Customer Training Catalog Course Descriptions

NGN and STP

HUAWEI Learning Service

2015

CONTENTS

1.1 Training Course Descriptions

IMS Convergence Training Courses are designed as follows:

Code	Training Courses	Level	Duration (working days)	Training Location	Class Size
NGN Training Courses					
OA011	NGN System Overview	I	0.5		6 ~ 12
OA012	NGN Product Overview	I	1		6 ~ 12
OA013	NGN Service Description	I	0.5		6 ~ 12
OAX30	SoftX3000 (CPCI) Operation and Maintenance	II	9		6 ~ 12
OAX60	SoftX3000 (ATCA) Operation and Maintenance	II	9		6 ~ 12
OAU01	UMG8900 Operation and Maintenance	II	4		6 ~ 12
OAN01	iManager N2000 UMS Operation and Maintenance	II	2		6 ~ 12
OAM01	MRS6100 Operation and Maintenance	II	2		6 ~ 12
OAS01	SG7000 (NGN) Operation and Maintenance	II	3		6 ~ 12
OAS03	SHLR9200 Operation and Maintenance	II	2		6 ~ 12
OAE01	SE2000 Operation and Maintenance	II	2		6 ~ 12
OAG01	UA5000 (NGN) Operation and Maintenance	II	1		6 ~ 12
OAI01	IAD Operation and Maintenance	II	1		6 ~ 12
OAP01	U-Path Operation and Maintenance	II	1		6 ~ 12
OAX02	SoftX3000 Advanced Operation and Maintenance	III	8		6 ~ 12
OAU02	UMG8900 Advanced Operation and Maintenance	III	3		6 ~ 12
OAN02	iManager N2000 UMS Advanced Operation and Maintenance	III	2		6 ~ 12
OAM02	MRS6100 Advanced Operation and Maintenance	III	1		6 ~ 12
OAS02	SG7000 (NGN) Advanced Operation and Maintenance	III	2		6 ~ 12
OAS04	SHLR9200 Advanced Operation and Maintenance	III	1		6 ~ 12
OAE02	SE2000 Advanced Operation and Maintenance	III	2		6 ~ 12
OAG02	UA5000 (NGN) Advanced Operation and Maintenance	III	1		6 ~ 12
OAA10	NGN Protocol (H248, SIP, SIGTRAN)	III	3		6 ~ 12

O A041	NGN Network Planning and Design	Ⅳ	3		6 ~ 12
STP Training Courses					
OST01	SS7 Signaling System	Ⅱ	1.5		6 ~ 12
OST02	SG7000 Hardware System	Ⅱ	0.5		6 ~ 12
OST03	SG7000 Operation and Maintenance	Ⅱ	5		6 ~ 12
OC131	SANEX System Overview	Ⅱ	1		6 ~ 12
OC132	SANEX Operation and Maintenance	Ⅱ	2		6 ~ 12
SPS V3 Training Courses					
OAS07	SPS V3 Fundamental	Ⅱ	2		6 ~ 12
OAS05	SPS V3 (DRA) Operation and Maintenance	Ⅱ	3		6 ~ 12
OAS06	SPS V3 (STP) Operation and Maintenance	Ⅱ	4		6 ~ 12
OAS08	SPS V3 Network Planning and Design	Ⅲ	1		6 ~ 12

1.2 NGN Training Course Descriptions

1.2.1 OA011 NGN System Overview

Objectives

On completion of this course, the participants will be able to:

- Describe the structure of the telecommunication network
- Describe the basic concepts, system architecture, services, networking and applications of NGN
- Describe the network topology, services and functions of NGN equipment
- Outline the functions of NGN protocols
- Outline the features, advantages, actuality and development trend of NGN
- Outline the components, services, networking and applications of Huawei U-SYS solution

Target Audience

Telecom management personnel

Prerequisites

- A general understanding of telecommunications and data communications

Content

- The definition, background and development of NGN
- The architecture of NGN system, and the functions, current elements, features of each layer
- The functions and features of commonly used protocols in NGN system
- The components, services, networking and applications of Huawei U-SYS solution

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.2.2 OA012 NGN Product Overview

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services and functions of NGN equipment in Huawei U-SYS solution
- Outline the system structure, networking, applications and technical specifications of NGN equipment in Huawei U-SYS solution

Target Audience

Telecom management personnel

Prerequisites

- A general understanding of telecommunications and data communications

Content

- The functions, system structure, networking, applications, services of SoftX3000/MRS6100/UMG8900/SG7000/UA5000/N2000/SE2000/IAD/U-Path/OpenEye
- The operation and maintenance interface, technical specifications of SoftX3000/MRS6100/UMG8900/SG7000/UA5000/N2000/SE2000/IAD/U-Path/OpenEye

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.2.3 OA013 NGN Service Description

Objectives

On completion of this course, the participants will be able to:

- Describe the functions, characteristics, applications and uses of all services (including basic voice services, supplementary services and IN services) supported by Huawei U-SYS solution

Target Audience

Telecom management personnel

Prerequisites

- A general understanding of telecommunications and data communications

Content

- The service provision mode of HUAWEI U-SYS solution
- The basic voice service and supplementary voice service features of HUAWEI U-SYS solution
- The IP Centrex, video conference, RBT, simultaneous ringing and other special service features
- The service solution for group users

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.2.4 OAX30 SoftX3000 (CPCI) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the basic concepts, system architecture, services, networking and applications of NGN
- Outline the components, services, networking and applications of Huawei U-SYS solution
- Explain the functions, features, applications, terms, stack structure and messages of NGN protocols (MGCP, H.248, SIP, SIGTRAN and H.323)
- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of SoftX3000
- Outline the service data configuration steps of SoftX3000, and execute the common service data configuration (local office data configuration, charging data configuration, media gateway data configuration, MRS data configuration, protocol data configuration, SS7 signaling data configuration, routing data configuration, trunk data configuration, number analysis data configuration, subscriber data configuration)
- Perform the routine operation and maintenance of SoftX3000 (operator authority management, database backup and restoration, data consistent checking between the host and BAM, log management, alarm management, device management, media gateway management, protocol and signaling management, trunk circuit management, subscriber management, bill management, traffic statistics)
- Perform the routine operation and maintenance of iGWB
- Perform the common troubleshooting of SoftX3000

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The definition, background and development of NGN
- The architecture of NGN system, and the functions, current elements, features of each layer
- The functions and features of commonly used protocols in NGN system
- The components, services, networking and applications of Huawei U-SYS solution
- The system architecture of SoftX3000
- The structure of cabinet and frame
- The functions, location, working mode, indicators, capacity of each board in SoftX3000
- General database operation principle
- General data configuration procedure, rules
- The structure, functions, features and operation of BAM GUI and client MML
- Configure the cabinet, frame and boards of SofX3000
- Configure the local office information, call source and local DN set
- Functions, terms, applications of H.248
- Commands, message structure and general call flow of H.248 protocol
- Functions, terms, applications of SIP

- Commands, message structure and general call flow of SIP protocol
- Functions, terms, applications of MGCP
- Commands, message structure and general call flow of MGCP protocol
- Configure SIP/H.323 protocol
- Configure MGCP/H.248 media gateway, and the voice subscriber
- Configure SIP/H.323 multimedia terminal and the multimedia subscriber
- The concepts and working principle of SofX3000 charging system
- The charging method and charging analysis in SofX3000
- The charging data configuration
- Related terms with M2UA and SS7 trunk and route
- The configuration of M2UA signaling link
- The configuration of SS7 trunk and route
- The configuration of SS7 trunk and route
- Related terms with M3UA signaling link
- Configure M3UA signaling link
- The functions, features, terms in SoftX3000 performance task
- The types of performance task
- Create and query the performance task
- The basic concepts, procedures of SoftX3000 routine maintenance
- The routine maintenance tasks for daily, monthly and yearly checking
- SoftX3000 database structure
- The database loading principle
- The database CRC checking and backup method
- General principles, procedure and methods for SoftX3000 troubleshooting

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

9 working days

Class Size

Min 6, max 12

1.2.5 OAX60 SoftX3000 (ATCA) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the basic concepts, system architecture, services, networking and applications of NGN
- Outline the components, services, networking and applications of Huawei U-SYS solution
- Explain the functions, features, applications, terms, stack structure and messages of NGN protocols (MGCP, H.248, SIP and SIGTRAN)
- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of SoftX3000
- Outline the service data configuration steps of SoftX3000, and execute the common service data configuration (local office data configuration, charging data configuration, media gateway data configuration, MRS data configuration, protocol data configuration, SS7 signaling data configuration, routing data configuration, trunk data configuration, number analysis data configuration, subscriber data configuration)
- Perform the operation and maintenance of SoftX3000 (operator authority management, database backup and restoration, data consistent checking between the host and BAM, log management, alarm management, device management, media gateway management, protocol and signaling management, trunk circuit management, subscriber management, bill management, traffic statistics)
- Perform the routine operation and maintenance of iGWB
- Perform the common troubleshooting of SoftX3000
- Describe CGP product location, function and features.
- Perform CGP operation and maintenance

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The definition, background and development of NGN
- The architecture of NGN system, and the functions, current elements, features of each layer
- The functions and features of commonly used protocols in NGN system
- The components, services, networking and applications of Huawei U-SYS solution
- The system architecture of SoftX3000
- The structure of cabinet and frame
- The functions, location, working mode, indicators, capacity of each board in SoftX3000
- CGP product location
- CGP function and features
- CGP operation and maintenance
- General database operation principle
- General data configuration procedure, rules
- The structure, functions, features and operation of BAM GUI and client MML
- Configure the cabinet, frame and boards of SofX3000
- Configure the local office information, call source and local DN set
- Functions, terms, applications of H.248

- Commands, message structure and general call flow of H.248 protocol
- Functions, terms, applications of SIP
- Commands, message structure and general call flow of SIP protocol
- Functions, terms, applications of MGCP
- Commands, message structure and general call flow of MGCP protocol
- Configure SIP/H.323 protocol
- Configure MGCP/H.248 media gateway, and the voice subscriber
- Configure SIP/H.323 multimedia terminal and the multimedia subscriber
- The concepts and working principle of SofX3000 charging system
- The charging method and charging analysis in SofX3000
- The charging data configuration
- Related terms with M2UA and SS7 trunk and route
- The configuration of M2UA signaling link
- The configuration of SS7 trunk and route
- The configuration of SS7 trunk and route
- Related terms with M3UA signaling link
- Configure M3UA signaling link
- The functions, features, terms in SoftX3000 performance task
- The types of performance task
- Create and query the performance task
- The basic concepts, procedures of SoftX3000 routine maintenance
- The routine maintenance tasks for daily, monthly and yearly checking
- SoftX3000 database structure
- The database loading principle
- The database CRC checking and backup method
- General principles, procedure and methods for SoftX3000 troubleshooting

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

9 working days

Class Size

Min 6, max 12

1.2.6 OAU01 UMG8900 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of UMG8900
- Outline the service data configuration steps of UMG8900, and execute the common service data configuration (MGW data configuration, IP bearer data configuration, TG data configuration, AG data configuration, SG data configuration)
- Perform the routine operation and maintenance of UMG8900 (database backup, log management, alarm management, device management, protocol tracing, service management, POTS subscriber testing)
- Perform the common troubleshooting of UMG8900

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- UMG8900 hardware architecture (networking, cabinet, frame and board)
- UMG8900 software architecture (BAM server, local maintenance terminal)
- UMG8900 working principle introduction and call flow
- UMG8900 technical parameter
- Basic procedure of UMG8900 data configuration
- The common service data configuration (MGW data configuration, IP bearer data configuration, AG data configuration)
- The common service data configuration (TG data configuration, SG data configuration)
- The routine operation and maintenance of UMG8900 (database backup, log management, alarm management, device management, protocol tracing, service management, POTS subscriber testing)
- UMG8900 troubleshooting procedures
- Common UMG8900 fault and cause

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

4 working days

Class Size

Min 6, max 12

1.2.7 OAN01 iManager N2000 UMS Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Explain the functions and applications of SNMP
- Describe the network topology, services, functions, system structure, networking, applications and technical specifications of iManager N2000 UMS
- Perform the routine operation and maintenance of iManager N2000 UMS (network topology management, network element management, network alarm monitoring, network performance monitoring, environment and user right management)

Target Audience

NMS operator, operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The functions and applications of SNMP
- The network topology, services, functions, system structure, networking, applications and technical specifications of iManager N2000 UMS
- The routine operation and maintenance of iManager N2000 UMS (network topology management, network element management, network alarm monitoring, network performance monitoring, environment and power supply monitoring)
- The management of NEs in NGN network

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.8 OAM01 MRS6100 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of MRS6100
- Outline the service data configuration steps of MRS6100, and execute the system data configuration
- Perform the voice file loading
- Perform the routine operation and maintenance of MRS6100 (log management, alarm management, device management, message tracing)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The system structure, board functions of MRS6100
- The network topology, services, functions, networking applications and technical specifications of MRS6100
- The service data configuration steps of MRS6100
- The hardware data configuration
- The MGW data configuration
- The voice file data configuration and loading

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.9 OAS01 SG7000 (NGN) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of SG7000
- Outline the service data configuration steps of SG7000, and execute the common service data configuration (local office data configuration, MTP data configuration, M3UA data configuration)
- Perform the routine operation and maintenance of SG7000 (database backup, log management, alarm management, device management, signaling tracing)
- Perform the common troubleshooting of SG7000

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of SG7000
- The service data configuration steps of SG7000, and the common service data configuration (local office data configuration, MTP data configuration, M3UA data configuration)
- The routine operation and maintenance of SG7000 (database backup, log management, alarm management, device management, signaling tracing)
- Introduce SG7000 troubleshooting procedures
- Perform common SG7000 fault and cause

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

3 working days

Class Size

Min 6, max 12

1.2.10 OAS03 SHLR9200 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the concepts, principle, networking, applications, services and service processing procedure of NGN network intelligentizing
- Describe the network topology, services, functions, system structure, board functions, board indicators, signaling procedure, networking, applications and technical specifications of SHLR9200
- Outline the service data configuration steps of SHLR9200, and execute the common service data configuration (local office data configuration, MTP data configuration, SCCP data configuration, subscriber data configuration)
- Perform the routine operation and maintenance of SHLR9200 (log management, alarm management, device management, signaling tracing, service data management)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The concepts, principle, networking, applications, services and service processing procedure of NGN network intelligentizing
- The network topology, services, functions, system structure, board functions, board indicators, signaling procedure, networking, applications and technical specifications of SHLR9200
- The service data configuration steps of SHLR9200, and the common service data configuration (local office data configuration, MTP data configuration, SCCP data configuration, subscriber data configuration)
- Perform the routine operation and maintenance of SHLR9200 (log management, alarm management, device management, signaling tracing, service data management)

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.11 OAE01 SE2000 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Explain the working principle of PROXY
- Describe the network topology, services, functions, system structure, networking, applications and technical specifications of SE2000 Series(SE2200/SE2300)
- Outline the service data configuration steps of SE2000 Series(SE2200/SE2300), and execute the common service data configuration (SNMP data configuration, signaling PROXY and media PROXY data configuration, IADMS PROXY data configuration)
- Perform the routine operation and maintenance of SE2000 Series(SE2200/SE2300) (log management, alarm management, device management, signaling proxy and media PROXY debugging, IADMS PROXY debugging)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The working principle of NAT, ALG and PROXY
- The network topology, services, functions, system structure, networking applications and technical specifications of SE2000 series (SE2200/SE2300)
- The service data configuration steps of SE2000 series (SE2200/SE2300)
- The common service data configuration (SNMP data configuration, signaling PROXY and media PROXY data configuration, IADMS PROXY data configuration)

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.12 OAG01 UA5000 (NGN) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services, functions, system structure, board functions, board indicators, networking, applications and technical specifications of UA5000
- Outline the service data configuration steps of UA5000, and execute the common service data configuration (hardware data configuration, MG interface data configuration, POTS service data configuration)
- Perform the routine operation and maintenance of UA5000 (database backup, log management, alarm management, device management, subscriber testing)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The feature, network application of UA5000
- The structure and connection of frame
- The functions, indicators, location, interface of each board
- The service implementation of UA5000
- The connection, feature, mode of command line
- The hardware, MG, POTS data configuration
- Practice on UA5000 MG, user data configuration
- Routine maintenance of UA5000

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.13 OAI01 IAD Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, product classification, services, functions, system structure, networking, applications and technical specifications of IAD
- Outline the service data configuration steps of IAD, and execute the common service data configuration (MG data configuration, subscriber data configuration)
- Perform the routine operation and maintenance of IAD (log management, alarm management, device management)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The network topology, product classification, services, functions, system structure, networking, applications and technical specifications of IAD
- The service data configuration steps of IAD
- The common service data configuration (MG data configuration, subscriber data configuration)

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.14 OAP01 U-Path Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the network topology, services, functions, system structure, networking, applications and technical specifications of U-Path
- Perform the software installation of U-Path
- Perform the service configuration of U-Path
- Outline the related data configuration on SoftX3000 side
- Perform the routine operation and maintenance of U-Path (log management, system status browsing, and bill management)

Target Audience

Operating and maintenance personnel, technical support personnel

Prerequisites

- Familiar with computer operation and Windows system
- A general understanding of telecommunications and data communications
- At least one year of experience in the operation and maintenance of telecommunications equipment

Content

- The network topology, services, functions, networking, applications and technical specifications of U-Path
- The software installation of U-Path
- The data configuration of U-Path

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.15 OAX02 SoftX3000 Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Explain the command parameters and call processing procedure of NGN protocols, and perform the common problem analysis and processing of NGN protocols
- Describe the working principle and service processing procedure of SoftX3000
- Execute the service data configuration of SoftX3000 (number changing data configuration, call barring data configuration)
- Perform the operation and maintenance of SoftX3000 (using of database tool, traffic statistics, system security and defense)
- Perform the troubleshooting of SoftX3000
- Describe the principle, processing procedure, operation and original bill format of NGN charging system, and describe the system structure and configuration of iGWB
- Describe the principle, application, data planning and data configuration of NGN dual home, and perform the routine maintenance of NGN dual home
- List the means of improving voice quality of NGN

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The architecture, internal connection of SoftX3000
- The communication principles between boards
- The functions, software modules and call procedures of FCCU/BSGI/MSGI/CDBI/IFMI
- The concepts, terms, background of H.248
- The commands, key parameters and message structure of H.248 in details
- The general signaling flow (registration and successful call) of H.248 with detailed explanation
- The general methods and typical cases of H.248
- The background, definition and application of SIP
- The message structure, commands, key parameters of SIP in details
- The signaling flow of SIP terminal registration, user call, SIP trunk call with detailed explanation
- The general troubleshooting methods an procedures
- The definition, application and methods (call preparation, prefix processing, caller number analysis, trunk bearing, etc.) of number changing in SoftX3000
- The data configuration of number changing
- The definition, functions and methods (caller discrimination, Black and White list, intergroup call limitation, etc) of call barring in SoftX3000
- The data configuration commands and key parameters of call barring
- The architecture, functions, procedure and special application (charging pulse, segment bill, etc) of SoftX3000 charging system
- The architecture, functions, installation, configuration, operation and maintenance of IGWB
- The format of original bill
- Practice on SoftX3000 operation and maintenance
- CRC checking
- Log files checking
- Database backup and recovery

- The functions, features of NGN dual-homing solutions
- The switching modes of NGN dual-homing
- The data planning for NGN dual-homing
- The data configuration for NGN dual-homing
- The operation and maintenance for NGN dual-homing
- The factors which affect voice quality
- The bandwidth calculation method of voice and signaling message
- Methods of improving the voice quality in NGN system
- The general troubleshooting methods and typical cases of NGN voice quality
- The basic procedure of NGN trouble shooting
- The useful tools for troubleshooting such as signaling tracing in SoftX3000/MGW and Ethereal
- Typical cases of NGN system

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

8 working days

Class Size

Min 6, max 12

1.2.16 OAU02 UMG8900 Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the working principle and service processing procedure of UMG8900
- Execute the service data configuration of UMG8900 (PRI data configuration, R2 data configuration), and outline the related data configuration on SoftX3000 side
- Perform the operation and maintenance of UMG89000 (testing management, performance statistics, using of software tool)
- Perform the troubleshooting of UMG8900

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- UMG8900 hardware architecture (frame, board, and cascading)
- UMG8900 system software structure (seven subsystems corresponding to the logical architecture)
- UA call flow (UA subscriber act as caller or callee)
- Associated trunk call process (R2 trunk incoming call and outgoing call)
- V5 call process (V5 subscriber act as caller or callee)
- SS7 call process (ISUP trunk call)
- General procedures for data configuring the ESG
- PRI data configuration, command, application
- V5 data configuration, command, application
- SPC data configuration, command, application
- R2 data configuration, command, application
- Local maintenance terminal system function
- System management (user authority, log information and so on)
- Service management (such as equipment, interface, resource, signaling management and so on)
- Alarm management (query alarm, alarm information process and so on)
- Basic information of performance measurement
- Operation of performance measurement
- Troubleshooting for performance measurement
- UMG8900 troubleshooting procedures and methods
- Common UMG8900 troubleshooting causes
- Typical UMG8900 troubleshooting cases

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

3 working days

Class Size

Min 6, max 12

1.2.17 OAN02 iManager N2000 UMS Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform the operation and maintenance of iManager N2000 UMS (test management, authority and domain based management, subscriber service provisioning, OSS interconnection)
- Perform the system administration of iManager N2000 UMS (user accounts management, UMS user management, log management, service and process management, database management, file and disk management, database backup and restoration)
- Perform the troubleshooting of iManager N2000 UMS

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The management model of SNMP
- The principle of the MIB
- The SNMP security mechanism
- The general structure of the UMS
- The main processes of the UMS
- The working principle of the UMS two-node cluster
- The networking mode of the UMS
- The operation and maintenance of iManager N2000 UMS (performance statics)
- The operation and maintenance of iManager N2000 UMS (test management)
- The operation and maintenance of iManager N2000 UMS (subscriber service provisioning)
- The operation and maintenance of iManager N2000 UMS (OSS interconnection)
- The operation and maintenance of iManager N2000 UMS (authority and domain based management)
- The basic concepts of troubleshooting
- The basic procedure of handling UMS faults
- The basic procedure of handling UMS alarms
- Typical UMS cases

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.18 OAM02 MRS6100 Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the working principle, announcement principle and service processing procedure of MRS6100
- Perform the language conversion of voice
- Perform the voice conversion and voice loading
- Perform the troubleshooting of MRS6100

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The announcement principle and processing procedure of MRS6100
- MRS voice files naming rule
- The voice files converting and loading
- The troubleshooting of MRS6100

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.19 OAS02 SG7000 (NGN) Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Execute the service data configuration of SG7000 (MTP load sharing data configuration, SCCP load sharing data configuration)
- Perform the troubleshooting of SG7000

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- Load Sharing concept
- MTP Load Sharing methods
- The data configuration of MTP Load Sharing
- Troubleshooting procedure
- Troubleshooting cases
- Effectively collecting SG7000 troubleshooting information

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.20 OAS04 SHLR9200 Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Explain the stack structure, functions, messages and applications of MAP+
- Execute the custom-made service data configuration of SHLR9200
- Perform the troubleshooting of SHLR9200

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- MAP+ protocol and the MAP+ application in SHLR
- Signaling flow in SHLR
- The customized service data configuration of SHLR9200
- Troubleshooting procedure
- Troubleshooting cases
- SHLR9200 Information Collection
- Perform the troubleshooting of SHLR9200

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.21 OAE02 SE2000 Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the working principle, security, QoS and reliability of SE2000 Series(SE2200/SE2300)
- Execute the service data configuration of SE2000 Series(SE2200/SE2300) (security data configuration, QoS data configuration, reliability data configuration)
- Perform the troubleshooting of SE2000 Series(SE2200/SE2300)

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The working principle of SE2000 series (SE2200/SE2300)
- The security of SE2000 series (SE2200/SE2300)
- The QoS of SE2000 series (SE2200/SE2300)
- The reliability of SE2000 series (SE2200/SE2300)
- The media stream bypass of SE2000 series (SE2200/SE2300)
- The service data configuration of SE2000 series (SE2200/SE2300) (the media stream bypass of SE2000 series (SE2200/SE2300), security data configuration, QoS data configuration, reliability data configuration)
- The troubleshooting method of SE2000 series (SE2200/SE2300)
- Case analysis

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.2.22 OAG02 UA5000 (NGN) Advanced Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the working principle of UA5000
- Perform the operation and maintenance of UA5000 (system maintenance, DSP resources maintenance)
- Perform the troubleshooting of UA5000

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- Loading files, switching over and database backup/recovery method of UA5000
- The functions, configuration and maintenance command of DSP resources in UA5000
- The VOIP trouble analysis and some typical cases of UA5000

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

1 working day

Class Size

Min 6, max 12

1.2.23 OAA10 NGN Protocol (H248, SIP, SIGTRAN)

Objectives

On completion of this course, the participants will be able to:

- Explain the command parameters and call processing procedure of NGN protocols
- Perform the common problem analysis and processing of NGN protocols

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The concepts, terms, background of H.248
- The commands, key parameters and message structure of H.248 in details
- The general signaling flow (registration and successful call) of H.248 with detailed explanation
- The general methods and typical cases of H.248
- The background, definition and application of SIP
- The message structure, commands, key parameters of SIP in details
- The signaling flow of SIP terminal registration, user call, SIP trunk call with detailed explanation
- The general troubleshooting methods and case analysis
- SCTP call procedure
- M2UA and M3UA call procedure
- Flexibly apply M2UA and M3UA according to different case
- Understand M2PA's function and the difference with M2UA, M3UA, IUA and V5UA

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.2.24 O A041 NGN Network Planning and Design Training (CPCI)

Objectives

On completion of this course, the participants will be able to:

- The definition, background and development of NGN, The architecture of NGN system, and the functions, current elements, features of each layer
- Describe NGN network Planning Procedure: Network Planning (NP)/High Level Design (HLD)/Low Level Design (LLD)/Deployment Design (DD)
- Describe the approach, policy and general principle of NGN planning such as: the necessary information, the principle of SS domain division, the principle of each key component setting and consideration of evolution; Resource planning such as number, IP address, traffic.
- Describe the basic knowledge such as traffic model, commonly used signaling/protocol in NGN System.
- Describe Capacity dimension of SoftX/UMG/SE2300/N2000

Target Audience

Technical support personnel, technical specialist

Prerequisites

- Successful completion of the NGN Operation and Maintenance Training

Content

- The functions, system structure, networking, applications, services of SoftX3000/MRS6100/UMG8900/SG7000/UA5000/N2000/SE2000/IAD
- The operation and maintenance interface, technical specifications of SoftX3000/MRS6100/UMG8900/SG7000/UA5000/N2000/SE2000/IAD
- NGN network planning procedure
- NGN network planning course
- SoftX3000 Capacity dimensioning
- SG7000 Capacity dimensioning
- MRS6100 Capacity dimensioning
- SHLR9200 Capacity dimensioning
- UMG8900 Capacity dimensioning
- UMS Capacity dimensioning
- NGN bearer network flow calculation fundamental
- Media bandwidth calculation method
- Signaling bandwidth calculation method
- NM bandwidth calculation method
- NGN existing network analysis
- NGN expanding principle
- NGN expanding network assessment
- SoftX3000/MRS6100/UMG8900/SG7000/UA5000/N2000 network planning examples and practice

Training Methods

Lectures, Hands-on Exercise

Duration

3 working days

Class Size

Min 6, max 12

1.3 STP Training Course Descriptions

1.3.1 OST01 SS7 Signaling System

Objectives

On completion of this course, the participants will be able to:

- Describe the basic concepts of SS7 Signaling System
- Describe the architecture of SS7 Signaling System
- State the format of TUP, ISUP and SCCP message and the meaning of the message which are often used
- State the signaling procedures of TUP, ISUP and SCCP
- Trace and analyze the signaling message

Target Audience

Personnel who maintain STP equipment

Prerequisites

- A basic understanding of telecommunication
- At least one year of experience in operation and maintenance of telecom field

Content

- The concepts and function structure of SS7
- The basic format of signaling message unit
- MTP layer's function and principle
- The principles of SCCP part of SS7
- The services of categories 0 and 1 of SCCP part
- The structures of UDT and UDTS messages
- Description of four types GT codes structure
- Functions and structures of SIGTRAN protocols
- Commands of each protocol of SIGTRAN protocol stack
- Message interaction process of each protocol

Training Methods

Lectures

Duration

1.5 working days

Class Size

Min 6, max 12

1.3.2 OST02 SG7000 Hardware System

Objectives

On completion of this course, the participants will be able to:

- Describe SG7000 system structure and hardware architecture
- State the cabinet, frame, board and the performance features of SG7000
- Describe SG7000 logical architecture and signaling flow

Target Audience

Personnel who maintain STP equipment

Prerequisites

- A basic understanding of telecommunication
- At least one year of experience in operation and maintenance of telecom field

Content

- The system architecture of SG7000
- The description and function of each board
- The cabinet and frame configuration
- The signaling processing procedures in SG7000

Training Methods

Lectures

Duration

0.5 working day

Class Size

Min 6, max 12

1.3.3 OST03 SG7000 Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the terminal and alarm system of SG7000
- Configure the hardware data and service data
- Implement the common operation of maintenance such as message tracing and link management
- Describe the MNP service flows
- Configure the MNP data

Target Audience

Personnel who maintain STP equipment

Prerequisites

- A basic understanding of telecommunication
- At least one year of experience in operation and maintenance of telecom field
- Being familiar with computer operation

Content

- SG7000 data configuration procedure
- Hardware data configuration
- Local office data configuration
- MTP/M3UA data configuration
- SG7000 basic operation and maintenance including system navigator, maintain system and alarm system introduction
- SG7000 MML operation and maintenance including security, log, database and hardware management
- SG7000 emergency maintenance
- SCCP data configuration
- M2PA data configuration
- ATM 2M link data configuration
- Troubleshooting procedure
- SG7000 troubleshooting cases
- SG7000 information collection
- The related concept of MNP
- The networking structure of MNP
- The general MNP service flows
- The data configuration procedures
- MNP data configuration
- Practice on hardware data configuration
- Practice on local office data configuration
- Practice on MTP/M3UA data configuration
- Practice on the SCCP data configure
- Practice on the M2PA data configure
- Practice on SG7000 MML operation and maintenance including security, log, database and hardware management

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

5 working days

Class Size

Min 6, max 12

1.3.4 OC131 SANEX System Overview

Objectives

On completion of this course, the participants will be able to:

- Outline the function and structure of rack, subrack and boards of DSS
- Describe the power system and cable connection of DSS
- Outline the structure of SANEX software
- Perform the SHELL operation
- Create the SHELL task

Target Audience

Personnel who maintain SANEX equipment

Prerequisites

- A basic understanding of telecommunication
- At least one year of experience in operation and maintenance of telecom field

Content

- The architecture and features of SANEX system
- The equipments used in SANEX system and describe their function
- The typical applications of SANEX system
- The function and structure of rack, subrack and boards of DSS
- The power system and cable connection of DSS
- The structure of software

Training Methods

Lectures

Duration

1 working day

Class Size

Min 6, max 12

1.3.5 OC132 SANEX Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Perform the basic operation of DSS system
- Perform the routine maintenance of DSS system
- Perform the operation of alarm console, performance, trace Console, and integrated analysis console

Target Audience

Personnel who maintain SANEX equipment

Prerequisites

- A basic understanding of telecommunication
- At least one year of experience in operation and maintenance of telecom field

Content

- The items of different SHELL tasks
- The function of the SHELL operation
- Create the SHELL task
- The basic operation of DSS system
- The routine maintenance of DSS system
- View the alarm information
- Do some basic operation about the alarm
- Create a trace task
- View the trace result
- Create a performance task
- View the monitored result
- Create an analysis task
- View the analysis result

Training Methods

Lectures, Hands-on Exercise

Duration

2 working days

Class Size

Min 6, max 12

1.4 SPS V3 Training Course Descriptions

1.4.1 OAS07 SPS V3 Fundamental

Objectives

On completion of this course, the participants will be able to:

- Describe the SPS V3 product location, typical application, network structure, the basic function and features
- Describe the system architecture of SPS, including the hardware structure, software structure
- Explain the SPS protocols and interfaces
- Perform SPS V3 routine operation and maintenance, including the routine maintenance tasks, routine maintenance commands, logs and alarm checking

Target Audience

Operating and maintenance engineer

Technical support engineer

Prerequisites

- Being familiar with computer operation
- At least one year of experience in operation and maintenance of telecom field
- General understanding of telecommunications and data communications

Content

- SPS product location, typical application, and network structure
- SPS Protocols and interfaces
- SPS functions and features
- SPS software structure
- The system architecture of SPS V3
- The description and function of each board
- The cabinet and frame configuration
- The signaling processing procedures in SPS V3
- SPS routine maintenance tasks
- SPS common maintenance commands
- SPS logs and alarms management
- SPS performance management

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

2 working days

Class Size

Min 6, max 12

1.4.2 OAS05 SPS V3 (DRA) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe Diameter basic protocol
- Describe the SPS data configuration flows
- Perform the SPS V3(DRA) data configuration, including the hardware data configuration, basic data configuration, signaling interworking data configuration, function and feature data configuration
- Perform SPS V3(DRA) Troubleshooting

Target Audience

Operating and maintenance engineer
Technical support engineer

Prerequisites

- Being familiar with computer operation
- At least one year of experience in operation and maintenance of telecom field
- General understanding of telecommunications and data communications

Content

- Diameter Protocol Introduction
- Diameter Basic concepts
- Diameter Message Structure
- Diameter Link Management and Message Routing
- Data configuration flows
- Hardware data configuration, basic data configuration and signaling interworking data configuration
- Route Loop Prevention Feature
- Topology Hiding
- Session Binding
- Diameter mediation
- Flow control based on peer
- Troubleshooting basic principle and flow
- Troubleshooting cases

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

3 working days

Class Size

Min 6, max 12

1.4.3 OAS06 SPS V3 (STP) Operation and Maintenance

Objectives

On completion of this course, the participants will be able to:

- Describe the SIGTRAN Signaling System.
- Describe the SCCP Signaling System.
- Describe the SPS data configuration flows
- Perform the SPS V3(STP) data configuration, including the hardware data configuration, basic data configuration, signaling interworking data configuration, function and feature data configuration
- Describe the MNP service flows.
- Configure the MNP data.
- Perform SPS V3(STP) Troubleshooting

Target Audience

Operating and maintenance engineer

Technical support engineer

Prerequisites

- Being familiar with computer operation
- At least one year of experience in operation and maintenance of telecom field
- General understanding of telecommunications and data communications

Content

- Functions and structures of SIGTRAN protocols
- Commands of each protocol of SIGTRAN protocol stack
- Message interaction process of each protocol.
- The principles of SCCP part of SS7
- The services of categories 0 and 1 of SCCP part
- The structures of UDT and UDTS messages
- Description of four types GT codes structure
- SPS V3 data configuration procedure
- Hardware data configuration
- Local office data configuration
- MTP/M3UA data configuration
- SCCP data configuration
- M2PA data configuration
- SS7 Message Duplication
- SS7 Message Rerouting
- SS7 firewall service
- SMR
- The networking structure of MNP
- The general MNP service flows
- MNP data configuration

Training Methods

Lecture, Hands-on exercise, E-lab

Duration

4 working days

Class Size

Min 6, max 12

1.4.4 OAS08 SPS V3 Network Design

Objectives

On completion of this course, the participants will be able to:

- Describe the networking planning principle
- Describe the naming and numbering rule
- Design the network interworking and routing
- Design the redundancy
- Design the IP interconnection
- Signaling Bandwidth Calculation Principles
- O&M Bandwidth Calculation Principles

Target Audience

Operating and maintenance engineer

Technical support engineer

Prerequisites

- Being familiar with computer operation
- At least one year of experience in operation and maintenance of telecom field
- General understanding of telecommunications and data communications

Content

- Network Planning Overview
- Naming and Numbering
- Network Solution Design
- Network Interworking and Routing
- Redundancy Design
- IP Interconnection Design
- Bandwidth Calculation Overview
- Signaling Bandwidth Calculation Principle
- O&M Bandwidth Calculation Principle

Training Methods

Lecture

Duration

1 working day

Class Size

Min 6, max 12