
India	235
Total	11085
	71%

IDC findings: Skills Shortage in Networking Technologies

Overall Skills Shortage in APAC Countries:

- Total Networking Skill - 2006: 210,000 growing to 396,000 by 2009
- Advanced Technology Skills Gap (Security, Wireless, VoIP) growing at a faster rate
 - 2006: 113,000 (22%) to 221,000 (26%) in 2009
- 96% of respondents commented that Networking Infrastructure would become more important to their organizations in the future
- Companies across the region are finding it difficult to hire Networking Engineers with the right skills set
- Certification continues to be rated as important by employers

Total Networking Skills Trend in Demand and Supply in Asia/Pacific 2005-2009:



Source: IDC, 2006

Gap Rating by Countries:

1. Singapore
2. Australia
3. Hong Kong
4. Philippines
5. Korea
6. Indonesia
7. Thailand
8. Vietnam
9. **Malaysia**
10. Taiwan
11. India
12. China

Overall Skills Shortage in Malaysia:

- Ranked 9th in 2006 Malaysia has a skilled people gap of 4,200 in 2006 and this is forecasted to increase to 8,100 by 2009

- Malaysia ranks 9th in terms of Advanced Networking Skills and 10th in General Networking Skills Gap in 2006 and maintains its position till 2009
- Malaysia is the exception to the Group of Developing APAC economies* with a higher than expected gap percentage in 2006 (17%), which is expected to grow to 22% in 2009
- The growing complexity of IT & Networking environments in Malaysia relative to other countries in this Group has created a demand for higher skilled Networking Professionals
- Demand is believed to exceed the current pool of professionals within the market and is believed to differ from the profile of graduates fresh out of Malaysian institutions
- Suspected higher than average unemployment levels among local IT graduates is an indication of the skills mismatch that has developed in the country
- In Malaysia, an alarming 55% of respondents found it difficult to find Networking Engineers with the right skills for their organizations
- Another positive finding was that 73% of respondents felt that Certifications would become increasingly valuable in the future
- In Malaysia, it was found that respondents tend to hire Networking staff with 1-2 years of working experience more than fresh graduates with or without vendor certifications

Programme Rationale

In order to achieve the CCIE Certification, the CCIE candidates are required to go through two (2) exams. The first exam is a computer-based, multiple-choice exam. The candidates are required to pass this exam as a prerequisite for the final exam. The final exam is a lab-based exam. This lab-based exam is an eight (8) hours, hands-on exam. It is only after passing this gruelling lab exam that the individual is awarded the CCIE Certification.

It takes a lot of commitment and self-discipline on the students' part to prepare for the CCIE Certification. One of the challenges faced by the CCIE candidates is busy work schedule. Other challenges include the ease of accessing the lab equipments and the availability of practice labs. The CCIE Lab Preparation Programme has been designed to address some of the challenges faced by the CCIE candidates.

Programme Overview

The **CCIE Lab Preparation Programme (CLPP)** is a programme specially designed for busy IT Networking Professionals to pursue the CCIE Routing and Switching track. It is a one (1) year programme with four (4) modules and the duration of each module is 12 weeks. In total, the programme shall be 48 weeks and it will allocate **360 hours of remote lab time** with **96 hours of guided tutorials** to the CCIE candidates.

This programme is not designed for beginners. The CCIE candidates are expected to be already certified under the Cisco Certified Network Professional (CCNP) Programme or possess working experience equivalent to the CCNP Certification.

The CCIE candidates will have access to the lab equipments to develop their understanding of the Networking concepts and technology. Each candidate will be assigned to his or her own set of lab equipments to maximize the hands-on learning experience. Understanding of the Networking concepts and technology will be further enhanced through guided tutorials conducted during weekends. An instructor who is certified under the CCIE Programme will lead the tutorial sessions.

Programme Structure

The focus of the CCIE Lab Preparation Programme is to provide as much hands-on experience as possible for the CCIE candidates. The CCIE candidates will get the opportunity to work on different lab scenarios. This will help them retain the understanding of the Networking concepts better and longer.

This programme consists of two (2) parts. There will be a weekly lab session for the CCIE candidates. The frequency of the lab sessions will be increased to twice weekly as the CCIE candidates progress through the programme.

The tutorial sessions will be conducted once every month led by a subject matter expert of a specific technology and/or an instructor who is certified under the CCIE certification.

Weekly Session:

Week #	Module # & Level	Remote Lab Session
1 – 12	Module 1- Foundation	1 x 5 hours lab session per week
13 - 24	Module 2 - Domain	1 x 5 hours lab session per week
25 - 36	Module 3 - Advanced	2 x 5 hours lab session per week
37 - 48	Module 4 - Expert	2 x 5 hours lab session per week

Monthly Tutorial Session:

Month #	Tutorial Session
1	LAN Switching & WAN Protocols (Frame Relay & PPP)

2	IGP Routing – Static, RIP, EIGRP & OSPF
3	Security
4	BGP Routing (iBGP, eBGP, MP-BGP)
5	QoS
6	IP Multicast
7	IP Services & System Management
8	CCIE Written Preparation 1
9	CCIE Written Preparation 2
10	Mockup Lab Test 1 – 8 Hours
11	Mockup Lab Test 2 – 8 Hours
12	Mockup Lab Test 3 – 8 Hours

The lab equipments are accessed remotely. The candidates will be assigned login IDs to access the lab equipments. This gives the candidates the flexibility to access the lab from anywhere as long as the candidates are connected to the Internet. Candidates can work on the lab in the comfort of their homes and need not rush to the training centre.

The Programme Director is Mr. Palaniappan Alagan (CCIE #1922). He will provide leadership and guidance for the programme development, quality control and continuous improvement. He is the first Network Engineer to be certified under the CCIE Certification in Malaysia back in the 90s. He is currently a Senior Consultant for IMS Asia and was awarded the 10-Year CCIE by Cisco last year. His many years of experience in providing Network Consultancy and conducting training in various Networking Technologies will be invaluable to this programme.

Quality Control

All students are recommended to follow the Weekly Study Plan layout by IMS:

Week 1 to 24:

- Day 1 : Self-study of Technical Concepts
- Day 2 : Self-study of Technical Concepts
- Day 3 : Weekly lab instructions are given out. Students prepares for the lab work.
- Day 4 : Execute Remote Lab Sessions
- Day 5 : Self-evaluation of Lab answers

- Day 6 : Review IMS answers and feedback
- Day 7 : Rest Day

Week 25 to 48:

- Day 1 : Self-study of Technical Concepts
- Day 2 : Execute 1st Remote Lab Session
- Day 3 : Review IMS answers and feedback
- Day 4/5 : Execute 2nd Remote Lab Session
- Day 6 : Review IMS answers and feedback
- Day 7 : Rest Day

Attendance for all lab & tutorial sessions are mandatory. Students MUST complete 360 hours of lab time and attend all tutorials. Students MUST pass the mockup test conducted by IMS tutors in order to qualify for the CCIE Lab Exam. A minimum score of 85% is required before the student can qualify to attend the actual lab exam.

Each remote lab session work will be monitored by IMS. Answers for each lab must be submitted to IMS for evaluation and feedback. All assigned lab work items must be completed.

Cost

The programme cost is **RM40,000** per student. All qualified CCIE candidates (only for Malaysian citizens) will be provided with 2 CCIE Written Exams (USD315) and 2 CCIE Lab Exams (USD1,400). All in, a total of USD 3,430 (~ RM11,000) will be reimbursed.

Payment Schedule

All payments must be done prior to the commencement of each module.

Payment Schedule	Amount
Module 1	RM10,000
Module 2	RM10,000
Module 3	RM10,000
Module 4	RM10,000

Students must complete & pass the CCIE Written Exam before they are allowed to progress to Module 4.

Students must complete modules 1, 2, 3 and 4 and pass the mockup lab tests with minimum scores of 85% to qualify for the CCIE Lab Exam.

Benefits to the Employers

- No downtime from attending multiple week long classes. This programme is conducted after working hours and on weekends.
- Continuous year long access to real lab equipments to enhance hands-on skills that will be beneficial to the management and operations of the organisation's Networking Infrastructure.

Benefits to the Network Professionals

- The Programme provides ample opportunities to access real lab equipments.
- Continuous hands-on lab practice to increase the passing rate of the CCIE Lab Exam at the first attempt.

CCIE Routing and Switching Lab Technology Details

The following technology will be covered in the CCIE Lab Preparation Programme:

1. Bridging and Switching
<ul style="list-style-type: none"> • Frame Relay • Catalyst configuration, VLANs, VTP, STP, MSTP, RSTP, Trunk, Etherchannel, management, features, advanced configuration, Layer 3 • Tunnelling
2. IP IGP Routing
<ul style="list-style-type: none"> • OSPF • EIGRP • RIPv2 • IPv6: Addressing, RIPng, OSPFv3 • GRE • ODR • Filtering, redistribution, summarization and other advanced features
3. BGP

<ul style="list-style-type: none">• iBGP• eBGP• Filtering, redistribution, summarization, synchronization, attributes and other advanced features
4. IP and IOS Features
<ul style="list-style-type: none">• IP addressing• DHCP• HSRP• IP services• IOS user interfaces• System management• NAT• NTP• SNMP• RMON• Accounting• SLA
5. IP Multicast
<ul style="list-style-type: none">• PIM, bi-directional PIM• MSDP• Multicast tools, source specific multicast• DVMRP• Anycast
6. QoS
<ul style="list-style-type: none">• Quality of service solutions• Classification• Congestion management, congestion avoidance• Policing and shaping• Signalling• Link efficiency mechanism

<ul style="list-style-type: none"> • Modular QoS command line
7. Security
<ul style="list-style-type: none"> • AAA • Security server protocols • Traffic filtering and firewalls • Access lists • Routing protocols security, catalyst security • CBAC • Other security features

Eligibility Criteria

Eligibility criteria:

- Nominated participants must be Malaysian
- Nominated participants must have passed CCNA certification

Applications are open to all interested organisations. Priority will be given to MSC Malaysia Status Organisations.

Organisations may nominate up to two (2) participants from their respective organisations to join each batch. A new batch will commence every month with a maximum five (5) candidates in each batch.

Selection of successful participants will be upon satisfying all stipulated criteria as stated above.

Application & Reimbursement Process

CDP-CCIE Application Form can be obtained from Programme Secretariat or IMS Asia. Please refer to Application and Reimbursement Process Chart (page 12).

Supporting documents required for Application Form submission:

- Certified True Copy of IC of nominated participant
- Certified True Copy of CCNA and all other Cisco certificates (if available)

- Copy of MSC Malaysia Status Certificate (if applicable)

Supporting documents required for Reimbursement:

- Certified True Copy of exam slip / certificate
- Original Payment Receipt

Contact Person

Enquiries can be directed to:

Contact Person	Contact Info
<ul style="list-style-type: none"> • Suresh Unnikrishnan IMS Asia Sdn Bhd 	Cell: 016-3280 776 Email ID: suresh@imsasia.com , unni.suresh@gmail.com
<ul style="list-style-type: none"> • Aiza Zeyati Zamani MDeC • Nur Aida Mohd Ghouse MDeC 	03-8315 3209 aiza@mdec.com.my 03-8315 3243 nuraida@mdec.com.my

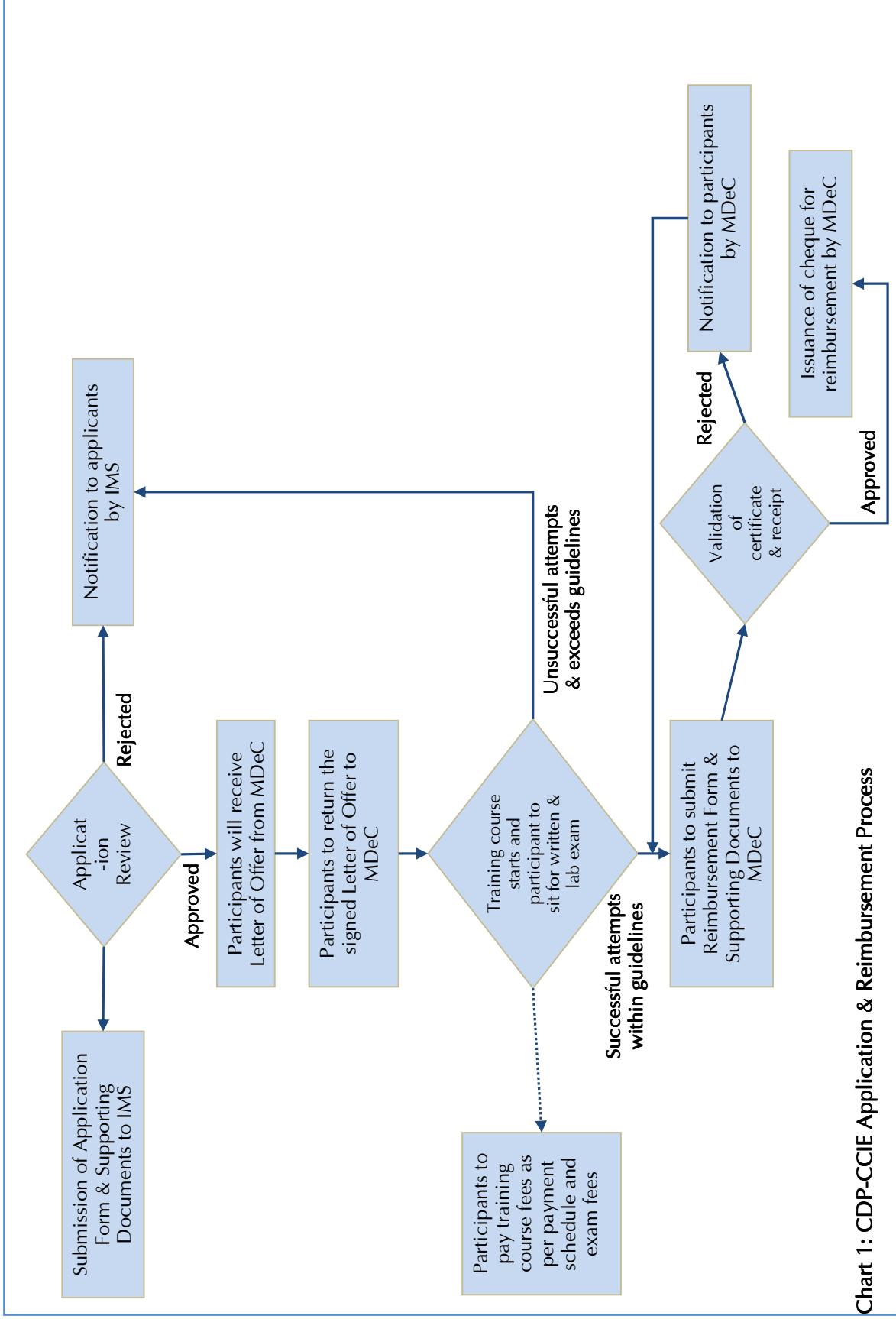


Chart 1: CDP-CCIE Application & Reimbursement Process