Course : SIP, implementation

Practical course - 3d - 21h00 - Ref. SIC
Price : 2370 CHF E.T.

This practical training course provides you with all the knowledge you need to successfully implement your new IP telephony projects. We don't just go into detail about the SIP protocol, we give you a real hands-on understanding of the context in which SIP is used.

Teaching objectives

At the end of the training, the participant will be able to:

- Understand the different aspects of the SIP protocol: signalling, syntax, protocol
- Analyze a SIP message exchange trace
- Describe the SIP routing mechanism
- Identify the main implementation difficulties

Intended audience
Engineers or network architects wishing to acquire concrete knowledge of SIP.

Prerequisites
Good knowledge of TCP/IP.

Practical details
Hands-on work
Point-to-point call between two UACs. Registration of UACs on the registrar server. Call via proxy server between two UACs.

Course schedule

1 **Objectives and traditional telephony**

- The SIP Forum.
- Why SIP? SIP objectives.
- Comparison of traditional telephony and SIP architectures.

PARTICIPANTS
Engineers or network architects wishing to acquire concrete knowledge of SIP.

PREREQUISITES
Good knowledge of TCP/IP.

TRAINER QUALIFICATIONS
The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS
The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2) SIP architecture

- The SIP protocol. The protocol. Voice signaling and flow mechanisms.
- Interfaces with protocols (DHCP, HTTP, DNS). SIP /H323 comparison.
- The different SIP components and their roles within the architecture.
- UAC/UAS. User Agent, proxy server, redirect server, registrar server. Gateway.
- SIP addressing mechanisms (URI, IP, E164).
- Related functions (billing, accouting, codec translation).

3) SIP messages

- The request/response principle.
- Query types. Response types.
- Interpretation of Header requests, TO, FROM and CONTACT fields.
- Case study: SIP client dialog;--> SIP client (peer to peer).

4) SIP methods and extensions

- The methods. Details of methods: INFO, OPTION, MESSAGE.
- SIP and mobiles. GSM, GPRS. 3GPP.
- SIP and IMS (IP Multimedia Subsystem).
- IMS applications, components and architecture.

5) SIP routing mechanisms

- How do I locate servers?
- SIP routing: description of the mechanism.
- Proxy servers.
- SIP-related solutions and protocols.
- SIP and address translation. NAT Traversal.
- Solutions: SBC, TURN, STUN, ICE, UPNP.

6) Voice-over-IP security

- The most common threats and risks.
- Availability (LAN, WAN, IPBX).
- Different levels of integrity (network, system, extension).
- Confidentiality, non-repudiation, authentication, authorization.
- Backup and restore. Architecture of security solutions.
- SIP and firewalls.

7) Conclusion

- The future of SIP. Market applications.

Dates and locations

REMOTE CLASS
2026 : 24 June, 7 Sep.