

# VOIP, Architectures and Processes

Seminar of 2 days - 14h

Ref.: VIP - Price 2024: CHF2 090 (excl. taxes)

This seminar presents the major components of voice over IP networks. It reviews the main protocols, standardization, voice quality and bandwidth, migration, performance and security of voip technologies. The main solutions will be studied and illustrated with case studies.

## THE PROGRAMME

last updated: 01/2018

### 1) Networks and telecommunications review

- Switched Telephone Network.
- Enterprise Telephone Service. Architecture. Assets (PABX, Terminals). Available services. Constraints and limitations.
- The Internet architecture, TCP / IP.
- Enterprise data network. Architecture.

### 2) Voice over IP

- Definition and concepts. The vocabulary of voip.
- Enterprise networks and their evolutions: Voice / Data separation, single network convergence. Why migrate to voip?
- How to integrate voip to enterprise information system?
- How to interoperate with traditional telephone networks?
- The user functionalities offered by voip.
- The market and its players.

### 3) Protocols essential (H323, SIP...)

- Roles and interests of each of the protocols.
- H323 Presentation and architecture. Principles and definitions. H323 components roles: gatekeeper, MCU, gateway... The s
- SIP Presentation and architecture. Principles and definitions. SIP components roles: proxy, registrar, redirector, locat
- Other VoIP protocols. MGCP, MEGACO, H248... IAX protocol, from Asterisk Open Source.

### 4) Integration and administration

- Manufacturers administration tools.
- Measures of QoS.
- Integration with users databases : LDAP, SSO.
- Use and update of network equipment : DHCP, TFTP, DNS...
- The mobile phone terminals (VoIP over WiFi, DECT, dual-mode terminal...).
- Links: xDSL, Ethernet, radio links, sizing.

### 5) Performance and quality of service of Voip networks

- Why data networks do not give reliability required by the transport of voice?
- The reliability reference: the PSTN.
- Strengths and weaknesses of data networks in terms of quality of service. Definition and concepts of the QoS Quality of

#### PARTICIPANTS

Project managers, networks architects, systems and networks engineers.

#### PREREQUISITES

Knowledge in networks.

#### 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.

#### TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

#### TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

#### ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at [psh-accueil@ORSYS.fr](mailto:psh-accueil@ORSYS.fr) to review your request and its feasibility.

- To compensate the unreliability of IP networks, use of specific protocols: RTP and RTCP.
- Summary of flows in Voip. Signalling ( call setup). Media (voice, video...).
- How to bring the performance to IP networks. Strengthen bandwidth. QoS management tools for IP networks (802.1P/Q, RSVP,

## 6) Security

- The emerging issues related to the migration to Voip solutions. What should we protect, who, why can we be attacked?
- The known threats. Confidentiality: protecting the media flow and the signalling exchanges. Integrity: control and preve
- Identity spoofing. Fraud. The spam. The regulation: the legal obligations of security and brakes for technological devel
- The issue of emergency services.

## 7) The future

- Operators evolution: fixed / mobile convergence and abandonment of PSTN model for VoIP.
- The convergence of technologies: WiMax, MPLS...
- The new services and multimedia uses.
- IMS, IP Multimedia Subsystem, tomorrow, the multimedia network.

# DATES

---

## REMOTE CLASS

2025 : 25 Mar, 07 Oct