IT, Telecommunication & Networking

SCANDINAVIAN ACADEMY
Training and Development

Course: ATM: Advanced Concepts and Developments

Code	City	hotel	Start	End	price	Hours
434	Bucharest (Romania)	Hotel Meeting Room	2024-09-02	2024-09-06	4950 €	25

Overview

This course is designed for those with a basic knowledge of ATM and provides a understanding of those more advanced mechanisms that allow ATM components to work together to provide a multi-service platform. It discusses the techniques and facilities that enable key business applications and services to operate over ATM in a robust, scalable and feature rich manner, in both the corporate and carrier network. It also discusses how the same ATM platform is ready to support future network architectures. The topics covered here will enable delegates to understand how ATM products can support networks spread over large geographic areas, with large numbers of users and will allow them to identify the key requirements in vendors' product offerings. The seminar covers issues relating both to service providers and corporate users, and discusses the new areas of application for broadband services such as mobile and residential implementations of ATM.

Modules

Introduction (2 topics)

1. Building multiservice network platforms
2. The objectives of this seminar

Addressing and Signalling (5 topics)

1. What addressing structure should be used and by whom?
2. Developments in ATM addressing architectures
3. Bi-level ATM addressing
4. Address translation in ATM
5. ATM name and directory services

Private Network-Network Interface (PNNI) (30 topics)

1. The concept of PNNI Peer Groups
2. Configuring a PNNI environment
3. How switches learn the topology of their Peer Group

4. Scalability in PNNI
5. The peer group hierarchy
6. Split switches
7. Peer group leaders and their function
8. Summarising topology information
9. Aggregation tokens
10. Complex Peer Group representations
11. Address reachability issues
12. How PNNI carries QoS related information
13. Controlling traffic with PNNI
14. How PNNI routes are selected and when
15. Specifying the route through a PNNI network
16. Example call set-up via designated transit list stacks
17. Crankback for resilience in call-setup
18. Additional features
19. Leaf initiated join support
20. Support for closed user groups
21. Multipoint to point connections
22. Secure PNNI
23. Network call correlation identifiers
24. Re-routeing ATM connections
25. Connection tracing
26. Modification of active connections
27. Support for supplementary services
28. Mobility support
29. PNNI Augmented Routeing (PAR)
30. Proxy PAR

Call routeing in E.164 based networks (3 topics)

1. Limitations of B-ICI
2. The ATM Inter-Network Interface (AINI)
3. Developments to B-ISUP to support dynamic routeing

Traffic management (5 topics)

1. Alignment with ITU-T I.371 service classes
2. ATM support for IP Differentiated Services
3. Guaranteed Frame Rate (GFR)
4. Implementing per-hop behaviours in an ATM environment
5. Integration of IEEE 802.1D priorities and ATM QoS

ATM in access networks (18 topics)

1. The advantages of using ATM based access networks
2. Wireless ATM
3. Fixed wireless and mobile ATM users
4. System level requirements
5. Radio PHY MAC and radio control
6. Handover and location management
7. Frame based ATM
8. FUNI version 1.0 and 2.0
9. Frame format
10. Adaptation and FUNI-AAL5 mapping
11. Physical layer and SAR requirements
12. Signalling ILMI TM OAM over FUNI
13. Residential ATM Services
14. Access network options (HFC HTTC HTTH)
15. ATM and xDSL integration
16. The alternatives to ATM over ADSL (PPP over ADSL)
17. The 802.14 MAC protocol for ATM delivery
18. ATM Layer issues: traffic management OAM signalling

ATM Security Architecture (5 topics)

1. Provision of authentication confidentiality data integrity anonymity and accountability in ATM networks
2. Security related signalling
3. The ATM Security Message Exchange protocol
4. Supporting multiple security associations per connection
5. Security OAM functions

Voice and Telephony Over ATM (14 topics)

1. Initial support for voice over ATM
2. Circuit emulation support
3. Dynamic trunking at the E1/T1 or bundled DS0 level
4. Dynamic trunking at the individual call level
5. Using AAL2 adaptation for voice over ATM
6. The ITU trunking protocol standard I.366.2
7. Voice compression techniques
8. Telephony control issues
9. Dialled Digits

10. Options for handling CCS and CAS
11. Demodulated facsimile
12. Support for modem calls
13. Integrating voice over ATM with voice over IP
14. H.323 control and Media Gateway Control Protocol (MGCP)

ATM multimedia services (6 topics)

1. Video-conferencing over ATM
2. Support for IP based video applications
3. Using gateways between different multimedia environments
4. Video distribution over ATM
5. Video in a residential environment
6. On-line gaming over ATM

LAN Emulation (2 topics)

1. Review of LANE approach
2. Distributed LANE services (LES

Multiprotocol over ATM (MPOA) (1 topic)

1. BUS

Finale (2 topics)

1. and LECS) in LANE 2.0
2. Distributed LANE services (LES

The Scandinavian Academy employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.